



CONFERENCE BOOK

HIGH LEVEL ENDORSMENT

THE HONORABLE PRESIDENT OF THE PORTUGUESE REPUBLIC

COM O ALTO PATROCÍNIO
DE SUA EXCELÊNCIA



O Presidente da República

INSTITUTIONAL SUPPORT



MESSAGE FROM MRS MICHELE OBAMA



THE OFFICE OF BARACK AND MICHELLE OBAMA

Dear Ana,

On behalf of Mrs. Obama, we want to thank you for your kind invitation.

Mrs. Obama will soon be scheduling events, but she is taking some time over the next few months to be with her family. At this time, we must regretfully decline the majority she receives.

Please know that Mrs. Obama is deeply grateful for the efforts of determined organizations and individuals like you, and she offers her very best wishes for all your work in the years ahead.

Sincerely,

The Office of Michelle Obama

www.barackobama.com

WELCOME NOTE



Ana Isabel Rito

**President of the
International Conference
on Childhood Obesity**

CIOI2017

Dear friends and colleagues,

We are happy to announce the International Conference on Childhood Obesity –**CIOI2017**, that will take place, from **5th to 8th July 2017 in Lisbon – PORTUGAL**, at Fundação Champalimaud

Over the last decade, much has been done to counteract Childhood obesity at International level, in response to the epidemic levels shown in the beginning of the century. Still, millions of children are affected by obesity worldwide and Portugal is no exclusion of this scenario showing one of the highest prevalence in Europe, with 30% of children between 6-8 years old, being overweight, in which 14% are obese. Beginning in 2006 and again in 2011, CIOI – the International Conference on Childhood Obesity, has become one of the most important forum to discuss this important public health issue at international level.

The World Health Organization (WHO) has been leading the way on helping countries to tackle this issue through several initiatives in which Portugal has been one of its major activist. The Childhood Obesity Surveillance Initiative from the Regional Office for Europe and the Commission on Ending Childhood Obesity are two great examples, which will be highly represented in this Conference.

Following the Portuguese Health strategy on counteracting childhood obesity, we are now hosts of a union of efforts where together we will tackle this issue. The meeting will strengthen the existing collaboration of all participants, from policy makers, community advocates, educators brushing all areas from health, education to psychology and others, developing all together large-scales childhood policies and programs.

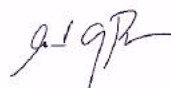
We will have representatives from different areas, believing that this Conference will have a major impact not only for its scientific components but also for its intersectorial approach. Invited speakers from International Organizations and NGOs like World Obesity, European and National Associations of Obesity, WHO, European Union and also National and Local Governments, from Health and Education, along with the private sector and other stakeholders.

The conference will have 5 major tracks covering the most relevant areas on this issue: **Childhood obesity Epidemiology, Social, diet, physical activity and behavioral overview, Non-Governmental Action and Policy making, Improving Food Environment for Children and Childhood health in all policies.**

We will provide a very interesting cultural and social programme in order to offer you a nice and complete experience in our lovely country. Lisbon is a beautiful place, an illuminated city near the sea, by the river Tejo, and the constant presence of sunshine transforms the Portuguese capital into a mirror of a thousand colors, where you can find high quality at an environmental, cultural, touristic and management level, a rich architectonic patrimony, where the modernism and the history live together. All represented and gathered in the iconic venue chosen for this Conference: the Champalimaud Foundation Center for the unknown.

We are very honored to invite you to participate in the International Childhood Obesity Conference **CIOI2017**

Welcome!



As President of the National Institute of Health, Dr Ricardo Jorge, it is my absolute pleasure to invite you to the **3rd International Conference on Childhood Obesity, CIOI 2017**, in the beautiful and charismatic city of Lisbon.



Fernando Almeida

**President of the
National Institute of Health,
Doutor Ricardo Jorge, IP**

Childhood Obesity has been on the top of the political agenda in Portugal particularly because one in every three children are affected with overweight and obesity, being one of the European countries with the highest prevalence.

Furthermore, worldwide this important public health issue still presents itself as one of the biggest challenge to tackle.

This event will be the perfect forum to present and discuss clinical, epidemiological, and public health scientific research from high level institutions from all over the world.

As its character, we will have an inter-sectorial approach welcoming scientists from health care and public health, education, policy makers, architects, sport and Food Sector professionals, students and all the areas that are important and transversal to the study of obesity and its co-morbidities in children.

With several high level presences already confirmed, from the World Health Organization/Regional Office for Europe, the Portuguese Ministry of Health top institutions and the World Obesity Federation, high level endorsed by his excellency the President of the Portuguese Republic, this Conference is an essential part of your academic and professional path and an opportunity to share, among peers, your work.

I wish to welcome you all to Lisbon, next July, and look forward to see your work as a part of what we aim to be an exceptional conference – **CIOI 2017**.

EXECUTIVE COMMITTEE

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Ana Isabel Rito

National Institute of Health Dr Ricardo Jorge (INSA/PT)

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Susana Bento (INSA/PT)

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Marília Gama (CEIDSS/PT)
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International School/DK)
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Tim Lobstein (World Obesity)
Harry Rutter (LSHTM/UK)
Andrew Hill (Univ. Leeds/UK)
Paul Gately (Leeds Beckett Univ./UK)

João Breda (WHO/Europe)
Pedro Graça (DGS/PT)
Pedro Teixeira (FMHUL/PT)
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and Economic Security Authority)

KEYNOTE SPEAKERS



Gauden Galea

Dr Gauden Galea is the Director of the Division of Noncommunicable Diseases and Promoting Health through the Life-course, in WHO/Europe. He is a public health physician, who has been at the European Regional Office of WHO since January 2011, but has worked for WHO since 1998. He has previously held posts in Suva, Manila, and Geneva as technical officer, regional adviser, and coordinator respectively in areas related to NCDs and Health Promotion.

He has contributed to the work on developing a national stepwise approach to NCDs that was first implemented in the Pacific Islands, to the compilation of evidence linking NCDs to the global development agenda that helped bolster the arguments in support of the UN High Level Meeting on NCDs, and more recently to the renewal of life-course approaches to health promotion and public health that is being applied in WHO/Europe to action plans on child and adolescent health, child maltreatment, women's health, and a forthcoming action plan on men's health in Europe.

He has a great interest in the confluence of technology and public health. He is an avid coder in various programming languages, most prominently Python and R. His answers to programming questions on these two languages have earned him a top 5 percent ranking among the millions of programmers on the question and answer site: StackOverflow <http://stackoverflow.com/users/1290420/gauden>. He has written several tools, including a Twitter data harvester and mining tool that he uses in personal research <https://github.com/ggData/tweetharvest>.

Email: galeag@who.int

Address: WHO Regional Office for Europe, UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark



Philip James

Philip James is currently an honorary member of the London School of Hygiene and Tropical Medicine. He is a member of the steering committee for World Obesity/Policy and Prevention, responsible for global initiatives relating to food and health with particular emphasis on the pandemic of obesity. He is currently chair of the Presidential Council of Global Prevention Alliance tackling the global epidemic of chronic diseases with 5 global medical societies related to World Health Organisation (WHO).

Professor James advises governments throughout the world on how to tackle the epidemic of obesity and chronic disease and is Past President of World Obesity (formerly IASO). He also developed the lithium technique for tracking salt sources for managing hypertension, the United Nation's system for calculating individual patient and population energy needs and the WHO Millennium analyses showing excess weight as in the top risk factors for global ill health with major impacts in the developing world.

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Tim Lobstein

Dr Tim Lobstein is the Head of Policy at the World Obesity Federation (the body now replacing the International Association for the Study of Obesity, and the International Obesity TaskForce). He is also Adjunct Professor of Public Health Advocacy, at Curtin University, Western Australia, and previously Visiting Fellow at the Rudd Center, Yale University. Dr Lobstein is the lead author of the highly-cited scientific report *Obesity in children and young people: A crisis in public health* (Obesity Reviews 5(S1) 2004), co-author of the European Commission-published reports *Status report on the European Commission's work in the field of nutrition in Europe* 2002 and *Obesity and socio-economic groups in Europe: Evidence review and implications for action*, 2007, and author of several scientific papers on marketing of food and beverages to children.

Dr Lobstein has been a Principal Investigator for EU-funded projects including the PolMark (Policies on marketing food and beverages to children, 2008-2010) and StanMark (Standards for Marketing foods and beverages to children, 2010-). Dr Lobstein has produced consultancy reports for the World Health Organization's European, Middle East and Geneva HQ offices. He has written several chapters for standard textbooks on obesity in childhood and obesity prevention.



João Breda

João Breda has recently been appointed as the Head of the NCD Office in Moscow, Russian Federation. This office leads WHO work on strengthening national capacity in all 53 countries in the WHO European Region to prevent and control NCDs, promote an intersectoral approach and develop policies to tackle NCDs.

During the previous 8 years João Breda has been the Programme Manager: Nutrition, Physical Activity and Obesity at WHO Regional Office for Europe, responsible for providing support to the 53 Member States of the WHO European Region on the implementation of the European Food and Nutrition Action Plan 2015-2020 & the Physical Activity Strategy for the WHO European Region 2016-2025, as well as evaluating their implementation process.

João Breda is a PhD in Nutritional Sciences from Porto University where he defended a thesis focused on alcohol abuse in young people. He has done his Master Degree in Public Health by the Faculty of Medical Sciences of Lisbon University and an MBA from the European University in Barcelona.

Before joining WHO in 2010, worked as a Public Health Specialist at the General Health Directorate of Portugal and other Institutions from the Ministry of Health at local and national level particularly in the fields of nutrition, physical activity, obesity and alcohol abuse. In these positions he closely liaised with WHO and the EU. In 2007, in collaboration with WHO, organized the first meeting of the WHO European Childhood Obesity Surveillance Initiative in Portugal. Nowadays, the Initiative is unique in the world and has expanded considerably. It involves more than 300,000 children and 36 Member States of the European Region.

He was the first coordinator and led for several years the National Platform against Obesity. As an academic J. Breda chaired the Department of the Nutritional Sciences of Atlantic University (Lisbon). He also collaborated with Algarve University, Coimbra College of Agriculture and Coimbra Hospitality School. Among his several dozens of published scientific papers and original books emerges the number one best-selling book on infant nutrition in Portugal.



Andrew Hill

Andrew Hill is Professor of Medical Psychology, Head of the Academic Unit of Psychiatry & Behavioural Sciences, and Director of Student Progression at the School of Medicine. He trained as a psychologist at the University of Leeds. Appointed to a lectureship in 1988, he developed and coordinated the teaching of psychology and sociology to medical students. He continues to make a significant contribution to student education at undergraduate and postgraduate levels.

His research interests include weight and shape self-perception in children/adolescents, appetite control, and the variety of psychological issues inherent in obesity and eating disorders. He has been involved in several national and international initiatives on obesity, has research collaborations in the UK and Australia, and has received research funding from national organisations in both countries.

Andrew is a past Chairman of the UK Association for the Study of Obesity and is currently a member of the UK Department of Health's Obesity Review Group. He is an editorial board member of the following Journals: International Journal of Obesity, Body Image, Obesity: Science and Practice, and Paediatric Obesity.



Harry Rutter

Harry Rutter is a senior clinical research fellow at the London School of Hygiene and Tropical Medicine, a senior adviser to Public Health England, and an adjunct professor of public health at University College Cork, Ireland, and the Western Norway University of Applied Sciences. He was founder director of the National Obesity Observatory for England, led the development of the English national childhood obesity surveillance system, and sat on the management group of the Foresight Obesity project. He sits on the WHO Europe steering groups for the Cycling and Walking Health Economic Appraisal Toolkit (WHO HEAT) and the COSI, and chairs the public health and prevention task force of EASO. His work is now focused on the generation and use of evidence to tackle complex societal public health problems.

Twitter: @harryrutter

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Sandra Caldeira

Sandra Caldeira is Project Manager at the European Commission (DG Joint Research Centre) where she works with an enthusiastic team on Nutrition and Public Health. Their research portfolio is focused on policy support to public health and covers present and future nutrition-related issues and their impact to the health of the European citizens, from childhood obesity to active and healthy ageing. Sandra holds degrees in Microbiology and in Biotechnology as well as a PhD in Biomedical Sciences. She worked as a postdoctoral researcher in the University of Lisbon (PT) and at Cambridge University (UK) and Stanford University (US). Prior to joining the European Commission (in 2010) she held positions as an invited professor of Genetics at the University of Lisbon and as a Scientific Editor at the European Molecular Biology Organisation (EMBO) in Heidelberg (DE).

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**Nathalie
Farpour-Lambert**

Dr. Nathalie Farpour-Lambert, M.D., P.D., is a paediatrician specialized in childhood obesity as well as sports medicine and exercise science. She is presently the Head of the global Obesity Program linked to the Medical Direction of the University Hospitals of Geneva, which aims to improve prevention, management, education and research in the field of obesity, with a special focus on families. Dr. Farpour-Lambert is the chair member of the Childhood Obesity Working Group of the Swiss Paediatric Society and a Scientific Advisor for the Swiss Federal Office of Public Health and the Federal Office of Sports. She contributes to the development of national programs, strategies and policy changes in Switzerland and in Europe. Her research interests comprise the prevention and treatment of cardiovascular and metabolic diseases associated with childhood obesity; exercise and family-based behavioural interventions; and education of health professionals.

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Jason Halford

Professor Jason Halford is Head of the Department of Psychological Sciences at the University of Liverpool, former Chair of the UK Association for the Study of Obesity - ASO (www.aso.org.uk), and Treasurer of the European Association of Obesity (EASO). He is a Chartered Health Psychologist. His early research focused on anti-obesity drugs and appetite and this has progressed to the behavioural assessment of potential anti-obesity drugs in early clinical development. Over the past 10 years his research has focused on drug-induced weight gain, the effects of nutrients and fibre on appetite and hormone release, the effects of stress on eating behaviour, the effect of marketing of children, and on lean-obese differences in the expression of appetite. In 1999 he co-founded the Human Ingestive Behaviour Laboratory at Liverpool and in 2004 he also cofounded the Liverpool Obesity Research Network (LORN). Professor Halford is the co-ordinator of the 8 million Euro EU Framework Seven Satiety Innovation SATIN project (www.satin-satiety.eu) to develop novel foods for appetite control using novel processing technologies to alter food structure. He is also a leading scientist on the WRAP trial investigating the role of commercial weight management providers in primary care and the lead investigator on a new trial to examine the impact of artificial sweeteners on appetite in the context of active weight management. New projects include the SWITCH trial examining the effects of artificial sweeteners on appetite and food choice during active weight management (joint PI with Dr Jo Harrold) and the ENERGISE and RESILIENT clinical trials lead by Professor John Wilding and Dr Dan Cuthbertson respectively. Professor Halford is also theme lead for Improved Consumption and Health of the successful N8 Agri-food resilience catalyst bid.

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Paul Gately

Paul has been at the helm of MoreLife since it was established at Leeds Beckett University in 1999 and it is now one of the largest specialist training and services provider for tackling childhood and adult obesity. MoreLife's research was commended as an impact case study for the 2014 Research Excellence Framework (REF).

Paul has led a broad range of innovative obesity research from understanding the influence of obesogenic environments to the impact of high protein diets on obese children, always conducted with the needs of service users at the heart of his research activities. With a strong focus on the link between research and practice, he believes this approach has never been more important. In addition, Paul and colleagues contribute to policy and practice development in the public, private and not for profit sectors in the areas of obesity, nutrition and physical activity. He has secured contracts worth over £20 million from the NHS and Local Authorities and has acted as a principal investigator for £5million worth of grants from charities and research funding agencies.

Linkedin: <https://uk.linkedin.com/in/paulgately/pt>



René Kural

Associate Professor, PhD, Architect MAA René Kural is the former director of the *Centre for Sports and Architecture* and now director of *Activity- and health-enhancing Physical Environments Network (APEN)* as well as independent practicing architect with his firm *René Kural Architects*. Since 1996, René Kural has been involved in research, communication, counseling and development of Danish and foreign municipalities, architectural firms, government agencies and foundations.

René Kural is the author of nine books. He has also contributed a large number of articles and feature articles on body culture, urban planning, urban space, landscape and architecture for Danish and international magazines. He recently served as visiting professor at Tokyo Institute of Technology and (ToKoDai) and Tokyo University of Science (TUS). René Kural is the Danish member of the Union International des Architectes (UIA) Sports and Leisure Group. In 2013, winner of the Olympic Committee (IOC / IAKS) bronze for Herning Football Exploratorium in collaboration with GBH Landscape Architects, and the same year recipient of the President's Award, Tokyo University of Science.



Knut Inge-Klepp

Prior to his position as Executive Director of Mental and Physical Health, Klepp served as the Director General for Public Health at the Norwegian Directorate of Health (2006-2015). He is an adjunct professor at the University of Oslo where he served as a full professor in public health nutrition from 1996-2006. Prior to this he was a professor in international health promotion at the University of Bergen, Norway.

Klepp has published more than 250 papers in peer reviewed journals, primarily in the fields of adolescent health promotion, nutrition and hiv/aids prevention. He has coordinated and served as investigator on a large number of European Union research project, and he has extensive research experience from Eastern and Southern Africa. Klepp has been involved in the WHO recent efforts to reduce non-communicable diseases, and he has chaired the WHO Euro member state network on reducing marketing pressure on children since 2008.

Klepp has served as chair of the Norwegian National Council on Nutrition and Physical Activity, and he has chaired research programmes on public health within the Norwegian Research Council. He was President of the International Society of Behavioural Nutrition and Physical Activity from 2010 to 2011.

Linkedin: <https://no.linkedin.com/in/klepp-knut-inge-ab1a6b36/pt>



Tommy Visscher

Dr. Tommy Visscher is an associate professor Healthy cities at the Windesheim University of Applied Sciences in Zwolle, The Netherlands. He holds Master degrees in Biomedical health sciences and in Epidemiology. He obtained a PhD on the Public health impact of obesity and as a postdoc he entered the field of health promotion. Dr. Visscher served 10 years as the chair for the Prevention and Public Health Tasforce by the European Association for the Study of Obesity (EASO), and he is the founding scientific representative of EASO's Patient council. He serves various editorial boards of scientific journals on obesity, and as section editor for BMC Obesity. From its' start, Dr. Visscher served the EPODE International Network's (EIN) scientific committee. Currently, he is entering EIN's board. For JOGG (The Dutch EPODE approach), he serves as chair for the scientific advisory board since 2017.



Pedro Graça

Pedro Graça is the coordinator of the National Program for the Promotion of Healthy Food of the Portuguese General Direction of Health.

Pedro Graça holds a degree in Nutrition Sciences, a Master's degree in Community Health from the Faculty of Medical Sciences of the Universidade Nova de Lisboa and a Doctorate in Human Nutrition from FCNAUP.

He is in charge of the Nutrition Policy and Communication curricular units in the Degree in Sciences of Nutrition. He is Associate Professor of the Faculty of Nutrition and Food Sciences of the University of Porto (FCNAUP), member of the U.Porto Senate as representative of the institution's professors; Chairman of the Specialized Technical Committee (Dietetic, Nutrition and Allergy Products) of the Food and Economic Security Authority (ASAE); Coordinator of the Advisory Committee on Ethics and Professional Deontology of the Portuguese Association of Nutritionists (APN) and has carried out several researches in the fields of Nutrition and Public Health.

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Pedro Teixeira

Pedro Teixeira is Full Professor of Physical Activity, Nutrition, and Health at the University of Lisbon, Faculty of Human Kinetics. He holds Bachelors and Masters degrees in Exercise Science, and a Ph.D. in Nutritional Sciences. He is a past-president of the International Society of Behavioral Nutrition and Physical Activity and the current president of FMH's Ethics Council for Research. In May 2016, he was appointed as the director for the National Physical Activity Promotion Program at the Portuguese Ministry of Health (DGS). His main research interests are the study of determinants of physical activity and weight control and the design and testing of behavior change interventions, namely in the area of physical activity promotion. He has published close to 90 international peer-reviewed articles and has been an investigator in several NIH and EU projects, including Eurobese, SPOTLIGHT, EuroFIT, and NoHow. He is the PI for the Portuguese National Weight Control Registry and is part of the Consortium leading the Portuguese Nutrition and Physical Activity National Survey 2015-16.

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Twitter: <https://twitter.com/pedrojteixeira>



**João Armando
Gonçalves**

João Armando Gonçalves, is Chairman of the World Scout Committee, the board of a worldwide movement that gathers more than 40 million young people.

João has a background in Civil Engineering and holds a PhD in Urban Planning and Participation. He was a Project Director and Consultant in the construction business and since 1996 he is a Professor in the Civil Engineering Department of the Polytechnic Institute of Coimbra (Portugal).



Pedro Moreira

Pedro Moreira is a nutritionist with a PhD in Human Nutrition of FCNAUP (Faculty of Nutrition and Food Sciences), full professor of Food and Human Nutrition and Director of FCNAUP, in University of Porto.

He is a member of the general counsel of the Nutritionists Order and President of the general assembly of the Portuguese Association of Nutritionists (APN).

Pedro Moreira is also a fellow member in the Research Centre of Physical Activity and Leisure and Centre of Institute of Public Health, both in the University of Porto. Scientific Advisor of the General-Directorate of Health, Ministry of Health, Portugal and of the World Health Organization - Europe to provide technical assistance in to support implementation of the Programme for Reducing Dietary Salt Intake in Montenegro (2015).

Pedro Moreira won the 1st U. Porto E-Elearning Excellence Award with the work "E-Learning in Food and Human Nutrition".

His activity and research interests focus on the nutritional and dietary determinants of non-communicable diseases, especially asthma and obesity throughout the life cycle.

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SCIENTIFIC PROGRAMME

6TH JULY

8H30-10H15 MAIN AUDITORIUM

Think global and act local

Chair: Paul Gately (Leeds Beckett University/UK)

8h30 – **Viktoria Kovacs** (National Institute of Pharmacy and Nutrition/HU)

T5: Reducing Childhood Obesity in Poland through Effective Policy Interventions

8h55 **René Kural** (Activity-and health-enhancing Physical Environments Network/DK)

T2: "Cyclehagen" - Copenhagen an active city designed for two wheels"

9h20 **João Armando Gonçalves** (World Scout Committee)

T2: "These boots are made for walking... scouts talk"

9h45 **Pedro Teixeira** (Faculty of Human Kinetics/Univ Lisboa/PT)

T2: Promoting Physical Activity in the Land of Football: It Shouldn't Be Too Hard

T5: OP205

REDUCING CHILDHOOD OBESITY IN POLAND THROUGH EFFECTIVE POLICY INTERVENTIONS

KOVACS, Viktoria Anna¹; Sliz, Daniel; Karwowska, Paulina; Breda, João

¹ National Institute of Pharmacy and Nutrition

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Childhood obesity is a growing global health problem. Poland is no exception with slow increase in the prevalence that is associated with emergence of comorbidities previously considered as "adult" diseases. In August 2016, a Regulation was announced on the implementation of the Polish National Health Program 2016-2020, in which for the first time, fighting obesity was directly showed as one of the strategic goals. This reflects a significant shift in the attitude that considers obesity not only as a risk factor for NCDs but as a disease itself. Interventions as well as monitoring and evaluation measures in the field of adult and childhood obesity are now planned with a proper budget allocation. The aim of our work was to facilitate the development of an integrated action plan for the strategy dimensions around childhood obesity that is based on the latest evidence and experiences of other countries and adapted to the Polish context. To provide an overview we made a literature review across the 6 action areas identified by the Commission on Ending Childhood Obesity. Interviews were also conducted with key decision makers to study their experiences. The context assessment was based upon a questionnaire-guided situational analysis including review of activities and opportunities for further actions conducted by national experts. The findings from our expert review and the recommendations will be presented. The review will summarize possible policy actions to create an environment that encourages a healthy lifestyle with specific examples from in and outside of Europe. It then will demonstrate key components of effective policies and a complex action plan for Poland.

OBSERVATIONS: This work was funded by the WHO Country Office for Poland.

T2: OP43

CYCLEHAGEN – COPENHAGEN AN ACTIVE CITY DESIGNED FOR TWO WEEKS

Kural, René¹

¹ Royal Danish Academy of Fine Arts, Schools of Architecture, Design and Conservation, Director of Activity and Health-enhancing Physical Environments Network (APEN), PhD, Associate Professor, Architect MAA

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Current interdisciplinary research collaboration aims at providing research-based knowledge about how we by changing or improving the physical environment can promote physical activity and healthier living for socially disadvantaged citizens.

What does the literature say?

- The environmental impact of physical activity is the least-studied area
- Need for interdisciplinary research
- Need for national research
- Need for more knowledge about children/adolescents and seniors

- Need for more experimental and long-term intervention research

Denmark is the country in Europe where most people go by bike only outmatched by the Netherlands. People visiting the capital of Denmark often believe that the Danes use the CO₂ neutral bike over concerns of the environment. Directly asked the reasons turn out to be quite different: 55 % answers that it is because it is faster, 33 % it is more convenient, 32 % it is healthier, 21 % it is a good way to start the day and surprisingly only 9 % because of concerns over the climate. Interestingly - and from an architectural point of view - 19 % answer, "I discover the city" and 18 % "I experience the city".

Benefits: Besides improving health and reducing pollution and traffic jams, the bike gives the cyclists of the future - children and youngsters - a good opportunity to know their local neighbourhood, learn how to manage in the traffic, a fresh start of the day, and hopefully make them continue to prefer the bike, when they grow up for the benefit of both individual health and environment.

"Intelligent City Planning" is a relatively new way to plan our cities, which has to be prioritized by politicians and planners and developed through innovation. According to the municipality of Copenhagen attention has to be drawn to four areas:

- Urban life: Attractive and eventful urban spaces make the trip feel shorter.
- Comfort: Cyclists should feel that it is easy and attractive to bike in the city.
- Speed: Travel time by bike must be competitive with other means of transportation.
- Safety: A prerequisite to choose the bike is that the cyclists feel safe.

T3: OP35

THESE BOOTS ARE MADE FOR WALKING...THE TALK

Armando Gonçalves, João¹

¹ World Organisation of the Scouting Movement
joarmando@mail.telepac.pt

For more than 100 years, Scouting has been providing a safe and healthy learning environment for young people to grow and develop. Actually, one of the main motivations for its founder, Lord Baden-Powell, to initiate such a program in 1907, was exactly because he had concerns about the physical and mental well-being of British youth. One report at the time (1904) claimed that of every nine who volunteered to the army, only two were fit to do so. Diet, poor housing, and harmful working conditions were identified as contributory factors.

Since then, Scouting spread throughout the world and it is now present in more than 200 countries and territories. Currently, it has more than 50 millions members which makes of it the leading (non-formal) educational youth movement in the world.

Scouting aims to help individuals, in their formative years, to develop in different dimensions: physical, emotional, intellectual, spiritual and social. Because Scouting uses active methods of education, this is done by enabling young people to live a number of meaningful experiences which go from camping to community development projects; from hikes in the mountains to campfires; from games to debates and discussion; from canoeing expeditions to participation in fora, just to mention a few. All these activities enable them to live direct experiences and acquire and develop skills, competences and attitudes which build character, health and resilience.

The impact that Scouting has on the health of the young people goes beyond the simple participation in activities like hiking, canoeing, mountaineering or physical games. It is part of their personal development to be aware of their own body, its potential, its limits, and how to better take care of it, including in terms of diet and prevention of substance abuse. And moreover, because in many activities (camps, for example) scouts need to prepare their own food, Scouting provides the opportunity for them to have a first-hand contact and to discover their effects.

Scouting is therefore an environment that actively promotes healthy lifestyles in a decisive phase of individuals' personal development.

T3: OP46

PROMOTING PHYSICAL ACTIVITY IN THE LAND OF FOOTBALL: IT SHOULDN'T BE TOO HARD

J. Teixeira, Pedro¹; N. Silva, Marlene on behalf of the EuroFIT consortium

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Introduction: The European Fans in Training (EuroFIT) project aimed to engage overweight and obese men in initiating and maintaining improvements in physical activity, sedentary, and dietary behaviours. It seeks also to overcome the 'know-do' gap in the implementation of public health programs, by developing, in partnership with stakeholders, policy-makers and end-users, a set of validated guidelines to maximize replication beyond the funded project.

Methodology: EuroFIT tests the utility of a culturally- and gender-sensitized 12-week lifestyle program in 1200 middle-aged (30-65y) men in Portugal, Norway, the Netherlands, and the UK. The strong affiliation and loyalty to clubs are leveraged to increase group relatedness and interest in the program. Real-time, self-relevant feedback on step count and sedentary time is provided via an accelerometer (SitFit) and connection to other participants is promoted with a proprietary app (MatchFit).

Results: The EuroFIT RCT involved 15 participating clubs. Alongside other perspectives (e.g., from sociology and gender studies), Self-Determination Theory (SDT) and Achievement Goal Theory are integral components of the core intervention and

measurement protocol. Specifically, the program is designed to help men develop autonomous goals, gradually build competencies through optimally challenging physical activity and dietary changes, and strengthen relatedness through meaningful connections to group members and the club.

