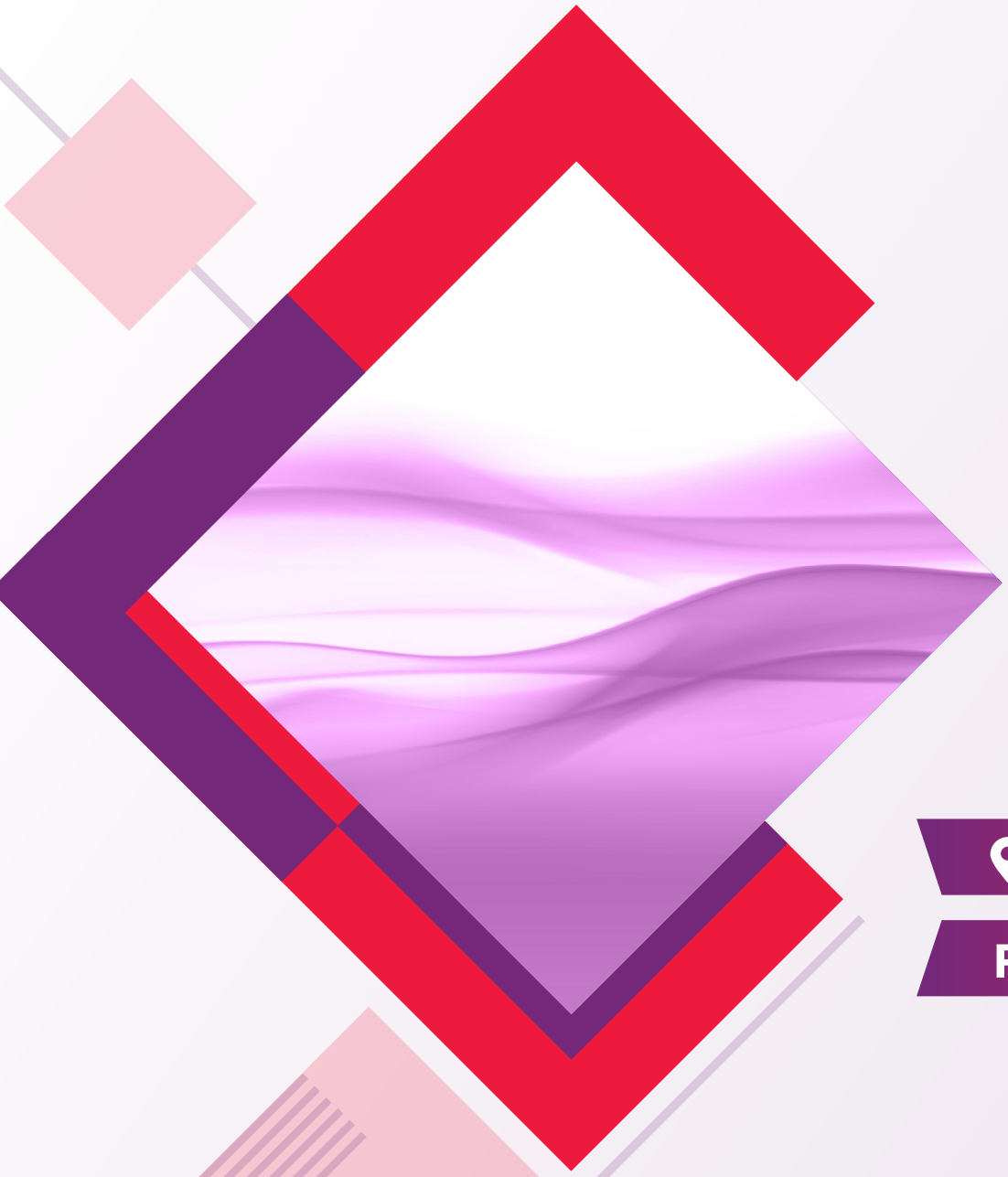

17-18 OCT, 2022

ORLANDO

FLORIDA, USA

JOINT EVENT ON

INTERNATIONAL DIABETES AND WOC 2022

Venue:
Hilton Garden Inn Lake Buena Vista/Orlando
11400 Marbella Palm Ct, Orlando, FL 32836, United States

BOOK OF ABSTRACTS

WOC 2022 & DIABETES 2022

magnus Group

17-18 OCT

BOOK OF
ABSTRACTS

JOINT EVENT ON

2ND EDITION OF

WORLD OBESITY AND WEIGHT MANAGEMENT CONGRESS

&

INTERNATIONAL CONFERENCE ON

DIABETES, METABOLISM AND ENDOCRINOLOGY

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Thank You All...

ABOUT MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus Group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conferences and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

ABOUT
WOC 2022 & Diabetes 2022

The join event of WOC 2022 & DIABETES 2022 serves as a podium for the interaction between experts in the areas of Obesity and Diabetes around the world and aims in sharing some research and translational studies on various advances in the related fields.

It is expected to bring together both reputable scientists in advanced stages of their and young researches from many related disciplines. This event expects many new ideas to emerge at the interfaces between disciplines aiming to solve the most important problems relating to the health and wellbeing of the humanity. With its strong emphasis on innovative approaches, the event offers a chance for scientists, academicians, doctors, nurses and physicians working in different areas of healthcare to learn new ideas that could help them advance their own research and forge new professional relationships and collaborations. Our honorary speakers will provide you with the most clinically up-to-date relevant information, you'll leave better educated and more invigorated than you thought possible.

Welcome Message

Dear participants of the congress,

It is my honor and pleasure to write a few welcoming remarks. Obesity is a global problem that affects both developing and developed countries, it has an impact not only on the current state of health of the population from children to the elderly, but also significantly affects their quality of life and at the same time has a significant negative economic impact. Controlling obesity is not only a medical problem, but for its effective management, experts from practically all fields affecting modern man must work together. Therefore, its systematic treatment is the goal of scientific teams around the world. The exchange of experience with obesity management gained by specialists in different countries of the world with different solution conditions, and especially the possibility of direct contact of scientific capacities, can contribute significantly to the effective solution of this problem. This opens up new opportunities to successfully solution this global pandemic.

Prof.Dr. Václav Bunc

Prague, Czech Republic

Welcome Message

Dear congress visitors,

I am pleased to welcome you to the World Obesity and Weight Management Congress. Today, obesity is recognized as a major health issue of public health concern around the world. Given the multifactorial etiology of obesity, the healthcare and scientific communities have focused their efforts on researching and developing several therapies to mitigate its negative health consequences. These include approaches to better manage appetite, body composition, metabolism, and exercise performance. Not surprisingly, weight management and performance nutrition, is one of the most popular categories in health food and supplement markets globally. Consumers are seeking health products to support and enhance athletic training, improve body composition, increase metabolism, and support weight management. At this conference, we will be focusing on new tools that can be incorporated as part of study designs to study weight management and identify opportunities to leverage new application technologies and product innovations with ergogenic potential targeted toward both supporting weight management and physical performance.

Looking forward to discussing the science with you all!

Deshanie Rai

Dr. Deshanie Rai
OmniActive Health Technologies, United States

Welcome Message

Dear congress visitors,

It is a great honor and pleasure to write a few welcome notes. Artificial intelligence has made unprecedented progress recently and it has been invading our everyday life as well as many medical specialties and healthcare segments. Diabetology in general and diabetic patients with their disease specific complications are then ideal candidates for neuronal network research and its practical use. The reason why is the burden diabetes causes to healthcare and society with steadily growing affected population. This is the point, where neuronal networks may assist the professionals in disease control, especially in screening the population. First applications and devices in this field were introduced and approved by the regulatory authorities very recently and many others are in development. Due to the current epidemiology trends and in coincidence with the pandemic Covid-19 status and telemedicine opportunities, artificial intelligence inclusion in the screening standards will be the future basis for success.

Jan Nemcansky,
Charles University, Czech Republic

Welcome Message

Dear delegates,

On behalf of organising committee of International Diabetes, Metabolism, and Endocrinology, Orlando-2022. I welcome you.

It is an honour and pleasure to write a welcome note. There is rise in the rate of diabetic patients across the world. Diabetes is a major cause of death due to its uncontrolled complications. The main objective of the summit is to improve diabetic patients' quality of life. The theme of the event is – 'Hitting Diabetes at the sweet spot'. Recent advancements and innovations. It will give an insight on the latest Research for diagnosis and treatment of diabetes.

I hope this Mega Diabetes event will bring together all endocrinologist, young scientists, health workers, drug manufacturers under one roof to fight against the major metabolic disorder.

Thanks.

Dr. Ashok Sharma,
Apollo Hospital, India

Welcome Message

Honourable guests, collaborators and respected speakers. It's a great pleasure to welcome you all to The International Conference on Diabetes, Metabolism and Endocrinology during October 17-18, 2022. We are grateful to the members of the organizing committee who have arranged such a beautiful event.

I wholeheartedly welcome all the delegates from various countries. As you all know, we have seen the rapid increment in the prevalence of diabetes and the challenges in improving the healthcare system. Thus, we all have gathered to discuss the theme of Hitting Diabetes at the Sweet Spot: Recent Advancements and Innovations.

The speakers in the programme are uniquely placed to debate, discuss and highlight the key points and enhance research and innovation in developing solutions for the challenges encountered. I thank the Magnus Group LLC, collaborators and speakers, for giving us a platform to raise the issues, collaborate and go through the solutions to such a burning issue.

Thank you and have a pleasant conference!

Wan Rosli Wan Ishak,
Universiti Sains Malaysia, Malaysia

Welcome Message

Dear participants,

It is my pleasure and honor to welcome you to this highly interesting hybrid conference. Recently, Covid-19 has forced us to find an alternative path to all forms of scientific meetings, therefore I believe this conference/webinar is going to have a high impact on the global food-related scientific community.

I am going to share with you my personal experience and expertise on ketogenic nutrition, specifically applied in a high number of pathologies, such as epilepsy, glut-1 deficiency syndrome, traumatic brain injury, cancer, Alzheimer's disease, Parkinson's disease, autism and many others.

I am confident that coordinators are going to take care of all features for this meeting. Best wishes for this newly started year 2022,

Sincerely

Raffaele Pilla, PharmD, PhD
St. John of God – Fatebenefratelli Hospital Benevento, Italy

Welcome Message

Dear congress visitors,

It is an honor and pleasure to invite you to participate to the “International Conference on Diabetes, Metabolism and Endocrinology” (Diabetes 2022) that will take place on the 17-18 October 2022, in Hybrid Format in Orlando, Florida, USA. During the conference we will explore the latest developments in basic, translational and clinical research related to Diabetes. One of the crucial aspects of this congress is the high-level of interdisciplinary exchange between clinicians and basic researchers with the aim to improve the clinical guidelines for diagnosis and treatment of dysmetabolic diseases and diabetes. We are convinced that to present and discuss each own work with other colleagues, sparking and sharing ideas between scientists, is the key to progress in science. We do encourage you to join us to ask questions and share knowledge during all scientific sessions.

Mario Allegra,
University of Palermo, Italy.

