

2023 ESPE

Science Symposium

Obesity in Childhood and Adolescence



ORGANIZER

ESPE

European Society for
Paediatric Endocrinology
www.eurospe.org

13 & 14

OCTOBER 2023

Megaron International
Conference Centre

ATHENS GREECE

ABSTRACT BOOK

Scientific and Local Organizing Committee

Evangelia Charmandari | Chair

Elpida Vlachopapadopoulou | Deputy Chair

Dionysis Chrysis

Aris Giannakopoulos

Yannis Manios

George Mastorakos

Constantine Tsigos

ESPE Science Committee

Martin Cools | Chair

Evelien Gevers | Visiting Professorship Convenor | Deputy Chair

Sabine Hannema | Science Symposium Convenor

Marek Niedziela | Early Career Scientific Development Award Convenor

Svetlana Lajic | Research Fellowship

Anne-Simone Parent | Processes, Publicity, Awareness & Engagement Officer

Domenico Corica | YES Group

Aneta Gawlik | Research Unit



Welcome Message

Dear Colleagues and Friends,

We are delighted to welcome you to the 2023 ESPE Science Symposium, which is held at the Megaron International Conference Center, Athens, Greece, on October 13th & 14th, 2023. This is the fourth in a series of high-profile conferences devoted to future research directions in Child Health. The ESPE Science Symposium (<https://www.eurospe.org/education/espe-science-symposium/>) aims to promote the development of an interactive network between clinicians and researchers, helping to reduce the gap between research and patient care. It also aims to disseminate new scientific knowledge in Pediatric Endocrinology.



The first ESPE Science Symposium was on 'The science of gender: Evidence for what influences gender development and gender dysphoria and what are the respective influences of nature and nurture', and was held in London, UK, in October 2018. The second ESPE Science Symposium focused on 'Congenital adrenal hyperplasia: From molecular medical research to clinical application' and was held in Nijmegen, The Netherlands, in October 2021. The third ESPE Science Symposium was on 'Hypothalamic dysfunction in childhood: Etiology, consequences and new ways of management to improve outcome' and took place in Utrecht, The Netherlands, in October 2022.

The fourth ESPE Science Symposium is a continuation of the above series, and aims to bring together clinical and basic science researchers to offer their expertise on the topic of 'Obesity in Childhood and Adolescence'.

Obesity represents one of the most challenging public health problems of the 21st century owing to both its epidemic proportions worldwide and the associated significant morbidity and mortality. During the last four decades, the prevalence of overweight and obesity in childhood and adolescence has risen substantially in most high-income countries and appears to be rising rapidly in low-income and middle-income countries. According to the World Health Organization (WHO), 41 million children under the age of 5 years, and more than 340 million children and adolescents aged 5–19 years are estimated to be overweight or obese. Childhood obesity is the most prevalent pediatric endocrine disorder.

Obesity is characterized by low-grade, systemic, chronic inflammation, increased production and release of pro-inflammatory, atherogenic cytokines and oxidative stress. Therefore, it is associated with several complications, including insulin resistance, dyslipidemia, hypertension, endothelial dysfunction, diabetes mellitus type 2, early onset atherosclerotic cardiovascular disease, orthopedic problems, fatty liver disease, cholecystitis, social stigmatization, and increased incidence of malignancies. In addition to the increased morbidity and mortality, overweight and obesity account for a significant increase in public health costs. The global economic impact from obesity is approximately \$2.0 trillion USD or 2.8% of the global gross domestic product (GDP), which is almost equivalent to the global impact from smoking or armed violence, war and terrorism.

The progressively increasing prevalence of overweight and obesity in childhood and adolescence indicates that our current health policies are not effective, and further developments in health policy strategies are required.

The 2023 ESPE Science Symposium aims to provide an overview of the pathophysiology, etiology and metabolic complications of childhood obesity, strategies for its prevention, and the role of pharmacotherapy and bariatric surgery. The program covering the topics of the Symposium is attached below.

We truly hope that you will participate actively and enjoy the 2023 ESPE Science Symposium!

With best wishes,
Yours sincerely,

On behalf of the Scientific and Local Organizing Committee

Evangelia Charmandari

MD, MSc, PhD, MRCP(UK), CCT(UK)

Professor of Pediatrics - Pediatric and Adolescent Endocrinology

President, Hellenic Society for Pediatric and Adolescent Endocrinology

Speakers & Chairs – Faculty Members

(In alphabetical order)

A

Eirini Agapidaki

MSc, PhD, Alternate Minister of Health of Greece, Lecturer of Public Health, Division of Hygiene and Epidemiology, National and Kapodistrian University of Athens Medical School, Athens, Greece

Erica van den Akker

MD, PhD, Professor of Pediatrics – Pediatric Endocrinology, Head of Division of Pediatric Endocrinology, Sofia Children's Hospital, Erasmus Medical Center, University of Rotterdam, Rotterdam, The Netherlands

Odysseas Androutsos

PhD, Associate Professor of Clinical Nutrition and Dietetics, Department of Nutrition-Dietetics, University of Thessaly, Trikala, Greece

Constantine Athanasakis

PhD, Assistant Professor of Health Economics and Health Technology Assessment, Department of Public Health Policy, School of Public Health, University of West Attica

B

Flora Bacopoulou

MD, PhD, Associate Professor of Pediatrics – Adolescent Medicine, National and Kapodistrian University of Athens Medical School, Head, Center for Adolescent Medicine, First Department of Pediatrics, 'Aghia Sophia' Children's Hospital, Athens, Greece, UNESCO Chair of Adolescent Health Care, Head, Health Technology Assessment (HTA) and Reimbursement Committee, Ministry of Health

Ioanna Bakopoulou

MD, MSc, Consultant Pediatrician - Pediatric Endocrinologist, WHO National Focal Point for Patient Safety

C

Evangelia Charmandari

MD, MSc, PhD, MRCP (UK), CCT (UK), Professor of Pediatrics - Pediatric and Adolescent Endocrinology, National and Kapodistrian University of Athens Medical School, 'Aghia Sophia' Children's Hospital, Athens, Greece, Director, Master of Science Program 'General Pediatrics and Pediatric Subspecialties', President, Hellenic Society for Pediatric and Adolescent Endocrinology

Athanasios Christoforidis

MD, PhD, Associate Professor of Pediatrics – Pediatric Endocrinology, Aristotle University of Thessaloniki, Ippokrateio General Hospital, Thessaloniki, Greece

George P. Chrousos

MD, MACP, MACE, FRCP, Emeritus Professor of Pediatrics and Endocrinology, Director, Research Institute of Maternal and Child Health, UNESCO Chair of Adolescent Health and Medicine, National and Kapodistrian University of Athens Medical School

Dionisios Chrysis

MD, PhD, Professor of Pediatrics - Pediatric Endocrinology, Pediatric Endocrine Unit, Department of Pediatrics, University of Patras Medical School, Patra, Rion, Greece

D

Anastasios Delopoulos

PhD, Professor of Multimedia Systems, Electrical and Computer Engineering Department, Aristotle University of Thessaloniki, Thessaloniki, Greece

F

Sadaf Farooqi

MD, PhD, FRCP, FMedSci, FRS, Wellcome Principal Research Fellow and Professor of Metabolism and Medicine, Wellcome-MRC Institute of Metabolic Science, Addenbrooke's Hospital, Cambridge, CB2 0QQ, United Kingdom

Elena Frysiira

MD, PhD, Emeritus Professor of Clinical Genetics, National and Kapodistrian University of Athens Medical School, Athens, Greece

G

Aris Giannakopoulos

MD, PhD, Consultant Pediatric Endocrinologist, Pediatric Endocrine Unit, Department of Pediatrics, University of Patras Medical School, Patra, Rion, Greece

H

Eri Hatziaggelaki

MD, PhD, Professor of Internal Medicine and Metabolic Diseases, National and Kapodistrian University of Athens Medical School, Attikon General Hospital, Athens, Greece

Speakers & Chairs – Faculty Members



I

Lourdes Ibáñez

MD, PhD, Professor of Pediatrics – Pediatric Endocrinology, Hospital Sant Joan de Déu, University of Barcelona, 08950 Esplugues, Barcelona & CIBERDEM, ISCIII, Madrid, Spain

K

Feneli Karachaliou

MD, PhD, Consultant Pediatric Endocrinologist, Third Department of Pediatrics, National and Kapodistrian University of Athens Medical school, Attikon General Hospital, Athens, Greece

Evangelia Karaglani

MSc, PhD, Dietitian-Nutritionist, Senior Research Associate, Department of Nutrition and Dietetics, School of Health Science and Education, Harokopio University of Athens, Athens, Greece

Maria Karantzà

MD, Consultant Pediatric Endocrinologist, Director, Department of Pediatric Endocrinology, MHTERA Children's Hospital, Athens, Greece

Wieland Kiess

MD, PhD, Professor of Pediatrics – Pediatric Endocrinology, Director of the Hospital for Children and Adolescents, University of Leipzig, Leipzig, Germany

Alexander Kokkinos

MD, PhD, Professor of Internal Medicine, National and Kapodistrian University of Athens Medical School, First Department of Propaedeutic Internal Medicine, Laiko General Hospital, Athens, Greece

Antje Körner

MD, PhD, Professor of Pediatrics – Pediatric Endocrinology, Head of Pediatric Research Center, Department of Women's & Child Health, University of Leipzig Medical Center, Leipzig, Germany

Chrysoula Kostogiannis

PhD, Clinical and School Psychologist and Psychotherapist, Director of the RECBT Institute, Athens, Greece

L

Vaia Lambadiari

MD, PhD, Professor of Internal Medicine and Endocrinology, National and Kapodistrian University of Athens Medical School, Attikon General Hospital, Athens, Greece

M

Nicos Maglaveras

PhD, Professor of Medical Informatics, Laboratory of Computing Medical Informatics and Biomedical Imaging Technologies, Aristotle University of Thessaloniki, Thessaloniki, Greece

Yannis Manios

M.Med.Sc., M.Phil, PhD, Professor of Nutritional Assessment, Counselling and Health Promotion, Department of Nutrition & Dietetics, School of Health Sciences and Education, Harokopio University, Athens, Greece

Claude Marcus

MD, PhD, Professor of Pediatrics, Department of Clinical Science, Intervention and Technology – CLINTEC, Karolinska Institutet, Stockholm, Sweden

George Mastorakos

MD, PhD, Professor of Endocrinology and Reproductive Medicine, National and Kapodistrian University of Athens Medical School, Areteio University Hospital, Athens, Greece

Alexandros Mourouglaakis

Internist, President of the Scientific Committee of Imeroessa Pan-Hellenic support union for people with obesity, European Clinical Fellow EASO

O

Ken Ong

MD, PhD, FRCPCH, Professor of Endocrinology, Epidemiology and Genetics, Programme leader and MRC Investigator, MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Cambridge CB2 0QQ, United Kingdom

P

Maria Papagianni

MD, PhD, Assistant Professor of Pediatric Endocrinology, Nutrition and Metabolism, Department of Nutrition-Dietetics, University of Thessaly, Trikala, Greece

S

Hanneke van Santen

MD, PhD, Professor of Pediatrics – Pediatric Endocrinology, Wilhelmina Children's Hospital, University Medical Center of Utrecht, AB Utrecht

Speakers & Chairs – Faculty Members



Bessie E. Spiliotis

MD, FAAP, Emeritus Professor of Pediatrics - Pediatric Endocrinology, University of Patras School of Medicine, Division of Pediatric Endocrinology and Diabetes, Department of Pediatrics, Patras, Greece

Constantine Stratakis

MD, D(Med)Sci, PhD, Professor of Pediatrics and Medical Genetics, European University of Cyprus, Director, Human Genetics and Precision Medicine, IMBB, FORTH, Heraklion, Crete, Head, Medical Genetics, H. Dunant Hospital, Athens, Greece, Chair, Scientific Board, ELPEN Research Institute, Athens, Greece

T

Nikolaos Tentolouris

MD, PhD, Professor of Internal Medicine, National and Kapodistrian University of Athens Medical School, First Department of Propaedeutic and Internal Medicine, Laiko General Hospital, Athens, Greece

Constantine Tsigos

MD, PhD, Professor of Endocrinology, Nutrition and Metabolism, Harokopio University of Athens, Athens, Greece

Kyriaki Tsiranidou

President, "Imeroessa" Pan-Hellenic Support Union for People with Obesity, Psychologist for Health Professionals, Nurse of Internal Medicine

V

George Valsamakis

MD, PhD, Assistant Professor of Endocrinology, Metabolism and Diabetes, Areteio University Hospital, Athens, Greece

Elpis Vlachopapadopoulou

MD, Pediatric and Adolescent Endocrinologist, Director, Department of Pediatric Endocrinology, Growth and Development, 'P. A. Kyriakou' Children's Hospital, Athens, Greece, Secretary, Board of European Childhood Obesity Group (ECOG)