Conclusion: The EuroFIT project development was framed to address two of the major problems in health promotion research and translation: Long-term sustainability of health-related behavioural changes and the scaling-up of research-based interventions, reaching a population impact.

OBSERVATIONS:

1. Conflict of Interest: None disclosed.
2. Funding: This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 602170.

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6TH JULY

8H30-10H15 MINI AUDITORIUM

Food Safety and Food Security: realities on the same "plate"

Chair: José Maria Albuquerque (INSA/PT)

8h30 **Rui Rosário (INIAV/PT)**

T4: Food safety – a challenge to a healthy balance between a better quality food production and the consumers needs

8h45 **Pedro Portugal Gaspar (ASAE/PT)**

T4: Food Safety and Food Labelling

9h00 **Pedro Queiroz (FIPA/PT)**

T4: "Safe Food for Consumers from Farm to Fork"

9h15 **Laura Webber (UK Health Forum/UK)**

T1: WHO-Euro database of complementary feeding practices

9h30 **Paula Alvito (INSA/ PT)**

T4: Infant Food and Risk Assessment

9h45 **Joana Lima (Oxford University/ UK)**

T4 The Food Environment Policy Index: A tool for comparing national food environments

T3: OP72

A CHALLENGE TO A HEALTHY BALANCE BETWEEN A BETTER QUALITY FOOD PRODUCTION AND THE CONSUMERS NEEDS

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The political guidelines regarding food safety usually focus on the health safeguard along the whole agro-food chain by preventing food contamination and promoting food hygiene and food information. In general, the objectives pointed out to ensure that food and animal feed are safe and nutritious. Food safety policies usually promote the use of adequate information about the origin, content and use, as well. Food safety concerns start at the production level, ensuring plant health and animal health and welfare. However, in the subsequent stages of the value chain many safety issues arise: at the storage and conservation levels, processing and, finally, food handling.

Agriculture and veterinary research play a decisive role on the continuous process of increasing food safety standards. The overall challenge focus on the promotion of the sustainability and health of food production, contributing at the same time to global food security concerns. This has much to do with the productive conditions that prevent animal and plant diseases. The

future of healthier agriculture and food systems relies in a more diversity at all organizational levels in the three sustainable development dimensions: environment, society and the economy.

T4: OP71

SAFE FOOD FOR CONSUMERS FROM FARM TO FORK

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Food Safety, from farm to fork, is paramount and is dependent on strong partnerships along the food chain. A wide range of regulatory and self regulatory measures, combined with the highest standards and the right handling of food at home, deliver safe food from farm to fork. In particular, food industry have extensive procedures in place to ensure all products on the market meet the highest standards, most recent certification schemes and, above all, the latest legal requirements. This includes work on food ingredients (additives, enzymes, flavourings etc.), food contact materials, process contaminants (such as acrylamide) and allergens. However, it's important to go beyond and bring together stakeholders from across the food chain to promote research opportunities and improve knowledge transfer (particularly to SMEs) across Europe. Three key aspects of strengthening the food chain can be identified: 1) good agricultural and animal practices; 2) compliance with the highest food safety standards; and 3) build confidence amongst the partners to discuss openly and transparently all aspects of the food chain relating to food safety.

T1: OP247

WHO-EURO DATABASE OF COMPLEMENTARY FEEDING PRACTICES

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¹ UK Health Forum

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Introduction Complementary feeding practices are defined by the World Health Organization as “the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk.” However, it is unclear what data exists on appropriate complementary feeding and what ‘first foods’ are given. This project aims to build a database of complementary feeding practice data for WHO Europe.

Methodology We carried out a systematic review of PubMed and grey literature supplemented with personal communication to extract data on complementary feeding practices for each of the 53 WHO European region countries. A database is being developed to hold these data.

Results 4411 articles were found from PubMed and are currently being sifted based on title and abstract. Over 130 national and international databases including nutrition surveys and online sources have been screened. Data are being extracted into an excel database using the headings: first foods, age at introduction to solid, semi-solid or soft food; first foods type; breastfeeding at 1 year (12-15months); Min acceptable diet (6-23months); Min diet diversity (6-23months); Nutrient content of complementary diet. The review is ongoing, but very initial results suggest that there are good data on (exclusive) breastfeeding length and the Demographic and Health Surveys are a very useful source of data in lower-middle income countries, however gaps seem to be in data on the ‘first foods’ given to infants.

Conclusions The database will serve as an important resource for countries either to highlight the gaps in country surveillance data or to detail the typical dietary intake of infants in the complementary feeding period.

OBSERVATIONS: No conflict of interest to declare.

T4: OP73

RISK ASSESSMENT AS A TOOL TO IMPROVE INFANT FOOD SAFETY

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Children can be biologically more sensitive to certain toxicants on a body weight basis than adults. Current understanding of the rates of maturation of metabolism and evidence from case studies indicated that this population group typically lack the capacity to detoxify and eliminate substances as readily as adults. Consequently, a disproportionate burden of exposure from food contaminants, as mycotoxins, is borne by children. In many parts of the world, children are routinely exposed to many mycotoxins via food chain and aflatoxins, fumonisins and deoxynivalenol are the three most common.

Risk assessment is increasingly seen as an essential component in modern science-based food safety systems and plays a growing and important role in guiding food safety authorities. Most studies have focused on the risk assessment of single mycotoxins and there are scarce data concerning the risk associated with human exposure to multiple mycotoxins in foods, especially for those intended for children consumption. MYCOMIX, a recent Portuguese project (<https://www.youtube.com/watch?v=CsKaz3mt2J4>), assessed for the first time, the risk associated with the simultaneous exposure to 13 mycotoxins in breakfast cereals, processed cereal-based foods and biscuits consumed by children until 3 years old from Lisbon region, Portugal. Results on mycotoxins occurrence showed that 94% of the analysed samples were contaminated with at least one mycotoxin, although at levels below the legislated limits. Co-contamination was observed in 75% of the

analysed samples. Estimated aflatoxins exposure suggested a potential adverse health effect for percentiles of intake above or equal to P50, determined through margin of exposure concept. Future studies on children exposure using mycotoxin biomarkers and attainment of detailed toxicological data, including health consequences associated to exposure to multiple mycotoxins are needed in order to perform a more accurate risk assessment and, through an informed risk assessment process, improve the protection of children's health.

Acknowledgments: This research was performed under the MYCOMIX project "Exploring the toxic effects of mixtures of mycotoxins in infant food and potential health impact" (PTDC/DTP-FTO/0417/2012), CESAM (UID/AMB/50017/2013), both funded by the Fundação para a Ciência e Tecnologia (FCT), Portugal; and Project MYCOTOXINS INCENTIVE, funded by the National Institute of Health Dr. Ricardo Jorge (INSA), Portugal.

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T4: OP246

THE FOOD ENVIRONMENT POLICY INDEX: A TOOL FOR COMPARING NATIONAL FOOD ENVIRONMENTS

Madureira Lima, Joana¹; Jewell, Jo; Breda, João; Galea, Sandro

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Background: Food environments are defined as "the collective physical, economic, policy and sociocultural surroundings, opportunities and conditions that influence people's food and beverage choices and nutritional status". They are inextricably related to unhealthy diets and thus to childhood obesity. There is, however, substantial inter-national heterogeneity in the formulation and implementation of policies that shape these environments. We present a composite indicator that captures the quality of the regulatory frame underpinning food environments in 42 countries - the Food Regulatory Environment Index (FREI). The FREI, inspired by WHO frameworks and international publications, allows for a ranking of countries according to the quality of their policies and provides a benchmark for policy improvement. Furthermore, it can be used to explore differences in prevalence of risk factors for childhood obesity such as consumption of sugary drinks and foods high on saturated fats and salt across countries.

Methods: National level policies were compiled by WHO Europe Regional Office. They include surveys on the state of regulations on marketing of food and non-alcoholic beverages to children, school food policies, fiscal policies, package labelling policies. The FREI was calculated using two different methods. The resulting measures were correlated amongst them to assess measurement validity. We used the FREI scores to ask whether healthier food policy environments were associated with two types of outcomes: soft drink and snacks per capita consumption.

Results: scores are robust to different calculation methods. Additionally, we find an association between the healthiness of food environments and our outcome measures.

Conclusion: We offer a new tool to assist countries in improving their food environments. Although we cannot make causal claims about the associations between the strictness of food regulations and the healthiness of food environments and the prevalence of risk factors such as sugary drinks, we offer a contribution to the understanding of the causal architecture of childhood obesity.

6TH JULY

9H00-10H15 WHITE LOUNGE

Own fault, big belly

Tommy Visscher (Windesheim University of Applied Sciences/NL)

OP40

OWN FAULT, BIG BELLY

Visscher, Tommy¹

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Obesity is everywhere and so are opinions about obesity and persons living with obesity. Is obesity a bigger problem than hunger? Is obesity comparable to smoking and war and violence? Is obesity a matter of own fault? Or would a much better question be: Is obesity the result of abnormal response to a normal environment, or is obesity the normal response to an abnormal society?

To date, prevention and treatment programs are taken very seriously, but too often, patients themselves are not. And still, the attention that is given to obesity itself is way behind the amount of attention it should receive. Dr. Visscher is going to expose



you to a series of inspirational lectures after which you may take a different approach with yourself and your environment, with the populations you work for and with the patients you meet.

The audience is welcome to debate the speaker or discuss with other members of the audience.

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OBSERVATIONS: Dr. Visscher is part of the EPODE International Network (EIN). One aspect of EIN is its' collaboration with private partners. His university receives budget from EIN for travel and accommodation purposes (not for the visit to this meeting).

Travel and accommodation reimbursement to join CIOI buy EASO is gratefully acknowledged.

6TH JULY

10H15-11H00 MAIN AUDITORIUM

@round the World

Keynote speaker: Philip James (London School of Hygiene and Tropical Medicine/UK)

Facebook CIOI 2017 Live Streaming

6TH JULY

11H30-13H00 MAIN AUDITORIUM

Childhood Obesity Epidemiology

Keynote speaker: Wolfgang Ahrens (Leibniz Institute for Prevention Research and Epidemiology / GE)

OP45

THE EPIDEMIOLOGY OF CHILDHOOD OBESITY IN EUROPE AND WORLDWIDE

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The dramatic increase of the prevalence of overweight and obesity in adults over the last decades is paralleled by a corresponding increase in children and adolescents. WHO estimated a global increase of overweight/obese young children (up to 5 years) from 32 million in 1990 to 42 million in 2013. Although recent data indicate a halting in the rise of childhood overweight/obesity in western countries the prevalence remains unacceptably high. The related population burden of metabolic, cardiovascular, musculoskeletal and psychiatric disorders may increase in the future and result in a large increase of healthcare costs. The prevalence of childhood overweight/obesity varies considerably between countries. North America, Southern/Eastern Europe and

Northern Africa/Middle East are among the regions with the highest prevalence worldwide. However, the comparison between countries and over time is hampered by heterogeneous sampling frames and measurement methods as well as different reference standards, where, e.g., the commonly used WHO standard result in higher prevalence values as compared to the reference standard proposed by the International Obesity Task Force (IOTF). In most countries strong differences are observed between socio-economic groups, often assessed by parental education: while an inverse association is observed in most western countries, positive associations are observed in developing countries. Countries being in a transitional phase exhibit divergent trends: positive in rural and inverse in urban areas. Data from Europe indicate that known risk factors like lack of physical activity, over-consumption of energy-dense foods and unhealthy lifestyle behaviours like excessive TV exposure may explain a major part of the observed social differences. Addressing behaviours alone to reduce the incidence of obesity are expected to have little effect and may rather increase the social divide. Future strategies to curtail the high prevalence of childhood overweight/obesity need to address the causes of unhealthy behaviours, i.e. the obesogenic environment.

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Chaipersons: Tim Lobstein (World Obesity Federation / UK)
Pedro Graça (Directorate General of Health / PT)
Angela Spinelli (National Institute of Health / IT)
Margherita Caroli (European Childhood Obesity Group / ECOG)

6TH JULY

14H30-16H00 MAIN AUDITORIUM

Non-Governmental action and policy

Keynote speaker: Harry Rutter (London School of Hygiene and Tropical Medicine / UK)

OP11

WHAT DOES A WHOLE SYSTEM RESPONSE TO OBESITY LOOK LIKE?

*Rutter, Harry*¹

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The UK Government Foresight report was published in 2007, bringing the concept of obesity as a complex systems problem into the mainstream. However, despite increasing rhetoric about complexity, the reality of responses to obesity in countries around the world remains one in which it is treated predominantly as a simple or complicated problem, not as a complex one.

A whole system response to obesity has many different components; this talk will examine four of them in particular. Obesity can be conceptualised as an emergent property of a *complex adaptive system*, and it is worth considering the implications of each of those words in the phrase for a meaningful response to obesity:

1) *Complex*

Complexity refers to a range of characteristics such as emergence, feedback, and non-linearity. An appreciation of these features is important for understanding the kinds of response the might be helpful, and also for the ways in which one might assess the effectiveness of otherwise of a set of responses.

2) *Adaptive*

If one intervenes in a complex system the system itself will tend to adapt in response: people may adapt their eating behaviour in response to physical activity, and the food industry may alter their pricing and marketing in response to advertising restrictions. Anticipating these kinds of adaptive responses may lead to more effective interventions.

3) *System*

An appreciation of the interconnectedness of different aspects of the factors affecting energy balance, at all levels from epigenetics to global trade, can help to identify ways in which one can usefully intervene in different parts of the system in ways that take account of ramifications elsewhere.

4) *Time*

The global epidemic of obesity has developed over decades, and will take many years to reverse. It is essential to consider the temporal dimension of our responses.

Taking due account of the complex nature of the problem of obesity is an essential feature of an effective response. If we are successfully to rise to the challenge we will have to move beyond our current conceptual models and narrow responses and respond in sophisticated ways across the multiple systems involved.

Chaipersons: Paul Gately (Leeds Beckett University / UK)
Pedro Teixeira (Faculty of Human Kinetics, Univ Lisboa / PT)
Jane Landon (UK Health Forum / UK)
Knut-Inge Klepp (Institute of Public Health / NO)

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6TH JULY

16H30-18H00 MAIN AUDITORIUM

Childhood Obesity Surveillance Initiative COSI/WHO Europe Session – The southern European Debate

Led by: Knut Inge-Klepp (Institute of Public Health / NO)

Angela Spinelli (Italy)
Maria Hassapidou (Greece)
Eliza Markidou (Cyprus)
Sanja Milanovic (Croatia)
Ana Rito (Portugal)
Sara Santos Sanz (Spain)
Paula Vassalo (Malta)
Igor Spiroski (FYR Macedonia)

6TH JULY

16H30-18H00 MINI AUDITORIUM

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Towards a Healthy School environment

Chair: Nathalie Farpour-Lambert (EASO)

16h30 **Sandra Caldeira** (European Commission)

T2: Exploring public procurement of food for health in schools and beyond

16h45 **Marjaana Manninen** (The Finnish National Agency for Education / FI)

T2: Food Education at Finish School promotes the well being of the whole school community

17h00 **Gerda Feunekes** (The Netherlands Nutrition Centre / NL)

T2: Guidelines for Healthier Canteens; Making the Healthier Choice the Norm in Schools

17h15 **Eszter Sarkadi-Nagy** (National Institute of Pharmacy and Nutrition / HU)

T5: Good practices to promote healthier environments in kindergartens and schools – An EU Joint Action on Nutrition and Physical Activity (JANPA) focusing on childhood obesity

17h30 **Anna-Lena Aufschnaiter** (FH JOANNEUM, University of Applied Sciences / AU)

T2: Sensory training for kindergarten teachers. an experiential approach to sense perception in kindergarten age.

T2: OP229

EXPLORING PUBLIC PROCUREMENT OF FOOD FOR HEALTH IN SCHOOLS AND BEYOND

Caldeira, Sandra¹; Storcksdieck genannt Bonsmann, Stefan; Bakogianni, Ioanna; Gauci, Charmaine; Calleja, Antoinette; Furtado, Artur

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Introduction/Aim: Schools are an ideal environment for promoting nutritious, balanced diets and skills development for children. This work makes the case for considering health as much as possible when setting up contracts for school food and proposes public procurement as a policy tool in this process.

Methodology: The work is based on literature reviews. Structured interviews were also conducted to identify obstacles to implementation of health-sensitive food procurement and possible solutions. We used national school food standards, procurement contracts and existing related criteria to develop food and food service procurement specifications, which were reviewed and consolidated by experts in the field.

Results: At an estimated €82 billion, the European social food service market is sizeable in both reach and force. There is evidence that a procurement process of food and food-related services that is sensitive to health aspects can improve students' diets and lead to a series of other benefits in and outside the school setting. We depict the short-, mid- and long-term benefits in a logic model. In our view, national and local efforts in public procurement of food for health should be supported; hence we have sought to identify bottlenecks to their implementation. Major issues that surfaced in the structured interviews were: a) formulating food and service specifications that are easy to understand and follow up, yet specific enough to ensure a nutritionally balanced food offer; and b) evaluating bids and monitoring contract performance. In response, we detail various options that could be applied in the procurement process to help the evaluation of bids and management of contracts. Furthermore, we have drafted 20 specification sheets (covering food groups, energy and nutrients as well as food preparation and the catering service in general) with criteria to consider when purchasing food and related services

Conclusions: Our work provides a strong justification for action and is a policy tool for public procurement of food for health, thus supporting Member States in the real-life tasks necessary to effectively translate national school food policies into healthy school food environments. The scope for adaptation to other public and private settings is substantial.

T2: OP203

FOOD EDUCATION AT FINISH SCHOOL PROMOTES THE WELL BEING OF THE WHOLE SCHOOL COMMUNITY

Manninen, Marjaana¹; Lyytikäinen, Arja

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School meals as well as home economics as school subject play a key role in food education at school and in the promotion of the well-being of the whole school community. At best, school meals add joy to the working culture at the school, increasing school satisfaction and positive attitudes towards school, and improving the learning results. The effects of the school meals follow the students throughout their lives as food memories and experiences in learning to eat, widening of taste preferences and a model of good eating habits.

Finland is a model country in school catering, and supervised school meals by national core curriculum have long educational traditions. School catering is also part of the national efforts to secure good nutrition and to promote health and welfare. As a daily event, school meals are a significant long-term investment in learning and welfare.

The school catering forum of the Finnish National Agency for Education has set a common goal: Everybody eats! This can be achieved through cooperation and educational partnership. Appealing and healthy food served at an optimal time and enjoyed in a supervised and calm environment, tempts one to eat, and creates joy of eating as well as learning.

The school meals are part of the daily teaching, guidance and education task defined in the core curricula. In addition to promoting the study ability and health of the students, the well-being of the school community is cared for. The provider of education shall define in the curriculum the principles that guide school catering as well as the objectives related to education on food, health and manners, and a sustainable way of life.

National recommendations for school meals provide guidelines for the implementation of school catering and food education at school. The recommendations cover guidelines for school meals as well as snacks provided in the before and after school activities and extracurricular clubs at the school. The provision of school meals supports learning as well as the health and well-being of the students and the whole school community.

School catering draws the strategic decision-making of the municipality, and is part of local development.

A regular meal schedule is the foundation of good nutrition. It supports the coping and growth of children and young people, and healthy weight development. Good eating habits learned in childhood and adolescence will later prevent many health problems, the need to treat such problems and costs related to them.

Eating and learning together can be achieved through cooperation and educational partnership. School meals provide a means for practical food education. The educational staff can use menus and plate models as well as their own example and active presence in the meal situation to teach the students. The adults encourage and help students make balanced food choices. Favorable feedback and a positive atmosphere create good conditions for reinforcing the participation of the students. School meals also play a significant role in the development of consumer skills as well as in teaching related to the environment, culture, manners and equality. School catering can be viewed and developed from many different viewpoints. The key factors guiding the provision of school meals are a daily meal free of charge, which is balanced and appropriately organized, and supervised, sustainable and safe.

Appealing and healthy food served at an optimal time, enjoyed in a supervised and calm environment tempts one to eat and creates joy of eating as well as learning.

The Finnish National Agency for Education cooperate with the National Institute for Health and Welfare as well as the National Nutrition Council. We advise together municipalities and other providers of education as well as schools to follow the guidelines presented in the National Core Curriculum and other recommendations when making decisions and arrangements related to school catering.

The National Core Curriculum and National Recommendations for School Meals, which have a scientific foundation, are our governmental guidance for the education providers and school staff. This Finnish innovation in daily education that speaks for nutritional activity is considered a long-term investment in learning and wellbeing.

T2: OP222

GUIDELINES FOR HEALTHIER CANTEENS; MAKING THE HEALTHIER CHOICE THE NORM IN SCHOOLS

Veldhuis, Lydian¹; Wezenbeek, N; Vyth, Ellis; Wolvers, Daniëlle; Evenhuis, Irma; Seidell, Jaap; Renders, Carry; Ploum, Margret¹; Gerda Feunekes¹

¹ The Netherlands Nutrition Centre
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Introduction: For a healthy lifestyle of children, it is important that they can make healthy choices in school. The Netherlands Nutrition Centre has developed Guidelines for Healthier Canteens which can be applied in schools. In these guidelines, several nudging techniques are described that stimulate making healthier choices. For implementation, an online tool was developed; the Canteen Scan.

Methodology: In 2015, a multidisciplinary team of researchers and professionals designed a tool based on scientific literature and results of consultations, an expert meeting and focus groups with representatives from schools and catering, and experts on nutrition and health behavior. Subsequently, the tool was digitalized and pilot tested using interviews and a thinking aloud method.

Results: The Canteen Scan consists of three components; 1) four basic criteria (including presence of school policy on a healthy canteen), 2) the visible food and drinks on offer, and 3) incentives. Regarding incentives, especially placement of foods on the counter, in vending machines and near the cash desk are considered important. Also attractiveness of fruits' and vegetables'

presentation and images of food and drinks are taken into account. Results of research so far indicate that the tool is feasible, user-friendly and needs a reasonable time investment.

Conclusions: The Canteen Scan is a unique tool based on scientific knowledge and experiences in practice. The scan provides insight in the health level of the canteen and gives tailored advice for changes to make it easier for children to make healthier food choices at school.

T5: OP206

GOOD PRACTICES TO PROMOTE HEALTHIER ENVIRONMENTS IN KINDERGARTENS AND SCHOOLS – AN EU JOINT ACTION ON NUTRITION AND PHYSICAL ACTIVITY (JANPA) FOCUSING ON CHILDHOOD OBESITY

Viktória A. Kovács¹; Csilla Kaposvari, Maria Hassapidou, Karim Abu-Omar, Sven Messing, Petru Sandu, Dilani Janssen, Katarzyna Brukalo, Eszter Sarkadi-Nagy on behalf of JANPA WP6 members

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The overall aim of the Joint Action on Nutrition and Physical Activity (JANPA – www.janpa.eu) is to contribute to halting the rise of overweight and obesity in children and adolescents by 2020. Work Package 6 (WP6) is focusing on helping Member States to identify ways to create healthier environments in kindergartens and schools. WP6 set up a definition and criteria for good practices that serve as a framework for the systematic assessment of the quality of collected policies and programs. WP6 carried out a desk research on existing definitions and criteria for good practices in health promotion. This resulted in a definition and a set of 47 criteria which were clustered into three main categories: intervention characteristics, implementation, and monitoring & evaluation. A Delphi consultation followed the literature review to decide on the relevance and relative priority of the identified criteria. Experts from 11 WP6 institutions reached a consensus in these two consecutive rounds on the criteria and definition of good practices. The final list of criteria was used to collect and review integrated approaches on childhood obesity prevention in kindergartens and schools in different countries. WP6 received 37 programs and policies from 15 JANPA countries. Most of the interventions were at national level, 40% contained both nutrition and physical activity elements. Selected programs are to be featured as case studies that will focus on facilitators and barriers, contextual factors and lesson learned. All the findings will be translated into a set of recommendations for program planners and decision makers and presented in a guidance document and a web-based toolkit.

OBSERVATIONS: Funding: Research relating to this abstract received funding from the European Union's Health Programme (2014-2020) under JANPA – Joint Action on Nutrition and Physical Activity (Grant agreement n°

T2: OP243

SENSORY TRAINING FOR KINDERGARTEN TEACHERS. AN EXPERIENTIAL APPROACH TO SENSE PERCEPTION IN KINDERGARTEN AGE

Peterseil, Marie¹; Fuchs-Neuhold, Bianca; Konrad, Manuela; Gunzer, Wolfgang; Grach, Daniela; Wallner, Marlies; Kronberger, Anika; Maunz, Susanne; Aufschnaiter, Anna Lena; Pail, Elisabeth

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Introduction/Aim: Familiarity being the most important determinant of a child's liking for a particular food, consumption patterns strongly influence children's food preferences. In order to facilitate a broader experience with food leading to a healthier diet in an early age, pedagogical staff was trained to provide suitable sensory and nutritional education for the children.

Methodology: 28 kindergarten teachers participated in a training providing crucial information on sensory development, adequate nutrition and conduction of sensory experiments. Consequently, these teachers tested 12 experiments with their groups of kindergarten children. Specially developed note cards gave instructions for implementation of the sensory experiments. For evaluation, teachers completed online questionnaires on practicality for each experiment and shared their experiences in a closing focus group.

Results: The feedback (questionnaire/focus group) for all experiments and the training was positive. Kindergarten teachers found the preparation in the training adequate and were thus enabled to conduct the experiments without problems. Positive feedback from parents (e.g. on increased openness towards new foods or increased food vocabulary) as well as behavioral changes at kindergarten lunches were reported. Changes to the note card design were requested and implemented.

Conclusions: All tested experiments are suitable for use in kindergarten and had the intended effects. However, long term effects have yet to be evaluated. Especially experienced kindergarten teachers were able to adapt the experiments to younger nursery school children or differing group sizes. An extension of the experiments and the training portfolio for primary school children is intended.

OBSERVATIONS: The authors have no conflict of interest to declare.

6TH JULY

16H30-18H00 WHITE LOUNGE

Dynamic interactions on treatment of childhood obesity

Chair: Célia Craveiro (APN/PT)

16h30 **Silvia Silva (ISCTE / PT)**

T3: Obesity, children, families and society: Settings and social dynamics

16h45 **Miguel Cabral (ACES Amadora/PT)**

T1: A new approach for monitoring Obesity and Overweight among Students in Amadora's Public Schools

17h00 **Mariana Portugal (USF S. Joao Talha/PT)**

T1: Infant Obesity Appointments at USF São João da Talha

17h15 **Vânia Correia (Hospital Center of Vila Nova de Gaia/PT)**

T1: Efficacy of the Nutrition Appointment in treating obese children and teenagers.

17h30 **Sónia Mestre (USF Cuidar Saúde / PT)**

T3: Engaging weight loss in obese children through motivational interviewing

T3: OP235

OBESITY, CHILDREN, FAMILIES AND SOCIETY: SETTINGS AND SOCIAL DYNAMICS

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Childhood obesity is a remarkable social reality in contemporary societies. By the urgent need for understanding the social complexities inherent to obesity, namely to childhood obesity, nowadays predominantly represented as important social problem, it was essential to proceed to the identification of the settings and social dynamics of childhood obesity involved in its causes and consequences. Using methodological triangulation, from the combinations of extensive and intensive methodologies and highlighting case studies by conducting interviews with children and families, it was revealed the importance of historical and civilizational present in interactions and social roles with implications on socialization processes responsible for the formation of provisions and ways children think and act. The family appears as a central institution in this phenomenon, not only in the social reproduction of lifestyles, but mainly for its structures and dynamics of social relations. It was possible to define three types of family arrangements related to childhood obesity in Torres Vedras Municipality.

In the rise of childhood obesity are transformations in stable social relationships in the form of changes in daily life, family transitions or biographical crisis. Self-esteem, emotional and psychological situation, resilience ability and different forms of social integration in the face of these mutations affect the emergence of childhood obesity.

It was possible to build a sociological and a social intervention model focused on childhood obesity, which it is believed that may be replicated in other territorial contexts.

T1: OP245

A NEW APPROACH FOR MONITORING OBESITY AND OVERWEIGHT AMONG STUDENTS IN AMADORA'S PUBLIC SCHOOLS

Vaz, Dora¹; Cabral, Miguel; Capelão, Helena; Silva, António Carlos

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Introduction: The Public Health Unit of Amadora (USPAL) has to innovate its procedures in order to address the needs of its population, that tends to have worst health indicators than the rest of the country. USPAL has been collaborating with physical education teachers to better monitor the anthropometric measures of Amadora's students and we try to show that this technique might be worth considering for other local settings, as well.

Methods: This time series study consists of 4 cross-sectional studies during the academic years of 2010/11, 2011/12, 2014/15 and 2015/16. Under the Local School Health Programme we have been able to partner with the majority of physical education teachers of the public schools of Amadora, that welcome students from approximately 10-18 years of age. They collected all data, including the anthropometric measures (height and weight) of participating students. The anonymous data was then sent to

USPAL by each teacher. Participants were excluded if they didn't have all the expected data (birth date, sex, weight and height). The IMC adjusted to the age of the participant was created, based in WHO's percentile curves, and the data was analyzed using SPSS.