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DAY 01

KEYNOTE FORUM

JOINT EVENT ON

2ND EDITION OF

WORLD OBESITY AND WEIGHT MANAGEMENT CONGRESS

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INTERNATIONAL CONFERENCE ON

DIABETES, METABOLISM AND ENDOCRINOLOGY

Effect of physical exercise on adiposity and aerobic fitness in middle age women differing in body mass

Overweight and/or obesity is a growing problem over the world. Alongside a range of health problems associated with increased body mass (BM) – adiposity and reducing of fitness level it is an important limiting factor for realization of regular physical exercise and quality of life. The study goal was to assess the effect of movement intervention in women differing in the BM. Study was carried out in 56 women with normal BM (mean age=44.7±3.2years; BM=65.3±3.2kg; height=166.0±4.1cm; %BF=24.1±2.1%), 49 overweight women (43.9 ± 3.2; 80.3±3.1; 167.1±4.0; 28.9±2.2), and 41 obese women (43.8±3.0; 92.3±4.1; 166.3±3.2; 32.1±3.4). All these subjects were without regularly movement training before the starting of intervention. Body composition was assessed by bioimpedance method using prediction equations that are valid for the Czech middle aged women population, functional variables were assessed on a treadmill. The majority of exercise was aerobic (85%) with an intensity of exercise assessed by HR ranged from 80 to 90% of HR_{peak} determined on treadmill. Rest of movement activities were activities like an aerobic and/or home gymnastic, swimming, etc. The energy content of weekly movement program for women with normal BM ranged from 1000 kcal to 2300 kcal (mean 1600±350 kcal) in females with overweight from 1350 kcal to 2420 kcal (1800±270 kcal) and in obese women from 1710 kcal to 2540 kcal (2100±330 kcal). After 10 weeks of intervention, the reduction in %BF ranged from 15.6% in obese to 14.1% in normal BM of starting value, ECM/BCM relationship decreased from 11.9% in subjects with normal BM to 13.8% in obese, and in VO_{2peak} increased from 15.2% in normal BM to 16.4% in obese. In middle aged women differing in BM are absolute changes in adiposity and aerobic fitness like a result of imposed movement intervention substantively and statistically significant. On the contrary, differences in percentages of pre-intervention values are non-significant. We can conclude that an exercise program with a similar energy content, form and intensity causes the similar changes in adiposity and in motor and functional performance in women, differing in BM.

Vaclav Bunc

Faculty of P.E. and Sports Charles University, Prague,
Czech Republic

Biography

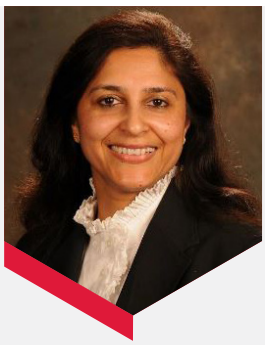
Vaclav Bunc – earned the PhD from Technical University, Prague. He is a professor in the exercise physiology from Charles University, Prague. His main research topics include exercise physiology, obesity reduction, body composition, BIA methods, moving regimes for prevention in cardiac and obese patients. He is member of Czech and International scientific societies, he is head of many research projects and author of the great numbers of research reports.

Capsaicinoids: An emerging ergogenic to help "fuel" performance and support weight management

Performance nutrition and weight management remains one of the most popular categories in health food and supplement markets globally. While this category was originally focused on products tailored for elite athletes and bodybuilders, it has expanded into mainstream markets. Consumers of varied athletic ability are seeking health products to support and enhance athletic training, improve body composition, support weight management and help maintain an active lifestyle. Consumers are looking beyond protein to formulate health products with trending botanical bioactive ingredients. In this regard, there is interest in the ergogenic potential of capsaicinoids from red chilli peppers. Capsaicinoids provide the spicy flavor of chili pepper fruits - capsaicin is the primary capsaicinoid and the most potent. Capsaicinods are associated with multiple biological effects including antioxidant, anti-inflammatory and weight management support through boosting metabolism, increasing lipolysis and appetite control. In light of our existing data from human and animal studies, we conducted a systematic review of studies that support the functional benefits of capsaicinoids during and post-exercise. The ergogenic potential of caspaicinoids can be appreciated based on its mechanism of action primarily through the transient receptor potential vanilloid 1 (TRPV1) channel. Herein, capsaicinods activate TRPV1 to influence calcium release in muscle cells resulting in reduced fatigue, increases fatty acid oxidation thereby providing more available energy, inducing an analgesic effect and sparing the use of glycogen for physical energy. Indeed, we have shown that caspaicinoid supplementation in rats influences mitochondrial mass, increases IGF-1 levels, and reduced exercise-induced oxidative stress. In humans, we found that 2 mg of caspaicinoids supports exercise duration, increased time to exhaustion and work out intensity. Our data is consistent with previous observations wherein capsaicinoids has been shown to improves running performance and rate of perceived exertion, resistance training performance, and muscle strength in healthy and physically active individuals. Additionally, we have shown in two independent clinical studies that a daily dose of 2 mg capsaicinoids is able to boost metabolic rate under fed and fasting conditions in overweight subjects. Moreover, our data supports the use of capsaicinoids in combination with other ergogenic and weight management support botanicals including caffeine and piperine, both during exercise and at rest.

Audience Take Away:

- Expand their knowledge on approaches/nutritional solutions that can address weight management and physical performance.
- Learn about new tools that can be incorporated as part of study designs to study weight management.



Deshanie Rai

OmniActive Health Technologies, Morristown NJ, USA

Biography

Dr. Rai is an accomplished scientist focused on developing, translating, and communicating science related to health and wellness. She has made significant scientific contributions to self -care including the design, implementation, and publication of studies across multiple therapeutic areas: gastrointestinal health, vision and cognitive health, and the microbiome. Through this work, she has supported product launches for infants, children, and adults. Dr. Rai has led Advisory Board meetings and panel discussions on a variety of topics including sleep, mental energy, and gastrointestinal health. She is the recipient of several awards and holds leadership roles in scientific and professional organizations.

- Identify opportunities to leverage new application technologies for products targeted toward weight management.
- The research presented at this conference both in terms of the clinical science as well as the application technologies can be easily incorporated and applied by other faculty in their research programs as well as part of their teaching programs.
- It will certainly help identify approaches that can be reliably applied in clinical research to deliver new nutritional strategies and solutions to individuals looking to increase physical performance and support their weight management goals.
- It may increase academic-industry partnerships and collaborations – it can help to drive new innovations in the space of physical performance and weight management.

Heart failure management; A perspective from diabetes care

People with type 2 diabetes (T2DM) are recognized as having a 2–4 times increased risk of heart failure (HF). Ambulatory diabetes care has long concentrated on the prevention of microvascular and arterial disease, and surveillance for manageable problems such as with the feet and retinae. Accordingly, management of heart failure has never been a specific focus, although the preventative management of cardiac and kidney disease through glucose-lowering, blood pressure (BP) control, and blood lipid control, have had a positive impact on its incidence. Indeed, the very complexity of routine diabetes care, and its enormous prevalence, has generally excluded the management of any of the advanced late complications, whether cardiac, arterial, retinal, renal, or neurodegenerative.Furthermore, advances in HF management itself, in diagnostics, medications, and technology, has carried it deeper into the remit of specialist cardiological care. More recently and in addition to medications already routinely used in diabetes care such as renin-angiotensin system (RAS) blockers, some glucose-lowering therapies such as sodium glucose transporter inhibitors 2 (SGLT-2 inhibitors), have been found to have very positive effects on hospitalization for HF, indeed even in people who do not have T2DM. Here, from the perspective of the diabetologist, we review the clinical scenario of ambulatory diabetes care, in regard of how HF prevention and management should fit in to clinical practice.

Baruch Itzhak

Tel Aviv University, Israel

Biography

Dr. Baruch Itzhak is a specialist in Family Medicine and Diabetologist at Clalit Health Services, Haifa district, Israel. He was graduated from medicine at Tel-Aviv University in 1986. He received his medical degree in Family Medicine at the Technion faculty of medicine, Haifa in 1994. Dr. Itzhak is working as a clinician and diabetologist in primary care settings of Clalit Health Services in Israel. He is a member of the Israel Association of Family Physicians, Israel National Diabetes council, and the Israel Diabetes Association, and he is involved in national projects for Diabetes and its Prevention. He is an active member of the D& CVD study group and PCDE. Dr. Itzhak is a clinical investigator in Diabetes, Lipids and Hypertension Research Unit, Lin Medical Center, where he is involved in multiple clinical studies.

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SPEAKERS

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DIABETES, METABOLISM AND ENDOCRINOLOGY

VIRTUAL

Allison B. Reiss, M.D.*[1,2], Lora J. Kasselman, Ph.D.[2], Joshua De Leon, M.D.[1]

[1]Department of Medicine, NYU Long Island School of Medicine, Mineola, NY, USA

[2]Department or Foundations of Medicine, NYU Long Island School of Medicine, Mineola, NY, USA

Exosomes in obesity and cardiovascular disease

One of the most compelling clinical challenges of our time is the increasing prevalence of obesity and its detrimental effect on the cardiovascular system. The underlying mechanisms through which obesity accelerates atherosclerotic cardiovascular disease (ASCVD) are poorly understood. Adipose tissue in obese subjects is inflamed and displays greater macrophage infiltration. Atherosclerosis progression is driven by inflammation and the pro-inflammatory environment fostered by excess adiposity is thought to be a critical link between obesity and ASCVD. The means through which adipose tissue influences atheroma formation is thought to involve release of a number of mediators. Adipose tissue is an active metabolic endocrine organ that secretes exosomes, microvesicles containing cellular cargo of mRNAs, microRNAs, lipids and proteins that may contribute to the development of atherosclerosis. Exosomes are released from the endosomal compartment of the cell by exocytosis. Exosomal function is largely determined by its microRNA content. MicroRNAs are non-coding RNAs (19–22 nucleotides) that post-transcriptionally regulate gene expression by base-pairing with the 3' untranslated region of complementary messenger RNA targets. Adipocyte exosomes deliver microRNAs and other content to the vasculature via the bloodstream. Multiple microRNAs are differentially-expressed in lean versus obese human adipocyte-derived exosomes. Each of the sequential steps in ASCVD development may be vulnerable to interference by plasma adipocyte-derived exosomes. This presentation will discuss atherosclerosis-promoting properties of adipocyte-derived exosomes from obese ASCVD subjects and how they may affect endothelial function and macrophage lipid handling. We will explain the methodology for isolating circulating adipocyte-derived exosomes from human blood samples. We will outline our IRB-approved human study designed to evaluate how obesity changes the microRNA profile of adipose exosomes. We will describe *in vitro* testing of microRNA mimics and antagomirs (resulting in upregulation and knockdown, respectively of target mRNAs) directed at metabolic pathways in obesity-related ASCVD. Exosome-based medical applications are promising due to their low immunogenicity, high efficiency, stability and ability to be recognized and transferred into specific recipient cells. Use of exosomes to deliver microRNAs to the atheroma-prone artery wall is an avenue of research that holds considerable promise for reducing the outsized burden of ASCVD affecting modern society.

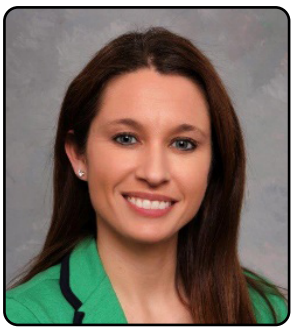
Audience Take Away:

- Understand how successful weight reduction can change the behavior of adipose tissue and its effect on processes relevant to atherosclerosis.
- Reinforce the concept of adipose tissue as a dynamic endocrine organ at the center of metabolic dysfunctions associated with obesity.
- Researchers may use this presentation as a starting point for the discovery of new targets for the prevention and treatment of atherosclerotic cardiovascular disease in the context of obesity by studying the mechanisms by which adipose tissue in the human body affects vascular and myocardial disease pathogenesis.
- Identify obesity-related differences in adipocyte-derived exosome microRNA cargo that could mediate changes in macrophage and endothelial function and cholesterol transport efficiency.