Antonis Voutetakis

MD, PhD, Professor of Pediatrics, Dimokriteio University of Greece, Alexandroupoli, Greece

W

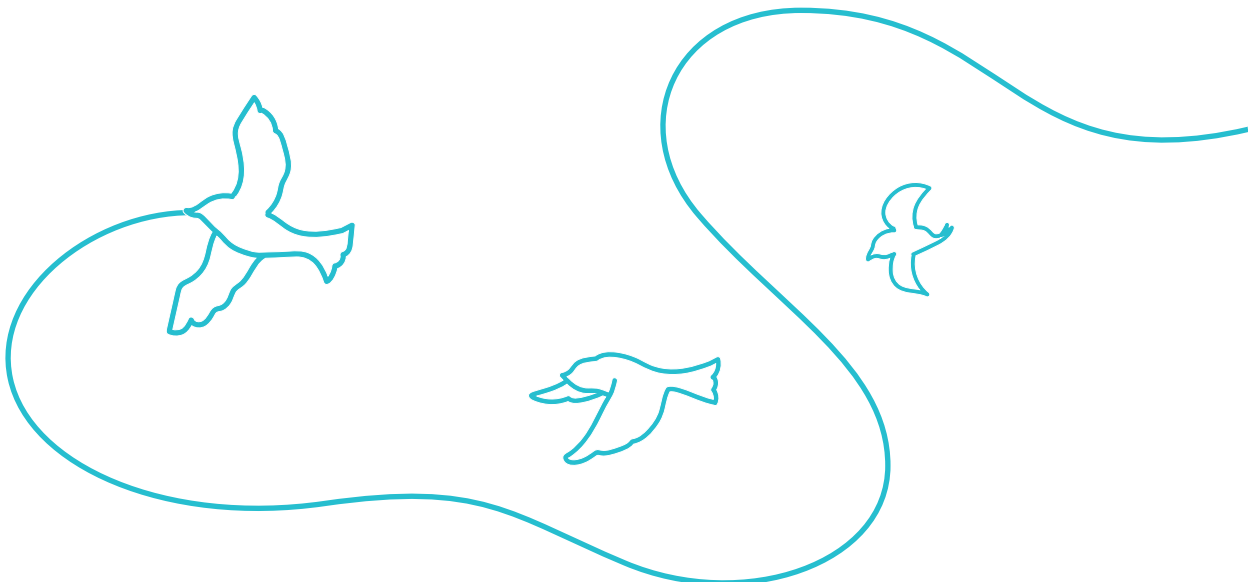
Martin Wabitsch

PhD, MD, Professor of Pediatric and Adolescent Endocrinology, Head of Division of Pediatric Endocrinology and Diabetes, Centre for Hormonal Disorders in Children and Adolescents, Ulm University Hospital, Ulm, Germany

Z

Francis de Zegher

MD, PhD, Professor of Pediatric and Adolescent Endocrinology, University of Leuven, Leuven, Belgium





2023ESPE

FACULTY CVs



Faculty CVs (in alphabetical order)

Eirini Agapidaki

Eirini Agapidaki is a Psychologist, with an MSc in Health Promotion and Education from the Medical School of the National and Kapodistrian University of Athens; and a PhD in Health Psychology from the same university. She has also been specialized in matters of prevention of mental disorders and promotion of mental health. In addition, she has many years of teaching and research experience in the fields of public health policy, public health research methodology and mental health promotion – in the context of national, European and international research programs. She has worked for many years as a research associate at the Department of Hygiene, Epidemiology and Medical Statistics, of the Medical School of the National and Kapodistrian University of Athens. In the recent years she was elected and served as a Lecturer in Public Health, at the Medical School of the European University of Cyprus. She has written and published research papers in peer-reviewed scientific journals, while she has presented the results of her research papers at many national and international conferences.



In 2019, she resigned from her academic role in order to take up her duties as the Special Secretary for the Protection of Unaccompanied Minors (at the Ministry of Migration and Asylum) where she remained until 2022. During her tenure at the Special Secretariat for Unaccompanied Minors all the unaccompanied minors were transferred from the reception and identification centers of the islands and Evros (more than 2.000 children in total) in suitable accommodation structures in the mainland and in other Member-States of the EU through the relocation program and the reunification process. Also, the framework for the age assessment improved significantly, to properly ensure that those placed in child-protection structures are indeed minors; protective custody was abolished by law – a shameful practice that Greece had been following for twenty years with condemnations from the European Court and strict recommendations from the Council of Europe. Additionally, the National Emergency Response Mechanism for the Protection of Unaccompanied Minors for early locating and hosting unaccompanied minors who are found homeless throughout the territory, was established. This mechanism is an important instrument for preventing the disappearance of minors and is something that our country should have implemented years ago. Likewise, the places in suitable long-term accommodation facilities increased and thus we finally managed to have 2.000 places in such structures; a goal that our country already had in 2017. Last but not least, the relocation program for unaccompanied minors to other EU Member-States was implemented in cooperation with International Organizations and the European Commission, immediately ensuring effective protection (more than 1.300 unaccompanied minors and 1.400 persons were relocated – of which 620 were seriously ill children that moved to Germany together with their nuclear family members). Thus, from the over 5.500 unaccompanied minors recorded in our country in 2019, we now have a stable number that does not exceed 2.500, ensuring effective protection ecosystem.

At the end of December 2022, she assumed her duties as Secretary General of Public Health, implementing, among other things: the pediatric digital child book, so that our country can finally have for the first time official and reliable data on the vaccination coverage of children; while at the same time extensive vaccinations were organized and implemented in vulnerable population groups. In addition, the new plan called “Spyros Doxiades” was developed for the prevention, protection and health promotion of the main chronic diseases – which includes over 20 actions of primary, secondary and tertiary prevention, with a budget of over 300 million euros. This is actually the first time in the history of our country, that an organized and systematic prevention system for the entire population is being implemented. Indicatively, the actions concern prevention programs of the main risk factors; such as the prevention and fight against childhood obesity in children and adults. At the level of secondary prevention, the “Fofi Gennimata” program is already being implemented, thanks to which more than 120.000 digital mammograms have already been performed and more than 7.500 women have been identified in time with findings. Next is: the cervical cancer prevention program (for 2.5 million women aged 21-65 with free screening tests-pap, HPV-DNA test, colposcopy and biopsy), the colon cancer prevention program (for 3.8 million men and women, aged 50-70 with a free colonoscopy examination), the cardiovascular disease prevention program (for 5.5 million women and men aged 30-70 with free lipid profile blood tests and early detection of cardiovascular disease risk and metabolic syndrome), but also the lung cancer prevention program in people at high risk, as well as the skin cancer prevention program in high-risk groups.

Faculty CVs (in alphabetical order)

Erica L.T. van den Akker

Erica LT van den Akker is professor of pediatric endocrinology, and head of the division of Pediatric Endocrinology at Erasmus University Medical Center Sophia Children's Hospital, lecturer at the Faculty of Medicine, Erasmus University, Rotterdam, The Netherlands. She is co-founder of Obesity Clinic CGG, together with Prof Liesbeth van Rossum, which is an EASO Center of Management for diagnosis and treatment of children and adults with obesity. The center is national referral center for patients with genetic obesity. Van den Akker is former member of the clinical practice committee of the European Society of Pediatric Endocrinology and member of the steering committee main thematic group Growth and Obesity of the European Reference Network EndoERN and Erasmus MC Health Care Provider (HPC) representative for EndoERN.



Odysseas Androutsos

Dr. Odysseas Androutsos, Associate Professor, is the Director of the Lab of Clinical Nutrition and Dietetics (CND-lab) at the Department of Nutrition-Dietetics, University of Thessaly, Greece. He has published 140 scientific papers in peer-reviewed scientific journals (h-index: 30) and >130 oral or poster presentations in national and international scientific conferences. Since 2008 he participates as the Principal Investigator, Project Manager or Member of research groups in national and international research programmes, funded by the European Commission or other bodies in Greece or self-funded actions. Dr. Androutsos is a member of the Editorial Board and reviewer in several scientific journals and reviewer in international conferences, books and research proposals for Ministries, foundations, research funds/centers and other organizations around the world. He has supported as an external Scientific Consultant the Ministry of Health of Malta and the National Institute of Health of Estonia in the implementation of programmes for the prevention of childhood obesity. His scientific work has received national and international awards, such as the «John M. Kinney Award» in the field of Pediatric Nutrition. He is an elected member of the ESDN Obesity of the European Federation of the Associations of Dietitians (EFAD) and is lecturing in postgraduate courses, seminars and lifelong learning programmes in the field of "Nutrition and Dietetics". Dr. Androutsos has also edited or written chapters in books, (co-)supervised >100 undergraduate or postgraduate theses and is the ERASMUS+ Academic Coordinator at the Department of Nutrition-Dietetics, University of Thessaly and President or Member of educational, research or administrative committees.



Kostas Athanasakis

Kostas Athanasakis, an Economist by training (NKUA), is Assistant Professor in Health Economics and Health Technology Assessment at the Department of Public Health Policy of the University of West Attica (Greece) and a Member of the Laboratory for Health Technology Assessment (LabHTA). His research and teaching efforts mainly focus on Health Technology Assessment, Economic Evaluation of Healthcare Interventions, the Economics of Pharmaceutical Markets, and Pharmaceutical Policy. Other areas of interest include Health Systems Financing, Sustainability and Resilience, the Economic Analysis of Healthcare Markets, and Public Finance. Kostas has authored/co-authored over 250 full text papers and abstracts as well as 14 books, in the field of health services research, economics and policy, during the last years. He is the country lead of the Greek PHSSR study.



Kostas is a Member of the the Board Committee of the Central Health Council (KESY), a Member of the National Vaccinations Committee of Greece, and a Member of the Committee of Experts on Public Health. He has also served as Chairman of the 17th and the 18th Annual European Congress of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) and as Advisor to the World Bank and the European Centre for Disease Control and Prevention (ECDC). Kostas currently holds the position of Associate Editor of the International Journal of Technology Assessment in Health Care (IJTAHC) (Cambridge University Press).

Faculty CVs (in alphabetical order)

Flora Bacopoulou

Dr. Flora Bacopoulou MD, IFEPAG, PhD (<http://scholar.uoa.gr/fbacopoulou>) is Associate Professor of Pediatrics-Adolescent Medicine and head of the Center for Adolescent Medicine of the First Department of Pediatrics, Medical School, National and Kapodistrian University of Athens, at the largest 'Aghia Sophia' Children's Hospital in Greece.



She holds a Pharmacy Degree (1992), a Medical Degree (1998), a PhD degree in Biopharmaceutics/Pharmacokinetics (2009) and the subspecialty of Clinical Pharmacology (2023). She specialized in Pediatrics (2001-2004) in the United Kingdom and further subspecialized for 5 years in Adolescent Medicine, in the scientific fields of General Adolescent Medicine, Pediatric-Adolescent Endocrinology, Pediatric-Adolescent Gynecology, Pediatric-Adolescent Psychiatry and Psychology, in Greece and in USA. She has completed an International Visiting Scholar Program in Adolescent Medicine at the Michigan State University in USA (2008) as well as the International Fellowship of Pediatric and Adolescent Gynecology (IFEPAG) (2006-2008), under the auspices of the Fédération Internationale de Gynecologie Infantile et Juvenile (FIGIJ). She has been a Guest Researcher (2015) and Visiting Clinical Professor (2017) in Developmental Endocrinology and Genetics at the Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH, Bethesda, USA and a Special Volunteer (2015) and Visiting Professor (2017) in the 'Pediatric and Adolescent Gynecology Program' at the Children's National Medical Center in Washington DC in USA. Dr. Bacopoulou has been taking keen interest in promoting UNESCO's actions and programmatic work. Since 2010, the "Center for Adolescent Medicine" (<http://ephebiatrics.med.uoa.gr/>) which she directs, hosts the UNESCO Chair in Adolescent Health Care.

Dr. Bacopoulou has participated in 7 funded research programs, has published over 200 research papers in international peer-reviewed journals, 14 book chapters and co-edited 3 books. She has participated in conferences/meetings with more than 300 presentations and lectures. She is member of many National/International scientific societies and has been member of the ESPE Online Learning/e-Learning Committee of the European Society for Paediatric Endocrinology (ESPE). She is the Greek delegate within the European Union of Medical Specialists (UEMS) Multidisciplinary Joint Committee for Adolescent Medicine.

Since January 2020, Dr. Flora Bacopoulou heads the Health Technology Assessment (HTA) and Reimbursement Committee of the National Organization for Medicines of the Greek Ministry of Health. She is the representative of Greece in the Coordination Group on Health Technology Assessment of Medicinal Products in the European Commission. She is also member of the European HTA Heads of Agencies Group (HAG), the HAG Communication Working Group, and the Consortium Executive Board of the European Union network for Health Technology Assessment 21 (EUnetHTA 21).

Faculty CVs (in alphabetical order)

Ioanna Bakopoulou

Dr. Ioanna Bakopoulou, MD, is a Pediatrician specializing in Pediatric Endocrinology, boasting extensive expertise in the field.