Results: We have been able to partner for 4 years with 13 public schools and have been able to collect data ranging from 4725 (2015/16) to 6466 (2010/11) participants each time. The prevalence of overweight has been, in the overall, slightly increasing (16,3%; 12,8%; 21,0%; 15,5%), while the prevalence of Obesity has been, in the overall, slightly decreasing (9,3%; 10,2%; 7,0%; 8,5%). In the overall, female students tended to have worst values of overweight and obesity prevalence, while male students tended to have worst values in the prevalence of low weight.

Conclusions: The findings of this study show some discrepancies with the results of regional/national studies, which is not totally unexpected due to the particularities of Amadora's population. Further mechanisms should be implemented to ensure reliability of results. The partnership with schools to gain knowledge on students' anthropometric measures has proven itself to be a relevant, efficient and steady source of local public health data.

OBSERVATIONS: We thank the collaboration of all the partner physical education teachers.

T1: OP216

INFANT OBESITY APPOINTMENTS AT USF SÃO JOÃO DA TALHA

Portugal, Mariana¹; Lourenço, Carlos; Diamantino, Catarina; Fernandes, Elisabete; Silveira, Cristina

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Introduction: The predominance of infant obesity has increased dramatically in recent decades and is associated with significant morbidity in adulthood, namely DM 2, Hypertension, Dyslipidemia and psychosocial problems. Obesity is currently one of the major worldwide public health problems. The results of the third phase of COSI Portugal show that 31.6% of children are overweight and 13.9% are obese. Primary health care which provides transversal health care, has an important and privileged role in preventing infant obesity and should intervene always based on a family basis. Infant health appointments are fundamental for the early detection and orientation of obesity and are also an opportunity to encourage healthy behavior, including proper and adequate nutrition values and the regular practice of physical exercise. There are 2682 patients at USF São João Talha aged between ≥ 2 and < 19 years. Analyzing the WHO percentiles in the BSII, between the ages of 2 and 18, 11.8% of the children were overweight and 12.48% obese. The ICPC 2 codification revealed a subcodification in the overweight/obesity diagnosis, which demonstrates the need for a greater awareness to this problem.

Aim: In this context a proposal for the need of infant obesity appointments dealing with the treatment of overweight and simple obesity emerged. The aim is to provide a therapeutic approach stimulating the use of healthy lifestyle habits. The co-morbidities and complications associated with obesity, will be evaluated.

Methodology: The appointments will be carried out by 2 doctors with the help of the nurse assigned to the family. Inclusion criteria are: Children with IMC $> P85$; weight percentile $> P95$ up to the age of 2 or children identified as risk patients due family history. Children with severe obesity and those with a BMI $> P97$ and a pathology associated with secondary obesity will be excluded. The appointments included in the early intervention program in obesity at HDEstefânia, the nutrition appointments at ESTSL, and Psychology at ACES are possible resources for this project. The intervention in the local community will comprise of awareness sessions to be carried out to the local schools. The project will be evaluated, throughout clinical results after a 6 month period and at the end of a year.

T1: OP244

EFFICACY OF THE NUTRITION APPOINTMENT IN TREATING OBESE CHILDREN AND TEENAGERS

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Background: Childhood obesity is a serious problem in developed countries putting kids at risk for poor health. Despite recent declines in the prevalence among preschool-aged children, obesity amongst all children is still too high. Multidisciplinary health professionals, who make nutritional counseling to these patient, find it very difficult and disappointing. In literature, we can find innumerable epidemiologic studies about pediatric obesity, but few about nutritional intervention and its outcome.

Aims: Evaluate the efficacy of the Nutrition Appointment in lifestyle changing of children and teenagers followed during 16 months in Serviço de Nutrição e de Pediatria do Centro Hospitalar de Vila Nova de Gaia.

Methods: Retrospective study using health records of 25 patient, medium ages 10,7 years old, 80% males, most referred to the Nutritional Appointment by their pediatrician for being obese -Body Mass Index-BMI >97 percentil (OMS 2007).

Results: This study reveals that 52% improved their BMI. Of those 77% decreased more than 1 degree in BMI. Discussion: Despite the small size of the sample, the results are encouraging. We verify a gradual change of unhealthy eating habits leads to weight control.

Conclusion: This work reveals that we can really improve the BMI in a pediatric population, and even not achieving normal weight, they change to healthier eating habits. We are now studding how can we be more efficient in motivating for better health and win the fight against a very strong food industry marketing.

T3: OP238

ENGAGING WEIGHT LOSS IN OBESE CHILDREN THROUGH MOTIVATIONAL INTERVIEWING

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Introduction: Childhood obesity is now recognized as a public health problem due to the risk of comorbidities development in adulthood life. Nevertheless, practical approaches and strategies remain modest. Primary care providers can play an important role in developing strategies of practice-based intervention at improving BMI, modifying eating habits and physical activity behaviour. The aim of this study was to perform a systematic review of the efficacy of motivational interviewing in a primary care setting, for obese children treatment.

Methodology: Literature review through PubMed, Medscape, UpToDate, search.epnet. Epidemiological studies, clinical studies, and retrospective review of the topic, published in the last 5 years, were included.

Results: The majority of children with obesity is strongly influenced by environmental factors such as parent attitudes, which means that when engaging a weight loss program, we also need to assess parents' motivation to change. Motivational interviewing is a technique style that facilitates behavior change, and allows subjects to explore and resolve ambivalences. The strategy is to reinforce self-motivational statements, through reflective listening and selective attention.

Conclusions: One of the major obstacles in the treatment of obese children is the weight loss maintenance. The use of patient-centered methods such as motivational interviewing in primary care practices demonstrated a better weight management, namely in obese girls. Early intervention can be more effective if parent-child dyads is applied.

OBSERVATIONS: No Conflit of Interest.

7TH JULY

9H00-11H00 MAIN AUDITORIUM

Food Marketing towards Children

Chair: Knut Inge-Klepp (Institute of Public Health of Norway/NO)

9h00 **Susana Teixeira** (ESTeSL /PT)

T4: The influence of television food advertising in children's choices

9h15 **Lene Frost Andersen** (University of Oslo / NO)

T4: Monitoring marketing of food and beverages to children in Norwegian grocery stores -The "Sweep" method

9h30 **Jason Halford** (University of Liverpool / UK)

T4: The nature and impact of television food advertising in the UK, pre and post regulations

9h50 **Pedro Graça** (Directorate General of Health / PT)

T4: The European Action Network on Reducing Marketing Pressure on Children

10h10 **Tim Lobstein** (World Obesity Federation)

T4: Is self-regulation enough?

10h30 **João Breda** (WHO/Europe)

T4: The marketing world for children

T4: OP226

THE INFLUENCE OF TELEVISION FOOD ADVERTISING IN CHILDREN'S CHOICES

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Introduction: According to recent reports, the average of children between the ages of 7 and 12 are exposed to about 40.000 television (TV) ads a year that encourages consumption of high fat, sugar, salt (HFSS) products. This is a concern because advertised foods are typically the antithesis of nutritional recommendations. The aim of this study was to analyze the influence of TV food advertising in children's choices.

Methodology: A sample of 146 children's (6 to 12 years) from the primary school. Applied a questionnaire based on "National Community Survey of TV Food Advertising to Children". Body mass index (BMI) percentiles and z-scores according to the WHO Growth reference. Ads transmitted in 3 national generalist channels and 1 child channel of cable TV, were collected. Child-marketed products evaluated based on "EU Pledge Nutrition Criteria White Paper" and WHO/Europe "Nutrient Profile Model". Data were analyzed in SPSS® statistical software (version 22).

Results: The daily average amount of TV food advertising to children, represent 7.2% of the daily cumulative average duration of the total TV food advertising. According to the EU Pledge and WHO/Europe initiatives, only 3 of the advertised foods of this study are considered healthy. Most children in the study (73.1%, n=106) like to watch TV food advertising and (90.0%, n=132) usually ask parents/guardians to buy the advertised food products. 95.0% (n=136) of the children get the parents/guardians "giving in" to their purchase requests, which indicates that the advertising affects children food choices, at point to request the purchase of advertised food products. It was found that 45.9% of the children in this study has overweight (26.0%, n=38) or obese (19.9%, n=29), and it was possible to acknowledge the existence of a relationship between the time of exposure to TV food advertising and the nutritional status of children in relation to 'Happy Meal McDonald's®'.

Conclusions: It is intended to alert to the importance of this issue, especially in our country, where child obesity has already reached considerable and alarming levels. Highlights the suggestion already made in other studies with the same theme, in order to make TV a tool to encourage healthy eating practices.

T4: OP232

MONITORING MARKETING OF FOOD AND BEVERAGES TO CHILDREN IN NORWEGIAN GROCERY STORES – THE "SWEEP"

METHOD

Astrup, Helene¹; Andersen, Lene Frost; Klepp, Knut-Inge

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Introduction/aim: In the "Guidelines for marketing of food and beverages to children" made by the Food and Drink Industry Professional Practices Committee (MFU) in Norway, the product itself, including packaging and product placement in stores, is not considered as marketing. In the present study marketing in terms of the product itself, including packaging and strategic location, as well as promotion on materials in grocery stores distributed all over Norway have been mapped.

Methodology: A sweep protocol was developed based on a draft protocol from WHO European Action Network on reducing marketing pressure on children. The sweep monitored products promoted to children in 12 product categories (bread, cereals, fruits and vegetables, milk and yoghurt, ice cream, sweet spreads, biscuits and buns, sweetened beverage, salty snacks, pizza, chocolate and candy). The following were assessed on identified products; product placement in shelf, promotion on packaging and materials like cartoons, pictures of children, celebrities, contests, free gifts etc. All products were photographed.

Results: A total of 103 grocery stores from 50 municipalities were included in the study. Results showed marketing on products in all 12 categories. Most marketing was found on products in the categories cereals, milk and yoghurt, salty snacks, sweetened beverages, chocolate and candy. Chocolate and candy were the categories with most extensive marketing on materials. Less marketing was found in the categories vegetables, fruit and berries, and pizza. In the product categories milk and yoghurt, biscuits and buns and sweetened beverage, more than half of the products were placed between hip and floor in the grocery stores, equivalent to a child's eye-level or below.

Conclusion: In Norway guidelines to reduce marketing of unhealthy food and beverage to children exist, but the product itself is excluded from these guidelines. Several companies seem to exploit this loophole as the extent of unhealthy products promoted to children is comprehensive.

T4: OP33

THE NATURE AND IMPACT OF TELEVISION FOOD ADVERTISING IN THE UK PRE AND POST REGULATION

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Despite recent fluctuations TV viewing still higher than ten years ago. Internet use has increased dramatically as expected and TV and internet are used concurrently with various phone apps and social media platforms. Analysis of the content of channels popular with child (child, family, sport and music channels) show that during children's peak TV viewing times over half the food and beverages advertised remain unhealthy despite regulation. There was an increase in fast food, and sugar sweetened

drink advertising on children's channels and during peak child viewing time on all channels post regulation. We have demonstrated the effects of food adverts on food choice, food preferences and energy intake but in normal weight child and those defined overweight or obese. Novel mechanistic evidence suggest food adverts reinforced choice based on taste and drive hedonic reward active in children's brains. Promotional characters (celebrities, licenced and brand equity characters) have been used in TV adverts to promote brands and specific products. In a recent study we demonstrated that the use of brand equity characters increase the preference for and the liking of foods. This effect appeared even when the character was paired with an incongruent (i.e. incorrect) food. With regard to the impact of regulation the use of promotional characters advertising non-core foods increased to 63.6% in 2010, up 8.8% from 2008 (54.8%). Despite the regulations there was an increase of use of licensed characters of 12.1% in 2010. Interestingly, post regulation marketing for unhealthy products peaked during summer vacations (a low period pre-regulation). Post regulation the use of promotional characters to promote unhealthy food peaked during UK school holidays.

As an appetite research laboratory Liverpool receives funding from the food beverage industry to examine the impact of novel ingredients to promote health. This work is separate from policy research which has no industry involvement due to conflict of interest.

T4: OP42

THE EUROPEAN ACTION NETWORK ON REDUCING MARKETING PRESSURE ON CHILDREN

Graça, Pedro¹

¹ Directorate General of Health

The European Marketing Network is led by Portugal and consists of 28 countries in the WHO European Region (Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Greece, Ireland, Israel, Montenegro, the Netherlands, Norway, Portugal, Serbia, Slovenia, Sweden and the United Kingdom) that want to work together to find ways to reduce the marketing pressure on children of energy-dense, micronutrient-poor foods and beverages.

The Network was established in January 2008 when the members first met in Oslo, Norway.

Representatives of WHO, the European Commission, the United Nations Standing Committee on Nutrition, the Food and Agriculture Organization of the United Nations, the United Nations International Children's Emergency Fund, World Obesity and Consumers International have participated as Network observers.

T4: OP37

IS SELF-REGULATION ENOUGH?

Lobstein, Tim¹

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Regulation of children's exposure to marketing messages can take a number of different forms, and can be based on a risk analysis (defining what is highest risk and what is proportionate to the potential harm) or a rights analysis (protecting children as a principle of human rights). Most regulation, including self-regulation, is based on risk analyses and defines the levels and types of exposure, the age of the child, the nature of the product being promoted, and defines what is proportionate and the sanctions that will be imposed for breaking the regulation. An analysis of the self-regulations in Europe shows some weaknesses. Furthermore there is evidence that children continue to be exposed to a high levels of promotional marketing for snack foods, sugary cereals, soft drinks and similar products. Industry reports show that the self-regulations are being fully administered, but if exposure is still continuing this shows that self-regulation is inadequate and stronger measures are needed.

OBSERVATIONS: The author has no conflict of interest in this presentation.

T4: OP68

MARKETING OF FOODS TO CHILDREN IN THE WHO EUROPEAN REGION: PROGRESS, GAPS AND CHALLENGES

Breda, João¹

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Background: There is unequivocal evidence that childhood obesity is influenced by marketing of foods and non-alcoholic beverages high in saturated fat, salt and/or free sugars (HFSS), and a core recommendation of the WHO Commission on Ending Childhood Obesity is to reduce children's exposure to all such marketing. As a result, WHO has called on Member States to introduce restrictions on marketing of HFSS to children, covering all media, including digital, and to close any regulatory loopholes.

Outline: WHO has explicitly called on Member States to introduce comprehensive restrictions on marketing of HFSS foods to children in all media, including digital, and progressively to close any existing regulatory loopholes. Despite progress in recent years, policy monitoring by WHO/Europe reveals large inconsistencies in approach across countries in the region. Some countries have introduced wide-reaching statutory restrictions and use nutrient profiling tools, while others have opted for more

narrowly defined self-regulatory measures. The presentation will explore some of the insights from WHO work in this area. Notably it will explore the contemporary challenge of digital marketing. Children across Europe access digital media avidly, predominantly on mobile devices. Brands and marketers report that digital marketing (including for HFSS foods) amplifies advertising in traditional media, achieving greater ad attention and recall, greater brand awareness and more positive brand attitudes, greater intent to purchase and higher product sales. Digital platforms also collect extensive personal data from Internet users to deliver behavioural advertising, specifying audiences with precision and targeting the most vulnerable, and there is currently little effective regulation to protect children from this practice. The speaker will raise some key legal and ethical concerns and open the floor for discussion about how to address these challenges.

7TH JULY

9H00-10H45 MINI AUDITORIUM

Multi level and diverse approaches towards children on family setting

Chair: Margherita Caroli (ECOG)

9h00 **Isabel de Santiago** (University of Lisbon/PT)

T2: MINUTO AZUL - Healthy Food on the Radio TSF

9h15 **Patricia Padrão** (FCNAUP-University of Porto/PT)

T4: Nutriscience project: an effective web-based intervention in the nutritional literacy of children's families

9h30 **Ausra Petrauskiene** (Lithuanian University of Health Sciences / LT)

T3: Associations between weight status and home environment of Lithuanian first-graders

9h45 **Roberta Frontini** (University of Coimbra/PT)

T3: Living with paediatric obesity: Individual and familiar adaptation

10h00 **Eva Pereda-Pereda** (University of the Basque Country UPV/EHU / SP)

T3: Relationship between depressive symptoms and risk of eating disorders in primary school children

10h15 **Paul Gately** (Leeds Beckett University / UK)

T1: "Support for severely obese children – Does it exist?"

T2: OP223

MINUTO AZUL - HEALTHY FOOD ON THE RADIO (HEALTH COMMUNICATION PROGRAM ON THE RADIO FOR CHILDHOOD OBESITY PREVENTION & PREVENTION OF SOCIAL EXCLUSION SITUATION.

de Santiago, Isabel¹; Miguel, JP; Bacelar-Nicolau, L; Instituto de Medicina Preventiva e Saúde Pública, Faculdade de Medicina da Universidade de Lisboa; Godinho, CA, Instituto de Ciências Sociais, Universidade de Lisboa; Almeida, ID, ISCTE-IUL.

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Introduction/Aim: According to COSI Portugal study 2013, 31.6% of children aged 6 to 8 years were overweight, meaning that 17.7% were already pre-obese and 13.9% are obese. The Region of the Centre of the Portuguese territory presented the highest prevalence at national level with 20.2% of pre-obesity and 17.8% of obesity, thus 38% with overweight.

Methods: VISEU was the chosen city to implement the a community based program on Prevention of Childhood Obesity through health promotion and healthy lifestyles of primary school children with social exclusion situations in Portugal through edutainment and KISS methodology. Teacher's also received training on edutainment and KISS methodology. It was developed a communication plan for children and primary school teachers with Key messages from the food wheel, Edutainment, Use of various teaching materials (room adaptation), **Healthy Food Ambassadors (HFA-eng; EAS-pt)** mobilization - TSF Radio recording, Evaluation by online questionnaire (teachers and parents EAS), Teacher's Feedback of primary schools.

Results: Health Communication Preventive interventions: The proposed and implemented Health Communication Plan (HCP) has contributed to reduce new cases of Childhood Obesity and overweight; Empowering for an overall improvement in the nutrition of children and their families. Direct target-audience: students of basic schools of Viseu; families of children directly beneficiaries of the project; 225 teachers of the school groups; 124 classrooms. Indirect target-audiences Results: 342 000 TSF Radio Audience. Key Messages Results: Production of 65 Key Messages, Here: <http://www.tsf.pt/programa/minuto-azul.html>. Books 2017, de Santiago I, Pereira Miguel. Minuto azul: contar saúde com ciência e afetos. Instituto de Medicina Preventiva e Saúde Pública. Faculdade de Medicina da Universidade de Lisboa. ISBN: 978-989-8801-63-0. Coleção: FM-IMP-Livros. Depósito aceite e arquivado no Repositório. Identificador: <http://hdl.handle.net/10451/27212>.

Keywords: Health Communication and Health Promotion and Disease Prevention Children obesity, Lifestyles and Health Impact, Determinants of Health and Disease, Edutainment, COSI Portugal. www.medicina.ulisboa.pt/minuto/azul.

Support&Special thanks: High Sponsorship of the President of the Portuguese Republic Approval in Scientific Council of the Faculty of Medicine of the University of Lisbon. Support from the EDP Foundation, Programa EDP Solidária 2016. Câmara Municipal de Viseu.

T4: OP202

NUTRISCIENCE PROJECT: AN EFFECTIVE WEB-BASED INTERVENTION IN THE NUTRITIONAL LITERACY OF CHILDREN'S FAMILIES

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Introduction/Aim: Traditional nutrition education strategies for childhood obesity prevention have shown little effect. We aimed to investigate the impact of innovative web-based intervention programs in nutritional literacy of families of pre-school children.

Methodology: The Nutriscience project is a prospective follow-up evaluation program, for families and educators of pre-school children. The program consists in a web-based intervention, using an on-line interactive platform, focused on fruit and vegetables, sugar, and salt. A gamification approach was developed, using a convenience sample from a national schools' network. The strategy includes a mix between participants' interactions in a social network, raising awareness through educational materials, serious games apps, and nutritional challenges. A parental self-reported questionnaire assessing sociodemographic characteristics and nutritional literacy (20 questions on 4 different dimensions: nutrients, food portions, national food wheel guide groups and food labelling) was administered at the baseline and at the end of the intervention. A nutritional literacy score was obtained for each family through the proportion of correct answers. A General Linear Model for Repeated Measures was used to analyse the improvement of the nutritional literacy score over the intervention, taking into account sociodemographic variables.

Results: Intervention program included 550 families from 24 institutions, during 3 months. A total of 1265 and 327 recipes, photographs and videos published by families' and educators were uploaded, respectively. A total of 114 families completed the final questionnaire but for the analysis 106 families were considered. The final mean (SD) score was significantly higher than the baseline one: 78.8 (15.6)% vs. 72.7 (16.2)%; $p < 0.001$. There was no significantly differences in impact (difference between final and initial score), regarding age and educational level. Considering the nutritional literacy dimensions' score, the impact was significant for Nutrients [87.7 (14.6)% vs 84.1 (15.2)%; $p = 0.006$] and for Food wheel guide groups [69.0 (34.8)% vs. 55.1 (33.7)%; $p < 0.001$]. There were no significantly differences for Food Portions and Food Labelling dimensions.

Conclusion: Our results suggest that an intervention program, based on a digital and entertaining interactive platform, could be an effective tool to improve nutritional literacy in families of pre-school children.

OBSERVATIONS: Funding: EEA Grants Program

T3: OP228

ASSOCIATIONS BETWEEN WEIGHT STATUS AND HOME ENVIRONMENT OF LITHUANIAN FIRST-GRADERS

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Introduction/Aim: Childhood overweight is related to family environment and attitudes, therefore the aim of this presentation is to evaluate associations between weight status of first-graders and their home environment.

Methodology: The preliminary results of the data collected participating in the WHO European Childhood Obesity Surveillance Initiative in 2016 is presented. Our target population were 5800 Lithuanian first-graders and their parents. Data about 4203 children were collected. Anthropometric measurements of first-graders (6-9 years old) were performed. BMI of children was evaluated using IOTF cut-offs (2000). Family questionnaires were addressed to parents. Associations between weight status and home environment were analyzed using binary logistic regression where overweight (including obesity) was independent variable.

Results: Prevalence of overweight and obesity among first-graders was respectively 13.4% and 6.6%. Smaller likelihood of being overweight had children whose parents encouraged child to eat healthy foods before unhealthy ones (OR 1.333, CI 1.058-1.596) and those children whose parents allowed them to eat snacks whenever she/he wanted (OR 1.709, CI 1.404-2.079). Greater likelihood of being overweight (including obesity) had children whose parents were guiding them not to eat too much

their favourite foods (OR 1.794, CI 1.431-2.250) and haven't forced to eat if their child was not hungry (OR 2.594, CI 2.116-3.181).

Conclusions: The prevalence of overweight and obesity among first-graders in Lithuania was not high compared to other European countries. Most families intended to create positive home environment for first-graders.

T3: OP224

LIVING WITH PEDIATRIC OBESITY: INDIVIDUAL AND FAMILIAL ADAPTATION

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Introduction: Pediatric obesity is a high prevalence condition with adverse consequences for the child and family, which results from transactional interactions of multiple factors. We present four empirical studies that show how family factors and youth's individual adaptation are interrelated.

Methodology: The empirical studies included youths aged between 8 and 18 years with healthy-weight, overweight and obesity, and their parents. Samples were recruited in the pediatric nutrition outpatient services of two public hospitals, a health center, and in several public schools in the central region of Portugal. Youths answered questions about quality of life (QoL), psychopathology, body esteem, and social life, and parents completed questionnaires assessing QoL, psychopathology, parental stress, family cohesion (FC) and parenting styles.

Results: Obese youths and their parents reported worse QoL and more psychopathological symptoms than normal-weight youths and their parents. It was also verified that mothers of youths with obesity had higher levels of parental stress and lower FC than mothers of healthy-weight youths. The mediation models demonstrated that 1) the association between parents anxious symptoms and the QoL of adolescents with obesity was mediated by the psychopathology of adolescents; 2) higher levels of parental stress were associated with poorer QoL of obese youths through the use of a permissive parenting style; 3) the QoL of mothers and the externalizing problems of youths sequentially mediated the relationship between FC and the youths' weight status; 4) FC was associated with youths internalizing symptoms through youth's body esteem and social life.

Conclusions: These results highlight the negative psychosocial concerns of pediatric obesity in children/adolescents and their parents. The explanatory models illustrate the importance of family functioning on the weight and the psychosocial adaptation of youths with obesity.

T3: OP240

RELATIONSHIP BETWEEN DEPRESSIVE SYMPTOMS AND RISK OF EATING DISORDERS IN PRIMARY SCHOOL CHILDREN

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Childhood obesity has become a major health problem. An estimated 170 million children worldwide are classified as overweight or obese. The aim was to explore the relationship between weight status, eating pathology and depressive symptoms in children. A sample of 2055 students (48.1% girls) from primary schools aged between 8 and 12 years-old was selected (mean = 9.87, SD = 1.13). The children's BMI was calculated according to the World Health Organization classification (2007). Children completed Children Depression Inventory (CDI) and Children's Eating Attitude Test (ChEAT). Results showed that 8.6% was underweight, 56.2% normal weight, 25% overweight and 10.2% obese. Statistically significant differences with small magnitude were observed between children's weight status and risk of eating disorders, $F(3, 1852) = 27.31, p < .001, \eta^2 = .20$ and depressive symptoms $F(3, 1868) = 6.44, p < .001, \eta^2 = .10$. Correlation analyses demonstrated a significant positive correlation between weight status with risk of eating disorders and depressive symptoms ($p < .001$). There was a significant indirect effect of weight status on risk of eating disorders through depressive symptoms, $b = .42$; BCa CI [.0607, .2068]. Differences and similarities across groups, as well as the need of implementing specific health care programs for children at risk are discussed.

T1: OP34

SUPPORT FOR SEVERELY OBESE CHILDREN DOES IT EXIST?

Gately, Paul¹

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Childhood obesity remains a hot topic. Global trends suggest increasing levels of childhood obesity, with evidence in the UK that these increases are widening health inequalities. The global financial climate continues to influence the public finances and the ability to focus efforts on primary and secondary prevention, which are agreed by all as critical to the future of healthcare systems. Many public health systems appear to be working in silos and framing action as Prevention vs Treatment. However, with 1 in 3 children suffering from overweight and obesity across Europe and approximately 1-2% suffering from severe obesity it is clear that a mix of action is necessary to address the varied needs of these groups.

Obesity tracks from childhood into adulthood, in addition to the well described physical comorbidities there are a range of psychological, emotional and social consequences of being obese. These impacts are now being recognised beyond our

healthcare system including school outcomes, social relationships and future earnings, the financial burden of which is estimated to be many times the physical healthcare costs.

It is important to consider these elements within the provision of services and guidance suggests the use of multidisciplinary programmes to meet the wider needs of children and young people who are obese. At this time three forms of treatment exist for severely obese children; Bariatric surgery, Residential Weight Loss centres/Camps and Multidisciplinary team programmes. Whilst there is broad consensus on these intervention models there are few specifics, evidence of outcomes shows they work, but they are not readily available and they tend to be expensive.

Despite increasing rates of severe obesity in children cuts to UK public health budgets have had a significant impact on these specialist services. Whilst there is a national recommendation for these services to be available in all areas across the country. Out of 221 clinical commissioning groups across England only 2 provided any specific provision for severely obese children. The financial allocation equates to the provision of services for 253 children for an estimated population of 140,000. This would suggest that this particular group are not receiving the support they require, which is only storing up future challenges for them and the wider society.

7TH JULY

9H00-10H45 WHITE LOUNGE

Treatment of Child/Adolescent Obesity as an Addictive Process

Workshop led by: Robert Pretlow (USA)

7TH JULY

11H30-13H00 MAIN AUDITORIUM

Social, Cultural and Behavioral Overview

Keynote speaker: Andrew Hill (University of Leeds/UK)

T3: OP10

FAT, BAD, AND ALWAYS SAD? RECONSIDERING PSYCHOLOGICAL DISTRESS AND CHILDHOOD OBESITY

Hill, Andrew¹

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There can be little doubt about the stigma of obesity and the pervasive expression of anti-fat attitudes. The negative culture surrounding obesity is common to all high income countries and does not distinguish between adults and children. There is an associated risk to well-being in children and young people with obesity, something that is becoming recognised alongside the risk that obesity confers to physical health. Some have even argued that as victimization should be expected in every child with obesity, then all children with obesity will experience psychological distress. In this presentation, I will look at the evidence on distress. The focus will be on self-esteem, a key concept to mental health and that sits at the centre of the understanding of psychological disorder. Moving from single global assessments of self-esteem to domain-based competencies has been helpful in providing a more nuanced view of the relationship between obesity and the perceived self. Young people with obesity consistently show low appearance and athletic self-appraisal but other valued areas of functioning are rated highly and appear unaffected by body weight. People's self-judgements can also be considered through the eyes of others. Accordingly, do the

perceptions of young people with obesity match those of people around them? Social perspectives use sociometry and analyses of social networks to examine peer acceptance, rejection, and victimization. Findings from these studies show that the challenge faced by children with profound obesity is undeniable. But there is huge variation. While obesity does present a risk to well-being, the majority of young people with obesity appear relatively unaffected. This suggests some form of resilience in the lives of these young people. It is consistent with an assets approach to well-being, and is a reminder of the value of formal assessment of psychological health alongside physical health.