Biography

Allison B. Reiss, M.D. is a Board-Certified internal medicine physician, educator and molecular biologist who studies the inflammatory processes underlying ASCVD. She received her M.D. from SUNY Downstate and completed Internal Medicine Residency at UMDNJ Rutgers. Dr. Reiss is Head of The Inflammation Laboratory and Associate Professor of Medicine at NYU Long Island School of Medicine. She is well-published in medical and scientific journals and has chaired symposia at national and international conferences. Dr. Reiss has received funding from NIH and AHA. She has a strong passion for community outreach and is dedicated to improving healthcare, especially for older populations.

IN-PERSON



Leslie Ruffalo, PhD MS*[1], Shannon Rose, MD[2], David Nelson, PhD MS[1]

[1]Department of Family and Community Medicine, Medical College of Wisconsin, Milwaukee, WI, USA
[2]Department of Pediatrics, Medical College of Wisconsin, Milwaukee, WI, USA

Patient perceptions of weight cycling and weight stability in a primary care population

The prevalence of overweight and obesity remains stubbornly high in US children, adolescents, and adults and persists as a major public health concern. Weight-management efforts in the primary care setting can lead to unforeseen complications, including weight cycling and its detrimental consequences. Research has associated weight cycling with significant cardiovascular disease risk factors, increased risk for endometrial cancer, visceral adiposity and its associated pathologies, and increased binge eating. Although the greatest benefit accrues to individuals with obesity, a weight-inclusive approach to counseling focused on healthy habits rather than weight management can decrease the risk of all-cause mortality for individuals classified as normal weight, overweight, and obese. This project seeks to determine the factors leading to weight cycling versus weight stability in the primary care setting. Using principles of grounded theory, we analyzed secondary data from previous interviews and conducted additional interviews. We also conducted axial coding by attaching descriptors to each interview to investigate differences and similarities between response patterns. Data from Weight Cycling and Weight Stable cohorts are compared and analyzed. Analysis shows that participants in both Weight Cycling and Weight Stable cohorts have similar levels of health literacy, suggesting that this is not the distinguishing factor between groups. The Weight Stable cohort more often endorsed trusting themselves around food and eating intuitively. The Weight Cycling cohort more often coded for stress, emotional or mental health challenges, and lack of social support. The resulting framework from this research can guide individuals', physicians', and clinics' decision-making about how to best support individuals to reduce the impact of weight cycling and instead promote weight stability, thereby promoting long-term health.

Audience Take Away:

- Discuss the role of the primary care setting in addressing weight management among patients.
- Identify the methodology used in this study to explore factors related to weight cycling and weight stability in a primary care population.
- List the main findings of the study, including implications for primary care clinical practice.
- Apply research findings to clinical practice and work in community-based settings.

Biography

Leslie Ruffalo, PhD MS is an Associate Professor and the Co-Director of Medical Student Education in the Department of Family and Community Medicine at the Medical College of Wisconsin. Dr. Ruffalo defines herself as a community-engaged health researcher and educator. Her research philosophy is to apply community engaged research principles to answer research questions that are important to the community. Dr. Ruffalo's research approach has been applied to weight management, veteran health, food security, school-based health and wellness, and rural health. She is the Co-Director of the Continuous Professional Development Course in the medical school, the Director of the Community Health Program Evaluation Course in the Masters in Public Health Program, and she is one of the founding faculty members of the Dr PH program in the Graduate School. Dr. Ruffalo has been a presenter on over 100 peer-reviewed state, national, or international presentations and authored over 25 peer-reviewed publications.

IN-PERSON

Brenda Hoehn
MSN, BSN, RN, CHTP – Consultant for ProCare Health, Lake Saint Louis, MO, USA

How to grow a healthy support group (onsite or online)

Help others by facilitating a Support Group! Some patients report that a support group helps them achieve long-term success in their weight loss by helping them to maintain weight and keep it from coming back. Being able to hear what other patients have gone through and are experiencing often helps to normalize the weight loss process. Here we dive into setting up a Support Group, development of topics and an outline, and strategies to keep people coming back for more!

Audience Take Away:

- **Set-Up of a Support Group:** Reasons for support, group dynamics, facilitators/mediators, time/place/platforms, partnerships, advertising, and costs.
- **Topics and Outline of a Support Group:** Topic areas (Physical, Emotional, Mental, Spiritual), guest speakers, ground rules, outline of meeting, and how to handle handouts.
- **How To Get People to Come Back to Events:** Factors encouraging people to return to meetings, ideas for continued facilitation, and research of support groups.

Biography

Brenda is a bariatric nurse and has worked with thousands of bariatric surgery patients pre- and post-op. She has certifications in both life-coaching and in a holistic practice called Healing Touch. She currently works in the bariatric vitamin industry with ProCare Health whereas she offers bariatric LIVE topics weekly & Support Groups for patients and facilities. She intertwines all of this including her own incredible bariatric surgery journey – VSG in 2013.

IN-PERSON

Laura Weiner Kiser
Change By Challenge- Step Into Your Healthiest Self, United States

Redefine your relationship with food

Knowing what, when and how to eat to be healthy is insanely frustrating. All anyone wants is a guide for what to eat and what not to eat so they can live happily ever healthy. But it's not that simple, knowing isn't enough. In today's culture there is an understanding that food helps us cope with challenging emotions. This has us leaning on food whenever we feel bored, stressed or anxious. This eye opening and interactive presentation will help your audience understand how their relationship with food influences their mind creating a cycle of self-sabotage. Laura will teach the 3 steps necessary to get your mind and body to collaborate. Through this collaboration your audience will be able to redefine their relationship with food igniting an internal power to achieve their desired state of health.

Audience Take Away:

- Discover the impact your relationship with food has on your life and how it is influenced.
- Reconnect with your body so you can nourish all of your mind and body hungers.
- Learn how to rewire your thinking around food to redefine your relationship to feel empowered.

Biography

She is a certified health coach, life coach, personal trainer, nutrition specialist, and mobility specialist. Her purpose in life is to help people enhance their relationship with their body and mind. She is here because know what it feels like to struggle with how your body affects your mind, and can help. She believe in a different approach to reach your health and fitness goals. She don't just focus on your body, she focus on the connection between your body and your mind. Change by Challenge isn't just a service, it's a way to transform your life. It creates a bridge between who you are and who you want to be. With her coaching, you will be able to see the results you want by creating a balanced lifestyle you will love.

Isao Eto, PhD
Department of Nutrition Sciences, University of Alabama at Birmingham, Birmingham, Alabama, USA

Risks of cancer in obesity-type 2 diabetes or caloric restriction: Implications of P27KIP1?

It is well established now that the risks of various types of cancer are significantly higher in obesity and/or type 2 diabetes. It is also well established now that the risks of various types of cancer are significantly lower in caloric restriction.

The underlying molecular biological processes, however, appear to be very confusing. We now propose that the p27Kip1, a particular cell cycle repressor protein, appears to provide a consistent molecular biological mechanism of the risks of various of cancer in obesity, type 2 diabetes or caloric restriction.

Expression of p27Kip1 in Obesity, Type 2 Diabetes and Caloric Restriction

p27Kip1 is a cell cycle repressor protein expressed primarily in the late G1 phase of the cell cycle. Subsequent in vivo physiological studies and in vitro biochemical studies indicated that the expression of p27Kip1 is significantly decreased in obesity and/or type 2 diabetes. This suggested that the flood gate between G1 and S phase is open, the cell cycle goes faster, DNA replication increases in S phase and cell division increases in M phase.

In contrast to obesity and/or type 2 diabetes, expression of p27Kip1 is significantly increased in caloric restriction. This suggested that the flood gate between G1 and S phase is closed, the cell cycle goes slower, DNA replication decreases in S phase and cell division decreases in M phase. Please note that these types of change in the expression was never observed in any other cell cycle regulatory proteins

Molecular Biological Mechanism of the Expression of p27Kip1 mRNA

Examinations of the primary RNA sequence of the p27Kip1 mRNA revealed the existence of a very unusual RNA sequence. This sequence spans from 5'-upstream negative position of 575 to negative position of 1. This sequence regulates the level of expression of p27Kip1 protein.

Biography

Isao Eto, PhD, is an Associate Professor at the Department of Nutrition Sciences, and a member of the Nutrition Obesity Research Center at the University of Alabama at Birmingham, USA. After obtaining his Ph.D. degree in the Microbial Biochemistry from the University of Alabama at Birmingham, he received his postdoctoral training in Cellular Immunology at the University of California at San Francisco. Then he was appointed Adjunct Assistant Professor at the Department of Pathology, Showa University School of Medicine in Tokyo, Japan. Subsequently, Dr. Eto joined the Department of Nutrition Sciences at the University of Alabama at Birmingham, USA.

IN-PERSON

Rosalin D. Bueta*, Michael L. Tolentino, Flordeliza C. Carreon
College of Human Kinetics, University of Makati, West Rembo, Makati City, Philippines

A preliminary study on the status of health and well-being among students of the University of Makati: Basis for crossfit tabata-based fitness intervention

This paper, using a descriptive style, focuses on student's status of health and well-being. The paper aimed to institute a concrete evidence of students' health status as basis for monitoring every phase of progress and future interventions. Cluster sampling was used to gather responses that involved 253 first year college students from different departments during the academic year of 2020-2021. Data for the present paper were collected from the respondents through an online survey questionnaire. The analysis revealed that with participants' average age was 19.39 years (SD = 2.06) and 63% of the respondents were female. According to the calculated BMI, the majority 68% of respondents are of normal weight. 4% polled smoke, and 47% drinks occasionally. Only 19% of population actively participates in sports. More so, an Independent-Samples Kruskal-Wallis Test revealed that drinking alcohol has no effect on BMI, H (2) = 5.574, p = 0.062, and smoking has no effect on BMI, H(2) = 2.814, p = 0.245. Thereby, regular monitoring of students' health and well-being must be conducted and integration of the CrossFit Tabata-based fitness in the teaching of physical activities toward health and fitness may be an effective tool to maintain the health status among students.

Biography

Rosalin D. Bueta was an athlete, soldier and a teacher, interested in Coaching and Physical Fitness. She is candidate for Doctorate in Physical Education and Sports at the Universitas Negeri Jakarta, Jakarta Indonesia.