She has been a member of the European Society for Pediatric Endocrinology (ESPE) since 2004, demonstrating a particular focus on pediatric obesity and lifestyle medicine. Dr. Bakopoulou is a graduate of the School of Medicine at the National and Kapodistrian University of Athens and holds a Master's Degree in Hospital Administration from the National School of Public Health in Greece.

Her professional journey includes completing her residency in Pediatrics at Democritus University Thrace, where she served as a scientific associate in the 'Mother and Child Sector'.

Additionally, she received specialized training in pediatric endocrinology at Makarios Hospital in Nicosia, Cyprus. With sixteen years of dedicated service within the Greek National Health System, she practiced as a Pediatrician and Pediatric Endocrinologist at the General Hospital of Xanthi and Aghia Sophia Children Hospital in Athens. Subsequently, she served as a consultant Pediatric Endocrinologist at Dr. Sulaiman al Habib Private Hospital in Riyadh, Saudi Arabia, for a period of five years. Since 2020, Dr. Bakopoulou has been a scientific associate at BRFAA, collaborating with Prof. Evangelia Charmandari's team at Aghia Sophia Children's Hospital in Athens. Notably, she has contributed her expertise as a scientific associate to the Alternate Minister of Health Dr. Mina Gaga and represented the nation in the World Health Organization (WHO) for patient safety matters. Since 2022, Dr. Bakopoulou has established a private practice in Athens, where she continues to provide expert medical care to her patients.

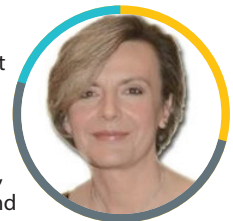


Evangelia Charmandari

Evangelia Charmandari is a Professor of Pediatrics – Pediatric and Adolescent Endocrinology at the National and Kapodistrian University of Athens Medical School, 'Aghia Sophia' Children's Hospital, Athens, Greece. She is the Scientific Supervisor of the Division of Endocrinology and Metabolism, Center for Clinical, Experimental Surgery and Translational Research, Biomedical Research Foundation of the Academy of Athens, Athens, Greece. She is also the Director of the MSc Program entitled 'General Pediatrics and Pediatric Subspecialties: Clinical Practice and Research'. She is the President of the Hellenic Society for Pediatric and Adolescent Endocrinology and a Member of the ENDO-ERN Steering Committee.

Professor Charmandari graduated from the Aristotle University of Thessaloniki Medical School as a valedictorian of her class and completed her specialization in General Pediatrics in the UK. She was further subspecialized in Pediatric and Adolescent Endocrinology at Great Ormond Street Hospital for Children and University College Hospital in London, UK. She is a certified Pediatrician and Pediatric and Adolescent Endocrinologist by the Royal College of Pediatrics and Child Health, London, UK. She obtained a Master of Science in Clinical Pediatrics and a PhD in Pediatric and Adolescent Endocrinology, which were both awarded by the University College London (UCL), University of London, London, UK. She subsequently undertook a Postdoctoral Fellowship in Molecular Endocrinology and Cellular Biology at the National Institute of Child Health and Human Development (NICHD), National Institutes of Health (NIH), Bethesda, Maryland, USA. She also worked as a Consultant in Pediatric and Adolescent Endocrinology at St. James' University Hospital and Leeds General Infirmary, Leeds, UK.

Professor Charmandari's research work has focused on the hypothalamic-pituitary-adrenal axis physiology, pathophysiology and its disorders, including Gushing's disease, Congenital Adrenal Hyperplasia and Adrenal Insufficiency, the molecular mechanisms of glucocorticoid receptor action, the syndromes of Primary Generalized Glucocorticoid Resistance and Hypersensitivity, growth disorders, as well as childhood obesity. She has more than 470 publications in SCI journals, books, and international conference proceedings (impact factor: 830; Citations: 10,221 citations; h-index=47; i10-index: 105). She was awarded the 'Henning Andersen Prize' of the European Society of Pediatric Endocrinology (basic research), as well as several awards of the Hellenic Endocrine Society, Medical Society of Athens, Hellenic Society of Adolescent Medicine and Health Care Business Awards. She has been an invited speaker in more than 250 National and International Meetings. Finally, she has attracted approximately €3,200,000.00 research funding.



Faculty CVs (in alphabetical order)

Dionysios Chrysis

Prof Dionysios Chrysis was trained as a clinical fellow in Pediatric Endocrinology at the University of North Carolina at Chapel Hill, USA with a mentor the distinguished Professor of Pediatric Endocrinologist Luis Underwood. The following years he obtained his PhD in molecular Biology from the Pediatric Endocrine Unit of Karolinska Institutet, Stockholm, Sweden where he also worked as a Pediatric Endocrinologist consultant. His current position is Professor for Pediatric Endocrinology at the Medical School of University of Patras in Greece. His clinical and research interests include the whole spectrum of Pediatric Endocrinology with a special interest for growth disorders, calcium metabolism, thyroid function, and adrenal disorders in childhood and adolescence. He has published bench and clinical research in high impact journals.



Elena Frysira-Kanioura

Professor of Clinical Medical Genetics, former Director of the Laboratory of Medical Genetics, NKUA, Choremeion Research Laboratory, former Head of the Laboratory Section of the "Agia Sophia" Children's Hospital. I graduated from the School of Medicine of the National Kapodistrian University of Athens with grade "Very Good". Afterwards, I completed my residency in Pathology and Pediatrics. Also, I am a PhD holder of the School of Medicine, N.K.U.A. (grade "Excellent"). I continued with my further training abroad in the following institutes and facilities: Institute of Child Health, London, Queen Elizabeth Hospital for Children, London, Clinical Genetics – Dymorphology at the Genetics Center Guy's Hospital, London and Clinical Genetics-Dymorphology (MSc in Clinical Genetics), "Mothercare Unit of Clinical Genetics and Fetal Medicine", Institute of Child Health, University of London, Great Ormond Street Children's Hospital, London. I have been participating for many years in the undergraduate and postgraduate education of Medical School students. Since 1997, I have taken over the organization and operation of the Clinical Genetics-Dymorphology Clinic, unique for its services in Greece, at the "Agia Sophia" Children's Hospital-Choremeion Research Laboratory. I am a founding member of Scientific Societies and also President of the Hellenic Society of Medical Genetics. I have organized 6 international conferences and participated in many European and Greek Committees. Over the past 7 years, I have been the permanent representative of Greece in the UEMS for Clinical Medical Genetics. Among my papers, 8 received awards in Greece, of which 1 in an International Conference.



Doctoral Theses: Supervisor and member of a three-member committee for the preparation of 22 Doctoral Theses, of which 2 received awards. I have participated in many funded research protocols and in many International and Greek conferences. Coordinator and Scientific Director of the three-year Erasmus+ Program, KA2 Action Framework "Strategic partnerships for higher education" 2017-2020, ranked second with score 83/100.

- **Reviewer in Greek (4) and International Medical Journals (9) monographs:** 3, of which 1 in a foreign language
- **Publications in International Journals:** >100
- **Posters in International Conferences with Published Abstracts in International Journals:** 156
- **Publications in Greek Journals:** 45
- **Posters in Greek Conferences:** 105
- **Chapter Writing in Books:** 20
- **Participation in Conferences (Greek and International):** >200
- **Participation in Round Tables and Workshops as an Invited Speaker:** 80
- **The Total Impact Factor (IMPACT FACTOR) of the journals where my papers were published in full after having been reviewed, is:** 250
- **The average Impact Factor of the journals where my papers were published in full, is:** 2.94
- **The total number of bibliographic references (Citation Index):** >2479+ 18 self-citations = 2497, h-index: 30, i10-index: 56

Faculty CVs (in alphabetical order)

Aristeidis P. Giannakopoulos

Aristeidis P. Giannakopoulos graduated from the University of Athens Medical School. After his medical education he obtained a Master of Science in Molecular Genetics and Cytogenetics at the Medical School of the University of Patras followed by his PhD on the design of viral and non-viral vectors for clinical gene therapy applications from the University of Patras. He completed his specialization in Pediatrics at the Great Ormond Street Hospital for Children, London, and at the “Aghia Sophia” Children’s Hospital in Athens, Greece. He then returned to UK to work as a post-doc researcher in the field of gene therapy for immunodeficiencies in pediatrics at the Wolfson Centre for Gene Therapy at Great Ormond Street Hospital for Children and University College Hospital, London, for 2 years participating in the first European Gene Therapy clinical trials. Later he was subspecialized for 3 years in Pediatric and Adolescent Endocrinology at the “Aghia Sophia” Children’s Hospital in Athens, Greece. Now, he is a consultant in Pediatric Endocrinology in the Department of Pediatrics at General University Hospital of Patras with a clinical and research in diverse fields of pediatric endocrinology such as thyroidology, growth and diabetes with a special interest in the genetic etiology of endocrine diseases. His research work led to 32 publications in refereed peer-review journals.



Lourdes Ibáñez

Lourdes Ibáñez is a paediatric endocrinologist at Hospital Sant Joan de Déu in Barcelona, Spain, and Professor of Paediatrics and Chair of Clinical Research in Endocrinology at the University of Barcelona. She is also director of the Fellowship Programme in Paediatric Endocrinology & Diabetes at the University of Barcelona, Chair of the Paediatric & Adolescent Gynaecology Working Group at ESPE and Chair of the Spanish Working Group in children born small-for-gestational-age (SGA). Dr. Ibáñez has prospectively followed cohorts of individuals born either appropriate-for-gestational-age or SGA focusing on endocrine-metabolic markers, body composition, abdominal fat distribution and their associations with postnatal catch-up growth. Dr. Ibáñez is a worldwide leader in the field of adolescent polycystic ovary syndrome and has pioneered the use of low-dose combinations of insulin sensitizers and anti-androgens for the treatment of the disease - a novel therapeutic approach directed toward the pathophysiology of the disorder.



Eva Karaglani

Dr. Eva Karaglani is a Dietitian-Nutritionist and Senior Researcher in the “Nutritional Assessment, Counselling & Health Promotion” research group at the Department of Nutrition and Dietetics, School of Health Science and Education, Harokopio University, in Athens, Greece. She completed her post-graduate studies (both MSc and PhD) in Applied Nutrition and Dietetics at Harokopio University, primarily focused on infant and young children’s optimum nourishment, growth and development. Over the last nine years her research interests have been expanded to include health promotion and disease-prevention in children, adults and elderly through the development, implementation and evaluation of large-scale lifestyle interventions and randomized clinical trials for the prevention or treatment of obesity and cardiometabolic risk factors in all life stages. She has been actively involved in several European projects, such as HORIZON2020: Feel4Diabetes, GATEKEEPER, DigiCare4You, as well as private sector-funded clinical trials, such as the A.R.T. study, Little Panda study, SHIFT study and HerA study. She is author/ coauthor in more than 30 scientific papers published in international scientific journals.



Feneli Karachaliou

Feneli Karachaliou is the Director of the Unit of Pediatric Endocrinology in the 3rd University Department of Pediatrics at “Attikon” Hospital, Athens Greece. She studied Medicine in the University of Athens Greece, and specialized in Pediatrics when she completed her PhD thesis in the University of Athens. She then specialized in Pediatric Endocrinology in Bristol, UK, where she completed a PhD degree in diabetes type 1. Since then she has been appointed in Pediatric Endocrinology for over 30 years with fields of special interest growth, puberty and diabetes. She is a member of the European Society of Pediatric Endocrinology since 1993. She has more than 60 publications in international journals and received more than 700 citations. She has also received a postgraduate degree on management of Health Services from the National School of Public Health in Greece.



Faculty CVs (in alphabetical order)

Maria Karantza

Dr. Maria Karantza graduated as a Valedictorian of her class from The National and Kapodestrian Athens University School of Medicine. She completed her Residency in Pediatrics at the University Of Nevada School Of Medicine, her Pediatric Endocrinology Fellowship at the Childrens Hospital Los Angeles, USC Keck School of Medicine and became double board certified in Pediatrics and Pediatric Endocrinology by the American Board of Pediatrics. She is the Director of the Division of Pediatric Endocrinology, Diabetes and Metabolism and runs the Weight Control Clinic at Mitera Children's Hospital, Athens, Greece.