OBSERVATIONS: The author declares no conflicts of interest regarding this presentation.

Chaipersons: Harry Rutter (London School of Hygiene and Tropical Medicine / UK)
Isabel Loureiro (National School of Public Health / PT)
Jason Halford (University of Liverpool / UK)
Tommy Visscher (Windesheim University of Applied Sciences / NL)

7TH JULY

14H30-15H45 MAIN AUDITORIUM

Improving Food Environment for Children

Keynote speaker: Emma Shipley (Jamie Oliver Food Foundation / UK)

T4: OP54

JAMIE'S FOOD REVOLUTION: IMPROVING THE FOOD ENVIRONMENT FOR CHILDREN

*Shipley, Emma*¹

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Jamie Oliver, the chef and campaigner, has tasked his Food Foundation with a mission to persuade governments to implement a six-point obesity plan. This plan was shaped by Jamie, together with medical experts, and recommends a sugary drinks tax, product reformulation, fair marketing, clearer labelling, healthy school food and better food education to end childhood obesity. In short, Jamie works to bring about a Food Revolution. He and an alliance of like-minded campaigners use their powerful platforms and voices to improve the food environment and ensure all children have access to healthy nutrition. Over the years, there have been several wins, from school food to the sugar tax. This presentation will outline how Jamie and his team have achieved this success and how they continue to fight for a Food Revolution through campaigning.

Chaipersons: Philip James (London School of Hygiene and Tropical Medicine/UK)
João Breda (World Health Organization/Europe)
Pedro Moreira (Faculty of Food and Nutrition Sciences, Univ. Porto/PT)
Andrew Hill (University of Leeds/UK)

7TH JULY

16H15-18H00 MAIN AUDITORIUM

Food Consumption, Diet and Nutrition in Children

Chair: Maria Antónia Calhau (INSA/PT)

16h15 Carla Lopes (Faculty of Medicine - University of Porto/PT)

IAN-AF – Results of the New National Dietary Survey

16h30 Pedro Moreira (Faculty of Food and Nutrition Sciences – University Porto/PT)

T1: Feeding practices and dietary intake in children to tackle obesity: a look at some portuguese data

16h45 Ana Dinis (Regional Health Administration Lisbon VT / PT)

Eat Mediterranean project.

17h00 Isabel Castanheira (INSA /PT)

Iodine in Portuguese Diet.

17h15 Alejandro Santos (PT) FCNAUP)

Vitamin D supplementation in children.

OP66

IAN-AF – RESULTS OF THE NEW NATIONAL DIETARY SURVEY

Lopes, Carla^{1,2}, by the The IAN-AF Consortium*

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**IAN-AF Consortium: Carla Lopes, Andreia Oliveira, Milton Severo - Faculty of Medicine, University of Porto; Duarte Torres, Sara Rodrigues - Faculty of Nutrition and Food Sciences, University of Porto; Elisabete Ramos, Sofia Vilela - EPIUnit, Institute of Public Health, University of Porto; Sofia Guiomar, Luísa Oliveira - National Health Institute Doutor Ricardo Jorge; Violeta Alarcão, Paulo Nicola - Institute of Preventive Medicine and Public Health, Faculty of Medicine, University of Lisbon; Jorge Mota - CIAFEL, Faculty of Sports, University of Porto; Pedro Teixeira - Faculty of Human Kinetics, CIPER, University of Lisbon; Simão Soares - SilicoLife, Lda, Portugal; Lene Frost Andersen - Faculty of Medicine, University of Oslo.*

Introduction: The Portuguese Food, Nutrition and Physical Activity Survey, 2015-2016 (IAN-AF) aimed to collect nationwide data on dietary habits, physical activity (PA) and anthropometrics, by sex, age, education and geographical regions.

Methods: Participants are a representative sample of individuals (6235 with one interview and 5819 with two interviews), aged between 3 months-84 years, selected from the National Health Registry, by multistage sampling. Following the guidelines of EU-Menu (EFSA), dietary intake was estimated by two non-consecutive days of food diaries in children (<10 years) or 24-hrs recalls for the other age groups, using a specific developed software (eAT24). PA was assessed using the International Physical Activity Questionnaire (IPAQ) and the Activity Choice Index (ACI) for sedentary behaviours. Objective anthropometric measurements included length/height, weight and body circumferences, performed according to standard procedures.

Results: In comparison with the Portuguese food guide recommendation, Portuguese population is consuming more 10% of meat, fish and eggs and 2% of dairy products, but less fruit (-6%) and vegetables (-12%), as well as cereals (-12%). In children and adolescents, 68.9% and 65.9%, respectively, do not meet the daily recommendations of ≥400g of fruit&vegetables. Contributions to daily energy intake (DEI): 20% protein, 49% carbohydrates, 32% fat and 3.4% ethanol. The contribution of fat is higher in adolescents and adults, and the ethanol is higher in the elderly (8%). Added sugars>10% of DEI is 15%, higher in adolescents (31% male, 20% female). Sodium intake above the tolerable upper intake level is presented in 66% of women and 86% of men. Bread, meat products, and salt from vegetable soup were the highest contributors.

Only 36% of young people (15-21 years old), are physically active (27% of adults and 22% of elderly). In children and adolescents (<15 years old), about 60% accumulate ≥60 minutes/day of moderate-to-vigorous physical activity.

The national prevalence of obesity is 22.3%, higher in females (24.3% vs. 20.1%) and much higher in the elderly (39.2%); Higher in Azores (32.8%), Alentejo (27.6%), and lower in the Center (19.0%) and North (21.5%).

Conclusions: The Survey will support solid evidence-based information, harmonized according to European methodologies, for better policy planning.

OBSERVATIONS: This Survey has received funding from the EEA Grants Program, Public Health Initiatives (PT06 - 000088S13) and had institutional support from the General Directorate of Health (DGS), the Regional Health Administration Departments and the Central Administration of the Health System (ACSS).

OP70

EAT MEDITERRANEAN PROJECT

Dinis, Ana¹; Rascôa, Carla

¹ Regional Health Administration Lisbon VT

Eat Mediterranean is a community based intervention Public Health Program which aims to reduce nutritional inequalities in school students through Mediterranean Diet. It is coordinated by the Regional Health Administration of Lisbon and Tagus Valley (ARSLVT), Portugal, and co-funded by Public Health Initiatives Program – EEA Grants, from Iceland, Liechtenstein and Norway.

Aim: The purpose of *Eat Mediterranean* is to develop a public health infrastructure involving education, monitoring status and progress, and know-how on serving healthy foods to school children in targeted schools.

Methods: The Program targeted 3 Public Schools Groupings with an initial estimated number of students of 5925 in 25 schools and 257 classes, from preschool to secondary, in Santarém and Alpiarça Municipalities. In the school year 2016/2017, 5773 students were enrolled. Nutritional Status of 3894 students (aged 2 to 21 years) was evaluated by 20 trained field examiners (of a total of 164 Health and Education Professionals trained), with informed consent given by educators (letter) and by student (verbal) prior to evaluation. Anthropometric measurements were carried from 12th October 2015 until January 2016 (1 stage) and January – April 2017 (2nd stage).

Results: In the 1st stage, *Eat Mediterranean* children and adolescents showed a prevalence of overweight (including obesity) of 31,8% meaning 10,89% obese and 20,9% pre-obese. About 0,9% presented thinness. In the 2nd stage, *Eat Mediterranean* children and adolescents showed a prevalence of overweight (including obesity) of 29,10% meaning 9,80% obese and 19,30% pre-obese. About 1% presented thinness. Of all severe thin children of the 1st stage, 3,2% (n=1) improved their nutritional status and are now thin. Of all pre-obese children in the 1st stage, 8,8% (n=169) are now considered as having normal weight. Of all the obese children in the 1st stage, 13,9% (n=76) are now classified as being pre-obese.

Conclusion: Between the two stages it was possible to find some differences in the nutritional status of the participants of *Eat Mediterranean*, showing an overall improvement.

OP69

IODINE CHARACTERIZATION IN FOODS CONSUMED BY PORTUGUESE POPULATION: RESULTS OF FIRST PILOT STUDY

Castanheira, Isabel¹; Delgado, Inês; Coelho, Inês; Gueifão, Sandra; Ventura, Marta; Calhau, Maria Antónia

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Clinical studies in Portugal have demonstrated the existence of a generalized deficiency in iodine of pregnant women and in school-age children. A general lack of awareness within the Portuguese population about the importance of iodine in the diet has also been identified. The aim of this work, included in the activities of the “WHO Collaborating Centre for Nutrition and Childhood Obesity”, is to report the program underway in the country to monitor the real content of iodine in foods as consumed by Portuguese population.

More than 1 000 samples were collected between 2014 and 2016, representing the real consumption of population. Samples were analysed in 150 pools. The iodine contents were determined by inductively coupled plasma-mass spectrometry (ICP-MS) after alkaline extraction with TMAH (tetramethylammonium hydroxide) framed by EN 15111:2007.

All foods analysed in this work showed large variations in iodine content, with values of 2.4 – 7.8 µg/100g for meat, 2.8 – 289.3 µg/100g for fish and seafood, 15.8 – 39.4 µg/100g for milk and milk products, 3.3 – 26.6 µg/100g for fruit, 0.3 – 6.5 µg/100g for vegetables and pulses, 0.3 – 22.7 µg/100g for sweets and beverages, and 0.7 – 56.8 µg/100g for meals.

Results are sound supported in metrological tools and aligned with other studies published in the literature. This is a premise to estimate the iodine intake in Portuguese population and a contribution to understand the role of this intake in the risk of Iodine Deficiency Disorders observed in some regions. Furthermore results showed that in Portugal a diet rich in fish and milk and milk products supplies the recommended daily intake of iodine for a healthy adult.

T4: OP67

VITAMIN D SUPPLEMENTATION IN CHILDREN

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Vitamin D is synthesized in human skin upon sun exposure and is also a nutrient. It regulates calcium and phosphate metabolism being vital for bone health and many other extra-skeletal effects. In view of the limited number of foods that contain vitamin D, humans mainly depend on the skin synthesis of vitamin D induced by UVB-radiation. UVB-radiation is also carcinogenic, although with an extended lag time, causing DNA damage. Avoiding excessive sun exposure is prudent considering the increasing life expectancy. Frequently children have a shortfall between vitamin D requirements and their combined endogenous synthesis and intake from natural foods, and therefore need vitamin D supplementation. Vitamin D supplementation during infancy, to prevent rickets, is universally accepted. Serum total 25-hydroxyvitamin D [25(OH)D] concentration is the generally accepted marker of vitamin D status. The definition of deficiency is uncertain mainly due to a lack of consensus as to what is an adequate 25(OH)D level. All guidelines coincide that serum levels of 25(OH)D <25 nmol/l (10 ng/ml) should be avoided at all ages. A substantial number of healthy European children may be vitamin D deficient, especially in high-risk groups (darker pigmented skin, reduced sun exposure, malabsorption syndromes, etc.). Routine screening for vitamin D deficiency is only justified in high-risk group children. A large consensus exists that all infants up to 1 year should receive 400 international units (IU) (10 µg) of vitamin D daily. Beyond this age, seasonal variation of sunlight should be taken into account when considering a national policy of supplementation or fortification. Children and adults with limited sun exposure should receive vitamin D supplementation, but the recommended doses vary widely (from 200 IU to 2,000 IU daily), this is in line with the disagreement regarding the minimal desirable serum concentration of 25(OH)D (which varies from 25 nmol/l to >100 nmol/l).

7TH JULY

16H15-18H00 MINI AUDITORIUM

From the Lab to Metabolic and Biological Outcomes

Chair: Nuno Borges (FCNAUP/PT)

16h15 **Albino Maia** (Champalimaud Foundation/PT)

T1: From humans to mice in postingestive reinforcement

16h30 **Ana Cristina Santos** (FM University of Porto/PT)

T1: Cardiometabolic risk in early children: underpinning the effect of longitudinal growth trajectories: the Generation XXI study

16h45 **Anna-Lena Aufschnaiter** (FH JOANNEUM University of Applied Sciences/AT)

T1: A Pilot Study on Investigating Sensory Perception and The Relation to Body Composition and Biomarkers of Mother-Infant Pairs: Study Design and Lessons Learned

17h00 **Sónia Mestre**

T1: Comorbidities of overweight and obese youth: descriptive study from a Portuguese population

17h15 **Rute Santos** (University of Wollongong, Australia/AU)

T3: Breaks in Sedentary Time and Adiposity in Australian Toddlers: The GET UP! Study.

17h30 **Isabel Mourão Carvalhal** (CIDESD/PT)

T3: Association among age, maturation, perceived competence and obesity

T1: OP85

FROM HUMANS TO MICE IN POSTINGESTIVE REINFORCEMENT

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Feeding decisions are influenced not only by sensory factors such as palatability and environmental cues of food availability, but also by the postingestive effects that occur after food has been swallowed. In fact, both animals and humans will increase the intake of flavors associated to delivery of nutrients, and will also develop preferences for those flavors, even when they are presented in the absence of the nutrient. Nutrient-conditioned flavor preferences have been demonstrated in humans but there are significant limitations in prior literature: while maltodextrin is frequently used as the unconditioned stimulus, since it is considered to be a flavorless carbohydrate, we found that it is easily detected at several concentrations. To overcome this problem, we developed a low-calorie control solution that cannot be discriminated from a maltodextrin solution. Under these conditions, we were surprised to find that, while maltodextrin-paired flavors were not rated as more pleasant relative to control flavors, consumption choices revealed the development of a behavioral preference for the maltodextrin-paired flavor. In clinical samples, while both obese and gastric bypass patients had a similar significant increase in the intake of conditioned flavors, that was not observed in the patients receiving sleeve gastrectomy. These findings suggest that flavor-nutrient conditioning contributes towards implicit feeding decisions in humans, and furthermore, that such mechanisms seem to be altered after weight-loss surgery, particularly by restrictive procedures such as sleeve gastrectomy.

However, most research exploring postingestive mechanisms in animal feeding behavior has been performed using food preference assays, without a clear action-related component. Thus, we have further contributed to expand research on this area by developing an instrumental learning paradigm where postingestive feedback was isolated in mice. To isolate postingestive stimulation, sucrose or a non-caloric sweetener (sucralose) was injected in B16 mice through an intragastric catheter, contingent upon lever pressing. Mice significantly increased lever pressing to obtain intragastric sucrose, but not sucralose. Consistently, in a simultaneous 2-lever choice task, mice showed a preference for the lever associated to intragastric sucrose over another lever associated to intragastric delivery of sucralose. Furthermore, Trpm5^{-/-} mice, where sweet orosensory feedback is abolished, showed increased lever pressing to obtain access to sucrose, but not sucralose, confirming that postingestive mechanisms are sufficient to sustain instrumental behaviours.

To explore the importance of dopaminergic neuronal activity for these behaviors, deep-brain calcium imaging of ventral tegmental area (VTA) dopaminergic neurons was obtained in freely behaving food restricted mice, with the intragastric catheter placed directly into the stomach for alternate-day administration of sucrose or sucralose. In addition to observing a higher proportion of neurons positively modulated by sucrose when compared to sucralose, the former were found to have a more robust and sustained response to sucrose than the activity elicited by sucralose in the latter. Furthermore, the single-lever instrumental task was repeated in mice with absent NMDA receptors in VTA dopamine-producing neurons. As expected, both control and KO mice increased lever pressing to obtain access to sucrose for oral consumption. However, only control, but not KO mice, increased lever pressing to obtain intragastric injections of sucrose, indicating that functional VTA dopaminergic neurons are fundamental to sustain instrumental behaviours through postingestive feedback. Thus, we have demonstrated that mice can learn a reinforcement learning task based exclusively in postingestive reinforcement, and that dopamine-producing neurons in the VTA are necessary for these postingestive-dependent behavior to be acquired.

T1: OP248

COMORBIDITIES OF OVERWEIGHT AND OBESE YOUTH: DESCRIPTIVE STUDY FROM A PORTUGUESE POPULATION

Zacarias Mestre, Sónia¹; Conduto, Ana Catarina

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Introduction: As the prevalence of obesity increases, so does the predisposition to develop medical conditions, in a long and short term period. Family doctors are in a privileged position to work with families and their children, to advice better treatment. The aim of this study was to describe the comorbidities of a youth population enrolled in a health center.

Methodology: Observational, descriptive and retrospective study of a selective sample of a primary care center in Seixal (USF Cuidar Saúde) Aces Almada Seixal, until June of 2017. Sample (n = 199) patients coded (from ICPC-2) with episode "T82 – obesity" and "T83 – overweight" from 5 to 18 years old. Statistical analysis was performed in Excel. Ethics approval was obtained from the medical center's director.

Results: Of the 2646 patients from 5 to 18 years old, 199 were eligible. From these, 65.8% were overweight (55.7% girls) and had at least three comorbidities. The obese sample (55.8% girls) had more medical conditions, specifically endocrine disorders. A greater BMI was associated with cardiovascular, orthopedic, functional conditions and psychological consequences.

Conclusions: Because BMI is a good predictor of health, we should include routine clinical interventions related to obesity risk, in the primary care setting. The multicomponent of overweight and obesity in juvenile, is a worldwide reality. Our study supports international investigation related to potential comorbidities of overweight and obesity in infancy and adolescence.

OBSERVATIONS: No Conflit of Interest.

T1: OP237

CARDIOMETABOLIC RISK IN EARLY CHILDREN: UNDERPINNING THE EFFECT OF LONGITUDINAL GROWTH TRAJECTORIES: THE GENERATION XXI STUDY

Santos, Ana Cristina¹; Severo, Milton; Fonseca, Maria João; Barros, Henrique

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Obesity is at epidemic levels among European children, and precursors of type 2 diabetes and cardiovascular disease are now being described in children. It is essential to identify the critical periods of postnatal life implicated in metabolic health. The aim of this study was to prospectively assess the impact of different growth trajectories in cardiometabolic markers along childhood. 2. Generation XXI, a birth cohort established in Porto Metropolitan Area, in 2005-2006, and the baseline recruitment comprised 8647 newborns. Four years after birth, the entire cohort was invited for a revaluation and data was collected through interviewer-administered structured questionnaires. Detailed physical evaluations were performed including an anthropometric evaluation and blood pressure measurement. Information on biochemical and metabolic indicators were also evaluated. Data regarding measurements of the child's weight, length/height from birth to the age of the evaluation were abstracted from the National Health Service child health books. Data were obtained for 5,536 children, who contributed to a total of 101,972 measurements of weight, 86,363 of length/height, and this information allowed the identification childhood growth trajectories for the Portuguese population, using general growth mixture modeling. 3. Four distinct growth trajectories were identified and termed as "normal weight gain", "persistent weight gain", "weight gain during childhood" and "weight gain during infancy" trajectories. Using the "normal weight gain" trajectory as reference and after adjustment for gender, birth weight, gestational age and weight at four years of age, children with a "persistent weight gain" trajectory, exhibited significantly higher mean levels of diastolic blood pressure ($\beta=1.34$; 95%CI: 0.31-2.38), insulin ($\beta=0.23$; 95%CI: 0.07-0.38) and HOMA score levels ($\beta=0.22$; 95%CI: 0.06-0.39). Although not as strongly associated, the same associations were observed for children included in the "weight gain during childhood" trajectory. Four growth patterns were identified in this birth cohort. Patterns weight gain throughout childhood, independently of weight attained at this age, were associated with a worse metabolic profile at four years of age. These associations were more evident for disturbances related to glucose metabolism.

OBSERVATIONS: This study was founded by FEDER through the Operational Programme Competitiveness and Internationalization and national funding from the Foundation for Science and Technology – FCT (Portuguese Ministry of Science, Technology and Higher Education) (POCI-01-0145-FEDER-016837), under the project PathMOB: Pathways from early life to cardiometabolic risk during childhood (Ref. FCT PTDC/DTP-EPI/3306/2014). Ana Cristina Santos holds a FCT Investigator contract IF/01060/2015/CP1319/CT0001. This study is also a result of the project DOCnet (NORTE-01-0145-FEDER-000003), supported by Norte Portugal Regional Operational Programme (NORTE 2020), under the PORTUGAL 2020 Partnership Agreement, through the European Regional Development Fund (ERDF).

T1: OP242

A PILOT STUDY ON INVESTIGATING SENSORY PERCEPTION AND THE RELATION TO BODY COMPOSITION AND BIOMARKERS OF MOTHER-INFANT PAIRS: STUDY DESIGN AND LESSONS LEARNED

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Obesity and accompanying increased morbidity and mortality risk is highly prevalent in adults and is already programmed in vulnerable time periods perinatal and during early childhood. This study aims to identify anthropometric, sensory and biological predictors and processes involved in the programming of early life obesity. In this prospective and observational pilot study quantitative and qualitative data from 57 healthy pregnant women, aged 18 to 50 years, and their newborns were collected during the last gestational trimester, after four months and one year after childbirth. During two antenatal and two postnatal visits, nutritional assessments were taken (e.g. FFQ, PrefQuest), anthropometric and sensory testing were performed and biomarker samples were obtained (blood, breast milk, faeces). The infants body composition were measured with an Air Displacement Plethysmography system (PeaPod®) and emotional reaction to sensory stimuli were assessed via FACS (Facial Action Coding System).

OBSERVATIONS: The pilot study is expected to provide results on maternal nutrition, sensory perception, anthropometric data and biomarkers relating to children's body composition, weight gain and taste preferences. Since data are currently being analysed, study design and lessons learned in the process will be presented.

T3: OP208

BREAKS IN SEDENTARY TIME AND ADIPOSITIY IN AUSTRALIAN TODDLERS: THE GET UP! STUDY.

Santos, Rute¹; Pereira, João Rafael; Zhang, Zhiguang ; Sousa-Sá, Eduarda; Cliff, Dylan; Veldman, Sanne & Okely, Anthony David

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Introduction/Aim: Some studies have shown a negative relationship between breaks in sitting time and adiposity in children and adolescents. However, data among toddlers is scarce. We aimed to examine the association between breaks in sitting time and adiposity in toddlers.

Methods: This study comprised 269 toddlers (129 girls), aged 19.7±4.2 months from the GET-UP! Study, Australia. Sitting time, breaks in sitting time, standing and stepping were objectively measured with activPAL accelerometers and expressed as minutes (or number of breaks) per hour of accelerometer wear time, during childcare hours. Breaks (interruptions) in sitting time were defined as the number of transitions recorded from “sit/lie” posture to “stand”. Waist circumference was measured at the top of the iliac crest and Z-scores by age and sex were calculated. ROC curves, ANCOVA and regression analysis were performed (models were adjusted for age, sex, childcare centre, socio-economic status, average minutes of sitting, standing and stepping per hour of accelerometer wear time).

Results: Participants reported an average of 33±16 breaks in sitting time/hour, and spent 23.4±10.1 mins/hour sitting, 23.3±7.9 mins/hour standing and 13.3±5.8 mins/hour stepping. The number of breaks in sitting time/hour showed good discriminatory ability in classifying children below 1 SD of waist circumference Z-score (ROC: AUC=0.630, p=0.005, number of breaks cut point > 32 breaks/hour). Participants with higher waist circumference Z-scores (≥ 1 SD) had fewer breaks in sitting time than their leaner counterparts [26.9 vs 33.9 breaks/hour, respectively - ANCOVA F(1,267)=8.794; p=0.003]. Breaks in sedentary time were negatively associated with waist circumference z-score (B=-0.008; p<0.05).

Acknowledgments: Rute Santos and Dylan Cliff have Discovery Early Career Research Awards from the Australian Research Council (DE150101921/DE140101588).

T3: OP214

ASSOCIATION AMONG AGE, MATURATION, PERCEIVED COMPETENCE AND OBESITY

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Obesity still is one of the world's biggest public health problems, with a high prevalence in children. It is a very preoccupant situation, as an obese child has a high probability of becoming an obese adult. The aim of this study was to determine the variables associated with childhood obesity. The sample include 282 children (148 boys and 134 girls) with 6-11 years old (8,79 ±1,78) from a primary school in Brasil. Obesity was estimated by BMI and the CDC (2005) cut-off points. Motor competence was evaluated with MABC-2, the sexual maturation with Tanner scale and the perceived competence by Perceived Efficacy and Goal Setting System – PEGS. Logistic regression was used to estimate the association among obesity, motor competence, biological and psychological variables. The results evidence strong associations among obesity, academic activities perception (OR =1,105; 95%CI 1,005-1,215) sexual maturation (OR= 0,412; 95% CI 0,188-0,902) and age (OR=0,785; 95%CI 0,664-0,928). Younger children with lower perceived academic competence and early mature present more risk to became obese children. Early intervention is important in order to mitigate future consequences.

7TH JULY

16H15-18H00 WHITE LOUNGE

Community Action

Chair: Viktoria Kovacs (National Institute of Pharmacy and Nutrition/HU)

16h15 **Teresa Sancho** (Regional Health Administration Algarve/ PT)

T2: Socio-ecological intervention in the Algarve to prevent childhood obesity

16h30 **Rute Borrego** (Lisbon School of Health Technology / PT)

T2: Food in Action Project – a national youth health strategy

16h45 **Gerda Feunekes** (The Netherlands Nutrition Centre / NL)

T5: Nutrition communication centres join forces: the European Public Health Nutrition Alliance

17h00 **Aida Moreira Silva** (ACES Baixo Mondego/ PT)

T3: Kids summer school: exercise/ food/ health

17h15 **Isabel Almeida** (ISCTE/ PT)

T3: Apps and eHealth Interventions for Weight Management: Hype or Hope for Childhood Obesity Prevention

17h30 **Saeid Doaei** (Shahid Beheshti University of Medical Sciences / IR)

T3: Study of the association of socio-demographic factors and feeding practices with the dietary intake in 3-6years old children

T2: OP230

SOCIO-ECOLOGICAL INTERVENTION IN THE ALGARVE TO PREVENT CHILDHOOD OBESITY

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Introduction: Rapid changes in diets, physical activity and sedentary lifestyles led to a major public health challenge, because prevalence of obesity is rising rapidly and the trend is especially alarming at younger ages. Thus, early prevention is universally regarded as the best approach, in which socio-ecological interventions offer effectiveness to tackle the problem.

Aim: To present the socio-ecological intervention developed on Algarve region to tackle the childhood obesity prevalence.

Methods: Since 2006, a socio-ecological intervention has been developed, through the implementation of a comprehensive and multisectorial program that promote the intake of healthy foods, the regular physical activity and reduce of sedentary behaviors in children. Work in partnership developed with Regional Health Authority, Regional Education Authority, Regional Sports Authority, Regional Agriculture Authority, University of the Algarve, Municipalities and parent's representatives. Our intervention has been mainly performed on three critical time periods in life-course: pregnancy, childhood and adolescence. Health education interventions with pregnant women, children and parents have been carried out. Training sessions with health and education professionals have been held. Surveillance and improvement of food supply in school canteens and vending machines has occurred. The promotion of the practice of physical activity in school has been implemented. Finally, children who are overweight have been targeted for therapeutic approach. Monitoring of child nutritional status was been held by anthropometric evaluation.

Results: Through the Childhood Obesity Surveillance Initiative Study performed in 2008, 2010, 2013 and 2016, according to the World Health organization criteria, Algarve region has presented a prevalence of overweight, including obesity, of 21.4%, 22.6% and 30.0%, respectively.

Conclusion: This socio-ecological intervention based in a multisectorial and multidisciplinary actions supports this model has maintained the Algarve region with one of the country's lowest prevalence of childhood obesity.

T2: OP207

FOOD IN ACTION PROJECT – A NATIONAL YOUTH HEALTH STRATEGY

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Introduction/aim: Youth is a critical period for better health and social behaviors. The behaviors at this stage are strong predictors of later life behaviors. “Food in Action” project was a strategic partnership between non-governmental youth organization and governmental organizations. “Food in Action” project worked in the youth health offices located in all 18 Portuguese districts. The youth health offices had a dietitian/nutritionist that provided a structured and integrated nutrition intervention. This intervention had 2 dimensions: 1) personal nutrition assessment and counseling and 2) community based intervention. Here we propose to analyze the impact of personal nutrition counseling in the eating behaviors and nutrition indicators.

Methodology: Anthropometric measurements (weight, height and BMI), number of daily meals and food frequency fruit, salads/vegetables, vegetable soup and soft drinks were collected through interviews to young people who experienced personal nutritional counseling on youth health offices. The stages of change model was applied to support the personal nutritional counseling.