IN-PERSON

Jerome Chelliah, MD, MPH*[1], Somi Javaid, MD[2] , Louise Brown, PharmD[3]

[1]HerMD, Cincinnati, OH, USA

[2]HerMD, Cincinnati, OH, USA

[3]TriangleRxConsult, LLC, Raleigh, NC, USA

Weight changes in women treated with flibanserin for hypoactive sexual desire disorder at a women's health specialty clinic

Flibanserin is a multifunctional serotonergic (5-HT) medication that acts as a 5-HT1A receptor agonist and 5-HT2A receptor antagonist. Findings from *in vitro* studies suggest it decreases serotonin and increases dopamine and norepinephrine activity in select regions of the cerebral cortex. Although only approved in the U.S. to treat premenopausal women with hypoactive sexual desire disorder (HSDD), a condition estimated to affect 1 in 10 women in the U.S., clinical studies in postmenopausal women have shown similar safety and efficacy. Patients with HSDD at our women's health specialty clinic treated with flibanserin have reported weight loss. In addition, there are reports of weight loss secondary to flibanserin in the literature. Therefore, to further explore weight changes during flibanserin treatment at our clinic, we included weight as an objective in a retrospective electronic health record (EHR) review study of women with HSDD/low libido treated with flibanserin between September 1, 2015, to August 31, 2020.Weight is captured at our clinical as a vital sign during routine follow-up visits and served as the data source for weight measurements in the study. We evaluated valid weight changes for women with documented flibanserin usage. Flibanserin usage was confirmed by reviewing patient free text encounter notes and clinician assessment notes. For a weight change to be considered valid in the study, the change must have occurred during documented flibanserin usage and have a baseline measurement (i.e., before starting flibanserin) and treatment duration or stop date. In addition, we reviewed patient medication lists to determine if any concomitant medications may have contributed to weight changes. It is important to note that medications prescribed outside our EHR are not captured in the patient's medication list. Our weight change analysis included 57 women with valid weight changes and documented flibanserin usage. A summary of our findings is shown in the table below.

Summary of Weight Loss Analysis (n=57)

Pre-flibanserin weight (mean) in Ibs (range in lbs)	160 (110 to 300)
On flibanserin weight (mean) in Ibs (range in lbs)	158 (105 to 296)
On-flibanserin weight change (mean) Ibs (range in lbs)	-1.8 (-23 to 12)
Weight change (mean) % (% range)	-0.85 (-13 to 8)
Average duration of on-flibanserin treatment duration (months)	6
Number (%) of women on concomitant weight loss associated medications*	3 (5)

One patient was on Victoza, which is associated with weight loss .It is noteworthy that 53% of the women in our study were postmenopausal, a phase in a woman's life associated with weight gain. According to one estimate, women gain on average 0.7 kg per year during their fifth and sixth decades of life. Although some women did not lose weight during flibanserin treatment, many maintained a stable weight or gained only a few pounds. Flibanserin is just one component of care at our clinic and observed weight changes may or may not be related to treatment alone. However, these findings are encouraging for women suffering from obesity and HSDD concerned about weight gain during flibanserin treatment.

Audience Take Away:

- Describe the role of flibanserin in the treatment of HSDD in women with obesity concerned about weight gain secondary to flibanserin treatment.
- Summarize average weight changes observed during flibanserin treatment among women with HSDD treated at a women's health specialty clinic.
- Discuss the prevalence of HSDD and weight gain among women as they transition through menopause as observed at a women's health specialty clinic.
- Discuss the value and limitations of retrospective EHR review studies to capture real-world patient data.

Biography

Dr. Jerome Chelliah is a board-certified OBGYN with a focus on menopause, sexual health, and lifestyle medicine. He is a graduate of the University of California, San Francisco School of Medicine (M.D.) and Johns Hopkins Bloomberg School of Public Health (MPH). He has held physician leadership roles at the Cleveland Clinic and Kaiser Permanente. He has published and presented at numerous national conferences including American College of Obstetrics and Gynecology (ACOG), Association of Professors of Gynecology and Obstetrics (APGO) and The American Geriatric Association. He serves on the board of several Femtech companies including Ava Women, Prenome and Medicem.

IN-PERSON

Jennifer Bourbonnais, MEd, RD, LDN
Lifestyle Nutrition and Wellness, LLC, Harrisburg, North Carolina, United States

Understanding emotional eating and tools for mindful eating

This subject matter focuses on one of the psychological or behavioral perspectives into obesity. Many people who need to lose weight know what they need to do but have trouble doing what they know because they are using food to cope with life feelings and events. During this presentation, He will explain in detail, with visual examples, and my personal defeat, the vicious cycles that keep people in an over-eating, binging, and emotional eating crisis.

Cycle 1) The dieting cycle – individuals putting themselves on a restrictive diet, ignoring physiological hunger, feeling deprived, and in a temporary lifestyle state. Eventually, they eat/binge, then experience euphoria and/or possible physical discomfort. This cycle continues with shame, guilt, and failure. The cycle continues when they restart the diet.

Cycle 2) Sugar addiction cycle – most people reach for high carbohydrate foods during an emotional eating crisis. They crave sugar, they want and love it. Sugar releases dopamine and high levels of insulin. In turn, the blood sugar crashes, fat is stored, and appetite cravings ignite. The cycle continues when people keep reaching for sugar & simple carbohydrate foods.

Cycle 3) Emotional eating cycle – occurs when individuals reach for food, especially high carbohydrates foods. Typically, this happens when a negative emotion (sad, bored, anxious, lonely, etc.) is experienced. They eat to alter their mood and shift from the negative feeling of what is bothering them and temporarily feeling better. This cycle is often followed up with guilt and failure because typically emotional eaters are trying to lose weight.

Cycle 4) The overlapping cycles – this section eliminates the confusion. It sheds light on the fact that most people are on a diet, addicted to sugar, eating to cope, and sometimes out of plain habit. Individuals will see clearly into the overlap, make sense of the cycles, and become more mindful of their behavior. In turn, they will have improved confidence in their weight loss efforts.

He will also provide five tips to help people overcome senseless eating by learning and implementing tips that will allow individuals to escape the cycles, be free from emotional eating, and become mindful eaters.

These tips include:

- Understanding emotional eating triggers – time, place, who, & what
- Tuning in to physiological hunger and becoming aware of which hunger is operating. Psychological versus physiological.
- The practice of mindful eating – Learning how to eat without distractions and avoid the trance of being focused on something else.
- Learn to overcome deprivation and dieting – understanding that forbidden foods are the ones that are typically eaten during an emotional eating crisis.
- Body respect & self-confidence – success visualization and appreciating what the body can do and become. Letting go of past failures.

Audience Take Away:

- Understand insights and feel empowered to overcome the vicious emotional eating cycles.
- Gain tips and tools to implement mindful eating techniques to overcome senseless eating.
- Able to apply practical thoughts and behaviors to overcome a behavioral challenge.
- This knowledge will help broaden the understanding of the psychological side of obesity. It will allow faculty and clinicians to have a deeper understanding to help obese individuals.
- This program will offer the opportunity for obese individuals to consider mindful eating and incorporate the challenge of overcoming emotional eating to achieve long-term weight loss success.
- The information offered will provide a footprint to understanding emotional eating and becoming a more mindful eater.

Biography

Jennifer Bourbonnais received her bachelors in dietetics from Michigan State University, United States and graduated in 2006. She then completed her Master of Health Education from Wayne State University, United States. She has certifications in both pediatric and adult obesity management. Jennifer has created numerous weight loss programs for large hospital organizations. Meeting people where they are at, she continues helping individuals, families and groups improve their health and well-being through balanced nutrition, physical fitness and personal behavioral change that comes from the inside.

IN-PERSON

Motley Paul*[1], Levadnaya Anna[2]
[1]GoMeasure3D, Amherst, VA, USA
[2]PhD, Artec3D, Luxembourg

Artec leo: Practical uses of optical 3D scanner in anthropometry

Introduction: The Usefulness of 3D scanning as a measurement aid to anthropometry for research over time incorporates various tools, and provides great benefits when compared to discrete 2D measurements.

Traditional methods such as abdominal circumference, skinfold measurements, stature, and weight, provide useful information, but incorporating non contact 3D scanning allows for deeper knowledge of anthropometry at a 3D level while mitigating user error allowing for more reliable results.

Objective: Determining the benefits of 3D scanners over more traditional methods of data collection for core features such as speed of data capture, Quality of data and ease of use.

Method: Using Artec Leo to quickly gather 3D data as a replacement to traditional tape and skinfold measurements.

Result: Technological advancements in modern handheld 3D scanning solutions provides a platform that can allow for much greater flexibility in full body scan analysis and application due to faster data capture rates and data processing This enables fast, accurate and repeatable 3D Data for various processes and studies.

3D scanning with Artec Leo can capture a person's precise body measurements & dimensions in less than one minute for their entire body, resulting in a color, submillimeter-accurate 3D digital twin of their body at that exact moment in time. In other words, an entire sports team can be scanned individually in less than one hour.

By repeating these scans at regular intervals, the practitioner has the power to monitor a person's anatomical changes far beyond mere weight-loss/gain. The resulting 3D models are simply brought together to provide an easy-to-understand visual representation showing precisely which anatomical regions have changed, and to which degrees.

Audience Take Away:

- Understanding the ease of use of modern 3D scanning systems such as the Artec Leo can help greatly improve the data captured for complex problems.
- 3D Scanning can provide more efficient data collection from a practical, non-contact approach that allows faculty to efficiently capture data required for not only anthropometric measurements but for many other aspects of research and teaching.

Biography

Paul Motley graduated from Liberty University in 2015 COO of Gomeasure3D has spent 15+ years in the field of 3D Scanning working with medical, mechanical, and scientific research applications has worked with a variety of systems and is considered a leading expert in the field of structured light 3D scanning.

Mao-Qiang Man
Southern Medical University, China

Association of obesity with epidermal biophysical properties: Implications for the management of obesity

Epidermal function is associated with some systemic conditions, including obesity, diabetes and renal disease. In children, transepidermal water loss rates are higher in overweight than normal weight individuals. Likewise, subjects with body mass index (BMI) over 40 display a high transepidemal water loss rate in comparison to those with low BMI. Moreover, individuals with excessive body weight exhibit a lower level of stratum corneum hydration. These data suggest a link between obesity and epidermal function. To further delineate this link, we assessed epidermal function and BMI in 1405 subjects, aged 21 to 96 years old. Our results showed that age positively correlated with both TEWL and skin surface pH, while negatively correlating with stratum corneum hydration on both the forearm and the shin of females. Similarly, age positively correlated with skin surface pH, while negatively correlating with stratum corneum hydration on both the forearm and the shin of males. In females, BMI positively correlated with skin surface pH, while negatively correlating with stratum corneum hydration on both the forearm and the shin. However, BMI correlated with neither skin surface pH on both the forearm and the shin nor stratum corneum hydration on the shin of males. These results demonstrate that a). BMI is associated with alterations in epidermal functions, and b). the association of BMI with epidermal function is gender-dependent. Alterations in epidermal functions can provoke and exacerbate cutaneous inflammation, resulting extracutaneous inflammation, while inflammation contributes,at least in part, to the pathogenesis of obesity. Thus, improvements in epidermal function could attenuate obesity although it is not clear whether obesity alters epidermal functions or vice versa.

Audience Take Away:

- Obesity is associated with altered epidermal functions.
- Epidermal dysfunction can result in cutaneous and extracutaneous inflammation.
- Because of the pathogenic role of inflammation in obesity, improvements in epidermal function could benefit individuals with obesity.

Biography

Dr. Mao-Qiang Man graduated from Binzhou Medical College, China, in 1982. After 6-year clinical practice in dermatology at Binzhou Medical College, he pursued research career in dermatology with Professor Peter M. Elias at University of California San Francisco and Veterans Affairs Medical Center San Francisco. Now he is a research scientist at Dermatology, Veterans Affairs Medical Center San Francisco. His research interests include epidermal functions and their regulatory role in cutaneous and extracutaneous inflammation. He has co- authored over 200 articles, with H index of 48 (according to web of science).