Ken Ong

Ken Ong is Professor of Paediatric Epidemiology in the Department of Paediatrics and co-leads the Early Aetiology & Mechanisms of Diabetes and Related Metabolic Disorders programme at the MRC Epidemiology Unit, University of Cambridge, UK. His PhD studies in Oxford and Cambridge investigated genetic and environmental influences on infant and childhood growth and their relevance to later obesity and cardio-metabolic disease risks in large birth cohort studies. His research has identified trajectories of rapid infant weight gain, growth and early pubertal timing as determinants of obesity and related disease, and now aims to understand the genetic, endocrine and behavioural mechanisms that underlie these links, working closely with other research teams in Cambridge and beyond in the development and testing of early life interventions to prevent childhood obesity. He is also a consultant paediatric endocrinologist, leads a regional service for childhood obesity at Cambridge University Hospitals NHS Trust, and chairs the UK Scientific Advisory Committee on Nutrition's Subgroup on Maternal and Child Nutrition. <https://www.mrc-epid.cam.ac.uk/people/ken-ong/>



Wieland Kiess

Date of birth: 03/23/1958, Place of birth: VS-Schwenningen, Baden-Württemberg, Germany • Medical School, University of Tübingen, Germany, and University of Munich, Germany • 1984 Conferring a doctorate • 1993 Habilitation • Paediatrician, lecturer, Children's hospital, University of Munich, Germany • Fellow & visiting scientist, National Cancer Institute, Metabolism Branch Endocrine Section, Bethesda, Maryland, USA • Specialty appropation, diabetology, German Diabetes Association (Diabetologe DDG) • Senior physician and lecturer, Munich, Germany • Senior lecturer, Giessen, Germany • Since 01.01.1998 Director of the Hospital for Children and Adolescents, University of Leipzig, Germany, Professor of Paediatrics • Main area of research: basic research cell biology, hormone and signaling molecules • Main area of clinical work: children and adolescents with chronic diseases, psycho-social services



Professional development:

- Since 1998: Professor of General Paediatrics (Chair) and Director of the Hospital for Children and Adolescents, University of Leipzig, Germany
- Since 1999: Treasurer, European Society of Paediatric Endocrinology
- 2002 - 2005: Dean, and Chairman of the Board, Medical Faculty, University of Leipzig, Germany
- 2009 - 2012: Head Department of Women and Child Health, University Hospitals, University of Leipzig
- Since 2014: Foreign Adjunct Professor, Dept.- Women & Child health, Karolinska Hospital, Stockholm, Sweden
- 2002: Organizing President, German Society for Paediatrics & Adolescent Medicine, Annual Meeting, Leipzig, Germany
- 2003 - 2005: President, German Diabetes Association
- 2006: Organizing President, German Diabetes Association, Annual Meeting, Leipzig, Germany
- 2012: Organizing President, European Society for Paediatric Endocrinology, Annual Meeting, Leipzig, Germany
- 2014: Organizing President, German Obesity Association, Annual Meeting, Leipzig, Germany

Awards:

- 1985 Marius-Tausk-Award, German Society for Endocrinology
- 1994 Adalbert-Czerny-Award, German Society of Pediatrics and Adolescent Medicine (DGKJ)
- 2016 Robert Vines Lecture, APEG, Australia
- 2016 Andrea Prader Prize, European Society for Paediatric Endocrinology
- 2018 Obesity Medal, German Obesity Society

Faculty CVs (in alphabetical order)

Alexandros Kokkinos

Professor in Internal Medicine – Metabolic Diseases, Medical School, National and Kapodistrian University of Athens, First Department of Propaedeutic Medicine Laiko General Hospital, Athens, Greece

- Medical degree (MD), Medical School, National & Kapodistrian University of Athens (1994).
- 1999 – 2004: Specialization in Internal Medicine at the First Department of Propaedeutic Medicine, Laiko General Hospital.
- 2006: Training at the Department of Metabolic Medicine, Hammersmith Hospital, Imperial College, London, UK.
- PhD (2002), Scientific Associate (2004), Lecturer (2007), Assistant Professor (2012), Associate Professor (2017), Professor (2021), Medical School, National and Kapodistrian University of Athens.
- Member, Hellenic Society of Internal Medicine, Hellenic Medical Association for Obesity, Hellenic Diabetes Association, Hellenic Association for the Study of the Diabetic Foot, European Association for the Study of Diabetes (EASD). Member of the executive board, Hellenic Atherosclerosis Society (2020-present). Vice President of the executive board, Hellenic Medical Association for Obesity (2021-present). Chairman of the Steering Committee, Metabolic Surgery Study Group of the EASD.
- International Fellow of the Specialist Certification of Obesity Professional Education (SCOPE) program of the World Obesity Federation.
- Member, Lancet Commission on Clinical Obesity (sub-committee on Pathophysiology and Genetics).
- 260 invited lectures in Greek and international congresses and seminars
- Co-organizer, 4 regional SCOPE Schools, Speaker in 5 SCOPE Schools, Co-chairman in 1 Global SCOPE School.
- National Leader, Principal investigator and Sub investigator in 16 international clinical trials.
- 113 full papers in peer-reviewed international medical journals, 5650 literature citations, h-index: 36.
- Research activity focuses on the pathogenesis and treatment of obesity, the neurohormonal mechanisms regulating hunger and satiety, energy expenditure at rest and during physical activity, diabetes mellitus and its complications.



Antje Körner

Antje Körner is a pediatrician scientist and appointed Professor of Metabolic Research at the Medical Faculty of the University of Leipzig and is head of Childhood Obesity and Metabolic Research at HI-MAG. She has been consultant in pediatric endocrinology >15 years of the University Children's Hospital Leipzig, Germany.

Her research focuses on the origin, mechanisms and consequences of childhood obesity following a translational approach that combines cell biology, molecular biology, clinical, and genetic studies and investigator initiated and multicenter clinical trials. Her research fields are:

- Pathogenesis of obesity and metabolic comorbidities in children
- Adipocyte differentiation and adipose tissue development and biology in children
- (Epi)Genetics of obesity in children
- Endocrinology of growth & development

She is integrated in local and international research networks and collaborations. She is coordinating the Leipzig-Dresden Partner site SaxoChILD for the new German Center of Child and Youth Health. She has published more than original 200 articles in peer-reviewed international scientific journals (h-index WoS 57) and has been awarded numerous national and international prizes, e.g. Elliot Joslin Award of the German Diabetes Society (DDG) 2022. She has received the Research Award of the European Society of Paediatric Endocrinology (ESPE) in 2020, International Journal of Obesity Outstanding New Faculty Award (2016). She has raised more than 7 Mio Euro peer reviewed research grants, including the European Commission, German Research Foundation (DFG) and the Else Kröner-Memorial foundation.

Her scientific achievements include the identification of early childhood as critical window for sustained obesity¹, the superiority of insulin-based values for the prediction of future dysglycemia over classical glucose based cut-offs², and recently the identification of a new monogenic obesity trait due to ectopic ASIP expression³. →



Faculty CVs (in alphabetical order)

Most important publications in last 5 years (all open access)

1. Geserick M, Vogel M, Gausche R, Lipek T, Spielau U, Keller E, Pfäffle R, Kiess W, Körner A: Acceleration of BMI in early childhood and risk of sustained obesity. *N Engl J Med* 379:1303-1312 (2018)
2. Hammel MC, Stein R, Kratzsch J, Vogel M, Eckert AJ, Triatin RD, Colombo M, Meigen C, Baber R, Stanik J, Spielau U, Stoltze A, Wirkner K, Tönjes A, Snieder H, Holl RW, Stumvoll M, Blüher M, Kiess W, Körner A. Fasting indices of glucose-insulin-metabolism across life span and prediction of glycemic deterioration in children from new references. *Lancet Reg Health Eur* 30:100652 (2023)
3. Kempf E, Landgraf K, Stein R, Hanschkow M, Hilbert A, Abou Jamra R, Boczki P, Herberth G, Kühnapfel A, Tseng YH, Stäubert C, Schöneberg T, Kühnen P, Rayner NW, Zeggini E, Kiess W, Blüher M, Körner A. Aberrant expression of agouti signaling protein (ASIP) as a cause of monogenic severe childhood obesity. *Nat Metab.* 12:1697-1712 (2022)
4. Yang C-H, Fagnocchi L, Apostle S, Vanessa Wegert V, Casaní-Galdón S, Landgraf K, Panzeri I, Dror E, Heyne S, Wörpel T, Chandler DP, Lu D, Yang T, Gibbons E, Guerreiro R, Bras J, Thomassen M, Grunnet LG, Vaag AA, Gillberg L, Grundberg E, Conesa A, Körner A, PERMUTE and Pospisilik JA. Independent phenotypic plasticity axes define distinct obesity sub-types. *Nat Metab.* 9:1150-1165 (2022)
5. Landgraf K, Klötting N, Gericke M, Maixner N, Guiu-Jurado E, Scholz M, Witte AV, Beyer F, Schwartze JT, Lacher M, Villringer A, Kovacs P, Rudich A, Blüher M, Kiess W, Körner A: The Obesity-Susceptibility Gene TMEM18 Promotes Adipogenesis through Activation of PPARγ. *Cell Rep* 33:108295 (2020)

Chrysoula Kostogianni

Dr. Chrysoula Kostogianni, known as Dr. Chrys, is a prominent expert in childhood and adolescent mental health, boasting a strong background in psychology and specialization in Rational-Emotive & Cognitive-Behavior Therapy (RECBT). With a Bachelor of Science in Psychology from Baylor University in Texas in 1986, followed by an MA and a Ph.D. in Clinical and School Psychology from Hofstra University in New York in 1991 and 1994, respectively. In 2001, she completed post-doctoral clinical training in RECBT at the Albert Ellis Institute in New York City. Since 2003, she has directed the Hellenic Institute for RECBT and, since 2018, served as Adjunct Faculty at the National & Kapodistrian University of Athens Medical Center, specializing in Developmental and Adolescent Health.

Dr. Kostogianni's expertise extends to childhood and adolescent eating disorders and obesity, with extensive research examining its psychological aspects. She applies RECBT principles to help young individuals manage emotions, adopt healthy habits, and combat obesity. Offering assessments, counseling and psychotherapy within an RECBT framework, she collaborates with schools and clinics, providing workshops on improving the psychological well-being of children and adolescents, emotional management, communication skills, and rational living. For more information, visit: www.recbt.gr



Faculty CVs (in alphabetical order)

Nicos Maglaveras

Nicos Maglaveras received the diploma in electrical engineering from the Aristotle University of Thessaloniki (A.U.Th.), Greece, in 1982, and the M.Sc. and Ph.D. degrees in electrical engineering with an emphasis in biomedical engineering from Northwestern University, Evanston, IL, in 1985 and 1988, respectively. He is currently a Professor of Medical Informatics, A.U.Th, leading the women digital health hub at the 2nd Obstetrics and Gynaecology Clinic in AUTH. He has been a Visiting Professor at Northwestern University, USA from 2016-2019 in the ECE Dept and Feinberg School of Medicine. He has been the head of the graduate program in medical informatics at A.U.Th, a collaborating researcher with the Center of Research and Technology Hellas and the Hellenic Institute of Transportation (CERTH-HIT). His current research interests include biomedical engineering, cardiovascular engineering, biomedical informatics, ehealth, AAL, personalised health, AI/ML in biomedical data. He has published more than 500 papers in peer reviewed international journals, books and conference proceedings out of which over 160 as full peer review papers in indexed international journals. He has developed graduate and undergraduate courses in the areas of (bio) medical informatics, biomedical signal processing, physiology and biological systems simulation. He has served as a Reviewer in CEC AIM, ICT and DGRT D-HEALTH technical reviews and as reviewer, associate editor and editorial board member in more than 10 international journals, and participated as Coordinator or Core Partner in over 45 national and EU-funded competitive research projects attracting more than 15 MEUROs in funding. He has served as president of the EAMBES in 2008-2010. Dr. Maglaveras has been a member of the IEEE, AMIA, the Greek Technical Chamber, the New York Academy of Sciences, the CEN/TC251, Eta Kappa Nu and an EAMBES Fellow.



Yannis Manios

Professor in the Department of Nutrition and Dietetics, Harokopio University, Athens; specialized in Nutritional Assessment, Counselling and Health Promotion. Postgraduate studies in Human Nutrition (M.Med.Sc. & M.Phil) at Sheffield University, UK & PhD in Preventive Medicine and Nutrition Clinic, Medical School at the University of Crete, primarily focused on children's promotion of optimum nourishment, growth and development and the prevention of obesity and cardiometabolic risk factors. Over the last 20 years his research interests have been expanded to include nutritional assessment of large national and multinational cohorts, as well as the development and implementation of community and web-based interventions and randomized clinical trials for the prevention or treatment of obesity, cardiometabolic risk factors and osteoporosis in all life stages. Prof Manios has been/ is actively involved as a Principal Investigator or Coordinator in many National and European research programs either funded by the private sector, public sector or EU such as FP5: PHYTOHEALTH; FP6: HELENA; FP7: ENERGY, HabEat, Full4Health, Food4Me, ODIN; H2020: SWEET, GATEKEEPER, FNS Cloud; Horizon Europe: Plan'Eat. He has been the coordinator of the ToyBox-study (FP7) and the Feel4Diabetes-study (H2020), while currently he is the coordinator of the DigiCare4You-study (H2020). He is author/ coauthor in more than 640 scientific papers published in international scientific journals with more than 35.000 citations. He has received 11 awards for his scientific work by national and international organizations.