Results: Young people n=1020 were followed in nutrition counseling for a period of six months. In this period there was an average weight loss of 2.8Kg. The female 79.0% lost more weight (p=0.034). There was a BMI reduction average of 1.1kg/m² in which 7.5% reduction occurred among obese young people. There was an average increase in the number of daily meals (p=0.000). Daily fruit, salad and vegetable soup frequencies increased (p=0.000). All of the young people began to consume daily fruit, salad and vegetable soup. There was a reduction of consumption of soft drinks (p=0.000). After six months 37.0% of the sample didn’t drink daily soft drinks.

Conclusions: The personal nutrition counseling contributed to improving the eating habits of young people. Globally “Food in Action” project brought more and better health youth indicators.

OBSERVATIONS: Food in action project had a financial support of General-Directorate of Health.

T5: OP227

NUTRITION COMMUNICATION CENTRES JOIN FORCES: THE EUROPEAN PUBLIC HEALTH NUTRITION ALLIANCE

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For nutritionists, it is clear what a healthy diet is. Dietary guidelines are based on scientific consensus and similar around the world. For consumers, it is less clear. Fact is, in many countries people don’t have access to objective scientific information on healthy nutrition. Social media is dominated by guru’s who preach their own philosophy, leaving consumers confused and unaware of scientific information. Besides that, there is heavy advertising on predominantly unhealthy foods and drinks. In these circumstances, it is a challenge for people to develop and maintain a healthy diet.

The European Public Health Nutrition Alliance (EPHNA) consists of independent centres, responsible for nutrition communication at country level. There is a joint website (www.ephna.eu). Industry funding is not allowed for our members. Our starting point is public health nutrition. We are supported by WHO, and facilitate the work of national centres to provide Europeans with optimal information on nutrition to maintain a healthy and active life. Germany, Belgium, Austria, Switzerland, Portugal, Spain, Netherlands are EPHNA member. We aim for full coverage of EU. The annual meeting on 7/8 September 2017 in Southern Europe, co-hosted by WHO.

In share experiences and develop best practices (e.g., on developing food based dietary guidelines, consumer websites, healthy school meals). Extension of this network is needed not just in Europe, but with fast paced nutrition transition, maybe even more in Africa and Asia.

T3: OP201

KIDS SUMMER SCHOOL: EXERCISE/ FOOD/ HEALTH

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Introduction: 30 children, between ages 6 and 12 years, participated in the “Kids Summer School 2016: Exercise, Food and Health”, a project which arose from the need to combat childhood obesity during school holidays, based on healthy food and physical activity.

Objectives: Modify behaviours that lead to childhood obesity through balanced meals, the practice of various physical activities and health education lessons. The specific aim was to decrease the percentage of body fat mass in children with overweight or obesity.

Methodology: The children were evaluated by anthropometric parameters (weight and height) according to standard WHO criteria. For the measurements we used a portable stadiometer model Seca® 213 and a bioimpedance scale model Tanita® BC-

418 Segmental Body Composition Analyser. Data were treated using the Statistical Package for Social Sciences (SPSS) version 23.0 ® for Windows ®.

Results: The children had an average age of 9.5 years; 52% were male. At the beginning of the summer camp, 55.5% were obese ($\geq P97$). After applying Student's t-test for paired samples, one found that the body fat mass and the trunk fat mass showed statistically significant differences (respectively, $p = 0.005$ and $p = 0.04$). On the contrary, the weight did not show a statistically significant difference ($p = 0.279$).

Conclusions: During the summer camp, the children changed their eating habits following the guidelines transmitted. Their body composition, especially in overweight and obese children, improved.

OBSERVATIONS: We would like to present a short movie on the project.

T3: OP221

APPS AND EHEALTH INTERVENTIONS FOR WEIGHT MANAGEMENT: HYPE OR HOPE FOR CHILDHOOD OBESITY PREVENTION

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The spread of obesity has been declared a worldwide epidemic by the World Health Organization particularly in childhood where overweight and obesity have significant impact on physical health, social and emotional well-being, and self-esteem. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. This is a serious public and clinical problem since by increasing the risk of many obesity derived health complications, long-lasting treatment for effective results are needed, involving high public and private expenses.

There is a limited but growing body of evidence suggesting that mobile eHealth behavioural interventions, such as internet, mobile phone or computer based clinical protocols, may be effective in promoting and sustaining successful weight loss and weight maintenance behaviour changes. Mobile applications (apps) could be an engaging way to involve children in health behaviour changes, capitalizing on portability and affordability of delivering health information via mobile devices and opportunity to use gaming to make health information entertaining. Moreover, eHealth sector interventions, with over 100 000 health apps currently available, could also have an essential role in the development of sustainable systems targeting health costs reducing.

Addressing the childhood obesity issues, we study eHealth compliance and eHealth potential to help patients and general practitioners to overcome some of the barriers to managing health risk behaviors. In particular, we discuss (1) the role of eHealth in facilitating routine collection of patient-reported data on lifestyle risk factors, and (2) the role of eHealth in improving clinical management of identified risk factors through provision of tailored feedback, point-of-care reminders, tailored educational materials, and referral to online self-management programs.

OBSERVATIONS: Mariana Neto Coelho is a MSc Student Graduated by the “Master in Management”, Instituto Universitário de Lisboa (ISCTE-IUL)

T3: OP218

STUDY OF THE ASSOCIATION OF SOCIO-DEMOGRAPHIC FACTORS AND FEEDING PRACTICES WITH THE DIETARY INTAKE IN 3-6 YEARS OLD CHILDREN

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This paper aimed to investigate the association of social factors and feeding practices with the diet in 3-6 years old children. A cross-sectional study of 208 parents with children aged 3-6 years was carried out in 30 primary schools of Rasht, Iran in 2011. Measures included social factors, aspects of parental control practices and the child's diet. Mothers reported both their own and their child's demographics. Aspects of child feeding practices were assessed by using Comprehensive Feeding Practices Questionnaire (CFPQ). Food Frequency Questionnaire (FFQ) was then used to assess the child's dietary intake. Height and weight of mothers who participated in the study were also measured. The role of parental and child social and demographic factors and child feeding practices in predicting children's diet was assessed by using multiple block entry linear regression. Results showed that children's diet is related to the mother's age, marital status, education and the child's age and sex. Moreover, the mother's encouragement of balanced diet and variety, food as reward, involvement of the child in food preparation, role modeling, monitoring, child control, restriction for health, and education about nutrition were also related to the child's diet. The results showed a significant association between social factors and control practices on one hand, and aspects of the child's diet, on the other hand.

8TH JULY

9H00-10H30 MAIN AUDITORIUM

The European Association for the study of Obesity (EASO) SESSION

Organized by: Euan Woodward (UK)

Chair: Jason Halford (UK)

Chaipersons: Nathalie Farpour-Lambert (SW)

Tommy Visscher (NL)

Harry Rutter (UK)

OP49

CHILDHOOD OBESITY IS A CHRONIC DISEASE DEMANDING SPECIFIC HEALTH CARE

J. Farpour-Lambert, Nathalie¹

¹ The European Association for the Study of Obesity (EASO, London) and the University Hospitals of Geneva, Switzerland

About thirty percent of Europe's school-age children are estimated to be overweight with an increased risk of developing chronic diseases as they become adults. Of these overweight children, one in five is obese, with a significant probability that they are already suffering the early signs of cardiovascular disease, diabetes and liver disease. The number of overweight children has risen substantially in the last two decades and is likely to continue to rise unless major prevention programmes are initiated.

The treatment of childhood obesity can involve a wide range of professional services including family counselling, behaviour modification, sports and activity training, nutrition and dietetics and, where necessary, pharmaceutical and surgical interventions. However, obesity treatment in children is rarely fully successful in the longer term. The main aim of treatment is to prevent further increases in obesity and to reduce as much as possible the risk of related ill health.

Prevention of child obesity involves the child, the family, the school, the health services, the community and society at large. A child's environment contains many inducements that encourage weight gain, and the child cannot be expected to resist these alone. Healthier choices need to be easy ones for a child to make, and need to be fully supported by all those responsible for children's health. Where necessary, controls may need to be exerted to ensure that children are not induced to make choices which could damage their health.

OP12

WHERE'S THE EVIDENCE?

Rutter, Harry¹

¹ London School of Hygiene and Tropical Medicine

A common feature of the response to obesity, alongside many other public health problems, in countries around the world is a persistent skew in both policies and actions towards interventions that act at individual, group or community level, often with a focus on individual level behaviour change. This is the case despite a broad understanding that upstream, population level factors underpin many of these behaviours. We seem to have forgotten the lessons of Geoffrey Rose about the importance of small, sometimes even imperceptible, changes across large populations.

This phenomenon, which has been characterised by Hunter et al as 'lifestyle drift', applies equally to research. The evidence base on interventions to tackle obesity is heavily biased towards interventions that act at individual level. There is a paucity of research on population level actions, and the evidence of this kind that does exist is subject to widespread challenge, especially by corporate vested interests. Interventions that require high levels of individual agency tend to have low levels of effectiveness, and to widen inequalities.

There are many reasons for this imbalance in the evidence base, ranging from risk aversion on the part of both researchers and funders, through journal editorial processes and academic reward structures, to political framing of research priorities. Addressing these and other barriers will require a broad range of responses by multiple actors over the short, medium and long term.

There is a range of actions that can be taken now to address the gaps and imbalances in the evidence, and promote an appropriate set of evidence-based responses to obesity. Awareness of the nature of the problem is perhaps the simplest but most fundamental. Combining generalizable evidence from other domains with robust theoretical approaches can support a range of meaningful responses. And while the traditional biomedical approach to the generation of evidence remains a central plank of obesity research, much public health activity needs also to embrace the challenges of developing, implementing and evaluating interventions using a complex systems approach. Rising to this challenge will not be not easy, but is necessary if we are to succeed.

8TH JULY

9H00-10H30 MINI AUDITORIUM

Community Action

Chair: Maria Hassapidou (Alexander Technological Educational Institute of Thessaloniki/GR)

9h00 **Sara Santos Sanz** (Spanish Agency for Consumer Affairs, Food Safety and NutritionSP)

T1: WHO childhood obesity surveillance initiative – Spain

9h15 **Teresa Rodrigues** (Regional Health Administration Norte/ PT)

T1: Childhood Obesity Surveillance Initiative Portugal - Methodology of the Northern Regional Health Administration

9h30 **Gergo Erdei** (National Institute of Pharmacy and Nutrition / HU)

T1: Overweight and obesity among school children in Hungary by urbanity and regions using three cut-off criteria (COSI Hungary)

9h45 **Mirjam Heinen** (University College Dublin/ IE)

T1: Overweight and obesity track over time in primary school children: longitudinal findings in the childhood obesity surveillance initiative in the republic of Ireland.

10h00 **Gianni Varnaccia** (Robert Koch Institute / GE)

T1: Monitoring the complex causes of childhood obesity on a national level: Results from the German AdiMon-Project

T1: OP215

WHO CHILDHOOD OBESITY SURVEILLANCE INITIATIVE

Santos Sanz, Sara¹; Dal Re Saavedra, Maria Angeles; Villar Villalba, Carmen; Yusta-Boyo, Maria José; Castrodeza Sanz, Jose Javier; Robledo de Dios, Teresa; Perez-Farinos Napoleon

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Objective: Spain joined the COSI through the Spanish Agency for Consumer Affairs, Food Safety and Nutrition. The first data were collected in Spain during the 2nd COSI round, in 2011 (ALADINO Study, 2011). The aim of the new data collection (4th data round COSI, ALADINO 2015) was to assess whether the decreasing trend of prevalence could be confirmed.

Methods: ALADINO 2015 studied 10,899 children (5,532 boys and 5,367 girls) aged between 6 and 9 years old at 165 schools from all the Regional Communities and cities in Spain. This sample is representative of the overall Spanish population for this age group. The study involved the three original COSI questionnaires, translated and adapted for the Spanish population. The measures were made by specifically trained research personnel. The mean BMIs for the boys and girls separately, and for both sexes together, within each age group, were determined. The prevalence of overweight and obesity by sex and age group was also determined using three different sets of cut-off criteria: Orbegozo Foundation, IOTF reference values and WHO growth standards.

Results: The prevalence of overweight observed was 23.2 % (22.4 % in boys and 23.9 % in girls), and the prevalence of obesity was 18.1 % (20.4 % in boys and 15.8 % in girls), using the WHO growth standards.

Conclusions: A significant decreasing in the prevalence of overweight in boys and girls aged 6 to 9 has been found out in Spain since 2011 to 2015. The prevalence of obesity have reached a plateau from 2011. The prevalence of obesity is similar in boys and girls, but the prevalence of obesity is higher in boys. The decreasing trend needs to be monitored in new data rounds.

T1: OP234

CHILDHOOD OBESITY SURVEILLANCE INITIATIVE PORTUGAL - METHODOLOGY OF THE NORTHERN REGIONAL HEALTH ADMINISTRATION

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Introduction: The Childhood Obesity Surveillance Initiative (COSI) emerges as the first European Child Nutrition Surveillance System to fill the data gap in this area. Through the National Institute of Health Doctor Ricardo Jorge and the General Directorate of Health, Portugal is one of the participating countries. At the regional level, the implementation of the project on the ground followed a strategy of allocation of human and material resources of the various Regional Health Administrations (ARS). From the second round of COSI (2009-10), Northern ARS adopted an innovative approach for the collection and processing of data.

Methodology: The top managers of the 21 Health Center Group (ACeS) and the 3 Local Health Units (ULS) of the Northern Region nominated 3 health professionals to constitute the local COSI teams (COSI-L), which are responsible for the process of surveillance in the sentinel schools of its geographical area. Each COSI-L team underwent a training process prior to data collection, under responsibility of the regional COSI team (COSI-R).

Results: In the 2nd, 3rd and 4th COSI rounds, Northern ARS formed 20-26 COSI-L teams, each with 65-80 examiners / round. The data collection takes place in 4-6 weeks, and then are reported to the COSI-R team, who submit them to two levels of validation, before sending them to the COSI national team (COSI-N). With this methodology, the participation rate of schools, children and families increased significantly, when compared to the first round, regardless of the total number of children proposed for evaluation, which has increased: 1670 children in 2008; 1939 in 2010; 2139 in 2013 and 2401 children in 2016. Besides, participation rates in the Northern Region have been higher than the average national participation rates, with an average difference of + 5%.

Conclusions: The decentralization of the collection and processing of data allows increasing profitability of material and human resources. The involvement of local examiners, who have a better knowledge of the area of influence of their ACeS, contributes to the simplification of the data collection process, without penalizing the reliability of the study.

OBSERVATIONS: The author declares the absence of any conflicts of interest in the performance of this work.

T1: OP225

OVERWEIGHT AND OBESITY AMONG SCHOOL CHILDREN IN HUNGARY BY URBANITY AND REGIONS USING THREE CUT-OFF CRITERIA (COSI HUNGARY)

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Introduction: Several studies investigated the urban-rural gradient and regional differences in the prevalence of obesity in children. However, results are not concise. The aim of the current study was to examine the rate of childhood obesity and urban-rural as well as geographical differences among Hungarian 7-year-old children.

Methodology: This study was part of the fourth round of WHO Childhood Obesity Surveillance Initiative, and took place in October 2016. Representative sample was determined by two-stage cluster sampling. A total of 2653 children from 155 primary schools inclusive of 1514 urban (>10,000 inhabitants), 780 semi-urban (2,000 to 10,000 inhabitants) and 359 rural areas (<2,000 inhabitants) were measured (weight and height). To determine the prevalence we used the WHO, IOTF and CDC cut-offs.

Results: Depending on which growth reference we used the prevalence of thinness varied from 7.6% to 14.8%, while the rate of overweight varied from 11.6% to 13.0% and obesity ranged from 9.5% to 15.1%. Southern Transdanubia was the region with the highest prevalence of overweight (incl. obesity) (31.4%) and Central Hungary (18.4%) was the one with the lowest. Based on IOTF criteria, there were no significant difference in the prevalence of overweight and obesity by urbanization: urban (14.4% and 8.3%), semi-urban (11.2% and 10.0%) and rural (11.1% and 13.2), respectively.

Conclusions: This study supports earlier findings about significant difference in obesity prevalence using different definitions. This study also suggests that regional differences should be considered when planning health promotion interventions.

T1: OP233

OVERWEIGHT AND OBESITY TRACK OVER TIME IN PRIMARY SCHOOL CHILDREN: LONGITUDINAL FINDINGS IN THE CHILDHOOD OBESITY SURVEILLANCE INITIATIVE IN THE REPUBLIC OF IRELAND

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Introduction/aim: Projections show global childhood overweight and obesity prevalence to rise from 14.2% in 2013 to 15.8% in 2025. Identification of overweight and obesity predictors during childhood is crucial to halt this alarming trend. This study aims to prospectively investigate predictors of overweight and obesity in a large cohort of Irish primary schoolchildren.

Methods: Data from the Irish Childhood Obesity Surveillance Initiative (COSI), conducted in 2008, 2010, 2012, and 2015, were analyzed in a prospective longitudinal cohort. A total of 2,762 children (53.8% girls) with available repeated measurements at two different time points were included. Height, weight and waist circumference were objectively measured by trained nutritionists. The study followed the WHO COSI protocol, jointly developed by the WHO Regional Office for Europe and

participating Member States. British 1990 reference data were used to calculate z-scores. Body mass index (BMI) was categorized according to International Obesity Task Force cut-offs. Predictors of overweight, including obesity, at time point 2 (T2) were examined using logistic regression analyses. Measurements at time point 1 (T1) were entered as covariates.

Results: Mean age was 7.9 (± 1.1 SD) years at T1 and 10.9 (± 1.1 SD) years at T2. Weight, height, and waist circumference z-scores were significantly higher ($p < 0.001$) at T2, except for z-BMI which was not significantly ($p > 0.05$) different between measurement points. The prevalence of overweight and obesity rose from 17.0% at T1 to 19.4% at T2. Logistic regression analyses showed that children who were overweight and obese at T1 were more likely to be overweight and obese at T2 (OR=10.9; 95% CI=7.9-15.2). Those children having high waist circumference at T1 (OR=1.21; 95% CI=1.17-1.25) and attending disadvantaged schools (OR=2.11; 95% CI=1.32-3.39) were at higher risk of overweight and obesity. No significant associations were observed between gender and weight status at T2.

Conclusions: These longitudinal findings provide new insights into the predictors of overweight and obesity during primary school in Ireland and confirm previous cross-sectional findings. Overweight and obesity patterns track over time, are socially patterned and adversely associated with central adiposity. Early life interventions are warranted.

T1: OP239

MONITORING THE COMPLEX CAUSES OF CHILDHOOD OBESITY ON A NATIONAL LEVEL: RESULTS FROM THE GERMAN ADIMON-PROJECT

Varnaccia, Gianni¹; Zeiher, Johannes; Lange, Cornelia; Jordan, Susanne; Schienkiewitz, Anja

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Introduction: Childhood obesity is one of the most serious public health challenges of the 21st century. The complex etiology of childhood obesity calls for extensive monitoring systems which are not available in most countries. In Germany, such a monitoring system is currently being developed and will be accessible in the beginning of 2018. The aim is to provide a systematic collection of regularly updated information on childhood obesity rates, determinants and prevention measures. Thus, stakeholders will be enabled to identify needs for action, develop prevention measures and evaluate temporal trends.

Methodology: Childhood obesity determinants were identified in a systematic literature review. Indicators for the identified determinants were conceptualized using the criteria of relevance, efficiency, simplicity, timeliness and exactitude. Suitable data sources were identified by screening data sources for regular health reporting, scientific literature databases and geographic information systems as well as using web search engines. The indicators were visualized on a freely accessible website.

Results: Over 100 (sub-)indicators and more than 30 data sources were incorporated into the nationwide monitoring system. The indicators include behavioral (e.g. consumption of sweetened beverages), prenatal (e.g. maternal weight gain during pregnancy), early childhood (e.g. breastfeeding), psychosocial (e.g. parental health awareness), environmental (e.g. playground availability) and contextual (e.g. parental income) determinants as well as obesity prevention measures (e.g. expenditures by statutory health insurers on prevention measures in nurseries). Data sources include surveys, studies, routine data, media data, geographic information systems and other databases. The freely accessible website (www.rki.de/adimon) will provide visually rendered indicators and background information as well as downloadable files and links to data sources.

Conclusions: The complex etiology of childhood obesity demands extensive and easily accessible indicator systems to provide stakeholders with regularly updated information on trends in childhood obesity rates, determinants and prevention measures. The presented approach might serve as an example for other countries which are planning monitoring systems to counteract childhood obesity.

OBSERVATIONS: No conflicts of interest to declare. We acknowledge the participants of our two workshops. The project has been funded by the German Federal Ministry of Health (grant number 2515KIG004).

8TH JULY

9H00-10H30 WHITE LOUNGE

Childhood nutritional status & Behavioural interactions

Chair: Paula Vassalo (University of Malta/MT)

9h00 **Luis Rodrigues** (Hospital Espírito Santo Évora/PT)

T3: Different BMI, different behavior?

9h20 **Alexandra Amoroso** (Montepio Geral - Associação Mutualista/PT)

T1: Generational obesity: testing the association of parents BMI with childhood overweight and obesity in children up to 13 years old

9h40 **Sofia Mendes** (CEIDSS/PT)

T3: Parental Perception of 6 to 8 year old children's body image and childhood obesity

10h00 **Maryam Gholamalizadeh** (Medical University of Shadid Behesht / IR)

T4: The Relationship between TV Viewing and Food Intake and BMI in Preschool Children

T3: OP231

DIFFERENT BMI, DIFFERENT BEHAVIOR?

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Introduction: Obesity has become a worldwide public health problem and represents a clear risk to children and adolescents. It has immediate and long-term impact on physical, social and emotional health. The aim of this study was to compare lifestyle behavior in adolescents with different Body Mass Index (BMI), their body image and psychological impact.

Methodology: A cross-sectional study was conducted on a population of 154 high school students in May 2016. Information on demographic data, height, weight, screen time, physical activity, sleep duration, body image and bullying was obtained through a self-administered questionnaire. BMI and Z-score were calculated. The adolescents were divided into 3 groups based on BMI z-scores: poor weight, normal weight and overweight/obese and then examined. Data were analyzed with SPSS 23.0 software. Statistical significant difference at probability of <0.05 was considered for all variables.

Results: The sample consisted of 154 adolescents, of which 56% were male. The mean age was 16.7 years, 24.6% were overweight/obese, 48% had no physical activity and 68.8% spent more than 2 hours in front of the television or computer screens on weekdays. 31% of the overweight/obese group considered having adequate weight and 74% was trying to lose weight. Most of the adolescents (63.6%) slept less than 7 hours a day. 27.9% had suffered from bullying.

We found no statistically significant difference between the 3 groups regarding all variables studied.

Conclusions: The authors concluded from the results that in this specific population there is no difference in the behavior of adolescents with different BMI. Pediatricians and researchers should further explore how these factors influence the life of their patients and the importance of behavioral and lifestyle modification before adolescence, not only in overweight/obese individuals but also in other populations.

T1: OP241

GENERATIONAL OBESITY: TESTING THE ASSOCIATION OF PARENTS BMI WITH CHILDHOOD OVERWEIGHT AND OBESITY IN CHILDREN UP TO 13 YEARS OLD

Amoroso, Alexandra¹; Magalhães, Sara; Lourenço, Ana

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Generational obesity: testing the association of parents BMI with childhood overweight and obesity in children up to 13 years old.

Abstract Objectives: The WHO considers childhood obesity as "one of the most serious public health challenges of the 21st century", and estimates that in 2015 there were more than 42 million children (under 5 years old) overweight or obese around the

world, whereas between the age of 5 and 17, one in ten individuals is overweight or obese. The aim of this study was to test if there is an association between mother and father's BMI and childhood overweight and obesity.

Methods: Self-reported height and weight of 541 children from 6 months up to 13 years and respective mother and father (when available) were used to calculate BMI. Children were classified according to their BMI-for-age and assigned in one of three groups: underweight, normal weight and overweight. Mother and fathers were also classified according to their BMI and equally divided into three groups. A one-way ANOVA tested the association of mother and father's BMI with their children's obesity classification, divided by sex. A Chi-Square test was used to test the association between mother and father's obesity classification with their sons and daughter's obesity classification.

Results: ANOVA showed that father's BMI has no statistically significant association with their children weight, whereas mother's BMI has a statistically significant association with male children ($p=0.003$) but not with their female children. In the boy's underweight group, mothers have an average BMI of 22.25 ± 5.90 , in the normal weight group the average BIM is of 22.41 ± 5.76 and in the overweight group this average is of 24.72 ± 4.80 . Tukey post hoc test reveals that there are statistically significant differences between the underweight group and the overweight group ($p=0.044$) and between the normal weight group and the overweight group ($p=0.004$). Chi-Square showed a statistically significant association between mother and son's obesity classification ($p=0.005$). Half of the sons (50.6%) of overweight and obese mothers are overweight or obese themselves, whereas mothers with normal weight have 27.2% of overweight and obese sons.

Conclusions: Mother's BMI has an impact on male childhood overweight and obesity but not in females, whereas father's BMI failed to demonstrate any statistical significant association with either sex. This association suggests that some behavioral patterns associated with overweight and obesity are being transmitted from mother's to their sons. It is necessary to further investigate the differential susceptibility of boys and girls to mother's behavior.

T3: OP249

PARENTAL PERCEPTION OF 6 TO 8 YEARS OLD CHILDREN'S BODY IMAGE AND CHILDHOOD OBESITY

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Introduction: Pediatric feeding is influenced mainly by family members and their perception of the nutritional status of children may not always correspond to the actual nutritional status due to several variables that can manipulate the construction of perception.

Aim: Assess the percentage of parents who have an adequate perception of the nutritional status of children.

Methods: The sample of the 4th round COSI Portugal was used, representing the Portuguese child population in the age group from 6 to 8 years old, in which 8412 children and their families were invited to participate, who answered two questionnaires: child and family. For this study, the children who did not present informed consent and "Family Questionnaire" completed by their parents or other family member, who either failed on the day of the anthropometric evaluation or refused to do so, were not included resulting in 6280 children. The World Health Organization's tool *AnthroPlus* was used to calculate children nutritional status as well as the SPSS software to perform the statistical analysis.

Results: Parents responses show poor agreement with the actual nutritional status of their children ($\kappa = 0.120$, $p < 0.001$). 89.5% of parents consider that their children have a normal weight for age, when in fact they present criteria of pre-obesity. Out of the children who present a normal weight, 89.6% of the parents agree with this evaluation, but 10% believe that their child is underweight. Only 1.8% of parents have the real perception that their child is obese, while 57.8% and 39.9% think that they are pre-obese or normoponderal, respectively.

Conclusions: Parents do not have a true perception of the nutritional status of their children, and the tendency is to underestimate the nutritional status of the children.

T4: OP219

THE RELATIONSHIP BETWEEN TV VIEWING AND FOOD INTAKE AND BMI IN PRESCHOOL CHILDREN

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Background: Considerable attention is currently being paid to childhood nutrition. Mass media, particularly TV, is believed to largely contribute to eating habits and BMI. This study was carried out to identify the link between tendency towards TV viewing and its influence on children with food intake and BMI in pre-school kids.

Methodology: The survey was conducted using a cross-sectional and longitudinal design, in which 114 children aged 2-6 yrs from 11 selected nursery schools in Tehran were used. Regarding data collection related to TV viewing rate and influence rate of TV viewing from parents' viewpoint, a questionnaire was used, which had been already approved in terms of validation and reliability. To collect data about children's diets intake, a food frequency questionnaire (FFQ) was applied. Height and weights of children were measured using a measuring tape and a digital weight scale. Data were analyzed using Pearson correlation coefficient and analysis of variance (ANOVA) statistical tests by SPSS software.

Findings: It turned out that consumption rate of some food groups including meats & alternatives ($p=0.008$), sugars ($p=0.013$) and snacks & desserts ($p=0.011$) were higher in children who spend more time watching TV. In addition, Intake of cereals and breads appeared to be higher in children with strong desire for TV food ads ($p=0.019$). It was also revealed that influence rate of TV viewing and fats intake were positively correlated ($p=0.017$), which is confirmed by previous studies

Conclusion: It can be concluded that TV viewing rate is positively linked with BMI and consumption of low nutritional-value foods.

Key words: TV viewing, Body Mass Index (BMI), Food Intake, pre-school children.

8TH JULY

11H00-12H30 MAIN AUDITORIUM

Childhood Health in all Policies

Keynote speaker: Gauden Galea (World Health Organization/Europe)

T5: OP55

TACKLING CHILDHOOD OBESITY THROUGH A HEALTH IN ALL POLICIES APPROACH

*Galea, Gauden*¹

¹ Director, Division of Noncommunicable Diseases and Promoting Health through the Life-course, WHO Regional Office for Europe

Background: The prevention of childhood obesity requires effective implementation of a wide number of actions relating to unhealthy diet and physical activity. It also requires consideration of diverse inter-generational, individual, family, community, environmental and “global” drivers that have been shown to influence childhood obesity. None of these upstream causal factors are in the control of the child, and childhood obesity should not be seen as a result of voluntary lifestyle choices. In addition, the scope of action is clearly beyond the powers and means of the health care sector alone. As such, a whole-of-government and whole-of-society approach is instrumental to create the appropriate environmental context for obesity prevention.