IN-PERSON

Andrzej Bissinger
Medical University of Lodz, Poland

Obesity and cardiac arrhythmias

Obesity has been a health problem of growing significance all over the world. Numerous studies showed a relationship between obesity and cardiovascular diseases - like coronary atherosclerosis, myocardial infarction, heart failure, hypertension etc. Also numerous anatomical and functional changes in obesity play an important role in arrhythmogenesis. Obesity significantly increases the risk of atrial fibrillation (AF). The pathomechanism of AF in obesity is complex and deepens on comorbidities like hypertension, coronary artery disease, heart failure but also other mechanisms play role. The increased epicardial fat, the infiltration of myocardium with adipocytes, and fibrosis together result in a heterogeneous atrial pulse conduction. In obese patients, heightened presence of various inflammatory cytokines (C-reactive protein, IL-6, and TNF-α) may increase the local arrhythmic vulnerability of the pulmonary vein, causing AF. Successful treatment of AF episodes – conservative and invasive - in obesity is limited. At the same time, in patients with AF, there is an increased risk for cardiac death, stroke, thromboembolic complications, and heart failure. Obesity also is considered as an independent risk factor in the development of ventricular arrhythmias and sudden cardiac death. The structural remodelling in the ventricular myocardium of obese patients results in left ventricular hypertrophy and systolic and diastolic ventricular dysfunctions. Myocardial fibrosis, focal myocardial disarray, and increased volume of epicardial fat are also parts of the pathological process. These pathological changes lead the electrical instability of cardiac cells. Furthermore, obesity may cause autonomous nervous system dysfunction. In the case of overweight patients, excessive sympathetic activity and decreased vagal tone can induce supra- and ventricular arrhythmias.

Audience Take Away:

- Influence and mechanism of arrhythmias in obesity.
- Diagnostic methods of cardiac arrhythmias.
- Problems and limitations in the arrhythmias treatment in obese patients.
- How to reduce risk of cardiac arrhythmias in obese patients.

Biography

Dr. Andrzej Bissinger is a cardiologist, cardiac electrophysiologist. He graduated at the Medical University in Lodz, Poland in 1993, received his PhD degree in 1997 at the same institution. He is certified cardiologist since 2003 and Cardiac Device Specialist of European Heart Rhythm Association since 2007. He is a member of International Society of Holter & Noninvasive Electrocardiology, Polish Cardiac Society, European Society of Cardiology and European Heart Rhythm Association. He has published more than 76 research articles in SCI(E) journals. He was investigator in several clinical studies. At present he works as a Head of Cardiac Electrophysioloy Lab in Department of Cardiology, 'Kopernik' Hospital, Lodz, Poland. He performs invasive treatment of arrhythmias – ablation and implanting pacemakers, ICDs, CRT.

IN-PERSON

Carlos E. Mendez, MD
FACP, Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, USA

Virtual diabetes management program for high-risk obese veterans

Obesity and diabetes disproportionally affect veterans, with estimated rates >41% and 22% respectively, increasing risks for complications and mortality. Moreover, social isolation resulting from the COVID-19 pandemic has affected physical and psychological well-being further, contributing to weight gain and worsened diabetes control. Building on the existing robust telehealth infrastructure of the Veterans Health Administration, we designed a multidisciplinary virtual weight and diabetes management pilot program that aimed to achieve significant weight loss (>7% body weight) and improve diabetes control (>1% A1C reduction) in high-risk veterans with diabetes and obesity.

Audience Take Away:

- Describe the design and structure of a multidisciplinary weight and diabetes virtual management program.
- Discuss the results of initial pilot, including changes in weight, glycemic control, and insulin requirements.
- Review the expansion of the program and preliminary results of the second phase called VDOP.

Biography

Dr. Carlos Mendez is an associate professor of medicine specialized in diabetes management within the divisions of general internal medicine and endocrinology, diabetes and metabolism at the Froedtert/Medical College of Wisconsin. Dr. Mendez is originally from venezuela where he obtained his medical degree. He completed his residency in internal medicine at the John Stroger Hospital of cook county in Chicago, IL and his Fellowship in diabetes at the East Carolina University in Greenville, North Carolina. Dr. Mendez leads the Diabetes Program at the Zablocki VA Medical Center and is Co-chair of the VA National Diabetes Field Advisory Board. Dr. Mendez has been deeply involved in academic and research activities with multiple peer review publications and book chapters. Dr. Mendez has also lectured nationally and internationally on the management of diabetes.

IN-PERSON

Kensly Flecher*[1], R. Joseph[2], L. Francois[3], W. Pierre[4]
[1]MD, Frontline FETP-Haiti
[2]Inf, Frontline FETP-Haiti
[3]MD, HSM, MPH candidate at MSU
[4]MD, Epidemiologist, AFNET

Epidemiological profile of diabetes, Northeast, Haiti, 2017-2021

Background: According to the WHO, diabetes is a public health problem. Its prevalence continues to increase over the years. The number of cases has increased worldwide from 108 million in 1980 to 537 million in 2021. In Haiti, 300,000 cases were reported in 2019. The prevalence was 6,9% in 2019 and in recent years the young population has been increasingly affected. In the department of Northeast of Haiti, the extent of the disease is unknown because no study has been carried out to date. This study is carried out to describe the epidemiological profile of diabetes in the Northeast department to formulate recommendation for decision-making.

Method: Cross-sectional descriptive study carried out from 2017-2021 in the Northeast department of Haiti. Data from the National Diabetes Epidemiological Surveillance Network database were used. Sociodemographic characteristics were considered. Excel and Epi Info 7 were used to analyze the data and frequency and proportion measures were calculated. The results were presented in the form of tables and graphs.

Results: 4048 cases were reported. 2893 cases are female and 1155 male and the Sex Ratio F/M is 2,5. (2635)65% of cases are in the age group 50+, (1412)35% 15-49, (23)0,56% 5-14, and (20)0.05% are of the age group under 5 years. Prevalence: 0,13% in 2017, 0,21% in 2018, 0,26% in 2019, 0,23% in 2020 and 0,28% in 2021. (1334)33% of cases are from the municipality of Fort Liberté, (1120)27,67% from the municipality of Ouanaminthe, and (10)0,24% from the municipality of Vallieres.

Conclusion: The predominance is female, and the number of cases increases with age. The trend is upward between 2017 and 2019 and then decreases in 2020, then increase in 2021. Prevalence is low during the study period. Diabetes surveillance needs to be reinforced in the northeast department while seeking to understand why low prevalence.

Biography

Dr. Kensly Flecher is a young leader, graduated Doctor of Medicine in March 2017 at the Faculty of Medicine and Pharmacy of the State University of Haiti. After his Doctor of Medicine degree, he received training in Field Epidemiology (FETP-Haiti). From March 2020, he was one of the first 3 doctors involved in the fight against Covid-19 in the North-East region of Haiti, whether in care, surveillance and investigation. Dr. FLECHER's dream is to contribute to strengthening the Haitian health system. He is passionate about research and investigation. He has already contributed to the realization of the CASPER Study (Rapid needs assessment) carried out by FETP-Haiti / DELR in August 2021 after the earthquake of August 14 in Haiti, he contributed to the realization of the Rapid community Assessment (RCA) study carried out by the Ministry of Public Health and Population on Covid-19 vaccination in Haiti and also contributed to the study of the evaluation of the Covid-19 surveillance sub system in Haiti carried out by FETP-Haiti/DELR. In the North-east region of Haiti, he has already participated in the investigation of several disease outbreaks and public health phenomena placed under surveillance in Haiti. Since March 2020, he has held the position of border epidemiological surveillance coordinator in the Northeast region of Haiti.

BOOK OF ABSTRACTS

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IN-PERSON

Anna Rita Minafra*[1], Alexandra Chadt[2], Hadi Al-Hasani[2], Jvrgen Scheller[1]

[1]Institute of Biochemistry and Molecular Biology II, Medical Faculty, Heinrich-Heine-University, Dusseldorf, Germany
[2]Institute for Clinical Biochemistry and Pathobiochemistry, German Diabetes Center, Dusseldorf, Germany

Interleukin (IL-)6 trans-signalling does not influence hyperglycemia and insulin sensitivity after diet-induced obesity and physical exercise

In the last two decades, obesity has been described not only as increase of fat cells caused by excess of nutrients and inactivity but as an inflammatory disease: The transition from healthy lean to obese adipose tissue is accompanied by a chronic low-grade inflammation and immune system dysregulation, as well as the release of pro- inflammatory cytokines, which can consequently interfere with peripheral insulin signalling and glucose metabolism. Among others, IL-6 has been frequently associated to the impaired immune control in obese adipose tissue.

However, there is a growing consensus that IL-6 has also regenerative, anti-inflammatory and anti-diabetogenic functions, mainly when secreted as myokine by skeletal muscles during physical exercise. Furthermore, it is not yet clear which mechanism and which signalling of IL-6 is mainly responsible of these multiple metabolic aspects. Mechanistically, two main signalling pathways can be activated by IL-6. In the classic signalling, IL-6 binds to its membrane-bound receptor (IL-6R), followed by dimerization of glycoprotein 130 (gp130), leading to JAK/STAT, MAPK, and PI3K/AKT activation. In the trans-signalling IL-6 can bind soluble IL-6 receptor (sIL-6R), generated by ectodomain shedding by metalloproteases (ADAM-10 and ADAM-17) or through alternative splicing of IL-6R mRNA. Of note, classic signalling activation is limited since IL-6R is only expressed on specific cell types, such as immune cells and hepatocytes. Some studies suggest that IL-6R might be expressed also on adipocytes and myocytes, making unclear whether Il-6 metabolic functions mainly rely on classic or trans-signalling.

Accordingly, here, we metabolically characterized the previously generated transgenic soluble IL-6 receptor (sIL-6R$^{+/+}$) mice with a strategy that mimics ADAM10/17 hyper-activation, reflecting a situation in which only trans-signalling is active, whereas classic signalling is abrogated. In this study, we metabolically phenotyped IL-6 rceptor deficient mice (IL-6R-KO), sIL-6R$^{+/+}$ mice and wild-type littermates fed a standard chow (SD) and high-fat diet (HFD) in combination with treadmill exercise protocol. All mice have been subjected to analysis of body weight and body composition, determination of blood glucose and insulin level under fasting conditions, as well as determination of substrate preference by Indirect Calorimetry. Based on our data, IL-6 classic and trans-signalling do not influence the outcome of diet-induced obesity, hyper-glycaemia and obesity-related insulin resistance. Furthermore, deficiency of IL-6 receptor and specific abrogation of classic signalling are not impairing the beneficial effect of physical exercise.

Audience Take Away:

- IL-6 signaling does not influence obesity-induced hyperglycemia and insulin resistance that cause diabetes.
- Benefits of physical exercise as treatment for metabolic diseases such as obesity and diabetes are not influenced by IL-6 signaling.
- Further investigations are necessary to better understand previous literature observation.