Faculty CVs (in alphabetical order)

Claude Marcus

Dr Claude Marcus is professor of pediatrics at Division of Pediatrics, Department of Clinical Science Intervention and Technology, Karolinska Institutet. Dr Marcus is specialized in pediatric endocrinology, founder of the Swedish National Childhood Obesity Centre. Dr Marcus is also founder and previously chairman of the Steering Committee for the Swedish BDD study, aimed to clarify the interactions between type 1 diabetes, type 2 diabetes and MODY. He is member of the steering committee for the Obesity Group of the European Society for Pediatric Endocrinology and medical advisor for several companies. His research covers the whole spectrum of obesity challenges from prevention to treatment of severe adolescent obesity by means of bariatric surgery and early identification and treatment of obesity co-morbidities such as type 2 diabetes and fatty liver disease. Dr Marcus has published more than 300 articles in international journals primarily about adipocyte physiology, clinical endocrinology/diabetology, obesity genetics, physical activity and obesity treatment/prevention. He has run several large clinical trials within the fields of endocrinology and obesity and is involved in several international collaborations. Finally, he has developed and implemented new and effective treatment tools for childhood obesity.



George Mastorakos

George Mastorakos was born in Athens. He graduated *summa cum laude* from the Athens University Medical School in 1983. He specialized in Internal Medicine and Endocrinology in the Lariboisière Hospital (University Paris VII) and in Cochin Hospital in Paris (University Paris V), where he received the "Resident Etranger des Hopitaux de Paris" Prize from the "College de Medecine des Hôpitaux de Paris". He also received the "Assistant Etranger" degree from the "University Paris Nord". He received his PhD *summa cum laude* on a Doctorate Thesis from the Athens University Medical School. For the following 4 years he was a Visiting Fellow in the International Fogarty Centre in the Department of Developmental Endocrinology of NICHD, at the National Institute of Health (NIH), Bethesda, Maryland, USA. Since 1994 he works as scientific consultant of the department of endocrinology of the University of Athens (Evgenideion Hospital) and in 2002, 2009 and 2015 he was elected, respectively, Assistant, Associate and Full Professor of Endocrinology at the University of Athens (Aretaieion Hospital). He is Director of the post-graduate University Master Research in Female Reproduction at the National and Kapodistrian University of Athens and Visiting Professor at Belgrade University. He is the author or co-author of more than 310 ISI scientific publications with an H factor=69 (39 since 2018) and 18323 (6618 since 2018) citations in Google Scholar. His main publications deal with peripheral CRH (first proving the existence of ovarian CRH), endogenous and exogenous (first to demonstrate this stimulatory activity in humans) interleukin-6 in the Hypothalamic-Pituitary-Adrenal axis, somatostatin in inflammation, various aspects of the immune-inflammatory systems in Neuroendocrinology, PCOS in adolescence and menopause, and, recently, with metabolic aspects of pregnancy (adipocytokines, incretins, appetite-related peptides, insulin resistance) and exercise as a stress model. His actual scientific interests include endocrinology of reproduction, pregnancy and menopause, PCOS, obesity, the effects of endocrine disruptors in reproduction and metabolism, neuroendocrine mechanisms underlying chronic or acute stress and immune/inflammatory reaction in models such as pregnancy, exercise and hypothalamic amenorrhea (member of the task force which published The Endocrine Society recommendations for Hypothalamic Amenorrhea). His editorial experience includes: editorship in seven volumes in the Annals of the New York Academy of Sciences, associate editorship in the international Pubmed-indexed journal HORMONES as well as Endocrine Connections (published by the European Society of Endocrinology, ESE); membership in the International Advisory Panel in ENDOCRINE REVIEWS (published by The Endocrine Society), the Editorial Board of JES (published by The Endocrine Society), the Editorial Board of ENDOCRINE, the Editorial Board of Reviews in Endocrine and Metabolic Disorders. He is long-standing reviewer to many International Journals, including "New England Journal of Medicine", "Clinical Endocrinology", "Journal of Clinical Endocrinology and Metabolism", "European Journal of Endocrinology" and "Fertility and Sterility" and many others. Among other scientific societies, he is long-standing member of the European, the American, the French and the Hellenic Societies of Endocrinology. He served as president of the Hellenic Endocrine Society and as elected representative of the European Council of Affiliated Societies (ECAS) within the ESE and ex officio member of the ExCo of the ESE. He is still working as a co-opt member of the ECAS for the creation of a European Network for Research and Education in Endocrinology as well as a member of the stirring committee in Endo-ERN appointed by the ESE ExCo. He was Clinical Co-Chair of the Programme Organizing Committee for the 25th European Congress of Endocrinology (Istanbul, 2023). He has been the recipient of Special Recognition Award from ESE, twice.



Faculty CVs (in alphabetical order)

Alexandros Mourouglakis

He was the first to be admitted to the Medical School DUTH and graduated in 2008 from Aristotle University. He worked at KEELPNO in the migrant center of Xanthi and served for a year as a military doctor and then as a rural doctor in Thassos and Evia. He specialized in Internal Medicine in AHEPA University Hospital and he was the national representative of Greece to the young Internist of Europe in the European Federation of Internal Pathology (EFIM National Representative of Greece / Young Internists), he is certified for the management of obesity as a European Clinical Fellow of the European Obesity Association (EASO) and he is also the President of the scientific committee of the Panhellenic Association for the Support of People with Obesity – Imeroessa.



Maria Papagianni

Dr. Maria Papagianni is Assistant Professor in Pediatric Endocrinology, Metabolism and Nutrition in Children and Adolescents at the University of Thessaly. At the same time, she serves at a part-time academic position at the Unit of Pediatric Endocrinology, Diabetes and Metabolism of the 3rd Department of Pediatrics at the Aristotle University of Thessaloniki. She graduated from the Medical School of the Aristotle University of Thessaloniki and after her training in pediatrics in Greece, she was trained in Pediatric Endocrinology in Great Ormond Street Hospital and the Middlesex Hospital in London, UK. Her PhD and post doc studies were on insulin's action on airway smooth muscle. Her research has been focused on pediatric endocrinology and especially on diabetes mellitus and metabolism. During the last years, she has an interest on endocrine disrupting chemicals' role on reproductive system and obesity. She has over 25 publications in peer-review journals which appear in the pubmed database as well as over 35 presentations in international medical conferences (the majority of them has been published in supplements in peer-review journals). She is also reviewer in peer-reviewed journals as well as in agencies for scientific funding. Moreover, she has been participated in many scientific meetings either as a faculty member and/or a member of the scientific/organizing committee. She has successfully submitted research proposals and was awarded national research programs. She was an elected member of the Governing Committee of the Scientific Department of Pediatric Endocrinology of the Hellenic Association of Endocrinology and an elected member of the Executive Committee of the Hellenic Association of Pediatric and Adolescent Endocrinology. Furthermore, she was a founding member and subsequently primary responsible for the organization of a diabetes camp program for children and adolescents who suffer from diabetes mellitus, organized since 1995 by the Unit of Pediatric Endocrinology, Diabetes and Metabolism of the 3rd Department of Pediatrics in collaboration with YMCA.



Hanneke M van Santen

HM van Santen is pediatric endocrinologist at the Wilhelmina Children's Hospital and at the Princess Máxima Center for Pediatric Oncology and associate professor at the University Utrecht, The Netherlands. She is highly specialized in the endocrine consequences of childhood cancer treatment, in pediatric thyroid cancer and in childhood craniopharyngioma, including acquired hypothalamic dysfunction. After her training in Amsterdam, she moved her career to Utrecht, the Netherlands to support the Máxima initiative and to coordinate the endocrine care for children with cancer in the Netherlands from within the Princess Máxima Center for Pediatric Oncology. She is clinical scientist in the research program of Child Health, WKZ, UMCU and within the Máxima and collaborates with many international colleagues. Dr van Santen is chair of the SIOPE craniopharyngioma working group and the International Guideline Harmonization Groups (IGHG) for thyroid disorders and for hypothalamic-pituitary disorders, including GH safety, in children with or after treatment for cancer. Her research program focusses on the endocrine effects of childhood cancer treatment, with special interest for the hypothalamus and hypothalamic obesity, the pituitary gland, and the thyroid gland, aiming to preserve an intact endocrine system in children with cancer enabling normal growth and development of the child during and after childhood cancer treatment. Dr van Santen has co-authored more than 120 papers on the endocrine effects of cancer treatment in childhood, pediatric thyroid cancer or craniopharyngioma. She currently supervises 8 PhD students and plural medical students.



Faculty CVs (in alphabetical order)

Bessie E. Spiliotis

Bessie E. Spiliotis is a Professor Emeritus of Pediatrics and Endocrinology and Diabetes of the University of Patras School of Medicine in Patras, Greece. She was previously the Founder and Director of the Division of Pediatric Endocrinology and Diabetes of the University Hospital of Patras of the University of Patras School of Medicine. Her current research interests and projects are: (1) Molecular mechanisms involved in the pathophysiology of adipose tissue in children with obesity, (2) Hypothalamic genetic disorders in children with morbid obesity and their treatment and (3) Pathophysiology of growth hormone neuroregulation and signal transduction in children with growth retardation.



Constantine A. Stratakis

Professor Constantine A Stratakis is an internationally known medical geneticist, endocrinologist, translational investigator and executive leader with a unique combination of skills and experience in science, healthcare, clinical trials, molecular research and genetics, policy, government regulations, and patient advocacy. Prof. Stratakis served as the Chief Scientific Officer of ELPEN Pharmaceuticals, in Athens (GR) and directed the efforts to build a new ELPEN Research Institute that is due to open in 2025, while he also runs human genetics and precision medicine at IMBB, FORTH, in Heraklion, GR. Most recently he was selected to coordinate the Hellenic Network for Precision Medicine in Molecular Oncology (EDIMO; <https://edimo.gr/>).



His basic training was in medicine (Athens, GR 1989), pediatrics, endocrinology and medical genetics (Paris, France 1988, Georgetown University, Washington DC, USA 1990-1996) and holds a Medical Doctor's, a Doctorate in Medical Sciences, and two honorary PhD degrees, in addition to being a graduate of the University of Maryland School of Public Policy Executive Leadership program.

As an executive leader, Prof. Stratakis led the National Institutes of Health (NIH/NICHD) genetics and endocrinology programs and the NICHD intramural research program (1,100 employees, \$200M/year budget) in the United States, for more than 18 years where he trained more than 200 trainees. He is highly sought as a Mentor, speaker, teacher, a patient advocate, and a trusted and highly respected advisor for a wide-range of issues, across various sectors of the healthcare and innovation in life sciences ecosystem.

As an investigator, Prof. Stratakis has worked on the genetics of solid tumors and has identified a number of predisposing genetic defects, including a disease that bears his name (Carney-Stratakis syndrome). He has authored more than 800 publications and served in major Editorial roles of leading journals. He received the 1999 Award for Excellence in Published Clinical Research and the 2009 Ernst Oppenheimer Award both from the US Endocrine Society, and a number of other honors, including NIH Merit and Director's Awards; he also has been named Visiting Professor in academic centers around the world. He is the recipient of the 2019 Dale Medal from the British Endocrine Society and received the 2018 International Award of the European Society of Pediatric Endocrinology (ESPE). He was named honorary member of the Hellenic Society of Cardiology (2017) and the Hellenic Endocrine Society (2019) for his work on the genetics of hypertension and endocrine diseases, respectively. He holds two honorary doctoral degrees from the Universities of Liege, Belgium (2013) and Athens, Greece (2017). Prof. Stratakis served as the 2018-2019 President of the Society of Pediatric Research (SPR) in the US. In addition to the SPR, he is an elected member of American Pediatric Society (APS), the American Society for Clinical Investigation (ASCI) and the Association of American Physicians (AAP). Dr. Stratakis most recently was instrumental in the launching of the new NICHD Strategic Plan (2020-2024) that emphasizes precision medicine, and the use of large data in predictive healthcare.

Faculty CVs (in alphabetical order)

Nikolaos Tentolouris

Nikolaos Tentolouris MD, PhD, received his medical degree from the Medical School, National and Kapodistrian University of Athens (NKUA) and the specialist title in Internal Medicine in 1997. He worked in the field of diabetes mellitus, metabolic and endocrine diseases at the University of Manchester (Manchester Royal Infirmary) in the UK. Since 2018 he is full professor of Internal Medicine at the 1st Department of Internal Medicine at the Medical School of the NKUA, Laiko General Hospital. He has participated in scientific and organizational committees of many international and Greek conferences and is a member of the Editorial Board in 4 international medical journals. He is the coordinator of the Master of Science Program of the Medical School of the NKUA entitled "Diabetes mellitus-Obesity". His research work includes more than 320 publications in international journals that have more than 10,000 citations. He is the president of the Hellenic Society of Internal Medicine, and in the past, he served as a member of the Executive Committee of the EASD.