Outline: Obesity prevention requires a whole-of-government approach in which policies across all sectors systematically take health into account, avoid harmful health impacts and so improve population health and health equity. This presentation will demonstrate how, for example, the education sector plays a critical role in providing nutrition and health education, increasing the opportunities for physical activity and ensuring healthy foods in school environments. It will explore the regulatory role of different government departments in establishing norms relating to the composition of children’s foods and the ways in which foods may or may not be promoted. It will also consider potentially contentious issues relating to food, agriculture and trade policies and how food system policies might impact on food affordability, availability and nutritional quality. Building on the findings of the Commission on Ending Childhood Obesity, the presentation will reflect on experience within WHO of working with countries to establish intersectoral approaches. Notably, it will explore the importance of systematically mapping and assessing the roles, responsibilities, influence and position of different stakeholders in relation to childhood obesity prevention. It will also share examples of possible governance mechanisms and processes with a view to ensuring greater cross-government alignment of policy goals and objectives in order to achieve better intersectoral collaboration for obesity prevention. The speaker will invite reflections from the co-panellists and the audience on examples from their own country of challenges and opportunities in inter-sectoral collaboration.

Chaipersons: José Maria Albuquerque (National Institute of Health Dr Ricardo Jorge / PT)

Sandra Caldeira (European Commission)

Francisco George (Directorate General of Health / PT)

Tim Lobstein (World Obesity Federation / UK)

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- PO319** INDICATORS FOR SUCCESS OF OBESITY REDUCTION PROGRAMS IN ADOLESCENTS: BODY COMPOSITION AND BODY MASS INDEX: EVALUATING A SCHOOL-BASED HEALTH PROMOTION PROJECT IN IRAN AFTER 12 WEEKS OF INTERVENTION
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- PO328** CARDIORESPIRATORY FITNESS AS A MEDIATOR BETWEEN OBESITY AND GENERAL INTELLIGENCE IN SCHOOLCHILDREN: A MEDIATION ANALYSIS
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- PO344** WHO CHILDHOOD OBESITY SURVEILLANCE INITIATIVE: PORTUGAL
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- PO312** COMMUNITY-BASED INTERVENTION: LOCAL FOOD SECURITY PLAN TO SANTA CLARA
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- PO318** REVIEW OF BEHAVIOUR CHANGE PROGRAMS FOR THE PREVENTION OF CHILDHOOD OBESITY IN PORTUGAL
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- PO329** EFFECTS OF A SUMMER PROGRAM FOR WEIGHT MANAGEMENT IN OBESE CHILDREN AND ADOLESCENTS IN AZORES
Gaipo, Sara; Parece, Tânia; Dias, Tiago; Marinho Ana
- PO343** THE MUN-SI PROGRAM
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PORTUGUESE HEALTHY CITIES NETWORK

Rito, Ana; Cardoso, Rafael; **Portugal, Inês**; Ferreira, Mirieme

PO346 AMEA TEENS: A COMPREHENSIVE APPROACH TO PROMOTE HEALTHY LIFESTYLES IN PORTUGUESE ADOLESCENTS

Rito, Ana; Pinho Santos, Mariana; **Crespo, Marta**; Afonso, Catarina

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Moreira, Helena; Gouveia, Maria João; Canavarro, Maria Cristina

PO308 THE ROLE OF DIFFICULTIES IN EMOTION REGULATION AND MINDFULNESS SKILLS IN EATING BEHAVIORS: A STUDY WITH NORMAL-WEIGHT AND OVERWEIGHT/OBESE ADOLESCENTS

Gouveia, Maria João; Canavarro, Maria Cristina; Moreira, Helena

PO322 SODIUM AND POTASSIUM INTAKE FROM SCHOOL MEALS

Santos, Mariana; Nascimento, Ana C.; Santiago, Susana; Calhau, Maria Antónia; Ana, Rito; Loureiro, Isabel

PO339 PROTOCOL OF RESEARCH: WHAT ARE THE BEST WEIGHT LOSS INTERVENTIONS ON CHILDHOOD

Henriques, Ana; Santos, Mariana; Silva, Ana; Meneses, Beatriz; Panaca, Rita; Barros, Ana

PO342 WHAT SHOULD A PHYSICIAN KNOW ABOUT BABY LED WEANING?

Veiga de Macedo, Carlota; Toscano Alves, João; Lage, Maria João

PO340 COMPARING METHODS OF ASSESSING PARENTAL PERCEPTIONS OF THEIR OBESE CHILD'S WEIGHT STATUS

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Duleva, V.; Chikova-Iscener E.; Petrova S.; Dimitrov P.

PO309 INFORMING POLICY BASED ON COSI 2013 EVIDENCE FOR ENABLING SUPPORTIVE ENVIRONMENTS FOR HEALTHY AND ACTIVE CHILDREN

Hyska Jolanda; Burazeri Genc; Bregu Arjan

PO311 FOOD INSECURITY: THE CASE OF HOUSEHOLDS OF CHILDREN FROM PRIMARY SCHOOLS IN SINTRA

Borrego, Rute; Carepa, João; Ferreira, Raquel; Mendes, Lino

- PO314** EAT SLOWLY AND WELL AND MOVE AS WELL - AN INTERVENTIONAL STUDY
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- PO324** FOOD ADDITIVES INTAKE ASSESSMENT - A SCHOOL POPULATION CASE STUDY
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- PO334** CHARACTERIZATION OF THE FOOD SUPPLY IN SÃO MIGUEL ISLAND SCHOOLS
Ferreira, Sara; Sousa, Joana
- PO336** ANALYSIS OF THE NATIONAL SCHOOL FOOD PROGRAM (NSFP) LIKE PUBLIC POLICY ON FOOD AND NUTRITION SECURITY IN BRAZIL
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- PO321** CHILDHOOD OBESITY IN AZORES ISLANDS, GOVERNMENTAL ACTION AND RESULTS
Carvalho, Rita; Sousa, I; Pimentel, A.C; Vargas, P; César, R
- PO325** INTERNATIONAL COMPARISON OF BREASTFEEDING AND COMPLEMENTARY FEEDING RECOMMENDATIONS. RECOMMENDATIONS OF AUSTRIA, BOLIVIA AND THE WHO FOR INFANTS FROM ZERO TO TWELVE MONTHS
Aufschnaiter, Anna Lena; Grach, Daniela
- PO326** VEGETARISM IN PREGNANCY AND BABYHOOD. A RETROSPECTIVE SURVEY ABOUT THE PRACTICAL IMPLEMENTATION AMONG MOTHERS WITH A VEGETARIAN LIFESTYLE
Aufschnaiter, Anna Lena; Grach, Daniela
- PO327** THE INTERSETORIALITY BETWEEN THE FOOD ACQUISITION PROGRAM AND THE NATIONAL SCHOOL FOOD PROGRAM IN A BRAZILIAN MUNICIPALITY: ADVANCES, OBSTACLES AND POSSIBILITIES
Katia Cilene Tabai; Isabelle Germano Coelho Bezerra
- PO341** OUR CHILDREN ARE OBESE BECAUSE OF A BAD FAMILY EXAMPLE, A LITTLE MOVEMENT AND AGGRESSIVE ADVERTISING
Karadzhova, Pepa; Traykova, Galya

POSTERS - ABSTRACTS

T1: PO301

FOOD ADVERTISING IN MOZAMBIKAN TELEVISION CHANNELS

Zaba, Tomás¹; Semente, Inês; Chicamisse, Manuel

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Nowadays there have been a drastic change in the food and nutritional environment of the population and, television is pointed out as one of the major contributing factors for this remarkable change. Aiming to evaluate the frequency in which food advertisement are broadcasted in Mozambican television channels, a cross-sectional study using qualitative and quantitative approach recorded all advertisement transmitted from 7:00 a.m. to 12:00 a.m. and 5:00 p.m. to 10:00 p.m. one working day a week and weekend per channel for one month. Of the total number of advertisement recorded, 20.6% were of foodstuffs mostly with energy density, rich in sugar, salt and poor in nutrients. It was also observed that only 21.6% of the food advertised are integrated into the Portuguese food guide *Nova Roda de Alimentos*. The most dominant advertisers were The Coca-Cola Company, Tropicália, KFC, Cadbury and CDM.

Keywords: Food Advertising, Television, Eating Habits.

OBSERVATIONS: CDM stands for *Cervejas de Moçambique* (A brand of Mozambican beer).

T1: PO306

DIETETIC INTERVENTION AND NUTRITIONAL STATUS EVALUATION IN PEDIATRIC OBESITY PATIENTS

Moreira, Ana Catarina¹; Pitta-Grós Dias, Mónica; Morgado, Ana; Alves, Marta; Neto, Ana

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Children and adolescents with excessive overweight need prompt dietetic intervention in order to correct nutritional status and reestablish good nutrition choices.

Objective: Evaluation of body mass index (BMI), waist and fat mass in health care dietitian's appointments of pediatric obesity patients.

Methods: We selected patients with at least two appointments with a dietitian, excluded those (13) with more than 1 year between appointments. A total of 158 patients were included, 74 (46.8%) males, with a mean age of 10.3±3.1 years. From these 95 (60.1%) and 52 (32.9%) had 3th and 4th appointments. The mean time between appointments was 4.5±2.6, 5.5±2.8 and 8.0±5.3 months. We accessed and classify BMI, fat mass percentage (%FM) and fat mass index (FMI), waist circumference (WC) and waist-to-height ratio (WHtR) and compare evolution.

Results: Initially anthropometric data show that BMI classify 32 (20.2%) patients in overweight and 122 (78.5%) in obesity. WC, measured in 83 (52.5%) patients,

was above 85th percentile in 74.7%, and the WHtR was above 90th percentile in 89.0%. From the 97 patients with

FM assessment, mean FMI was 9.6±2.5kg/m², with 53.0% above 90th percentile.

Data evolution show for all appointments reductions by 2nd to 4th appointment in mean BMI (0.76±1.23, 0.45±0.93, 0.24±1.08) with a total of 1.9±1.7kg/m², in mean WC (2.2±2.8, 1.3±3.6 and 0.4±2.8), with a total of 8.16±15.98 cm, and in mean FMI (0.62±0.79, 0.40±0.74 and 2.4±1.85), with a total of 0.962±1.856kgm² corresponding to a decrease of 3.2±7.1 in %FM.

Conclusion: Dropouts represent 2/3 of evaluated patients, but for the remaining the results were positive for majority. As number of appointments increased, reductions in assessed parameters decreased in amplitude in spite additional time for accomplish results.

OBSERVATIONS: Authors declare no conflicts of interest.

Affiliation of Pitta-Grós Dias, Mónica; Morgado, Ana; Neto, Ana is: Centro da Criança e do Adolescente - Hospital CUF Descobertas; affiliation of Alves, Marta is Centro Investigação - Centro Hospitalar Lisboa Central.

T1: PO307

AEROBIC FITNESS AND INFLAMMATION ON CARDIOVASCULAR RISK IN ADOLESCENTS FROM THE LABMED PHYSICAL ACTIVITY STUDY.

Agostinis-Sobrinho, Cesar¹; PhD. Jonatan R. Ruiz ; PhD. Carla Moreira ; PhD. Sandra Abreu ; PhD. Lopes, Luís ; MSc. José Oliveira-Santos ; PhD. Jorge Mota & PhD. Rute Santos

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We investigated the associations of cardiorespiratory fitness and clustered score of inflammatory biomarkers (InflaScore), on cardiometabolic risk score in adolescents.

This is a cross-sectional analysis with 529 adolescents (267 girls) aged 12-18 years. Shuttle run test assessed cardiorespiratory fitness. Continuous scores of clustered inflammatory biomarkers (hs-CRP, C3, C4, fibrinogen and leptin); cardiometabolic risk score (systolic blood pressure, triglycerides, ratio total cholesterol/HDL, HOMA-IR and waist circumference) were computed.

The mean cardiometabolic risk score was lower in Fit adolescents in both (higher and lower InflaScore) ($p<0,01$ for both) compared with those Unfit. Logistic regression showed that, after adjusting for after adjusting for potential confounders, Unfit adolescents with higher InflaScore had the highest odds of cardiometabolic risk (OR=16.5; 95%CI: 7.8 to 34.5) followed by the fit ones with higher InflaScore (OR=7.5; 95%CI 3.7 to 8.4) and low InflaScore but unfit (OR=3.7; 95%CI 1.6 to 8.4) when compared to those who were fit and had low InflaScore.

Findings of our study suggest that the combination of high inflammatory state and low cardiorespiratory fitness is synergistically associated with a remarkably higher

cardiometabolic risk score and thus supports the relevance of early targeted interventions to promote physical activity and preservation as part of primordial prevention.

T1: PO315

CHILDHOOD OBESITY IN MACEDONIA – RESULTS FROM TWO ROUNDS OF COSI

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Introduction: Regular measurements of height and weight may indicate if the progress of children's growth is following recommended patterns. The aim of our study was to compare the results of two rounds of anthropometric data collection in the frames of WHO Europe's Childhood Obesity Surveillance Initiative (COSI). Children attending second grade of primary school were measured.

Methodology: Children were measured for their height and weight in school years 2010/2011 and 2015/2016. Measurements were done in the same schools and same number of children in both rounds. WHO's growth references were used to assess the nutritional status of measured children. Overweight and obesity were defined through BMI-for-age index.

Results: 37.8% of boys and 31.5% of girls were overweight or obese in 2010. 19.5% and 13.1% were obese, respectively. In 2016 39.4% of boys and 32.9% of girls were overweight or obese, 20.5% and 15.2% were obese, respectively. Obesity in Macedonia is more prevalent among boys compared to girls. There is increased number of overweight and obese children in 2016 comparing to 2010 round.

Discussion and conclusions: The results show the increased prevalence of overweight and obesity, trend that doesn't meet the WHO's Global NCD monitoring framework goal of halting the rise of obesity until 2025. Macedonia, as most of the countries in Europe, faces the challenge of childhood obesity, as one of the main public health problems. Childhood obesity is strong predictor of future obesity prevalence among adults. COSI should remain primary source of data on the issue of children's malnutrition, both underweight and overweight and obesity. The implementation of COSI should continue in the following rounds as the trends for longer period are needed when interventions are planned.

T1: PO316

WHY WAIST CIRCUMFERENCE AND ABDOMINAL OBESITY SHOULD BE INCLUDED IN PEDIATRIC PRACTICE

Rodrigues, Daniela¹; Padez, Cristina; Machado-Rodrigues, Aristides M.

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Central adiposity in children has increased to a higher degree than general adiposity however, it is not a routine measurement in clinical practice. The aim of this study was to observe the prevalence of abdominal obesity based on waist circumference (WC) and waist-to-height ratio (WHtR) and estimate the prevalence of abdominal obesity among normal and overweight Portuguese children.

Weight, height, and WC were measured in a random sample of 793 children (408 girls; 6-10 years) from the region of Coimbra. International Obesity Task Force

(IOTF) cut-offs were used to define overweight and obesity. Abdominal obesity was defined WHtR $\geq$ 0.50 and WC $\geq$ 90th sex and age-specific percentile. The prevalence of overweight and obesity among children was 21.9%, 6.1 were obese. Girls, compared to boys, had higher prevalence of all obesity indicators, but only in overweight (including obesity) the difference was significant. WHtR was more sensitive than WC to identify abdominal obesity. The prevalence of abdominal obesity among normal weight, overweight, and obese children strongly depends on the definition of abdominal obesity. In conclusion, this study shows a very high prevalence of overweight/obesity and abdominal obesity among Portuguese children which, comparing with previous studies, seems to have stabilized in the last years. A high proportion of normal and overweight children were abnormally obese and may be at high risk of obesity-related comorbidities, but would not be identified as such using traditional methods, like BMI. Present findings indicate the need to incorporate WC and WHtR into routine clinical practice, in addition to traditional BMI classification.

T1: PO317

TYPE OF DELIVERY, BIRTHWEIGHT, BREASTFEEDING AND OVERWEIGHT/OBESITY AT AGES 8 AND 9: RESULTS OF THE ITALIAN SURVEILLANCE SYSTEM

Nardone Paola¹; Buoncristiano Marta¹, Spinelli Angela¹, Laura Lauria¹, Mauro Bucciarelli¹, Daniela Pierannunzio¹, Daniela Galeone² and 2016 Group OKkio alla SALUTE³

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Introduction: The Italian national school-based nutritional surveillance system (OKkio alla SALUTE) is promoted and financed by the Italian Ministry of Health. Based on bi-annual cross-sectional surveys and coordinated by the Italian National Institute of Health from 2007, it aims to estimate the prevalence of overweight and obesity in primary school children over time and its associated factors.

Aim: To investigate the association between type of delivery, birthweight, breastfeeding and overweight and obesity at 8-9 years of age.

Methodology: A stratified cluster sample design, with class as the sampling unit is used which is representative at both national and regional levels. The study population is children aged 8 or 9 years in the third grade of all primary schools. Children are weighed and measured by trained local health staff and are classified as overweight or obese using the age and sex-specific International Obesity Task Force cut-offs. Parents, children and teachers complete brief questionnaires to assess risk behaviour. Logistic regression has been used to study the association between characteristics at birth/breastfeeding and overweight/obesity. The analyses are weighted to take account of the survey design.

Results: In 2016, the fifth round of data collection involved 2,604 classes, 45,902 children, 48,464 parents and 2,375 teachers with a response rate higher than 95%. About 44,000 of the measured children were aged 8 and 9 21.3% (95% CI 20.08–21.80) were overweight and 9.3%

(95% CI 8.91–9.64) obese. The prevalence of obesity has decreased steadily since 2008. After controlling for

maternal and child characteristics, the risk of overweight and obesity was higher for children born by caesarean section (ORadj = 1.12; 95% CI 1.05–1.19) and increased with birthweight (ORadj = 2.04; 95% CI 1.34–3.12 for birthweight >3.999 kg). Conversely, breastfeeding was a protective factor: breastfed children were at lower risk of being overweight or obese (ORadj = 0.86; 95% CI 0.80–0.93).

Conclusions, discussion and/or practical application: Type of delivery, birth weight and breastfeeding seem to play a role on the prevalence of childhood overweight and obesity. Although these results may be affected by recall bias, further study is warranted.

T1: PO319

INDICATORS FOR SUCCESS OF OBESITY REDUCTION PROGRAMS IN ADOLESCENTS: BODY COMPOSITION AND BODY MASS INDEX: EVALUATING A SCHOOL-BASED HEALTH PROMOTION PROJECT IN IRAN AFTER 12 WEEKS OF INTERVENTION

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Background: Obesity in adolescence is a primary risk factor for obesity in adulthood. The objective of this study was the assessment of the effect of a comprehensive lifestyle intervention on different anthropometric indices in 12 to 16 years old boy adolescents.

Methods: 96 adolescent boys of two schools of district 5 of Tehran have participated in this study. The schools were randomly assigned as intervention school (n=53) and control school (n=43). The height and weight of students were measured with a calibrated tape line and digital scale respectively and their BMI were calculated. The amounts of body fat percent (BF) and body muscle (BM) percent were determined by Bio Impedance Analyzer (BIA) considering the age, gender and height of students at baseline and after intervention. The intervention was implemented in the intervention school, according to the Ottawa charter principles.

Results: 12 weeks of intervention decreased body fat percent in the intervention group in comparison with the control group (decreased by 1.81 % in the intervention group and increased by .39 % in the control group, P<.01). But weight, BMI and BM did not change significantly.

Conclusion: The result of this study showed that the implementation of comprehensive intervention in obese adolescents may improve the body composition, although these changes may not be reflected in BMI. It's possible that BMI is not a good indicator in assessment of the success of obesity management intervention.

T1:PO328

CARDIORESPIRATORY FITNESS AS A MEDIATOR BETWEEN OBESITY AND GENERAL INTELLIGENCE IN SCHOOLCHILDREN: A MEDIATION ANALYSIS

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Introduction/Aim: Obese children are at increased risk of becoming obese adults; also are at greater risk of different cardiovascular risk factors and other health problems such as low academic achievement. The evidence regarding whether cardiorespiratory fitness (CRF) are able to improve academic achievement in children younger than 7 years old and is scarce. The aim of this study was to analyze the relationships between CRF, body mass index (BMI), and general intelligence, and to examine whether CRF acts as a mediator between obesity and general intelligence in children aged between 4 and 7 years of age.

Methods: A cross-sectional analysis using a population-based sample of 1604 school children aged 4-7 years attending 21 schools from the provinces of Ciudad Real and Cuenca, Spain, was undertaken. Data on anthropometric variables, general intelligence (Battery of General and Differential Aptitudes scales for children), and CRF were collected. Analysis of covariance tested the differences in general intelligence by categories of CRF and BMI, controlling for different sets of confounders. Subsequently, a mediation analysis was performed using the PROCESS macro, developed by Preacher and Hayes.

Results: General intelligence were significantly higher in students who had good CRF and low values of BMI. However, the negative relationship between BMI and general intelligence ($\beta = -0.355$; $P = 0.035$) was attenuated losing all its statistical significance when CRF (mediator) was included in the regression model ($\beta = 0.09$; $P \leq 0.701$). Besides, mediation analyses reported that CRF acts as a full mediator in the relationship between BMI and general intelligence in children.

Conclusions: CRF mediates the relationship between obesity and general intelligence in childhood. These findings highlight the importance of maintaining a good level of CRF for improving academic achievement in childhood.

OBSERVATIONS: 1. Conflict of Interest: None Disclosed 2. Funding: This study was funded by the Ministry of Economy and Competitiveness-Carlos III Health Institute (FIS PI12/02400). Additional funding was obtained from the Research Network on Preventative Activities and Health Promotion (Ref. -RD12/0005/0009). Garrido-Miguel, Miriam and Álvarez-Bueno, Celia are supported by grants from the Spanish Ministry of Education, Culture and Sport (FPU15/03847 and FPU13/03137, respectively). Caverro-Redondo, Iván is supported by a grant from the University of Castilla-La Mancha (FPU13/01582).

T1:PO330

CHILDREN'S WEIGHT: PARENTS' PERCEPTION AND DIFFICULTIES WITH DIET AND PHYSICAL ACTIVITY
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Introduction/Aim: Childhood obesity is a problem that our societies have been facing increasingly in recent decades. This study aims to compare the perception of parents regarding the weight of children, in the 1st Cycle of Basic Education, with the body mass index (BMI) percentile of the children and to investigate the existence of an association between the difficulties experienced by the parents in the promotion of healthy eating and physical activity in children and their perception of the child's body weight.

Methodology: The method used in the research was descriptive, quantitative, correlational and transversal, using a questionnaire which included a set of affirmations (likert scale) in the dimensions: diet and physical activity. The target population was the parents of all children attending the 1st Cycle of Basic Education in the schools of Portuguese county of Covilhã. This study is based on a sample of 702 parents/children.

Results: The children of the sample ($n = 702$) aged between 6 and 13 years with an average of 8.3 years ($s = 1.3$) and majority (54%) were female. It was possible to calculate the BMI for 580 children and it was observed that the majority (63.4%) presented normal weight, 22.2% overweight and 11.6% (95% CI 9% - 14.2%) obesity. The prevalence of overweight and obesity was similar among boys (34%, 95% CI 28.2% - 39.8%) and girls (33.6%, 95% CI 28.5% - 38.8%) but the prevalence of obesity is higher in boys (16%, 95% CI 11.5% - 20.5%) than in girls (8%, CI 95% 5.1% - 11%). The majority (82.6%) of the parents considered that their child had normal weight. For children with overweight only 15.5% of parents characterized their child's weight as overweight and for obese children it was observed that only 6% of parents perceive it. The kappa coefficient concordance analysis indicated that there was a weak agreement ($K=0.378$, $p<0.001$) between the parents' perception of the child's BMI and his BMI. The results suggest that parents who considered their child to be overweight or obese had greater difficulty in promoting healthy eating and physical activity compared to those who perceived low or normal weight.

Conclusions, discussion and/or practical application: The prevalence of overweight and obesity of this study is close (33.8%) that found in the literature for the Portuguese reality (31.6%). It was concluded that the parents who perceived the weight of their child as overweight or obese showed greater difficulty in promoting healthy eating and physical activity, which is in agreement with the literature. This may be due to the fact that for many families the healthy eating and physical activity only become relevant when confronted with child's overweight or obesity. Thus, it is important to raise parents' awareness, as early as possible, of the importance of healthy eating and physical activity in the prevention and treatment of childhood obesity.

T1:PO331

FREQUENCY OF DAILY MEALS AND BODY MASS INDEX IN YOUNG ANGOLANS

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Introduction – Malnutrition and obesity constitute a dual epidemic of Portuguese-speaking African countries in the 21st century, with implications for the health of

populations. Inadequate feed presents a multifactorial etiology, where eating behaviours of young people, such as omission of meals can have consequences on their nutritional status.

Objectives – Evaluate the frequency of daily meals and the Body Mass Index (BMI) of young Angolans.

Methodology – A quantitative and cross-sectional study. A simple random sample of 370 young people (47,6% males and 52,4% females) aged 12-19 years who lived in the city of Viana - Luanda. The information on the frequency of daily meals was obtained by interview and the BMI was classified according to WHO criteria. For the statistical analysis of the results, the SPSS ® software version 19.0 (2010) was used for Windows of Microsoft®.

Results – In the age group of 12-14 years, 20% were underweight and 11,7% overweight / obesity. 5,6% of the young people aged 15-19 were underweight and 11,2% were overweight / obese. A significance level of 5%, it was found that the BMI presented was statistically dependent on age group ($p = 0,004$) and gender ($p = 0,005$). Regarding feed behaviour, 44% said they ate breakfast daily, 8,9%, 41%, 9,7%, 42,9% and 6,5% had daily meals in the middle of the morning, lunch, snack, dinner and supper respectively. There were no statistically significant differences between age group and feed behaviour ($p> 0,05$), nor between BMI and the frequency of daily meals ($p> 0,05$).

Conclusion – The results are illustrative of a sample of young Angolans characterized by the coexistence of low weight and obesity. Being healthy eating a basic requirement for human existence and therefore an inalienable condition of peoples, the establishment of strategies as a way to improve the coordination, coherence and alignment of food policies at the global level is crucial.

T1:PO332

LONGITUDINAL STUDY OF PHYSICAL FITNESS (PF), BODY COMPOSITION (BMI) IN CHILDREN FROM FIRST TO THIRD GRADE OF ELEMENTARY SCHOOL AND PARENTS' OPINION ABOUT OVERWEIGHT

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Introduction: This study aims to relate BMI, PF and what parents think about their children. Hypothesis 1. Are there significant differences in the BMI, Mean Strength (FM), Upper Strength (FS) and Flexibility variables, from the 1st to the 2nd year, from the 2nd to the 3rd year and from the 1st to the 3rd year? Hypothesis 2. Are there associations between the BMI and the variables of PF? Hypothesis 3. There are relationships between the children's overweight and the degree of agreement of the parents the following

questions: 1. "Currently, I am worried about the weight of my son?"; 2. "Will overweight children be obese adults in the future?"; 3. "Are overweight children having more relationship problems with other children?"

Methodology: The sample consisted of 555 children. During 3 years, data from the BMI, his PF were monitored and removed through the FitnessGram® test battery and a questionnaire about the life habits of these children. We used the Friedman test and the Wilcoxon test to answer the hypothesis 1. To answer hypothesis 2, we used the Chi-square test by calculating its degree of association by the coefficient of association V of Cremer. To answer the hypothesis 3, we performed a binary logistic regression.

Results: The variables BMI, Flexibility and FM respond positively to the hypothesis 1. The FS only from the 1st to the 3rd year. There is a moderate association between BMI and FS and FM in the 2nd year. Parents of overweight children fully agree with question 1. Parents of overweight children fully agree with question 2. However, they agree little on question 3.

Discussion: Obesity is related to the lack of PF, especially in the second year. It seems to us pertinent to use physical activity as an instrument in the fight against obesity.

Parents show concern for their children who are overweight, however they are the parents of overweight children who are more aware that their children are healthy, however they fail to realize some problems of children with too much Weight. We should also focus on working with parents, such as combating childhood obesity.

OBSERVATIONS: Este trabalho está inserido no âmbito do projecto Pró-Lúdico e da tese de Doutoramento (ainda em fase de desenvolvimento) do primeiro autor.