Biography

Anna Rita Minafra graduated in 2018 in Molecular Medicine Biotechnology in the University of Bari (Italy), with the maximal score cum laude, after accomplishing the work for her Master thesis in Switzerland at the Ecole polytechnique federale de Lausanne (EPFL), in the laboratory Prof. Joerg Huelsken, supported by a scholarship “Global Thesis”, which was attributed on a competitive basis. She is currently a PhD student at Heinrich-Heine University, Dvsseldorf (Germany), in the Institute of Biochemistry and Molecular Biology of Prof. Dr. Jvrgen Scheller. She is part of the Research Training Group RTG 2576 "vivid - In vivo investigations towards the early development of type 2 diabetes" since September 2020.

IN-PERSON

Lilian Landin*, Ascencio, RFR
Clinical Psychologist, MBA in Obesity and in Health and Nutrition - São Caetano do Sul - São Paulo- Brazil
Master in Clinical Psychology, MBA in Obesity) - São Bernardo do Campo- São Paulo – Brazil

Stress level in patients in the preoperative period of bariatric surgery

Stress symptoms such as anxiety, depression, nervousness and the habit of eating when emotional problems are present are common in patients with obesity (Abeso, 2016).The objective of this research was to raise the level of stress in 136 patients with obesity in the preparatory process for Bariatric Surgery. We evaluated 92 women and 44 men aged 16 to 69 years, with a Body Mass Index (BMI) ranging from 30 to 58. Patients were evaluated between March 2021 and March 2022.We used the instrument ISSL - Lipp's Stress Inventory (2005), which makes it possible to identify the stages of stress in which adults are: Alert, Resistance, Near-Exhaustion and Exhaustion. We found 56 women (60.86%) with symptoms of stress and 36 women(39.13%) without symptoms of stress. We found 25 men (56.81%) without symptoms of Stress and 19 men (43.18%) have symptoms of Stress. In women with stress, 47 (83.92%) have symptoms of stress in the resistance phase, 5 women (8.92%) have stress in the alert phase and 4 women (7.14%) have symptoms of stress in the of exhaustion. In the majority of women who have symptoms of stress in the resistance phase, 27 (57.44%) have a predominance of psychological symptoms and 20 (42.55%) have a predominance of physical symptoms. Among men who experience stress, 18 (94.73%) have symptoms of stress in the resistance phase and 1 man (5.26%) has symptoms in the alert phase. Of the men who present symptoms of stress in the resistance phase, 11 men(83.92%) have a predominance of physical symptoms and 7 men (38.88%) have a predominance of psychological symptoms. According to Lipp (2005), Stress is a reaction, with psychological, physical, mental and hormonal components, that the organism has in the face of any situation that represents a greater challenge. If the stress is continued, the body becomes overtired and the person starts to wear out too much. In conclusion, we found that the majority of women 47 (83.92%) have stress in the resistance phase. Most men (56.81%) do not experience stress, but 19 men (43.18%) experience stress in the Resistance phase (Work carried out at RR Médicos Associados and Gastro Serv-Medical Services).

Biography

Lilian Landin, a psychologist in Brazil, has been working with obesity for 24 years, with two bariatric surgery teams for 14 years, seeing an average of 200 patients a year.

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VIRTUAL

Arun Raghavan*[1], Nanditha Arun[1]
[1]India Diabetes Research Foundation, Dr. A. Ramachandran's Diabetes Hospitals & ARH Digital Services, Chennai, Tamil Nadu, India

"Telemedicine in diabetes care" - Experience sharing and insights from diahome app

Transformation of healthcare delivery systems to digital platforms is on the rise. According to studies, the health informatics tools, improve management of chronic lifestyle diseases such as diabetes and heart disease. Various techniques are currently being used to remotely monitor the health of the patients. For people with diabetes, transmission of blood glucose readings, weight and blood pressure monitoring, diet and activity tracking, educational sessions via video conferencing and tele-consultation with doctors are most widely used. Telemedicine is growing in popularity and numerous apps are available in healthcare management. These apps are aimed at specific treatment portfolios, but very few provide comprehensive and exclusive diabetes care. Presently, there is scarcity of data on the effectiveness and efficiency of mobile apps in managing diabetes. Diabetes is a medical condition that can be diagnosed and treated using digital platforms rather than requiring extensive testing or hospitalization. Assisted healthcare services, such as physician support, patient education, counselling and laboratory services are now possible through digital communication technologies. In addition to the World Health Organization and other expert committees, the Ministry of Health and Family Welfare, Government of India and the medical community have recommended Telemedicine. Furthermore, with the increasing prevalence of diabetes globally, digital healthcare can be a boon in tackling the large numbers which can be both effective and economical. Telemedicine may have disadvantages, but has the potential to reach patients who live in remote areas. The latest telemedicine tool, the "DIAHOME" app launched by Dr.A.Ramachandran's Diabetes Hospitals facilitates patients to manage diabetes remotely from the comfort of their homes. The app enables at-home laboratory blood testing, physical examinations, ECGs, fundus examination, nerve conduction, Doppler, along with interactive video consultations with diabetologists and counselling sessions with the dietician and patient educator. DIAHOME has revolutionized the lives of people with diabetes by making it easy to get the care they need from the comfort of their homes. DIAHOME provides need based testing using novel algorithms that track disease progression and help overcome barriers such as cost and time incurred in seeking treatment. Overall, there is a positive impact on adherence among the app-users. We at Dr. A. Ramachandran's Diabetes Hospitals assessed the effectiveness and long-term viability of the DIAHOME App compared to hospital visits for routine management of diabetes. We observed digital remote support encouraged patients to follow their recommended diet, exercise routines and prescriptions. The DIAHOME app was comparatively superior to conventional hospital based treatment, with regard to achieving glycaemic targets at reduced cost.

Audience Take Away:

- On leveraging technology for optimal diabetes management.
- To improve clinical outcomes through the digital ecosystem.
- To understand various remote monitoring solutions for clinical decision making.
- To adopt digital healthcare with reliability and confidence.

Biography

Dr. Arun Raghavan, Director, Consultant Diabetologist and Intensivist at Dr. A. Ramachandran's Diabetes Hospitals was trained in research at Yale University, United States. He underwent training in Diabetology at Christian Medical College, Vellore and at Madras Medical College in Critical Care. He studied Healthcare Management at the Indian Institute of Management, Ahmedabad. He received Diploma in Diabetes from Cardiff University, United Kingdom and Fellowship in Critical Care from Apollo Hospitals, Chennai. Member, International Medical Science Academy and Royal College of Physicians, Glasgow. He has authored several publications and textbook chapters and was awarded PhD by the Tamil Nadu Dr. MGR Medical University, Chennai.

VIRTUAL

Laura Sturla*, Sonia Spinelli, Mirko Magnone, Lucrezia Guida, Giulia Begani and Elena Zocchi

Department of Experimental Medicine, Section Biochemistry, University of Genova, Italy

Role of the abscisic acid/LANCL system in glycemic control: A promising aid to combat diabetes and related metabolic syndrome

Abscisic acid (ABA) is an isoprenoid hormone with a very long evolutionary history and the only known hormone common to the vegetal and animal kingdoms, with a conserved role as a signal regulating cell responses to environmental challenge. Nanomolar ABA is also present and active in mammals where it controls the function of many cell types through its receptors LANCL1 and LANCL2. In rat and murine myoblasts, LANCL receptors similarly stimulate both basal and ABA-triggered glucose uptake with an insulin-independent mechanism, activate mRNA levels and protein expression of the glucose transporters GLUT1 and GLUT4 and the signaling proteins AMPK/PGC-1α/Sirt1, stimulate mitochondrial respiration and the expression of the skeletal muscle (SM) uncoupling proteins sarcolipin and UCP3. In human adipocytes overexpressing ABA receptors, glucose transport, expression of genes related to browning, oxidative consumption, mitochondrial biogenesis, respiratory uncoupling and AMPK/PGC-1α/Sirt1 pathway is increased after adipocyte differentiation and further increases upon ABA treatment.

In vivo, low-dose oral ABA stimulated glucose uptake and storage in the skeletal muscle and brown adipose tissue of rats undergoing an oral glucose load, as detected by micro PET. Chronic treatment with ABA significantly improved the AUC of glycemia and muscle glycogen content in CD1 mice exposed to a high-glucose diet and both acute and chronic ABA treatment of hypoinsulinemic mice ameliorated the glycemia profile and increased muscle glycogen storage. Moreover, LANCL2 knock-out mice have a reduced glucose tolerance compared to WT, but they do respond to chronic ABA treatment (1 μg/kg BW/day) with an improved glycemia response to glucose load and an increased skeletal muscle transcription of GLUT4, GLUT1 (20-fold) and of the AMPK/PGC-1a/Sirt1 axis.

In human, intake of micrograms per Kg body weight of ABA improves glucose tolerance in both normal and in borderline subjects and chronic intake of such a dose of ABA improves blood lipids and morphometric parameters in borderline subjects for prediabetes and the metabolic syndrome. Altogether, these results suggest that low-dose oral ABA might be beneficial for pre-diabetic and T2D diabetic subjects by increasing insulin-independent skeletal muscle glucose disposal through an AMPK-mediated mechanism.

Finally, in mice were rendered diabetic with streptozotocin a single oral dose of ABA and low-dose subcutaneous insulin showed a significantly reduced glycemia profile compared with controls treated with insulin alone. In diabetic mice treated for four weeks with ABA, the effect of low-dose insulin on the glycemia profile after glucose load was significantly improved, and transcription of the insulin receptor, glycolytic enzymes, AMPK, PGC1-α, and GLUT4 in skeletal muscle, was increased. ABA supplementation in conjunction with insulin holds the promise of reducing the dose of insulin required in T1D, reducing the risk of hypoglycemia, and improving muscle insulin sensitivity and glucose consumption.

Audience Take Away:

- The audience will learn about the new mammalian hormone abscisic acid and its role in the glycemic control.

- The audience will be able to understand the possible benefits of treatment with ABA of pre-diabetic subjects, T1D and T2D patients.
- The audience shall explore the research of new nutraceutical supplements: these molecules could be effective and good co-adjuvants, along with diet and drug treatment, in improving chronic degenerative disease such as type 2 diabetes mellitus.

Biography

Laura Sturla is Associate Professor of Biochemistry at University of Genova (Italy). She obtained her Ph.D. in molecular and cellular biotechnologies applied to medicine in 1998. She carried out six months in the Department of Molecular Biology at Boston University, and she worked as postdoctoral researcher and as Assistant Professor at University of Genova. Her scientific interests are primarily related to molecular mechanisms of signal transduction regarding the biochemistry of hormone abscisic acid (ABA) and its role in glucose homeostasis; She has significantly contributed to the identification of human receptors of ABA, the LANCL1 and LANCL2 proteins.

Doepp Manfred, MD
Head of HolisticCenter, Haupt St, Abtwil, Switzerland

Histaminosis as trigger for obesity

Introduction: In the last 2-3 years, cases with histaminosis have clearly increased. We now call it a people's disease.

Histamine is formed by splitting off carbon dioxide (decarboxylation) from the amino acid histidine and is stored in particular in mast cells, basophilic granulocytes and nerve cells. Important effects of histamine are its function in the defense against foreign – may be dangerous - substances and its pathological involvement in the symptoms of nutrition allergies. Histamine is also one of the mediator substances in silent inflammations. There are two pathways for histaminosis: a) histamine as a component of food (if too much histamine is ingested with food, histamine excess can occur), b) an overreaction to a food with production of histamine in the small intestine. Intestinal inflammation can also be the cause of reduced DAO formation. If defense reactions against food proteins take place on the intestinal mucosa, inflammatory damage can occur to the mucosal cells themselves, which thin out and become leaky. This in turn leads to the symptoms of "leaky gut". In addition, the absorption capacity of the intestinal mucosa may decrease. This may lead to a deficiency in the absorption of amino acids (proteins), minerals, vitamins, trace elements, essential fatty acids, phospholipids, antioxidants and polyphenols, which in turn may have negative effects on energy formation and cell function.