Kyriaki Tsiranidou

President, Imeroessa Pan-Hellenic support union for people with obesity
Psychologist for Health professionals E.E. Greece
Phathology Nurse I.H.U. Greece and G.U.H. AHEPA
1989-2004 worked as a pathology nurse at the psychiatric hospital in Thessaloniki
2004-2011 worked at social welfare department of Thessaloniki
1995-2020 worked as a secretary in the Cardiological Society of North Greece. From 2020 A.V. President of Federation of Mountaineering Associations of Greece
Strongly active in Volunteerism, she participates as a member in social, sports and charity organizations.



Georgios Valsamakis

Assistant Professor of Endocrinology

Dr Georgios Valsamakis, Greece, was awarded a SCOPE International Fellowship in 2023 by World Obesity Federation (London). Dr Valsamakis was previously the recipient of a SCOPE National Fellowship in 2011. He is employed by the Ethnikon and Kapodistriakon University of Athens and works in Aretaieion University Hospital. His vast roles include serving as an Endocrinologist at the Centre for Obesity and Metabolism (COM), where he collaborates with the University Surgical Department in treating patients with morbid obesity. Dr Valsamakis works as an Endocrinologist in the Fetal Maternal Unit, focusing on metabolic disorders during pregnancy. He also dedicates his expertise at the IVF Unit, assessing couples with metabolic disorders. Outside of Aretaieion, he serves as a postdoctorate researcher and educator in the University's two-year postgraduate programs 'Research in Gynecologic Reproduction and Endocrinology' and to "New techniques in assisted Reproduction". Adding to his list of esteemed titles, Dr Valsamakis holds the title of Assistant Professor of Endocrinology at the Medical School of Larissa, University of Larissa. He coordinates two major protocols assessing first the effects of hypothalamic inflammation on the different metabolic and reproductive manifestations in the PCOS and secondly the effects of hypothalamic inflammation on the appearance of early puberty in obese girls.

He did his clinical training in Diabetes and Endocrinology in the University Hospitals of Birmingham, UK. He submitted his thesis with title "Assessment and pathophysiology of central obesity and its connections with the metabolic syndrome" to the University of Birmingham in 2003.



Faculty CVs (in alphabetical order)

Francis de Zegher

MEDICAL SCHOOL 1974-81 | *University of Leuven, Belgium (Summa cum Laude)*

PEDIATRICS 1981-85 | *Sophia Children's Hospital, Rotterdam, the Netherlands (Professor HKA Visser)*

PEDIATRIC ENDOCRINOLOGY 1985-88 | *University of California, San Francisco, USA (Professor MM Grumbach)*

POSITION

- Staff Member, Neonatology, University Hospital Leuven (1988-1999)
- Head, Pediatric Endocrinology, University Hospital Leuven (1992-2021)
- Professor of Pediatrics, University of Leuven (1999-2021)
- Chair, Dept of Woman & Child, University of Leuven (2005-2010)
- President, Belgian Society for Pediatric Endocrinology (1995-2001)
- Member of the Royal Academy of Medicine, Belgium (2008-2023)
- Visiting Professor, University of Barcelona, Spain (since 2002)
- Senior Visiting Fellow, University of Cambridge, UK (since 2022)

SELECTED AWARDS

- Awards for Excellence in Clinical Research, JCEM (US Endocrine Society, 1998 & 1999)
- European Society for Pediatric Endocrinology (ESPE)
- Henning Andersen Award (1999)
- ESPE Research Award (2004)
- Andrea Prader Prize (2021)
- Visionary Award, the Human Growth Foundation, USA (2023)



Martin Wabitsch

Martin Wabitsch MD, PhD is Professor of Paediatrics and Head of the Division of Paediatric Endocrinology and Diabetes and the Endocrine Research Laboratory at the University Medical Center of Ulm, Germany.

His research focus comprises childhood and genetic obesity, the biology of the human adipocyte as well as rare lipodystrophy syndromes.

Dr. Wabitsch had his clinical and experimental training at the Universities in Berlin (Free University) and Ulm in Germany, as well as in Baltimore (Johns Hopkins Hospital), USA and in Nice (University Sophia Antipolis), France. Within an ESPE research fellowship he performed studies on the growth hormone receptor at the Hagedorn Research Institute, Gentofte, Denmark. Dr. Wabitsch has been a former President of the German Society for Paediatric Endocrinology and Diabetes as well as of the German Obesity Society. At present, he is the Chairman of the Center of Rare Endocrine Disorders, Ulm University Hospital. He is the national coordinator of the German Evidence-Based Guideline for Diagnosis, Treatment and Prevention of Obesity in Children and Adolescents.





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ABSTRACTS





Friday 13 October 2023

I/ The Obesity Epidemic: A Global Perspective

Introduction to Childhood Obesity: Definition, Clinical and Diagnostic Evaluation

Martin Wabitsch

Obesity is the state of having excess body fat. It results from abnormal physiology regulating body fat. Obesity often develops during childhood and then persists as a chronic disease during adulthood with far-reaching medical, social and psychological consequences. Obesity directly causes pathology and diminishes health. Obesity is also a risk factor for other diseases. "But obesity needs to be recognized, respected, treated and prevented as a disease in its own right" (Lee Kaplan, 2022). Clinical practice guidelines for definition, clinical and diagnostic evaluation of obesity in children and adolescents have been published by the American Academy of Pediatrics (Pediatrics (2023) 151 (2): e2022060640) and by the Endocrine Society (JCEM (2017) 102(3):709–757). These are the basis for patient care. Some aspects of these guidelines will be summarized in my presentation. The overall challenges for physicians when taking care of children and adolescents with obesity are to remove weight stigma for families and reduce discrimination, to set fair and realistic treatment aims and to accept and cope with obesity as a chronic, endocrine disease. Physicians should motivate patients and their care givers to make use of the available health-care resources to screen for and treat comorbidities over the long term.

Obesity in Childhood and Adolescence: Epidemiology and Financial Implications

Kostas Athanasakis

Obesity in Childhood and Adolescence (OCA) is a growing problem with complex dynamics. Prevalence estimates show an increasing trend among children and adolescents in Europe during the last decade – alongside with the trends in overweight and obesity in adults. According to published literature, OCA is heavily defined by the influence of the family's socioeconomic background, especially by factors such as the disposable income and the educational level of the head of the household – both negatively correlated with the prevalence of overweight/obesity. Apart from its undeniable consequences in the health and wellbeing of persons with obesity, OCA induces a multitude of financial implications both in the individual level (personal costs) as well as for the healthcare system and the society, in general. These financial consequences appear in the form of direct costs, i.e. costs incurred for the treatment of persons with obesity-related complications, but, also, in the form of indirect costs, i.e. expenditure at the personal and societal level from the reductions in productivity or work absenteeism, due to obesity-related comorbidities. Overall, it is estimated that over the next 30 years obesity will account for a reduction of 3.3% in GDP across OECD countries, and for 8.2% of annual healthcare costs, on average. Nevertheless, obesity in the early years of life appears to be a really serious concern for health systems, as it leads to a lifetime stream of healthcare costs. According to simulations, the majority of children with overweight and obesity, will remain – unless effective interventions are implemented – in the same BMI category during their adult life, resulting in significant direct and indirect lifetime costs (typically measured, in published studies, as the difference in lifetime costs between persons with obesity and persons with normal BMI). The importance of the problem requires swift action in order to "bend the curve" of the epidemic - and the nature of the problem requires a combination of approaches. Among other things, national strategies against Obesity in Children and Adolescents should include: (a) The classic public health measures, such as health promotion, knowledge sharing, health literacy etc. – which form the basis of the approach (b) Adopting insights from Behavioral Science in order to "nudge" people towards healthy choices, for example food placement in schools/supermarkets, nudging for physical activity etc. (c) Increasing the power of food labeling, such as "green-yellow-red" tier systems, and relay information in a way that is easy to comprehend (d) Enhancing counseling and promote multidisciplinary support (e) Use of financial incentives towards healthy choices, such as health taxes on foods/beverages (e.g. SSBs) with a proven negative effect on health. Bending the curve of the epidemic is an uphill battle we must win. And, from the economics perspective, we should always remember the value of prevention: According to the OECD, for each Euro invested in policy actions to tackle Obesity, the society takes back 0.9-5.6 Euros, in terms of benefits.



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II/ Physiology and Pathophysiology of Energy Homeostasis

Central Control of Energy Metabolism

Hanneke M. van Santen

The hypothalamus is the key player of the human's body balance, as it acts as a central integrator for endocrine, autonomic, and higher brain functions. This endocrine organ, located in the suprasellar region of the brain, does not only stimulate the pituitary gland by its releasing hormones, but also regulates temperature stability, salt and water balance, hunger and satiety feelings, and circadian rhythms. In addition, through its connective circuits, the hypothalamus plays a central role in behavior. Hypothalamic dysfunction leads to hypothalamic obesity. In this lecture, I will discuss the central control of energy metabolism, the multifaceted aspect of hypothalamic obesity and discuss the personalized approach that may benefit patients with hypothalamic obesity.

Molecular determinants linking adipose tissue (dys)function and metabolism in children

Antje Körner

Obesity causes a substantial higher morbidity and mortality for affected patients, mainly through comorbidities such as diabetes, cardiovascular disease, cancer and many more. The accumulation of body fat mass in obesity derives from hyperplasia (formation of new adipocytes) and hypertrophy (enlarged adipocytes). However, in addition to the mere expansion of fat mass, there are alterations in biology and function of adipose tissue including inflammation and dysbalance in adipose derived molecules (so called adipokines), termed adipose tissue dysfunction. This adipose tissue dysfunction is related to emerging comorbidities already in childhood. Genetic, environmental and nutritional factors are related to those alterations in adipose tissue dysfunction. To what extent these associations directly and mechanistically contribute to obesity-related comorbidities is still not explained. Nevertheless, they underline the interrelationship between obesity, adipose tissue (dys)function and comorbidities.

III/ Etiology of Childhood Obesity

i/ Genetics and Epigenetics of Childhood Obesity

Monogenic Disorders of childhood Obesity

Sadaf Farooqi

While the widespread availability of high calorie, palatable food and physical inactivity are major environmental drivers of the rise in prevalence of childhood obesity, genetic factors play a substantial role in influencing whether a child gains weight or stays slim within an obesogenic environment. In this lecture, Sadaf Farooqi will discuss how the identification of genes involved in the leptin-melanocortin pathway has highlighted the fundamental role of the brain in modulating eating behaviour and body weight. She will also discuss the impact of this work on societal perceptions of obesity and how targeting these mechanisms has provided new treatments for children with severe obesity.



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i/ Genetics and Epigenetics of Childhood Obesity

Polygenic Obesity. Polygenetic risk score, can it elucidate obesity phenotypes?

Erica van den Akker

Obesity is a complex multifactorial disorder resulting from the interplay of genetic and environmental factors. In recent years, advances in genomic research have shed light on the contribution of genetics to obesity susceptibility, revealing both rare monogenic variants and common genetic variants as significant players in its pathophysiology. Among these advancements, the emergence of polygenic risk scores (PRS) has gained attention as a promising tool to assess an individual's genetic predisposition to obesity. Polygenic risk scores are composite measures that aggregate the effects of numerous genetic variants associated with a particular trait or condition. In the context of obesity, PRS encapsulate the cumulative impact of a wide array of genetic variants, each exerting a modest influence on an individual's susceptibility to obesity. These variants are often identified through genome-wide association studies (GWAS) and their combined effects are used to calculate a PRS for an individual. Despite their potential, the practical utility of PRS in the clinical diagnosis and management of obesity has been debated due to limited empirical evidence. The lack of robust clinical studies demonstrating the efficacy of PRS in real-world scenarios has hindered its widespread adoption in genetic diagnostics. However, recent research has begun to address this gap in knowledge. In recent studies, it was observed that common genetic variants, captured by an unfavorable PRS, can elucidate the obesity phenotype in cases where no causative monogenic defect is identified. This suggests that PRS could serve as a complementary tool to traditional genetic testing methods, such as gene panels and genetic arrays, enhancing the precision of diagnosing obesity-related risks. The integration of PRS into clinical practice could potentially revolutionize the approach to obesity management. By identifying individuals at higher genetic risk for obesity, healthcare professionals can tailor preventative strategies to mitigate the impact of genetic predisposition. Lifestyle interventions, such as personalized dietary and exercise recommendations, could be tailored to an individual's genetic susceptibility, ultimately promoting more effective weight management and reducing the overall burden of obesity-related health complications.

In conclusion, the use of polygenic risk scores represents a cutting-edge approach to understanding the genetic basis of obesity. While their practical utility in clinical practice has been uncertain, recent findings highlight their potential in enhancing genetic diagnostics and risk stratification. The inclusion of PRS in obesity management strategies could pave the way for more targeted and personalized interventions, offering new avenues for tackling the global obesity epidemic. However, further research and clinical validation are essential to fully establish the role of PRS in obesity diagnosis, prevention, and treatment.

Syndromic Obesity

Elena Frysira

Obesity represents a major health problem to both developed and developing countries. The incidence of obesity is increasing particularly in children and contributes to morbidity and mortality. Despite the various environmental changes there is clear evidence of a genetic predisposition to obesity risk.