T1:PO333

PREVALENCE OF OVERWEIGHT AND OBESITY IN CHILDREN OF SÃO MIGUEL ISLAND

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Obesity is a public health problem that affects many children around the world. This calls for attention from governmental and health entities to outline strategies to fight the disease and monitor its prevalence. The aim of this study was to further understand the prevalence of childhood obesity in São Miguel Island, characterizing it by age and gender. Our sample was composed by 11341 school-age children (3-18 years old) enrolled in public schools in São Miguel Island. The students' anthropometric evaluation was carried out by Physical Education Teachers, who had previously received training on standardized procedures. Body Mass Index was calculated to classify the nutritional status according to World Health Organization's criteria. The statistical analysis was performed by the Public Health Unit of São Miguel Island's Health Unit, through SPSS 20.0 software. The prevalence of obesity was 14.6% and overweight was 35.5%. The prevalence of overweight and obesity was higher in boys, with 20.6% and 16.1% respectively. In girls obesity was 13.1% and 21.2% were overweight. Analyzing the difference between age groups, it was found that the highest prevalence of obesity was on 7 to 9 years old, with 21.2%. In turn, the age group 16 to 18 years had the lowest prevalence of obesity (9.3%). São Miguel Island's health professionals have been working on the

treatment and prevention of childhood obesity, and these data reinforce this ongoing need. In addition, the prevalence of obesity seems to decrease with age. Local monitoring of these numbers can contribute to a better understanding of this fact.

T1:PO335

WEIGHT AND HEIGHT SURVEY IN CHILDREN AT KEY AGES

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Introduction: Childhood obesity is one of the most serious public health challenges of this century.

Concerned with this health problem, the Govern Presidency from Região Autónoma dos Açores started a project to fight childhood obesity since 2009. The first steps were to hire nutritionists to all health centers of the region and create a formal agreement between schools and health centers.

Objective: To screen obesity and need for nutrition individual appointments among school-age children.

Methods: Over three different years (2011, 2013, 2014) we measured weight and height in children with 4 or 5 years and 10 to 12 years. This observational study across all schools of Praia da Vitória Municipality.

All health professional used the same models of weight scale - Seca® 813 Robusta, and height scale - Seca® 222 to weight and measure the children. Children were measured in the morning, without shoes and heavy jackets. The clothes weight was subtracted (0,5kg to 1kg depending of the fabrics). The results were analyzed using Microsoft Excel© and percentile classification defined according to the Centers for Disease and Control charts.

Results: A total of 929 children were assessed.

Year 2011, N = 291, 144 female and 147 male, 121 were born in 2005 and 170 in 1999. The percentile classification was: 9 (3,1%) under weight, 152 (52,2%) normal weight, 46 (15,8%) overweight and 90 (30,9%) obese.

Year 2013, N = 352, 167 female and 185 male, 215 were born in 2002 and 137 in 2008. The percentile classification was: 2 (0,6%) under weight, 184 (52,3%) normal weight, 63 (17,9%) overweight and 103 (29,3%) obese.

Year 2014, N = 286, 148 female and 138 male, 197 were born in 2003 and 89 in 2009. The percentile classification was: 4 (1,4%) under weight, 145 (50,7%) normal weight, 61 (21,3%) overweight and 76 (26,6%) obese.

Conclusion: The percentage of obese children has decreased along the years (30,9% to 26,6%). Unfortunately overweight children percentage increased, 15,8% to 21,3% (2011 and 2014). We've compared different children, in different years. It would be interesting more studies to reevaluate those same children today.

Percentile evaluation in earlier ages allowed us to achieve information about childhood obesity and assure nutrition strategies in order to get healthier families and prevent future obesity comorbidities. Strategies as nutrition individual appointments, workshops involving parents, school activities, school menus, and other, have been developed for that matter.

T1:PO337

DISTRIBUTION OF OVERWEIGHT AND OBESE 7 YEAR OLD CHILDREN ACCORDING MOTHERS EDUCATION LEVEL AND FAMILY MONTH EARNINGS

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Introduction: The aim of the study is to show prevalence of overweight and obese 7 years old children according to mother's education level and family month earnings.

Methodology: Data for this study are taken from preliminary results of COSI survey which was conducted during May 2016, in Montenegro. The project has been designed in accordance with WHO European COSI protocol. Out of 410 public primary schools, 100 have been chosen for sample. Target age group were 7 years old children attending 1st and 2nd grade. 1754 children of desirable age were measured. During the survey 3 types of questionnaires were used, Child, School and Family form, standardized by WHO. From Family questionnaire two indicators were analyzed, mother's education level and family month earnings.

Results: Results shows that the lowest percent of obese children is in families where mother's education level is master degree or higher (8,5%) and the highest percent of overweight children is in families who have trouble meeting the ends the month with their earnings (23,5%).

Conclusion: Either there are no strong statistical confirmation in this study that mother's education level and low month earnings as important socioeconomic factors, has impact on childhood obesity, results and percentage distribution among analyzed indicators, may indicate relationship between socioeconomic factors and childhood obesity. One of the aims of prevention of childhood obesity should be better targeting families with lower socioeconomic status in order to reinforce the measures of preventions and to help those groups to overcome social inequalities.

OBSERVATIONS: Special thanks to Ministry of Health of Montenegro, WHO Country Office, Faculty of Sport and Education Montenegro.

T1:PO344

WHO CHILDHOOD OBESITY SURVEILLANCE INITIATIVE: PORTUGAL

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Background: Childhood obesity is one of the most serious public health challenges of the 21st century, reaching epidemic proportions. Countries of Central and Eastern Europe have been showing lower prevalence of overweight and obesity compared to the Southern region, where Portugal is included. Among the 5 countries from the European region with higher prevalence of childhood obesity over 30% of portuguese children from ages 7 to 9 are overweight and 14% of them are obese.

COSI Portugal aim is to create a systematic network for collecting, analyzing, interpreting and sharing descriptive information about childhood nutritional status of school age children (6-9 year old). A surveillance system which produces comparable data between European countries and allows the follow up of childhood obesity every 2-3 years.

Methods: COSI Portugal is scientifically coordinated and conducted by National Institute of Health Dr. Ricardo Jorge (INSA) along with the Directorate General of Health (DGS) and implemented regionally by the Regional Directorates of Health (ARS) of Alentejo, Algarve, LVT, Center, North, Azores and Madeira. CEIDSS (Center of Studies and Research on Social Dynamics and Health) offers technical and scientific support.

Round 4 of COSI Portugal, was implemented between March and June of 2016. All COSI examiners received a one day training. Collection of data was achieved by the application of children, school and family questionnaires.

Results: The study selected 8412 children from 454 classes of 230 primary schools in the seven Health Regions.

Conclusion: In the 4th round, 99% of schools participated. Regarding children participation, this was similar to previous rounds. The work, investment and dedication of the several institutions that have been taking part on COSI Portugal, has been highly acknowledged which is noticeable by the high response rate and excellency in the data collection.

T2: PO302

FOOD EDUCATION PROGRAM AND OBESITY IN CHILDREN

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Introduction: Obesity is associated with the low consumption of fruit and vegetables.

Objective: Evaluate the obesity and the fruit and vegetables consumptions in children after an intervention of school food education program.

Methodology: It was implemented a food education program in three classes (n=55) of 1st cycle, on school year (2016/2017) and the evaluation of this action was done comparing fruit and vegetables consumptions and nutritional status of this children between beginning and the end of the program (after 12 weeks). Fruit and vegetables consumptions were assessed through the application of a food frequency questionnaire and the nutritional status was determined by BMI. Weight and height were assessed in all children and BMI was calculated. To determine the obesity was used CDC criteria.

The educational intervention consisted in promoting fruit and vegetables consumptions at school environment, involving formative and recreational activities, as well as a greater supply of fruit and vegetables in school.

Results: This sample had between 6 and 8 years old and 54.5% were girls. Fruit consumption increased and considering the 3-5 pieces of fruit per day recommended by the Portuguese Food Wheel, the consumption in these students evolved from 16,3% to 41,8%. Vegetables consumption also increased. At beginning 54,5% ate two or more servings per day of vegetables, and at end 74,5%. In nutritional status, it was observed that obesity decreased from 20% to 16,4%.

Conclusions: This type of educational intervention in schools increased fruit and vegetables consumptions and reduce the prevalence of obesity in children.

T2: PO310

CHANGES OF FOOD HABITS IN SCHOOL-AGED CHILDREN AND ADOLESCENTS

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T2: PO313

ENVIRONMENTAL CHARACTERISTICS OF EARLY CHILDHOOD EDUCATION AND CARE SETTINGS AND CHILDREN'S WEIGHT STATUS: A SYSTEMATIC REVIEW

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Introduction/Aim: It is not yet fully understood which early childhood education and care (ECEC) environmental characteristics might influence weight status in early childhood. The aim of this systematic review was to summarize the ECEC environmental correlates of weight status in children under the age of 6 years.

Methods: Six databases (PubMed, PsycINFO, CINAHL, SPORTDiscus, Scopus, and Web of Science) were searched until December 2016 for eligible observational studies. The Analysis Grid for Environments Links to Obesity (ANGELO) framework was used to categorize the environmental correlates studied.

Results: Eight studies representing 4862 children met the inclusion criteria for this systematic review. These studies from five countries were published between 2011 and 2016. Most studies used across-sectional design and subjective measure of ECEC environmental variables. 22 potential correlates were identified and classified into four environmental domains (physical, political, economic, and sociocultural), but few consistent findings emerged. The variables "active environment" in the physical environment domain, "sedentary opportunities", "active play time", and "high sugar and high fat served" in the political environment domain, and "educators' weight" and "educators' habitual physical activity level" in the socio-cultural environment domain were associated with weight status in young children.

Discussion: Convincing evidence of the relationships between most ECEC environmental variables and weight status is not yet available, due to methodological challenges in the included studies. Future research should aim at longitudinal studies, use objective measure of ECEC environmental variables, consider confounding effects and use ecological approaches. Relevant studies that focus on infants and toddlers and family-based ECEC are also needed.

Acknowledgments: Zhiguang Zhang has a PhD scholarship from the China Scholarship Council. Rute Santos has Discovery Early Career Research Award from the Australian Research Council (DE150101921)

T2: PO318

REVIEW OF BEHAVIOUR CHANGE PROGRAMS FOR THE PREVENTION OF CHILDHOOD OBESITY IN PORTUGAL

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Aim: Childhood overweight and obesity prevention is a priority area in Portugal and has been the focus of several intervention programs. This study aimed to develop a national registry of implemented interventions and their characteristics.

The aim of this study is to compare the food pattern of students who attend different school grades. The sample consisted of 529 adolescents (233 in the 5th and 6th grades, and 296 in the 7th, 8th and 9th grades) with 13.32 ($\pm$ 1.59) years, from a Portuguese public school. The prevalence of obesity was calculated using BMI. A questionnaire was applied to collect information on the food pattern. The chi-square test was used to compare the two groups. The overall prevalence of overweight + obesity in our sample was 22.8%. The group that attended 5th and 6th grades present a higher prevalence of overweight + obesity in (27.9% versus 18.9%, $p = .015$). Older students in the third grade skip more meals (breakfast $p = .000$, lunch $p = .009$, dinner $p = .015$), drink more soft drinks ($p = .046$) and more alcoholic drinks ($p = .001$). Regarding the consumption of sweets, fruit, vegetables and milk, there are no statistically significant differences between grades. In conclusion, there is a deterioration of an unhealthy food pattern in the passage from the 5th and 6th grades to the 7th, 8th and 9th grades.

T2: PO312

COMMUNITY-BASED INTERVENTION: LOCAL FOOD SECURITY PLAN TO SANTA CLARA

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Santa Clara belongs to the municipality of Lisbon and is considered a neighborhood with 4 socio-economic priority intervention zones. The food insecurity and social inequalities in this area are high. Since 2011, there has been a partnerships community-based intervention project that used key principles of community-based participatory research and had a first phase of community food security assessment. This article presents the profile and intervention of community food assistance.

The first step was the development of equitable partnership between community representatives, local authorities, public institutions, NGOs and researchers. This process was central to design the assessment of community food assistance and establish the equitable team of interviewers. During 2013-2014 the territory was mapped to characterize the actual food assistance.

In the territory there were identified 6 NGOs with food baskets from the Food Bank, 1 social canteen and 1 Re-Food that all support about 350 households a total of 1100 people. With all these institutions a plan was developed to promote the autonomy of the households and the provision of a food support with effectiveness. A good practice guide has been developed in order to prevent duplication of food support and disseminate good practices; Training 30 volunteers with skills in working with low-income families and in integrating the human resources of institutions; Training 300 families benefiting from food support to inform the importance of food support rights and duties. Training 30 families in family budget management, nutrition, food safety and management, food skills, nutritional gastronomy.

The project has been made easier to implement because of the high levels of sustained community engagement and investment of human capital in the process. Thus, the local food security plan continues in a dynamic process of construction and translation of study results to the community.

Method: An Internet search engine (Google®) and institutional websites were used to perform a search to identify healthy lifestyle promotion programs which aimed, directly or indirectly, at preventing and controlling childhood obesity in Portugal. The selection of programs to include in the present study was carried out by reading the titles and information available on the websites. Subsequently, relevant information about each project was extracted.

Results: A total of 29 projects, that promoted healthy eating (n=19), physical activity (n=2) or both (n=8), were identified. These were implemented between 2001 and 2015. With the exception of one project, the activities developed in the scope of the projects were described, but the rationale and behavioural change techniques used were not explicit. Only 16 projects were evaluated and had their results available online.

Conclusion: Most intervention programs provide no data regarding its theoretical and empirical basis, or detailed information on the activities performed and their evaluation. Future programs should provide greater detail on the rationale and behavioural modification techniques used, as well as the evaluation of their effectiveness in behaviour change.

T2: PO329

EFFECTS OF A SUMMER PROGRAM FOR WEIGHT MANAGEMENT IN OBESE CHILDREN AND ADOLESCENTS IN AZORES

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Introduction: Childhood obesity has gained an alarming expression along the last decades. The management of this public health problem is usually centered on the promotion of healthy eating and an active lifestyle. In search of creative and more effective interventions, a team of dietitians developed a project promoting healthy lifestyles for overweight children, between the years 2010 and 2014, with the aim to create a weight loss environment for participants in order to maintain a healthy diet and regular practice of physical activity in the long term.

Methodology: The participants were selected from nutrition appointments in São Miguel Island, with overweight or obesity and with low adherence to nutritional therapy. The intervention period, each year, lasted one week continuously monitored by dietitians (24h/day). The participants were submitted to anthropometric and physical tests at the beginning and in the end of intervention. They also participated in nutritional education, healthy cooking and sports sessions, always supported by a balanced eating environment.

Results: After intervention, the participants lost in average 1.8kg (±1.0kg), 1.4% (±1.0%) in body fat percentage and

2,6cm (±1.5cm) in waist circumference. It was also noted an improvement in physical parameters related to strength and flexibility.

Conclusions: As verified in all 4 editions of this project, all participants improved all parameters at the end of the intervention. They also kept a follow-up in nutritional appointments, showing better knowledge about healthy lifestyles, attesting that this kind of projects may result in an effective approach in the prevention and treatment of childhood obesity.

OBSERVATIONS: No conflict of interest.

T2: PO343

THE MUN-SI PROGRAM

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The **MUN-SI Program**, coordinated by the CEIDSS - Center for Studies and Research in Social Dynamics and Health (www.ceidss.com) is a health promotion program for children and adolescents and their families developed at the municipal level. It aims to offer an interventional response to the problem of child malnutrition (low weight and obesity) through a comprehensive, transversal and multisectoral approach based on local partnerships.

T2: PO345

COMMUNITY HEALTH PROJECTS WITHIN THE PORTUGUESE HEALTHY CITIES NETWORK

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The World Health Organization (WHO) launched the Healthy Cities Project (PHC) with the participation of 11 cities (1), inspired and supported by the WHO European Health for All strategy and the Health 21 targets. This project emerged as an acknowledgement of the importance the local and urban dimensions have in health promotion, and the role of the governments in developing health policies.

The objectives of this study are to gather information about the programmes conducted within the PHC and to contribute to the development and re-positioning of health promotion strategies at the municipal level in Portugal.

An exploratory-descriptive methodological design was selected and applied through a semi-structured questionnaire directed at all PHC, in 2012 and 2013.

The programmes intended to promote physical activity are the most frequently implemented across the PHC – 18 municipalities (81.8%) reported such programmes in place. All the PHC are conducting programmes on children (> 5 years), making it the main target population for PHC initiatives. The involvement of elderly, adolescents and adults is also evident in the majority of the municipalities. The PHC programmes are frequently directed at children and implemented in communities, schools and kindergartens. There is a strong focus on social inequalities and on tackling them.

T3: PO304

MINDFULNESS AND QUALITY OF LIFE OF TREATMENT-SEEKING CHILDREN AND ADOLESCENTS WITH OVERWEIGHT AND OBESITY: THE MEDIATING ROLE OF BODY SHAME

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Introduction/Aim: children and adolescents with overweight and obesity are at an increased risk of presenting poor psychosocial outcomes, including lower levels of quality of life (QoL) and higher body shame.

Therefore, it is essential to explore key modifiable factors that can promote the psychosocial adjustment of children/adolescents and are amenable to change in the therapeutic context. One factor that has recently been identified as having beneficial outcomes for youths' adjustment is mindfulness skills (a state of attention and awareness to the present moment, with a stance of curiosity and acceptance). The aim of the current study was to examine whether mindfulness skills were associated through body shame with the QoL of treatment-seeking overweight and obese children/adolescents and whether this indirect effect was moderated by children/adolescents' gender and age.

Methodology: the sample included 156 children and adolescents (62.2% girls) with overweight and obesity in weight-loss treatment. Children had a mean age of 13.56 years and a mean zBMI of 1.83. The participants completed self-report measures of mindfulness (Child and Adolescent Mindfulness Measure), body shame (Experience of Shame Scale), and QoL (KIDSCREEN-10 index).

Results: moderated mediation analyses showed that the indirect effect of mindfulness on QoL through body shame was significant, but only for girls. Specifically, girls with higher levels of mindfulness reported lower levels of body shame, which in turn was associated with a better QoL. For boys, higher levels of body shame did not seem to translate into a poorer perception of QoL, and the indirect effect of mindfulness on QoL via body shame was not significant. Age was not a significant moderator in the mediation model.

Conclusions, discussion and/or practical application: these results suggest that body shame is an important mechanism to explain why mindfulness skills may help children/adolescents with overweight and obesity perceive a better QoL. Mindfulness-based interventions may be particularly useful for these children/adolescents, especially girls, and should address their body-related thoughts and emotions, particularly body shame.

eating and disturbed eating behaviors (drive for thinness, bulimia and body dissatisfaction) in adolescents, controlling for the weight group.

Methods: A sample of 341 adolescents with normal-weight ($3 \geq \text{BMI} > 85^{\text{th}}$ percentile) and 206 adolescents with overweight/obesity ($\text{BMI} \geq 85^{\text{th}}$ percentile), aged between 13 and 19 years old, was recruited in public schools and in the nutrition outpatient services of two public hospitals. Participants completed self-report measures of difficulties in emotion regulation (DERS), mindfulness (CAMM), emotional eating (DEBQ), and eating disorders (EDI-C).

Results: DER were negatively correlated with mindfulness, and positively correlated with emotional eating and with disturbed eating behaviors. Mindfulness was negatively correlated with emotional eating and with eating disorders, and emotional eating was positively correlated with eating disorders. The regression analyses showed that DER and mindfulness significantly predicted emotional eating, explaining 22.9% of its variance. Additionally, being overweight/obese, having higher levels of DER and lower levels of mindfulness skills predicted higher levels of drive for thinness, bulimic behaviors, and body dissatisfaction, explaining 34.5%, 19.5%, and 38.1% of its variance, respectively.

Conclusion/Discussion: Psychological and emotional processes should not be neglected when preventing and treating pediatric obesity. This study highlights the importance of DER and of mindfulness skills on adolescent's eating behaviors and shows that overweight/obese adolescents are at higher risk of developing disordered eating behaviors. Strategies that promote an adaptive emotional regulation and mindfulness skills in overweight/obese adolescents should be implemented in pediatric obesity prevention and treatment programs.

T3: PO308

THE ROLE OF DIFFICULTIES IN EMOTION REGULATION AND MINDFULNESS SKILLS IN EATING BEHAVIORS: A STUDY WITH NORMAL-WEIGHT AND OVERWEIGHT/OBESE ADOLESCENTS

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Introduction: Difficulties in emotional regulation (DER) are especially common during adolescence and may affect eating behaviors. Overweight/obese adolescents have been shown to have more disturbed eating behaviors, such as emotional eating and bulimic behavior. Nevertheless, little is known about the correlates and the factors that can reduce those behaviors. Additionally, research on emotional regulation in pediatric obesity and on its relationship with eating behavior is scarce. The present study aims to understand the relation between DER and mindfulness skills (i.e., to be aware of the present moment, on purpose and nonjudgmentally) and adolescent's eating behavior. Specifically, the objective of this study is to explore whether DER and mindfulness predict emotional

T3: PO322

SODIUM AND POTASSIUM INTAKE FROM SCHOOL MEALS

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Introduction: Children consume more than one-third of their daily food intake in schools, suggesting that these environments are ideal places for intervening on poor dietary behaviours. School meals play an important role in children's diet especially for elementary school children aged from 6 to 9 years, to support normal growth, as well as the acquisition of taste and food preferences.

Methodology: The purpose of this study was to determine the contribution of school meals to the daily sodium (Na) and potassium (K) intake and to evaluate the molar sodium: potassium (Na:K) ratio for the school meals. In this study, 19 school meals were collected from nineteen primary schools, located in two different cities in the Lisbon district. Analyses were carried out in accordance

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with ISO standard 17025. Sodium and potassium levels were determined using an Inductively Couple Plasma Atomic Emission Spectrometry–ICP–OES. To calculate the average molar Na:K ratio, sodium and potassium in micrograms (mg) were converted to millimoles (mmol) using the following conversion: 23 mg Na = 1 mmol Na, 39 mg K = 1 mmol K. **Results:** The Na content of the samples analysed ranging from 155 to 293 mg/100g and the K content between 98-193 mg/100g. The molar Na:K ratio exceeded the recommend level of 1, the values were between 2.2-4.3 (mmol). The results indicate that most of the school-meals presented a large amount of Na, but a small amount of K. In addition, the Na:K ratio is likely to be higher and doesn't meet the World Health Organisation (WHO) recommendation for a Na:K ratio of ≤ 1 .

Conclusions: These data enhance the importance of planning the school meals to achieve a reasonable amount of sodium and potassium accordingly to the recommendations for children population and to make informed decisions on appropriate nutrition actions to reduce potential risks for noncommunicable diseases.

OBSERVATIONS: Member of the Executive Committee.

T3: PO339

PROTOCOL OF RESEARCH: WHAT ARE THE BEST WEIGHT LOSS INTERVENTIONS ON CHILDHOOD

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Introduction/Aim: We know that the high prevalence of obesity and overweight is related to incorrect eating patterns introduced in the feeding of children and young people, together with the sedentary lifestyle that is increasing in this population. To minimize this problem the involvement of multiple structures is essential. Family, school, society and political power are structures whose positive contribution should make all the difference. The

aims of this study are to contribute to the reduction of obesity and overweight in the children of USF Cidade do Liz and to understand the most effective measures for this decrease.

Methodology: Intervention study, community trial, to be carried out in the years 2017 to 2019, by monitoring the BMI percentile of the children in our health unit after different interventions: a) Brief intervention to children and parents in the context of the surveillance consultation; b) Health education sessions for parents in the health unit; c) Health education sessions for children at school; d) Distribution of leaflets to children and parents; e) Organization of street actions on World Day against Obesity (11.Oct). An application will be made to ARS's ethics committee and data will be collected and treated using descriptive and inferential statistics, through the SPSS 20.0 program. **Conclusions, discussion and/or practical application:** This study may help determine which measures are most effective in this population and, by conducting similar studies elsewhere, help build national measures in the fight against obesity and overweight.

OBSERVATIONS: No conflict of interest to declare.

T3: PO342

WHAT SHOULD A PHYSICIAN KNOW ABOUT BABY LED WEANING?

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Baby led weaning (BLW) is the name given to a new/ancient method of complementary food introduction. With this method the baby has the control of what and how much he eats while becoming in love with the textures, colours and flavours of the food itself. This way the child to be will have a better notion of satiety and a good relationship with food. The idea is presenting to the baby from the age of six months, approximately, the same food the family is having during any meal. This way the meal has a meaning of pleasure, not only from the food but also from the social environment. The food has to be healthy, and other rules have to be assured to prevent choking, low calorie intake and lack of some nutrients, like iron. In this presentation, we focus on what the physician should know about BLW to support and advise the parents that want to initiate this kind of method. Having this knowledge a physician has the power to help in altering not only the child's future, preventing diseases that start with unhealthy food habits, but also improve all the family's health.

OBSERVATIONS: There is no conflict of interest regarding this presentation.

T4: PO303

CHANGES IN FOOD AVAILABILITY IN SCHOOLS AND FOOD CONSUMPTION FREQUENCY OF 7-YEAR-OLD SCHOOLCHILDREN IN BULGARIA IN THE PERIOD 2008-2016

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Introduction and Aim: With increasing levels of overweight and obesity among children in Bulgaria in the last years, different policy measures have been implemented in an attempt to halt the rise. Among them, the Ordinance for Healthy Nutrition in Schools, 2009 has attempted to limit the availability of soft and energy drinks, snacks and some foods with high fat, sugar and salt content, as well as to promote the presence of fruits and vegetables. The aim of the present study is to investigate the changes in availability of foods and beverages in schools and usual food consumption frequency for main food groups among 7-year-old schoolchildren in Bulgaria in the period 2008-2016.

Methods: Three cross-sectional studies among 7-year-old schoolchildren in Bulgaria were carried out on nationally representative samples in 2008, 2013 and 2016 under the protocol developed by WHO as part of the WHO European Childhood Obesity Surveillance Initiative (COSI).

Results: At the school premises the availability of fruits has increased from 36.9% to 87.4% and for vegetables from 17.9% to 59.8% between 2008 and 2016. In the same period the availability of cold drinks containing sugar has fallen from 68.2% to 10.1% and of salty snacks from 73.7% to 32.3%. Similar changes are observed in the food

frequency consumption of the children, reported by parents. Changes are most marked between 2008 and 2013 (before and after the implementation of the legislation), however the positive trends continue with slower pace from year 2013 to 2016.

Conclusion: The observed positive changes in the availability and consumption of selected foods and drinks support the effectiveness of the policy measure.

OBSERVATIONS: The observed positive changes in the availability and consumption of selected foods and drinks support the effectiveness of the Ordinance for Healthy Nutrition in Schools, 2009.

T4: PO309

INFORMING POLICY BASED ON COSI 2013 EVIDENCE FOR ENABLING SUPPORTIVE ENVIRONMENTS FOR HEALTHY AND ACTIVE CHILDREN

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Objective: One of the COSI 2013 study aims in Albania was to collect information regarding environmental factors that could affect nutritional status and levels of physical activity of the children. The aim of this paper is to describe the application of COSI 2012-13 findings in the implementation of measures and programs for improving children's health.

Methodology: The administrative staff or classroom teachers pertinent to 125 schools in Albania completed a structured form on school environmental factors that could affect the health of the children. This form had questions specifically focused on the physical education the school provides to pupils, the availability of facilities or gyms, initiatives for promoting a healthy lifestyle in children, the presence of vending machines or points of sale of foods and drinks on school premises and the availability of food products. Information on road safety around the school, and the child's usual transport to and from the school, such as biking or walking was also collected.

Results: Based on the COSI 2012-13 evidence, the following measures were undertaken for providing

supportive environments for children: i) a close cooperation between the Ministry of Education and the Ministry of Agriculture ensured banning of the vending units within school environments; ii) updated teaching modules on healthy eating were developed jointly by the Institute of Public Health and the Institute of Curricula; iii) mandatory physical activity classes were extended from 90 to 145 minutes per week for children aged 6-15 years; iv) sport facilities accessible to all children were provided in selected schools, and; parental awareness was raised regarding the nutritional status and physical activity of their children.

Conclusion: In the second COSI round implemented in Albania in 2015-16, a Family Record Form was introduced for the first time, which is a valuable tool enabling assessment of children's dietary habits and physical activity patterns. This information will enable the evaluation of the measures undertaken in the past few years.

T4: PO311

FOOD INSECURITY: THE CASE OF HOUSEHOLDS OF CHILDREN FROM PRIMARY SCHOOLS IN SINTRA

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Food security foresees an access to a nutritionally adequate and safe food. Therefore it may be negatively influence to several factors such as economic power, employment status, education level and family type. The aim of the study was to evaluate the food insecurity and to determine the socioeconomic characterization of Sintra's primary school households of children.

920 telephone numbers of the tutor of the education of child were random selected. With prior consent, a survey with two parts was conducted by telephone interview: the first with information about the socioeconomic dimensions of the household; the second with the Portuguese "Food Insecurity Scale".

269 surveys were full conducted. 52,8% (n=142) of the households have food security and 47,2% (n=127) are in food insecurity. Of these, 33,8% (n = 91) are in a low food insecurity, 8,9% (n = 24) in a moderate food insecurity and 4,5% (n = 12) in a severe food insecurity. When related to the family income, was verified that the lower the household income, the higher the number of cases of Food Insecurity p=0.000. When related to the employment status of parents, it was found that unemployed individuals had higher levels of Food Insecurity than active individuals p=0.000.