Problems: Avoiding histamine-containing foods is relatively easy, as long as you know them. These are for instance: Red wine, blue cheese, old cheeses in general, cured meats, seafood, etc. More important is the own production. Family physicians would have the task of testing the IgE and IgG antibodies to food allergens in the blood of each patient. Most commonly, large-molecule proteins such as casein (cow's milk and products) and gluten/gliadins (wheat, rye) have been shown to be problematic. This means that a usual American breakfast containing bread and latte is unacceptable. In our experiences, genetically modified foods (GMO) can also trigger histaminosis. This concerns e.g. peanuts, soy, corn. All these foods should be avoided.

Effects: The number of symptoms triggered by an increase in histamine is large. Beside urticaria, diarrhea, etc this means unfortunately : obesity. Why? Because a leaky gut syndrome causes substances to be absorbed from the intestine that cannot be processed by the metabolism. Instead, they are deposited in the fatty tissues.

What to do: In addition to the problems from the environment, the inner world must also be considered. It is not sufficient to substitute positive intestinal inhabitants ("probiotics") for this purpose, because these do not integrate into the intestinal milieu as long as pathogenic germs, Candida fungi or parasites determine the milieu. First of all, cleansing must take place. This is difficult, because it requires explosive diarrhea. We have had the best experience with a therapy using intracellular enzymes from the company Citozeatec (1) from Milano/Italy. The following is a treatment scheme for intestinal detoxification: Enzymatic intestinal detox treatment:

First 6 days

- 10 ml «Citozym» in the morning before breakfast
- 10 ml «Ergozym plus» in the morning before breakfast
- 10 ml «Citozym» before dinner

From the 7th to the 60th day

- 20 ml «Citozym» dissolved in a glass of water in the morning before breakfast
- 10 ml «Ergozym plus» in the morning with breakfast
- 1 stick of «Probiotic P-450» at 11.00 a.m.
- 25 ml «Citexivir» with 1 stick of «Propulzym» dissolved in a glass of water before dinner

The successes with this treatment are great. First the intestine is cleaned, then the blood, the intercellular space, and finally the intracellular space.

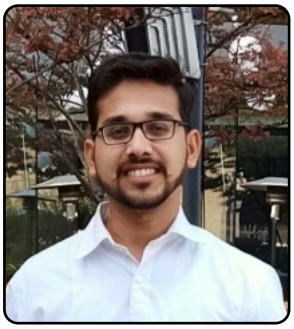
Summary: Histaminosis is developing into a disease of the people with increasing problems of the diet as well as chemical and electromagnetic stresses. Especially obesity is a typical result of histaminosis. A treatment is presented.

Audience Take Away:

- Nutrition in the Western world is poor.
- This is due, among other things, to the allergenic quality of foods, i.e. wheat (gluten), milk (casein), GMO (unknown to the small intestine), with the effect of histaminosis.
- Obesity as an important pathogenic factor in the population will not improve as long as the diet is of such a nature.
- A diet that does not cause histaminosis is necessary.

Biography

Doctor of Nuclear Medicine (Germany) General Doctor (Switzerland), Expert in Energy Medicine, Born in Bad Berleburg/ Germany. Medical studies in Munich and Giessen, exams and doctorate in 1971. Scientific assistant at the clinical centre of the Justus Liebig University at Giessen until 1978. Senior physician for nuclear medicine at the clinical centre in Hanau until 1985. Founder of the "International Institute for Experiential Medicine" www.iifeh.de; Founder of the "Diagnostic Centre for Mineral Analysis and Spectroscopy DCMS.From 2011 to 2018 Head Physician of the Quantisana Health Centre for Holistic Diagnostics and Therapy in CH 9404 Rorschacherberg. Since 2018 Head of the HolisticCenter in CH 9030 Abtwil. Many oral and written publications in the field of complementary and energy medicine. Many videos on Youtube, Google and complementary portals. Reviewer of international journals. Co-founder and Deputy President of DGEIM (German Society for Energetic and Information Medicine, Stuttgart www.dgeim.de).



Souravh Bais*, Renu Rana, Nirmal Dongre
Department of Pharmacology, Institute of Pharmaceutical Sciences, Sage University, Indore, India

Revolution in therapeutics for diabetes and CKD

Chronic kidney disease (CKD) is common in diabetes. Affecting patients of Type 1 diabetes ~30% and Type 2 diabetes ~40%. Diabetes is responsible for half of all cases of CKD and kidney failure or end-stage kidney disease (ESKD) worldwide. Diabetes prevalence in American patients with ESKD: 66-86%. CKD amplifies cardiovascular disease (CVD) risk. Most of diabetes-associated excess CVD risk occurs in those with CKD. The standard-of-care for treatment of DKD has been an ACE inhibitor or an ARB, yet these agents remain underutilized in clinical practice. SGLT-2 inhibition reduces risks of albuminuria, eGFR decline, ESKD, heart failure, atherosclerotic CVD, and CVD death (empagliflozin, dapagliflozin) in type 2 diabetic and non-diabetic patients. GLP-1 receptor agonists lower risk of albuminuria, eGFR decline, atherosclerotic CVD, and CVD death (liraglutide, semaglutide) in type 2 diabetic patients. Anti-inflammatory targets are emerging as promising new therapies for DKD. Precision phenotyping will improve patient selection for therapeutic safety and efficacy.

Audience Take Away:

- Review therapeutic approaches for diabetic kidney disease (DKD).
- Recognize use of newer agents in clinical trials.
- Discuss advancing therapeutic approaches by more precise phenotyping .

Biography

Dr. Souravh Bais studied Pharmacology at the Ganpat University, Mehsana Gujrat and awarded doctorate in 2022. He is working as Associate Professor in Pharmacology, SAGE University, Indore, India. He has more than 10 years of experience in teaching and research. He has published more than 55 papers in peer reviewed journals in both national and international journals. His areas of research are neurological disorders, Obesity and inflammatory disorders. He is awarded as “Young Achiever Award 2019” by Institute of Scholars Bengaluru-560091, Karnataka, India. He is selected as “Bentham Ambassador” for the year 2019-20 and received an international travel grant from ICMR to present his research in ICBEB 2019, South Korea.

Negar Maghsoodi*[1,2], Jamshid Alaghband-Zadeh[2], Gemma F. Cross[1], Malin Werling[3], Lars Fändriks[3], Torsten Olbers[3], Tracy Dew[1], Roy A. Sherwood[1], Royce P. Vincent[1], Carel W. le Roux[3,4]

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[2]Department of Chemical Pathology, Guy's and St Thomas' NHS Foundation trust, London, UK

[3]Department of Gastrosurgical Research and Education, Sahlgrenska Academy, University of Gothenburg, Department of Surgery, Sahlgrenska University Hospital/Sahlgrenska, Gothenburg, Sweden

[4]Diabetes Complications Research Centre, Conway Institute, University College Dublin, Ireland

Elevated fasting and postprandial c-terminal telopeptide after Roux-En-Y Gastric Bypass (RYGB)

Background: Roux-en-Y gastric bypass increases circulating bile acid concentrations, known mediators of postprandial suppression of markers of bone resorption. Long-term data, however, indicate that Roux-en-Y gastric bypass confers an increased risk of bone loss on recipients.

Methods: Thirty-six obese individuals, median age 44 (26–64) with median body mass index at baseline of 42.5 (40.4–46) were studied before and 15 months after Roux-en-Y gastric bypass. After an overnight fast, patients received a 400 kcal mixed meal. Blood samples were collected premeal then at 30-min periods for 120 min. Pre and postmeal samples were analysed for total bile acids, parathyroid hormone and C-terminal telopeptide.

Results: Body weight loss post Roux-en-Y gastric bypass was associated with a median 4.9-fold increase in peak postprandial total bile acid concentration, and a median 2.4-fold increase in cumulative food evoked bile acid response. Median fasting parathyroid hormone, postprandial reduction in parathyroid hormone and total parathyroid hormone release over 120 min remained unchanged after surgery. After surgery, median fasting C-terminal telopeptide increased 2.3- fold, peak postprandial concentrations increased 3.8-fold and total release was increased 1.9-fold.

Conclusions: Fasting and postprandial total bile acids and C-terminal telopeptide are increased above reference range after Roux- en-Y gastric bypass. These changes occur in spite of improved vitamin D status with supplementation. These results suggest that post-Roux-en-Y gastric bypass increases in total bile acids do not effectively oppose an ongoing resorptive signal operative along the gut–bone axis. Serial measurement of C-terminal telopeptide may be of value as a risk marker for long-term skeletal pathology in patients post Roux-en-Y gastric bypass.

Audience Take Away:

- The aim of this presentation is to increase awareness amongst audience on metabolic bone disease that patient may undergo post-Roux-en-Y gastric bypass surgery. One important finding in my research for the first time was the ongoing rise in bone loss serum marker (CTX) in patients after Roux-en-Y gastric bypass surgery despite receiving vitamin D supplement. This finding highlights to the audience that a careful risk assessment on bone loss in patients undergoing bariatric surgery is required. A rise of CTX in the presence of normal PTH and vitamin D concentration and its post-prandial dynamic changes, suggests presence of a gut-hormone related signal modulating osteoclast function as a reason. This has great credibility as a working hypothesis in future works to identify the gut factor and its presence or absence across different bariatric procedures with cognate prevalence rates of osteoporosis.

Biography

Dr. Negar Maghsoodi is a UK based Medical Consultant Chemical Pathologist working in Surrey and Sussex Healthcare NHS Trust/Chemical Pathology Department. Having trained in General Medicine and Pathology, she completed her higher specialty training in London University Hospitals in Chemical Pathology Specialty programme, while working on her MSc in Clinical Biochemistry at University College London/UK. She is a visiting senior lecturer at Brighton and Sussex Medical School and is The Council member of the Royal College of Pathologists for South England. She has special clinical interests in the management of lipid disorders and obesity and holds a biweekly lipid clinic.

Aisling Murphy*, Jeffrey Gornbein, Ophelia Lin, Brian Koos
University of California, Los Angeles, CA, United States

Gestational diabetes is associated with a distinct urinary metabolomic signature in the latter half of pregnancy

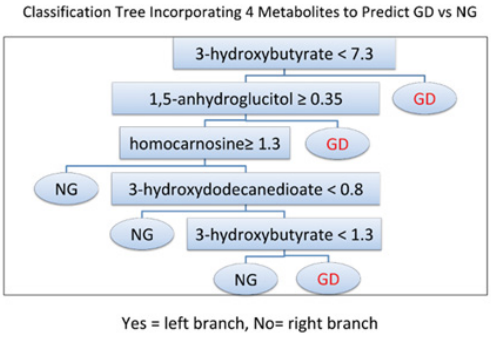
Introduction: Gestational diabetics (GD) have both impaired insulin sensitivity and secretion, which may lead to perturbations in multiple metabolic pathways. Currently, screening paradigms for gestational diabetes mellitus (GDM) rely on demonstration of hyperglycemia after an oral glucose load, and are cumbersome for patients. A metabolomics approach may reveal a unique maternal metabolic signature in GD that enables an alternative screening strategy. This study was undertaken to assess whether the relative levels of late pregnancy urinary metabolites of GD differ to those of normal gravidas (NG) and to determine whether the proposed metabolites have utility to identify GDM in the latter half of gestation.