Childhood obesity cases can be categorized in two groups: syndromic or non syndromic. Syndromic forms of Mendelian obesity, are relatively rare in the general population. Syndromic obesity (presence of obesity along with additional characteristic features) includes disorders such as Prader-Willi syndrome, Bardet-Biedl syndrome (which belongs to ciliopathies), Alstrom syndrome, Cohen syndrome and others. The pathophysiological background of most of these clinical cases shows an alteration of the regulation of the energy balance by hypothalamic homeostasis centres. These syndromes, besides obesity, have a strong neuro-endocrine component that manifests with a neurodevelopmental disorder e.g. intellectual disability, dysmorphic features and congenital anomalies, autism spectrum disorder and/or psychopathic behaviour. Prader-Willi and Bardet-Biedl syndromes are among the most well-known obesity syndromes. The identification of the genetic basis of the childhood obesity syndromes through genome-wide association studies (GWAS) and NGS have contributed to early diagnosis, to detection of novel candidate genes, to genetic counseling, to prevention and to appropriate multidisciplinary intervention for the improvement of quality of life, as well as access to novel therapies developed over the last several years.



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i/ Genetics and Epigenetics of Childhood Obesity

Epigenetics of Human Obesity and its Comorbidities Wieland Kiess

Epigenetics relates to a stable heritable phenotype resulting from changes in a chromosome without modification in the DNA sequence. This may relate to all of the following: DNA-methylation, Histone modifications, micro-RNAs, alteration of expression and or activation or silencing of target genes. Taken the long lasting nature of putative effects of obesity into account, epigenetic alterations may indeed be a part of the causative sequence of events leading to obesity associated long lasting morbidity. Targets of such alterations may secondly involve stress response cascades namely hormonal stress responses and regulation of hunger and satiety. Successful body weight-loss is associated with specific methylation signatures potentially usable as prognostic biomarkers in future patient-tailored obesity treatments. Long-term lifestyle effects on epigenetic patterns dominate over those driven by age and obesity alone and affect methylation age. Bioactive dietary compounds such as genistein carry epigenetic functions. Dietary components, stressful life events and physical activity are all able to affect DNA methylation. Thus, epigenetics may well influence and orchestrate causes of obesity as well as of co-morbidities of overweight in the human.

ii/ Pre-, Peri- and Postnatal Determinants of Childhood Obesity

Fetal and Infancy Growth Ken K.Ong

There is a highly consistent association between rapid infancy weight gain and higher risk of obesity in later childhood and adult life. In one review, 45/46 studies across the world reported positive associations. The risk of childhood obesity is substantially higher in those infants whose weight increases by >1.33 Z-scores. The underlying mechanisms likely mirror the interaction and signalling between infants and their parents over infant feeding. The heritability of BMI is high even in young children. Individuals with severe monogenic obesity are characterised by extremely high and insatiable appetites ('hyperphagia') and rapid weight gain from infancy. Similarly, common genetic susceptibility to obesity manifests in rapid weight gain from birth, and the variants likely also predominantly act on central appetite regulation. Distinct infant appetitive constructs have been associated with genetic susceptibility to obesity and are predictive of infant weight gain. Therefore, it appears that centrally acting obesity susceptibility variants contribute to the wide inter-individual differences in infant appetite, satiety, food intake and weight gain, and they provide a biological link between early growth and feeding behaviours to later childhood pubertal timing and adult metabolic disease risks. These findings also indicate potential benefits of both population and precision prevention and there have been more than 60 ongoing or completed trials of early obesity prevention in the last two decades. There is a linear relationship between total energy intake and infancy weight gain and several interventions have aimed to support parents to avoid excess infant feeding. At the population level, the slower rate of weight gain in breastfed infants underlies the rationale for the WHO 2006 Growth Standards. These WHO charts classify substantially more young children as overweight and obese categories, and far fewer as underweight, allowing more accurate monitoring by health professionals and feedback to parents. Furthermore, higher formula milk protein contents promote faster infancy weight gain and there has been significant lowering of protein contents in most formula milks. Together with other structural (policy, education and environmental) factors, these changes may have contributed to the recently observed declining prevalence of overweight in young pre-school children in several high-income settings.

Endocrine Disruptors as Obesogens Maria Papagianni

Over the last decades, the interest of the scientific community on the role of endocrine disruptor chemicals (EDCs) is steadily increasing. These are environmental chemical substances that may interfere with the endocrine system and alter its functions. The exposure of the body to endocrine disruptors, notably during pregnancy and over the first years of life, has proven to increase predisposition for a plethora of diseases, not only for the person immediately exposed but for his/her descendants as well. A subset of EDCs called obesogens have been found to cause metabolic disruptions such as increased fat storage leading to obesity. Their role seems to be important for obesity, as clearly shown from the results of both in vitro and animal studies. Obesogens act on the metabolism through multiple pathways that could affect adipose tissue functioning leading to obesity. The rising rates of obesity and related metabolic diseases require increased attention to and stepping up of efforts with regard to, chemical screening as well as worldwide preventative strategies in order to keep the public and future generations safe.



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iii/ The Role of Nutrition and Exercise in Childhood Obesity and its Complications

Early Feeding Practices and Development of Childhood Obesity Evangelia Karaglani

The prevalence of childhood overweight and obesity has become a growing global concern. In 2016, over 340 million children and adolescents aged 5-19 were living with overweight or obesity, while in 2019, an estimated 38.2 million children under the age of 5 years were overweight or obese. Childhood obesity is linked to various health issues, including mental health and psychological problems, as well as adverse cardiovascular and metabolic outcomes. Notably, childhood obesity can persist into adolescence and adulthood, leading to cardiovascular problems and other obesity-related health issues like type 2 diabetes. Early childhood is a critical period for developing physical, cognitive, social, and emotional health, presenting a vital opportunity to establish lifelong lifestyle behaviors. Importantly, the eating habits formed in early life tend to continue into later stages. Parents play a significant role in shaping their children's food preferences and eating patterns. This influence stems from their general parenting style and specific feeding practices, encompassing direct actions like controlling food intake and indirect behaviors like serving as role models for healthy or unhealthy dietary choices.

Early child feeding practices have been implicated in children's risk of obesity. There is evidence suggesting that food parenting can be enhanced, potentially leading to positive changes in child eating behavior, diet quality, and weight status, and in the long run, reduce the risk of chronic diseases. It is imperative for interventions to take a strengths-based approach, explicitly encouraging parents to cooperate rather than exacerbate any differences in feeding practices. Furthermore, considering the central role that feeding and eating play in parent-child interactions, particularly in young children, and within the broader family and cultural contexts, effective food parenting can contribute to the overall well-being of children and families, fostering health and happiness.

Lessons from the Implementation of Childhood Obesity Prevention Programs in Real World Settings Odysseas Androutos

The prevalence of childhood obesity has increased over the last years. Previous studies have shown that lower socio-economic groups are more vulnerable in developing non-communicable diseases, such as obesity. Public health initiatives are required to tackle the increasing trends of obesity. During the past decade, two large-scale obesity prevention interventions were implemented in real world settings, in Europe. The ToyBox-study (2012-2013) was a multicomponent, kindergarten-based, family-involved intervention with a cluster-randomized design, which focused on the promotion of healthy energy balance related behaviours in preschool children and their families (n = 7,056) from six countries (Belgium, Bulgaria, Germany, Greece, Poland and Spain). The Feel4Diabetes-study (2016-2018) was a school- and community- based intervention with a cluster-randomized design, which focused on the promotion of healthy lifestyle in primary schoolchildren and their families (n = 12,193) in two low/middle-income countries (Bulgaria and Hungary), in low-socioeconomic areas in two high-income countries (Belgium, Finland) and in two countries under austerity measures (Greece and Spain). Especially for families at high-risk for developing type 2 diabetes (n = 1,273), additional counselling sessions (1st year of intervention) and an SMS-intervention (2nd year of intervention) were implemented. Findings regarding the effectiveness and key learnings from these large-scale obesity prevention interventions will be presented.



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IV/ Metabolic and Other Complications of Childhood Obesity

From insulin resistance to type 2 diabetes mellitus type 2 in children

Antje Körner

Even though obesity-related comorbidities are usually diagnosed in adults, the pathogenesis starts already in childhood. With the early emergence of obesity already in childhood, metabolic dysfunction already develops in youth. Diabetes is one of the major comorbidities that imposes increased mortality. Signs of hyperinsulinemia, insulin resistance and prediabetes are developing in children and adolescents. If type 2 diabetes develops in youth, the progression is more severe compared to older patients with obesity and diabetes. With regard to duration of diabetes from diagnosis on, type 2 diabetes is even more lethal than type 1 diabetes. On the other hand, there is a window of opportunity to revert or alleviate cardiometabolic risk if obesity can be reverted in youth. Hence, we need to detect those patients at highest risk for early progression to diabetes. For this detection age-stratified insulin-based parameters may be superior to age-stable guideline proposed cut-offs.

Development of Adolescent PCOS, a Postpubertal Central Obesity Syndrome

Francis de Zegher

A mix of genetic, epigenetic and environmental factors may result in a “mismatch” sequence of reduced adipogenesis in early life (= less capacity for lipid storage) and/or augmented lipogenesis in later life (= more need for lipid storage). An early reduction of subcutaneous adipogenesis often originates from prenatal growth restraint or from genetic polymorphisms. Such a “mismatch” may lead to ectopic lipid accumulation in liver and viscera (central obesity), whose endocrine hallmark tends to be insulin resistance. In girls, markers of – or responses to – ectopic fat may include a fall of circulating SHBG and adiponectin, an upregulation of the thyroid axis (raised TSH and free T3) and an exaggeration of adrenarche (high DHEAS) sometimes clinically presenting as precocious pubarche (= early appearance of pubic hair). These responses can be viewed as adaptive since they result in accelerations of growth and maturation that exert a negative feedback effect on ectopic fat. If these mechanisms do not suffice to reduce ectopic fat, then girls may develop a further acceleration of growth and maturation by starting puberty early (= LH hypersecretion for age) and by elevating their circulating concentrations of free testosterone, conceivably in a further attempt to escape from central obesity. Beyond menarche, all those mechanisms lose their feedback effects on ectopic fat simply because there is no body growth anymore. If the energy balance remains positive, then ectopic adiposity and the aforementioned endocrine responses will also persist, thus resulting in PCOS, with LH hypersecretion, ovarian androgen excess and oligo-anovulation. The current concept is thus that PCOS is, in essence, a Postpubertal Central Obesity Syndrome. This concept has therapeutic implications which will be explained in a next lecture.

Management of adolescent PCOS: central fat takes center stage

Lourdes Ibanez

Polycystic ovary syndrome [PCOS] is the most common cause of hirsutism and menstrual irregularity in adolescent girls and young women. PCOS seems to be driven by a combination of ectopic fat accumulation (particularly in the liver), insulin resistance, and a reduced energy expenditure (partly attributable to a lower activity of brown adipose tissue [BAT]) that confers susceptibility to weight gain.

The key diagnostic criteria of adolescent PCOS (as proposed by spiomet4health, a European consortium working on adolescent PCOS) are [1] clinical and/or biochemical androgen excess, and [2] oligo-amenorrhea between 2-8 years after menarche. Other causes of androgen excess, such as a tumor, hyperprolactinemia, or adrenal hyperplasia due to 21-hydroxylase deficiency should be excluded. Treatment should not only focus on symptoms but also on the root cause, and should thus target ectopic fat, insulin resistance, and energy expenditure. A first step is a lifestyle intervention – within a multidisciplinary approach – combining regular physical exercise with a balanced diet sufficient sleep, and respect for biorhythms. These measures confer endocrine-metabolic benefits when sustained.



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IV/ Metabolic and Other Complications of Childhood Obesity

However, such sustainment is difficult to achieve, and there is thus a frequent need to add a pharmacological intervention. At present, there is no approved pharmacological treatment for adolescent PCOS. The most commonly recommended off-label medication is an oral estro-progestagen contraceptive (OC) that attenuates the androgen excess, elicits regular pseudo-menses and ensures contraception but does not target the root cause; hence, upon treatment discontinuation, the entire PCOS phenotype swiftly returns.

Ongoing research in adolescent PCOS focuses on the development of safe medications that reduce ectopic fat and insulin resistance, and/or raise energy expenditure. For adolescents with PCOS-with-obesity, glucagon-like peptide-1 [GLP-1] agonists are among the drugs under investigation. For adolescents with PCOS- without-obesity, the currently most promising intervention is a low-dose combination (so-called spiomet) of three time-honored medications that act through different pathways on different targets. The first component is spironolactone (only 50 mg/d) with not only anti-androgenic effects but also anti-mineralocorticoid properties that raise BAT activity. The second component is pioglitazone (only 7.5 mg/d), a PPAR-gamma agonist that can still drive subcutaneous adipogenesis in adolescence and can double the circulating concentrations of high-molecular-weight adiponectin.