The results of food insecurity was similar to the studies conducted in Portugal particularly the National Food Insecurity survey. The presence of factors such as low household monthly income and unemployment had shown to have a negative impact on food security of households surveyed. Thus it is necessary to monitor and continuing evaluate this issue. It is suggested the need for municipality strategies, based on a broader action with different sectors: health, social security, education, urbanization and local social economy institutions.

T4: PO314

EAT SLOWLY AND WELL AND MOVE AS WELL - AN INTERVENTIONAL STUDY

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Introduction: In 2014 an estimated 41 million children, under the age of 5, were overweight or obese. It is estimated that by 2020 this number will increase to 60 million. The prevalence of overweight and obesity in

children aged 6 to 9, according to the Portugal COSI Study 2013, was found to be 31.6% and 13.9%, respectively.

During the first years of life behaviors evolve and children learn what, when and how much to eat through direct experiences with food and by observing others. Engaging children at an early school age can be an important step towards implementing healthy lifestyles.

Objectives and Methods: To empower children with knowledge and tools to eat healthy and prevent overweight and obesity, a school programme was developed by the Northern Lisbon Health Centers (ACES – Agrupamentos de Centros de Saúde) in collaboration with the Directorate General Health (DGS – Direção Geral de Saúde) entitled “Eat Slowly and Well and Move as Well”- “Come Devagar e Bem e Mexe-te Também”.

The programme began in 2012-2013, selected 5 primary schools in the Northern Lisbon region involving a total of 694 primary school children. An interventional study was designed consisting of 6 phases: second nutritional data collection and analysis; awareness campaigns at schools; development of activities for children, promoting healthy eating and physical activity; nutritional data collection and analysis; nutritional counseling for overweight and obese children and results.

Each primary grade had specific yearly topics to develop: Primary 1 – Eating breakfast, snacks and exercising, Primary 2 – Drinking water, eating fruit vegetables and exercising, Primary 3 – Having soup and exercising, Primary 4 – Interpreting food labels and exercising.

Results: The results obtained during the course of the 4 year programme showed: (1) the majority of children were normal weight and maintained the same weight category (66-67%); (2) a slight decrease in obesity; (3) increased recognition of healthy meals and intense exercise activities; (4) food labeling interpretation improvement.

Conclusion: This study shows the importance and effect of early interventions, at a primary school setting, towards healthy eating and exercise.

OBSERVATIONS: This study had strategical partnerships with: Northern Lisbon Health Centers associated Schools, Directorate General Health, Parents Associations, Faculdade de Motricidade Humana de Lisboa (Fátima Ramalho, Vera Simões and trainees), Instituto Politécnico de Santarém - Pólo de Rio Maior, Deco Jovem, Escola de Hotelaria e Turismo de Lisboa, Lidl, Filmideia (Nuno Vieira) e ASAE (Maria Manuela Mendes)

T4: PO320

MATERNAL SELF-EFFICACY AND FEEDING PRACTICES IN CHILDREN AGED 3-6 YEARS

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Objective: Nutrition in childhood has an important role in current and adulthood health. Recent studies have shown that the mother's lifestyle has an important role in the methods used by mother to feed child. This paper aimed to investigate the association between mother's weight efficacy lifestyle with feeding practices in children aged 3- 6 years.

Materials and Methods: In this cross-sectional study which was carried out in 30 primary schools of Rasht (Iran) in 2012, 165 mothers with children aged 3-6 years were participated. Mothers reported their own and their child's demographics. Aspects of mother's

weight efficacy lifestyle and mother's control practices were assessed using Weight Efficacy Lifestyle (WEL) questionnaire and Comprehensive Feeding Practices questionnaire(CFPQ) respectively. Height and weight of mothers participated in the study were measured. The role of mother's weight efficacy in predicting child's feeding practices was assessed using linear regression.

Results: Results showed that mother's weight efficacy was related to child feeding practices. The mothers with similar weight efficacy lifestyle applied similar methods in child nutrition. Mothers with better weight efficacy used more encourage balance and variety, environmental control, child involvement and less emotion regulation using foods.

Conclusion: The result of the study showed that maternal lifestyle was associated with child feeding practices.

T4: PO323

CHILDREN EXPOSURE ASSESSMENT TO FOOD ADDITIVES: AN EXPLORATORY STUDY

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Introduction/Aim: The increase of processed products in children's diet has been accompanied by an increase in the consumption of food additives, which are associated with the prevalence of overweight and childhood obesity constituting a health threat. Food additives are regulated by European directives requiring each additive to be subjected to toxicity tests in order to establish an Admissible Daily Intake (ADI) and Maximum Limits of Use (LMUs) in different foodstuffs and the monitoring of the intake of these additives by member states. The present exploratory study aimed to i) evaluate the exposure of Portuguese children, from 0 to 3 years of age, to food additives, ii) to study its association with age, sex, body mass index and iii) to identify main food categories contributing to food additives exposure.

Methodology: The exploratory study, included in the MONITADITIVOS project, was conducted using food consumption, anthropometric, clinical and demographic data obtained from the MYCOMIX Project. Foodstuffs

consumed by children, containing food additives were identified, as well as, the food additives themselves. Thus, taking into account the consumption of these foodstuffs and the corresponding LMUs, the daily intake of each food additive was estimated, which compared to the ADI, allowed an assessment of the exposure of children for each food additive studied. The intake of food additives was related to sex, age and body mass index by statistical analysis.

Results: Based on consumption data, 12 food additives were selected. Estimated intakes higher than the DDAs for sulfur dioxide (E220), fumaric acid (E297) and sodium nitrite (E250) were observed. "Sugar, confectionery and sugary desserts", "Milk and dairy products", "Cereals and derivatives" and "Composite dishes" were the food categories that most contributed to the exposure to the selected additives.

Conclusions: This study allowed to infer the profile of children exposure to food additives and to launch preliminary results to justify the need for more detailed and refined studies, as well as the creation of a national monitoring program for evaluation of additives intake.

Acknowledgments: MYCOMIX Project (PTDC / DTP-FTO / 0417/2012), funded by FCT and MONITADITIVOS funded by INSA

T4: PO324

FOOD ADDITIVES INTAKE ASSESSMENT – A SCHOOL POPULATION CASE STUDY

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Introduction/Aim: Food additives are safe, however consumption of some of them should not exceed the Acceptable Daily Intake (ADI). In this regard, European Commission requires member states to monitor the intake of these additives at national level. When there are no national food consumption data available, the evaluation can initially be performed in population subgroups of higher risk, such as young people. Additives intake assessment studies are carried out, in a first approach, by crossing the food consumption data with the maximum permitted levels of additives in food (LMU), to identify the additives which intake could constitute a health concern. OPEN Portugal is an online nutritional platform that allows the evaluation of food consumption. The aim of this study was to evaluate the use of the OPEN Portugal tool in obtaining food consumption data by a school population, to identify most consumed food additives and those that need more detailed and refined.

Methodology: All food consumption assessment was carried out with students. For children under 10 years, a food diary was filled out and the obtained data were later registered in the OPEN. For students over the age of 10, their data (gender, age, weight and height), type and quantity of food consumed, referring to the previous 24 hours was registered directly at OPEN. The food intake data were crossed with the LMUs in order to estimate the intake of food additives.

Results: Of the 113 students interviewed, 27 were aged between 7 and 10 years and 86 between 14 and 22 years. The results were obtained through analysis of the OPEN platform database. The most frequent foods additives consumed by students were E220-228, E221, E223, E250, E321 and E341. For E220-228, E221 and E250 the estimated intake presented values were above the ADI.

Children (< 10 years) showed the highest consumption of additives.

Conclusions: This case study showed that OPEN Portugal is a useful tool for food additives intake estimation and it is easy to use by students; special attention should be paid to food additives children intake and to those that need further assessment.

Acknowledgments: MONITADITIVOS project funded by INSA.

T4: PO334

CHARACTERIZATION OF THE FOOD SUPPLY IN SÃO MIGUEL ISLAND SCHOOLS

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Introduction: The environment in which children live is important in the creation of healthy eating habits,

especially the school since it brings together many children, who make meals there. Taking into account the school's influence on the child's eating behavior, and on children's health, this study aims to characterize the food supply of the schools of the São Miguel Island.

Methodology: A cross-sectional analytical study involving 70 schools. The instrument used for data collection consists of 3 modules that correspond to the determinants of the food supply in schools. Statistical analysis was performed with the SPSS 20.0 program.

Results: No school evaluated has School Food Policy (SFP). More than half of the schools do not offer food training to students and educational agents. In 85.7% of schools, there is advertising for healthy food, but in contrast, unbalanced food is available and is often cheaper. Free fruit is not provided in any of the schools evaluated. 97.1% of schools do not have their own nutritionist. The weakest parameters in the quality of the menu were meat, fish and egg, and vegetable side dishes, obtaining the classification of Not Acceptable in all the schools.

Conclusions: The lack of SPF in schools contributes to a weaker food supply. School curricula and training of educational agents in food should be improved. The food supply must be improved, complying with the recommendations, as well by in situ audits by the nutritionists. Food accessibility and free fruit distribution should be ensured in all schools.

T4: PO336

ANALYSIS OF THE NATIONAL SCHOOL FOOD PROGRAM (NSFP) LIKE PUBLIC POLICY ON FOOD AND NUTRITION SECURITY IN BRAZIL

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Introduction: The National School Food Program (NSFP) is the oldest and largest food and nutritional security program in Brazil. Since 2009, through Law No. 11.477, 30% of the value passed on to the municipalities, states and Federal District through the National Fund for the Development of Education (NFDE) for the acquisition of foodstuffs from family agriculture. School alimentation is defended as the right of students to have a nutritious and sustainable diet, encouraging the use of regional products,

thus respecting the local food culture and the use of in natura products, typical of family farming.

Methodology: The data were collected through the National Educational Development Fund (NEDF) for the National School Food Program in Brazil. In addition, with this it is intended to correlate with foodstuffs acquired from family farming during the period from 2011 to 2015 and to verify if Law nº11.947/2009 is being fulfilled.

Results: When analyzing the transfers and purchases of foodstuffs from family agriculture, we realized that only in 2013 the Central West region was able to meet the requirement of 30% of family agriculture. And from 2014, the South of Brazil began to make acquisitions above 30%. We realize that the other regions are desiring to comply with the legislation. Table 1 - Percentage of Acquisitions of Foodstuffs of Family Agriculture in National School Food Program (NSFP), 2017.

	WORLD	NORTHEAST	CENTRAL-WEST	SOUTHEAST	SOUTH
2011	7.37	7.37	6.61	7.08	12.02
2012	11.95	13.07	10.04	10.21	17.77
2013	18.80	12.69	30.20	13.87	23.46
2014	23.77	17.65	19.20	19.18	35.41
2015	22.03	20.28	19.29	22.24	34.23

Source: National Education Development Fund (NEDF)

Conclusion: The NSFP is a public policy of universal attendance to students enrolled in the Brazilian public network in order to offer a healthier and nutritious diet through the incorporation of the foodstuffs of family agriculture, however, this public policy is not being fulfilled.

T5: PO305

THE REFORMULATION CHALLENGE IN SPAIN: SUGAR IN FOODS AND BEVERAGES

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Objective: to describe total and added sugar content of foods and beverage most consumed in Spanish market and especially focused on children and adolescents population, in order to know the baseline, to set the benchmark and to monitor its reduction among reformulation plan by Spanish Agency for Consumer Affairs, Food Safety & Nutrition **Methods:** A total of 1,173 food products were chosen and divided in 27 groups. Total sugar content of all products was analysed by Luff-Schoorl method. Within dairy products, yogurts were classified as plain, sugar sweetened, fruit and aroma. Added sugar content was estimated by subtracting the total sugar content from plain yogurt and sweetened fruit yogurt. For Sugar Sweetened Beverages (SSB) total sugar content from analytical data was considered as added sugar. Median(minimum-maximum) of analytical sugar data was calculated for breakfast cereals, SBB, and dairy products

Results: Median of total sugars from breakfast cereals (n=99) was 26.9(2,7-43,2)g/100g; Medians of added sugar

from SSB (n=40) were 29.0(5.28-36.3)g/330 ml in cola (n=14), 24.1(6.27-40.26)g/330 ml in orange products (n=11), 20.1(13.5-41.3)g/330 ml in lemon (n=6) and 27.5(18.2-30.4)g/330 ml in tonics (n=4); Median of total sugar from Plain Yogurt (n=9) was 5(4-7)g/portion, sugar sweetened yogurt (n=9) was 15.5(12-17.1)g/portion, aroma yogurt (n=18) was 16(11.6-18.9)g/portion, sweetened fruit yogurt (n=4) was 6.1 (5.4-6.5) g/portion and fruit yogurt (n=12) was 17.9(13.6-26.4)g/portion.

Conclusions: A benchmark for total or added sugars reduction of 10% was proposed according to European policy to contribute in the decrease of childhood overweight and obesity.

OBSERVATIONS: The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

T5: PO321

CHILDHOOD OBESITY IN AZORES ISLANDS, GOVERNMENTAL ACTION AND RESULTS

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Introduction: Azores Islands are a Portuguese territory with autonomic political administration and 245 000 inhabitants. In 1985, published data shows in 6-8 years Azorean children, a prevalence of 44% underweight and 55% short stature; in these studies there is no mention to childhood overweight or obesity. In the beginning of the millennium, in the year 2004, in 6-10 years children, obesity prevalence was 11.6%, overweight 21.5% and underweight 15%. Childhood obesity was clearly the most prevalent pediatric disease. Governmental Health Department was asked to take actions.

Methodology: In 2005 the Hospital Endocrinology and Nutrition Service and Pediatric Service, founded the first Childhood Obesity Consultation of the Regional Health Care Public System. Rapidly this only one childhood obesity clinic in Azores was insufficient and in 2009, by the proposal of the Regional Coordinator of the Program for Control and Prevention of Diabetes and Obesity and by resolution of the President of Azores Government, all Public Azorean Health Care Centers created a multidisciplinary team that mandatorily included a nutritionist, for the treatment, control and prevention of childhood obesity.

Results: In 2008, the Childhood Obesity Surveillance Study, COSI-Portugal, in 6-8 years school children, overweight (overweight plus obesity) was observed in 46.6%, obesity in 22.7% and underweight in 1.1%. This study showed Azorean girls as the highest girls in Portugal. In 2010 the Governmental Health Department organized a universal obesity screening to all 5th school grade children; 14.3% were obese. In 2010, the 2nd edition of COSI-Portugal, childhood overweight decreased to 40.5%, obesity to 11.4 % and underweight was not observed. In 2013, COSI-Portugal study, childhood overweight decreased to 24% and obesity to 10 %.

Conclusions: Thirty years ago, in 1985, Azorean children were in a situation of high prevalence of undernutrition that is presently totally resolved. In the beginning of the new millennium, the situation rapidly evolved to the epidemic of childhood obesity. With the governmental

intervention, providing multidisciplinary teams in all Public Health Care Centers to counterattack childhood obesity the epidemic is already showing clear signs of decline. These data indicate a progressive correction of malnutrition, under-nutrition and over-nutrition, in Azorean children.

T5:PO325

INTERNATIONAL COMPARISON OF BREASTFEEDING AND COMPLEMENTARY FEEDING RECOMMENDATIONS. RECOMMENDATIONS OF AUSTRIA, BOLIVIA AND THE WHO FOR INFANTS FROM ZERO TO TWELVE MONTHS

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statement: The alimentation in the first years of life plays a leading role in the development of a human being. There are numerous dietary recommendations for babies all over the world that can vary a lot due to geographic causes. The aim was to find out the differences between breastfeeding and complementary feeding recommendations of Austria, Bolivia and the WHO for infants from zero to twelve months. In this review it was focused both on the chronological introduction, the types and amount of complementary foods and micronutrient supplements.

Methods: To answer the questions of this literature review an internet research on both Austrian and Bolivian governmental publications and publications of the World Health Organisation about breastfeeding and complementary recommendations was carried out to find the relevant and representative ones. Furthermore a literature research was conducted in databases like Pubmed and Medline.

Results: All recommendations have in common that exclusive breastfeeding is highly recommended. There are major differences in complementary feeding recommendations. The Bolivian recommendations advice a strict chronological introduction of complementary foods while the other recommendations do not. Furthermore the types of complementary foods differ a lot from each other. Both the WHO and Bolivian recommendations advice micronutrient supplements.

Conclusion: Especially for dieticians who work abroad it is important to know about country-specific recommendations to adapt their consultations culturally and to reach a better outcome of the nutritional therapy.

OBSERVATIONS: The author has no conflicts of interest to declare.

T5:PO326

VEGETARISM IN PREGNANCY AND BABYHOOD. A RETROSPECTIVE SURVEY ABOUT THE PRACTICAL IMPLEMENTATION AMONG MOTHERS WITH A VEGETARIAN LIFESTYLE.

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Motivation and problem statement: A vegetarian diet becomes more and more popular. Also expectant mothers often want to avoid meat and fish during their pregnancy and neither want their children to consume it. The aim was to find out where vegetarian mothers obtained information regarding vegetarian diet during pregnancy and infancy from, if they took in supplements and if they sought nutrition counselling or not.

Methods: The survey was carried out by means of an online-questionnaire. Seventeen mothers took part in the survey by answering 16 questions within three different categories. Also a literature research for profound information was conducted by using libraries as well as online databases such as PubMed, ScienceDirect and Medline.

Results: 16 of 17 participants indicated not to have sought nutrition counselling regarding a vegetarian diet regarding pregnancy. 14 participants hadn't sought nutrition counselling regarding a vegetarian diet regarding infancy either. Main source of information regarding a vegetarian diet during pregnancy was the internet which 12 of 17 participants chose, whereas eleven of 17 participants in each case chose the internet and books as a main source of information regarding a vegetarian diet during infancy.

13 of 17 participants took vitamin or mineral supplements during their pregnancy, whereas only two of 17 participants gave supplements to their children in the first year of life.

Conclusion: Due to the small number of participants the survey is not representative for a larger amount of people. Nevertheless there is a clear trend towards obtaining information from the internet. To find out more about the exact quantity of nutrients taken in more surveys about consumed food need to be carried out.

Due to the increasing popularity of vegetarianism further research is obligatory.

OBSERVATIONS: The author has no conflicts of interest to declare.

T5:PO327

THE INTERSECTORIALITY BETWEEN THE FOOD ACQUISITION PROGRAM AND THE NATIONAL SCHOOL FOOD PROGRAM IN A BRAZILIAN MUNICIPALITY: ADVANCES, OBSTACLES AND POSSIBILITIES

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The intersectoriality between the Food Acquisition Program and the National School Feeding Program is a strategic alternative for planning the production and delivery of the products of farmers organized in cooperatives and associations, especially after the enactment of Law Number 11.947/2009. This paper seeks to explain its fulfillment and the effectiveness of the

intersectoriality of such programs in the city of Itaguaí, Rio de Janeiro, Brazil, resulting from an exploratory research that, after approval by the Research Ethics Committee of the Federal Rural University of Rio de Janeiro January, protocol number 797/2016, culminated in data collection from interviews with officials of the Department of School Nutrition of the municipality on the operationalization of the National School Feeding Program and also the capture of official data made available by the National Fund of Development of Education, the Brazilian Institute of Geography and Statistics and the Brazilian Agricultural and Livestock Census of 2006. There was an oscillation in the percentage destined to the acquisition of family agriculture between the years 2011 and 2015, reaching a higher value in 2012, namely 43, 41% and the lowest value in 2015, with 22.55%, of the amount transferred by the National Fund of D Accordingly, one can observe a reduction in adherence to the More Education Program in 70% from 2015 to 2016, with a reduction in attendance to schoolchildren by more than 90%, a situation reversed in 2017. This Brazilian municipality, Itaguaí, Was placed as the most developed in school feeding in relation to neighboring municipalities of this region of Rio de Janeiro as Seropédica and Paracambi and, despite the difficulties exposed as a change of municipal management, setbacks in the crops of the 12 suppliers farmers, and obstacles in the construction of Multidisciplinary relationships with other secretariats, still collects significant advances such as the democratic choice of the school menu for schoolchildren, the cultivation of own gardens in schools and an increasing insertion of fresh foods in the meals offered and still work in the construction of projects that involve the community School, and support for the organization of Family farmers.

OBSERVATIONS: Funding Agency: Federal Rural University of Rio de Janeiro.

T5: PO341

OUR CHILDREN ARE OBESE BECAUSE OF A BAD FAMILY EXAMPLE, A LITTLE MOVEMENT AND AGGRESSIVE ADVERTISING

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In 2013, the NCPHA together with the Ministry of Health and the RHI carried out a survey of a nationally representative sample of 3353 children at the age of 7 in the first grade. The study is second for the country in the framework of the WHO European Initiative on Obesity Surveillance in Children. Overweight (including obesity) among boys was found to be 32.4%, and for girls - 28.6%, obesity rates were - 15.7% among boys and 12.2% in girls. Comparison of the data from both studies showed negative trends but without significant differences in obesity and obesity among students. From 28% in 2008, overweight reached 30.5% in 2013, with the proportion of obese children rising from 12.3% to 13.9% Following the entry into force of the Ordinance on Healthy Nutrition of Students, some positive changes in the food offered in school chairs and buffets have been identified. The nutritional and nutritional assessment of young children at 1-4 years of age in the national representative surveys conducted in 2004 and 2007 showed that the relative share of obesity (overweight and obesity) in children aged 1-4 in 2004 Was 13.4% (9% and 4.4%), and in 2007 it was 10.8% (8% and 2.8%). The comparative analysis of the data from the two studies showed a positive tendency to reduce both overweight and obesity in children of both sexes at 1-4 years of age. Reducing obesity is a key task in all nutrition and health strategies adopted by the European Union and the WHO in recent years. The variety of activities related to health protection and promotion of healthy nutrition in children and adolescents are a high commitment to the implementation of the health policy in the field of nutrition and are also a priority in the activities of the National Program for Prevention of Chronic Non-Communicable Diseases 2014-2020 Year.

OBSERVATIONS: Each of the three children in the world aged 2 to 19 is overweight or obese. Unbalanced eating and low physical activity are the major factors in overweight children.

T3: PO340

COMPARING METHODS OF ASSESSING PARENTAL PERCEPTIONS OF THEIR OBESE CHILD'S WEIGHT STATUS
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Introduction: Accurate parental perceptions of their child's weight status is considered an important factor in childhood obesity prevention as underestimation is suggested to be a barrier for behaviour change. Evidence

indicates that parents of obese children do not typically describe them as such when assessed using a categorical questionnaire item. Research indicates that parents are more sensitive to visual cues such as skinfolds than body mass index (BMI) when judging their child's body weight. Therefore, this study explored different methods of assessing parents' perceptions of their obese child's weight status.

Methods: Perceptions of childhood obesity were assessed in parents of 4-5 and 10-11 year old children using two methods: a categorical question (How would you describe your child's weight at the moment? underweight; healthy weight; overweight; very overweight); and an age- and sex-specific visual body image scale (BIS) of known BMI (Looking at the pictures below which body shape looks most like your child? A-G). The responses to these questions were compared to their child's objectively measured weight status. Child weight status was determined using UK90 criteria (very overweight perception refers to obese).

Results: From 2,933 families recruited from 15 regions across England, 89 parents had an obese child (53% male, 65% 10-11 years) with complete data for this analysis. Of these, using the categorical question, 29% reported their child as a healthy weight, 64% as overweight and only 7% as very overweight. In contrast, using the BIS, 16% selected a healthy weight body image, 25% an overweight body image, and 60% a very overweight body image.

Conclusions: Different methods of assessing parental perceptions of their child's weight status yield different results; parents were more accurate at matching their obese child to a very overweight body image compared to reporting a weight status category. This raises important questions about whether these methods are capturing parental recognition of their child's weight status and careful consideration of the methods available should be taken in future research when assessing and interpreting parental perceptions.

OBSERVATIONS: Funding: National Prevention Research Initiative; Gateshead Council; Newcastle City Council; North Tyneside Council; Redcar & Cleveland Borough Council; Sunderland City Council. Laura Cutler is funded by an NIHR doctoral fellowship award.

Methods: 75 low-income families with adolescents (aged 12-18 years) from 5 Portuguese municipalities (Águeda, Figueira da Foz, Odivelas, Oeiras and Paredes) were identified.

The multi-component program (AMEA-teens) consisted of two level intervention, (community and individual) delivered in different settings. Individual level included (1) At Home – 4 individual nutritional counselling sessions; (2) SMART Choices at the supermarket; and at community level (3) an Healthy Cooking workshops, (4) a School activity: "Mega Class Zumba" and (5) a Facebook challenge. Waist circumference, BMI, physical activity level, sedentary behaviours, hours of sleep and nutrition knowledge and attitudes were also assessed at baseline and after 10 months. During individual sessions, diet was registered using 24h recalls.

Results: The first nutritional evaluation showed 51.6% (28.1% obesity and 23.4% pre-obesity) of overweight and 1.6% of severe thinness among the adolescents. Overall 67% of the adolescents improved their nutritional status, with a decrease of 1.6% in the overweight prevalence. Adolescents showed reductions in mean waist circumference (- 0.7 cm) and in BMI/A (- 0.06 z-score). Nutrition and Physical activity patterns showed that daily breakfast consumption increased 2.1% as well as intake of fruit (+0.5/day), vegetables (+5.5%/>1/day), fish (+7.7%/>2-3/week), whole meal cereals (+19.5%/>5/week), water (+25.1%/≥1.5l/day) and olive oil (+1.4%). The consumption of "fast food" and "HFSS foods & soft drinks" decreased 1.5%/week and 2.7%/day, respectively. Physical activity increased 3 hours and 5 minutes per week and hours of sleep also improved 48 minutes per week.

Conclusions: These findings suggested that AMEA TEENS is a promising intervention programme in adolescents and in low-income families, at municipality level.

T2: PO346

AMEA TEENS: A COMPREHENSIVE APPROACH TO PROMOTE HEALTHY LIFESTYLES IN PORTUGUESE ADOLESCENTS

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Introduction and Aim: The prevalence of overweight and obesity has been increasing consistently throughout the WHO European Region. Thus, childhood obesity prevention and treatment should be a top priority. For this, action should be taken at both macro and micro levels and in different settings such as home and families, communities and schools. Based on the rationale that local governments exert an important and decisive role in counteracting childhood obesity, AMEA TEENS program - promotion of healthy lifestyles - was developed in Portugal, within the framework of the EU project: OPEN.

T1: PO347

SERUM GHRELIN (GHR) LEVEL IN ADOLESCENTS WITH HYPOTHALAMIC DYSFUNCTION (HD) ASSOCIATED WITH OBESITY

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Introduction: About 20 thousands of new cases of obesity (Ob) are first registered in children and adolescents in Ukraine annually (morbidity 2.72/1000, prevalence 13.50/1000 of the corresponding population on 01.01.2016). Adolescent Ob shows catastrophic rise (prevalence 8.9/ 1000 in 2001 vs 28.3/1000 in 2015). Completely unclear the role of Ghr in the etiopathogenesis of obesity in adolescents with HD.

Methodology: A total of 39 obese children with HD (14 boys, 15.1 ± 1.4 y.) and 14 healthy control (mean age 14.6

± 1,2 y.) were included into the study. Among patients with HD- 16 patients (41,03 %) had visceral abdominal obesity (VAOb), 23 patients (58,97 %) had gluteofemoral obesity (GFOb). Serum Ghrelin, Insulin level, HOMA-IR were studied. Such studies are conducted in Ukraine for the first time.

Results: Overweight was revealed in 15 (38,5 %) patients with HD, ObI – in 8 (20,5 %) people, ObII – in 10 (25,6 %) persons, ObIII – in 6 people (15,4 %). The signs of insulin resistance (HOMA-IR > 2,77; IRI > 20 mIU/mL) were noted in 60 % patients. Serum Ghr level was found significantly lower in obese adolescents compared to that of control group and was dependent on the degree of Ob. The level of Ghr was the lowest ($582,58 \pm 59,37$ ng/mL) in patients with ObIII. The level of Ghr was significantly lower ($p < 0,05$) in patients with VAOb than with GFOb ($656,63 \pm 113,16$ vs $1212,13 \pm 114,6$ ng/ml, respectively). The levels of hyperinsulinemia and insulin resistance were increased with an increase in the degree of obesity.

Conclusion: Hypothalamic dysfunction, associated with obesity in adolescents, is accompanied by a low serum Ghr level. A high degree of obesity is accompanied by a greater decrease in the Ghr level. A significantly lower Ghr level was registered in abdominal Ob comparing to gluteofemoral type of obesity. Further studies the relationship of Ghr level, insulin resistance and hyperinsulinemia in obese adolescents with hypothalamic dysfunction are required.

OBSERVATIONS: There is no conflict of interests.