The third component is metformin (only 850 mg/d) with multiple mechanisms of action, including a tripling of the circulating levels of growth-and-differentiation- factor 15 (GDF15) which may reduce appetite and augment thermogenesis in skeletal muscle. Pilot studies in adolescents with PCOS-without-obesity have pointed to spiomet's potential to safely reverse the entire PCOS phenotype. Nowadays, the effects of lifestyle intervention plus spiomet's components are under further investigation in a multi-center, double-blind, randomized phase IIb clinical trial in adolescent girls and young women with PCOS; this study is funded by the European Union's Horizon program (www.spiomet4health.eu).

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Childhood and Adolescent Obesity: Understanding Causes, Factors, and Early Interventions with Rational-Emotive & Cognitive Behavioral Approaches

Chrysoula Kostogianni

Childhood and adolescent obesity are a growing health concern worldwide, presenting complex challenges for healthcare professionals and families alike. This presentation examines the multifaceted aspects of this issue, providing insights into its causes, maintaining factors, vulnerabilities, and protective elements. We explore how health care professionals can play a pivotal role in early intervention, offering a psychological first aid kit rooted in Rational-Emotive & Cognitive Behavioral Approaches. Additionally, we emphasize the critical importance of intervening early and the integral role parents play in supporting healthier outcomes for their children.



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IV/ Metabolic and Other Complications of Childhood Obesity

The Effect of Childhood Obesity on Growth: Interpretation of Growth-Hormone Provocation Tests

Feneli Karachaliou

Childhood obesity is related to alterations in growth and pubertal patterns. Obese children show accelerated linear growth during pre-puberty possibly due to early estrogenization, normal /high IGF1 levels and the action of insulin on the IGF1 receptor. They also show early pubertal maturation and reduced growth spurt. The combination of early pubertal onset and reduced growth spurt leads to similar final adult heights or even compromised compared to non-obese children. Leptin has been identified as the most promising link between obesity and pubertal onset. During puberty increased estrogen levels antagonize the growth-promoting actions of leptin and accelerate bone maturation, with earlier epiphyseal closure. Spontaneous and stimulated GH secretion, is markedly reduced in obesity. Hypothalamic, pituitary and peripheral factors may contribute to the abnormal GH secretion which is completely reversed by the normalization of body weight. However, due to the negative impact of obesity on stimulated GH secretion, the differential diagnosis of GHD versus an obesity-related decrease in GH secretion remains a problem of great practical importance. Weight-status adjusted cutoffs for GH stimulation tests need to be set and validated in children with short stature.

V/ Prevention and Treatment of Childhood Obesity: Lifestyle Interventions

Identifying Families at Risk for the Prevention and/or Early Treatment of Childhood Obesity

Yannis Manios

Obesity and obesity related diseases are the result of many different risk factors to which a person may be exposed from early life and cumulatively lead to the appearance of the disease. Beyond perinatal period, the social and physical environment (within home, school and community) where children are exposed during the first years of life, seem to have an additional and possibly more important effect on the development of the disease.

The ToyBox-study, a school-based family-involved intervention, implemented in over 300 kindergartens in six European countries, aimed to prevent obesity in preschoolers. The results of this program showed that, although significant positive changes were observed in the behaviors of children and their parents after the completion of the intervention period, the increase in Body Mass Index (BMI) was mainly determined by parameters such as the family's area of residence, parents' BMI and most importantly by parents' misperception of what is considered a healthy body weight for their child. These findings led to the design and implementation of the European program Feel4Diabetes-study which aimed to prevent obesity and Type 2 Diabetes (T2D), prioritizing the most vulnerable population groups. This program used the school as an entry point to the community and applied a two-stage screening to identify "high-risk" families and refer them to local community settings for further screening and counseling sessions with a dietician. The main findings of the program showed high rates of undiagnosed diabetes and hypertension cases among the parents screened, but also significant changes in health indices after the completion of the two-year intervention for both parents and their children. These encouraging results paved the way to move from an effectiveness trial to implementation research and test this strategy in real life conditions. The results highlighted, on the one hand, the important role of primary health care and, on the other hand, the need to test the upscale and digitalization of the procedure in order to further strengthen its effectiveness and sustainability, something that has already started through the new European DigiCare4You program (2021-2025). The data obtained so far (from both implementers and beneficiaries) on implementation outcomes (penetration, reach, adoption, fidelity, barriers and facilitators) are indicating a high potential of the implementation strategies used to be sustainable and scalable across different regions and countries.



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**V/ Prevention and Treatment of Childhood Obesity:
Lifestyle Interventions**

Data Integration and Digital Health Tools for the Management of Eating Behavior of Children and Adolescents

Nicos Maglaveras

Obesity has evolved as one of the major health problems in our society. It affects all ages, but is especially dangerous in childhood and adulthood in the sense that it can lead to comorbidities from a young age such as diabetes, mental health disorders, cardiorespiratory diseases and cancer. E-health / digital health provides new means based on wearable sensors, mHealth applications and advanced data analytics based on ML/AI that can help predict, manage and intervene in a personalized manner in obesogenic behaviors in childhood and adulthood. A number of mHealth and digital health apps have been developed and tested in the context of two large scale EU projects namely SPLENDID and BigO.

In the SPLENDID context this presentation reports on one of the first - if not the first - research efforts to design, implement and deploy a BI smartphone application for the collection of objective eating behavior data from multiple subjects as part of large-scale, out-of-lab HSR studies; these studies could address various disorders associated with eating behavior, including obesity and eating disorders (ED). We focus on the aspects that differentiate the work at hand from projects developing BI smartphone applications for individual consumers or patients (e.g., it lists the specialized design considerations imposed by the target HSR studies and explains how these have affected the development) and it also discusses the lessons that have been learnt in the process. The extensive evaluation process of the smartphone application along with the promising evaluation outcome is also presented. The developed smartphone application can support large-scale eating behavior data acquisition in the context of screening or epidemiological and it is made freely available to interested researchers.

After the individual eating behavior datasets are collected, they are both analyzed via novel algorithms and assessed by eating behavior experts so as to come up with a screening decision for each student. Those at risk for obesity or ED are going to go through a more intense eating and physical activity behavior monitoring and modification protocol (later phases of the intervention).

Using a similar rationale to SPLENDID BigO relies on the citizen-science paradigm to collect data concerning the eating, sleeping and physical activity behavior of children populations by means of a novel smartphone app. BigO undertakes extensive crowdsourced data collection in 6 European cities. The behavioral patterns of the local children populations are extracted from the collected data and subsequently associated with a number of local extrinsic conditions as well as the local prevalence of childhood obesity. These associations are employed by the decision support system of BigO so as to inform public health authorities about promising policies against childhood obesity.

In this context, one of the first citizen-scientist mHealth apps that are addressed to children, namely the myBigO app has been developed. The myBigO app has been developed to support the crowdsourced data collection activities of the BigO. The behavioral and affective data that are collected by the app are intended for further analysis in the scope of the BigO. The current presentation covers (1) the design and implementation of the app; (2) the deployment of the app in a series of data collection studies; and (3) the preliminary evaluation of the app through the aforementioned studies with respect to technical robustness and user experience. These e-Health applications can be integrated with mental health predictive models, cardiorespiratory abnormal patterns, metabolic problems, and contribute to the concept of connected and personalised preventive health care.



Saturday 14 October 2023

VI/ Prevention and Treatment of Childhood Obesity: Lifestyle Interventions

The Role of E-Health Applications and Big Data in the Prevention and Management of Childhood Obesity

Evangelia Charmandari

Obesity in childhood and adolescence represents a major health problem. Novel e-Health technologies have been developed in order to provide a comprehensive and personalized plan of action for the prevention and management of overweight and obesity in childhood and adolescence. We used information and communication technologies to develop a "National Registry and Guide for the Prevention and Management of Overweight and Obesity" in order to register online children and adolescents nationwide, and to guide pediatricians and general practitioners regarding the management of overweight or obese subjects. Furthermore, intelligent multi-level information systems and specialized artificial intelligence algorithms are being developed with a view to offering precision and personalized medical management to children with overweight or obesity. Moreover, the Big Data against Childhood Obesity platform records behavioral data objectively by using inertial sensors and Global Positioning System (GPS) and combines them with data of the environment, in order to assess the full contextual framework that is associated with increased BMI. These e-Health applications are expected to play an important role in the management of overweight and obesity in childhood and adolescence.

VI/ Pharmacotherapy and Bariatric Surgery for Obesity and its Co-morbidities

The Role of Pharmacotherapy in the Treatment of Pediatric Obesity and its Comorbidities

Martin Wabitsch

The Role of Pharmacotherapy in the Treatment of Pediatric Obesity and its Comorbidities Martin Wabitsch, Division of Pediatric Endocrinology and Diabetes, Department of Pediatrics and Adolescent Medicine, University Medical Center Ulm, Germany Obesity is the state of having excess body fat. Body fat is regulated within narrow limits by homeostatic processes. Current behavioral-based treatment programmes for obese patients have limited success on long-term weight reduction since they act in an unphysiological manner. Families seeking treatment should be informed of their limited efficacy and of their potential adverse effects (e.g. lessened self-esteem). By contrast, weight loss surgery has been proven to be successful in reducing body weight and maintaining a weight reduced state also in adolescents. However, our knowledge about long-term adverse effects of the altered gastrointestinal physiology after weight loss surgery is insufficient. Based on the findings on the way of action of weight loss surgery incretin hormone-based drugs have been designed as mono, dual or triple agonists and tested in clinical studies. Some of them have recently been approved by FDA and EMEA and may allow for the first time a safe and effective pharmacological treatment of obesity. Moreover, mechanism-based pharmacological treatments are currently developed and already available for patients with rare genetic forms of obesity. Therefore, broad screening of genetic causes will become mandatory in order to unmask specific subtypes of childhood obesity, which will profit from targeted pharmacological treatments. Overall and most importantly the main goals of physicians caring for children and adolescents with obesity should be to help their patients to cope with obesity as a chronic disease, to improve their patients' psychosocial functioning and to promote a healthy lifestyle for better physical and mental health no matter how much or how little weight is lost and whether drug therapy is available or not.



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VI/ Pharmacotherapy and Bariatric Surgery for Obesity and its Co-morbidities

Bariatric surgery for adolescents with obesity

Claude Marcus

Severe obesity during adolescence is a disease with poor prognosis. Lifestyle support has a very limited effect and for many years we had no effective treatment to offer. Bariatric surgery has been used for several decades in adults as the most potent treatment of obesity. It has been evaluated in adolescents both in a few formal clinical trials and in several case series. The types of surgery now most frequently used are sleeve gastrectomy and gastric bypass. Both reduce appetite. Mechanisms of action are complex, and although it is well established that changes in gastrointestinal hormones, bile acid metabolism and neural signaling are involved, the relative importance of these factors is unclear. Sleeve gastrectomy is a more straightforward procedure and the need for vitamin supplementation is lower but long-term weight loss is greater after gastric bypass surgery which makes it a preferable procedure for individuals with a long-life expectancy. The long-term studies demonstrate beneficial effects of both sleeve gastrectomy and gastric bypass surgery on weight loss and comorbidities in adolescents with severe obesity in similarity with what has been reported in adults. The negative side effects such as gastrointestinal problems and vitamin deficits are also similar in adults and adolescents. However, the studies also demonstrate specific benefits of substantial weight loss in adolescents such as reduced diabetes risk, improved physical fitness and endocrine improvements. One major concern is weight regain which occurs after bariatric surgery in adolescents. In the Swedish prospective study, after five years around 25-30% fulfilled the definitions of low surgical treatment effectiveness which in turn was associated with poorer metabolic outcomes. In conclusion, bariatric surgery has demonstrated the importance of substantial weight loss early in life for future health. However, as the long-term weight loss is dubious for up to 30% of the adolescents after surgery, it might be prudent to use bariatric surgery as a last resort if treatment with the new potent pharmacological drugs fails.

Patient Representative Group – IMEROESSA

Kyriaki Tsiiranidou, Alexandros Mourouglakis

With an estimated percentage of above 30% prevalence in childhood, adolescent and adult obesity, the “weight factor” becomes a ticking-time bomb for national Greek health system. Patients with obesity, including those with childhood and adolescent obesity, face diverse challenges in everyday life activities due to obesity itself but also due to stigmatization, lack of awareness, intolerance and lack of means of accessibility. Hence, on one hand daily tasks can be physically challenging due to limited mobility leading to difficulties in activities like walking or climbing stairs. Joint pain and respiratory issues may compound these challenges. Furthermore, unfortunately when trying to find a solution by visiting a doctor, counseling with a dietitian or joining a gym, patients with obesity may often encounter bias and stigmatization, affecting communication and necessary healthcare interventions. In-time and accurate diagnosis can be complicated due to lack of awareness and stigmatization. Empathetic and holistic care is essential to address the multifaceted challenges encountered by individuals with obesity, especially during childhood and adolescence.



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