Methods: This nested case-control study involved 46 GD and 46 NG, who were matched for maternal age, pre-pregnancy BMI and gestational age (GA) at urine collection. Exclusion criteria included multiple gestation and metabolic or cardiovascular disorders. The Global Alliance to Prevent Prematurity and Stillbirth supplied the urine samples and demographic data. Practitioners at 3 separate medical centers diagnosed GDM by glucose challenge and glucose tolerance test, according to local criteria. A metabolomics platform (Metabolon, Inc) analyzed the osmolality- corrected levels of 626 untargeted endogenous small molecules (<1000 Daltons) in urine via ultra-performance LC/MS and GC/MS. Multivariate methods (random forest accuracy, random forest GINI and boosting relative importance) were used to screen for metabolites simultaneously distinguishing GD from NG. A classification tree using the metabolites identified by screening provided the final algorithm for predicting GD vs NG.

Results: There were no significant demographic differences between GD and NG. Values displayed as mean (SD):

Maternal age (years) = 32.3 (4.7) in GD; 31.8 (4.2) in NG. BMI (Kg/m2)= 31.5 (6.8) in GD; 29.9 (6.3) in NG. Gestational age (weeks) = 30.8 (3.6)in GD; 30.5 (3.0) in NG.Three multivariate criteria simultaneously identified 8 metabolites distinguishing GD from NG. A 5-level classification tree incorporating 4 of these metabolites predicted GDM with a sensitivity of 87%, specificity of 91% and unweighted accuracy (average of sensitivity and specificity) of 89%.

Conclusion: This preliminary study reveals that the metabolic profile of random urine samples in the latter half of pregnancy was highly accurate in identifying GD versus NG. These promising results require confirmation via a larger validation study.



Biography

Aisling Murphy belongs to University of California, Los Angeles.

VIRTUAL

Sujith Rajan*[1], Peter Hofer[2], Amanda Christiano[1], Matthew Stevenson[1], Louis Ragolia[1], Eugenia Villa- Cuesta[3], Susan K. Fried[4], Raymond Lau[5], Collin Braithwaite[5], Rudolph Zechner[2], Gary J. Schwartz[6], M. Mahmood Hussain[1,7]

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Microsomal triglyceride transfer protein regulates intracellular lipolysis in adipocytes independent of its lipid transfer activity

Background: The triglyceride (TG) transfer activity of microsomal triglyceride transfer protein (MTP) is essential for lipoprotein assembly in the liver and intestine; however, its function in adipose tissue, which does not assemble lipoproteins, is unknown. Here we have elucidated the function of MTP in adipocytes.

Approach and results: We demonstrated that MTP is present on lipid droplets in human adipocytes. Adipose-specific MTP deficient (A-Mttp$^{-/-}$) male and female mice fed an obesogenic diet gained less weight than Mttp$^{f/f}$ mice and had less fat mass and smaller adipocytes. A-Mttp$^{-/-}$ mice showed higher energy expenditure than Mttpf/f mice. During a cold challenge, A-Mttp$^{-/-}$ mice maintained higher body temperature by mobilizing more fatty acids. Biochemical studies indicated that MTP deficiency de-repressed adipose triglyceride lipase (ATGL) activity and increased TG lipolysis. Both wild type MTP and mutant MTP deficient in TG transfer activity interacted with and inhibited ATGL activity. Thus, the TG transfer activity of MTP is not required for ATGL inhibition.

Conclusion: Our findings demonstrate that adipose-specific MTP deficiency increases ATGL-mediated TG lipolysis and enhances energy expenditure, thereby resisting diet-induced obesity. We speculate that the regulatory function of MTP involving protein-protein interactions might have evolved before the acquisition of TG transfer activity in vertebrates. Adipose-specific inhibition of MTP-ATGL interactions may ameliorate obesity while avoiding the adverse effects associated with inhibition of the TG transfer activity of MTP.

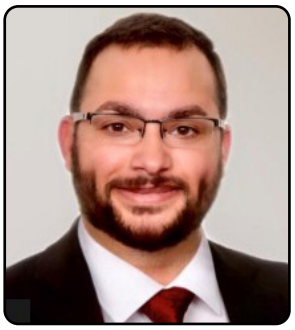
Audience Take Away:

- Adipose-specific MTP knockout mice gain less weight on the obesogenic diet.
- Adipose-specific MTP knockout mice adapt better to cold challenges.
- Adipocyte MTP regulates basal lipolysis by inhibiting ATGL.
- Lipid transfer activity of MTP is not essential to inhibit ATGL activity.
- MTP inhibits ATGL activity by direct protein-protein interactions.

Biography

Dr. Sujith Rajan, did his MS in biomedical science from the University of Wolverhmapton, United Kingdom. He joined Central Drug Research Institute in India for his PhD and worked on adipocyte biology. He is currently working as an research associate at NYU Long Island School of Medicine in deciphering the role of microsomal triglyceride transfer protein in adipocyte biology. He is been working in adipocyte biology for more than a decade and has published 30 articles in different peer-reviewed journals. His one of the prominent works highlighted deleterious effect of chronic hyperinsulinemia on brown adipocyte function and insulin sensitivity.

IN-PERSON



Jilian Nicholas DO[1], Sara Parmiter MD[2], Justin Turcotte PhD MBA[3], Ian Bussey, MD*[4], Alejandro Gandsas MD MBA FACS[5], Courtney Doyle MD[6], Paul Clark MD[7]

[1,5,6]Bariatric Surgery, Luminis Health, Annapolis, MD, USA
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[3]Director of Research, Luminis Health, Annapolis, MD, USA
[7]Anesthesia, Luminis Health, Annapolis, MD, USA

Tranexamic acid use preoperatively in bariatric sleeve gastrectomy patients, a single institution analysis of potential benefit

Background: Tranexamic acid (TXA) is a pharmacologic drug used to reduce blood loss and transfusion requirement in perioperative patients. TXA use is prevalent in trauma, gynecologic, and orthopedic specialties. Heyns et al meta-analysis found 72% reduction of transfusion in patients who received TXA across all subspecialties. There was no difference in thromboembolic events between the TXA group and the control group. Bleeding after bariatric surgery can be seen in up to 2.5% within literature. Some studies have looked at TXA use specifically in the bariatric population. This study is the largest retrospective study looking at the use of TXA preoperatively for laparoscopic sleeve gastrectomy (LSG) patients, and the percentage of patients requiring blood transfusions, reoperation within 30 days, as well as thromboembolic events within 30 days.

Methods: Data was collected as a retrospective chart review via electronic medical records and MBSAQIP data registry. Patients were reviewed from 2019-2021 at a single institution, where LSG was performed by two bariatric surgeons. Demographic data was collected as well as perioperative data to include use of preoperative chemoprophylaxis, intraoperative use of hemostatic agents, specifically Tisseel, procedure time, estimated blood loss, change in hematocrit, length of stay, postoperative blood product transfusions, 30 and 90-day readmission, 30 day return to operating room, and development of venous thromboembolism within 30 days. P values of less than 0.05 were considered significant.

Results: 1,474 patients between 2019 and 2021 who underwent LSG were included in this study. 911 patients did not receive TXA and 563 received TXA. These groups had comparable average ages (44.6 no TXA vs 43.5 TXA), BMI (45.2 no TXA vs 44.9 TXA), and the same ASA class (2.9). A similar percentage of patients received preoperative Lovenox for DVT prophylaxis (45.2% no TXA vs 43.3% TXA). A larger percentage of patients required intraoperative use of Tisseel (22.3% no TXA vs 24.9% TXA, p=0.254) though it was not statistically significant. The operative time was longer in patients who received TXA, (63 minutes no TXA, vs 78 minutes TXA, p=<0.001). Postoperatively there was a statistically significant change in hematocrit from pre-op to POD1, favoring TXA, (-4.8 no TXA vs -3.6 TXA, p=0.029). There was not a statistically significant difference in postoperative transfusion requirements (1.9% No TXA vs 0.7% TXA, p=0.069). Within 30 days there was 1 incident of a venous thromboembolic event in the no TXA group (0.001%) and 2 events in patients who received TXA (0.003%). There was no statistical difference in 30 day return to OR, (1.6% no TXA vs 2.3% TXA, p=0.365), or 30 day readmission (2.3% no TXA vs 3.0% TXA, p=0.385).

Conclusion: TXA use in LSG demonstrated a trend towards decreased transfusion requirement but was not statistically significant, despite a statistically significant reduction in the change in hematocrit post-op for those who received TXA. Giving perioperative TXA for LSG appears to have a potential benefit without an increased risk for venous thromboembolic events. Future studies with randomization would be valuable in evaluating the role of TXA in bariatric surgery.

Audience Take Away:

- Decide if giving TXA to their patients perioperatively may be beneficial
- Potential for expanded research in bariatric surgery with using TXA to reduce postoperative bleeding
- There does not appear to be any adverse effects to giving the TXA in this patient population

Biography

Dr. Ian Bussey completed his undergraduate studies at The George Washington University while working as a firefighter and paramedic before graduating from the University of Maryland School of Medicine. He is completing training in general surgery at Luminis Health Anne Arundel Medical Center in Annapolis, Maryland and has an interest in pursuing fellowship subspecialty training in advanced minimally invasive surgery. He is a Maryland native where he lives with his wife and two children.

magnus Group

17-18 OCT

DAY 02

KEYNOTE FORUM

JOINT EVENT ON

2ND EDITION OF

WORLD OBESITY AND WEIGHT MANAGEMENT CONGRESS

&

INTERNATIONAL CONFERENCE ON

DIABETES, METABOLISM AND ENDOCRINOLOGY

Metal ion dyshomeostasis and coagulatory defects in diabetes

Diabetes is a term used to describe a group of conditions that impact upon the body's ability to control blood glucose levels.In type-I diabetes (T1DM), the □-cells in the pancreas responsible for producing insulin are lost,typically from an attack from the immune system, causing insulin deficiency. In type-II diabetes (T2DM), cells become resistant to insulin signalling. Both T1DM and T2DM have wide-ranging consequences for the body as glucose levels are associated with many physiological processes. Individuals with diabetes have an increased risk of cardiovascular disease and coagulatory defects are observed in individuals with both T1DM or T2DM.Our work has revealed that metal ion homeostasis is differentially affected in T1DM and T2DM. For example, HbA1c, a marker for elevated blood glucose, correlates with plasma concentrations of magnesium (negatively) in T1DM and copper (positively) in T2DM. Notably, using a validated turbidimetric assay, the decrease in plasma Mg^{2+} in T1DM was found to be associated with abnormal thrombin-stimulated fibrin clotting or with fibrinolysis. In addition, we found that T2DM is associated with defective plasma Zn^{2+} handling, caused by increased non-esterified fatty acid binding to human serum albumin (HSA) – an interaction which allosterically regulates the ability of the protein to bind Zn^{2+}. Using ITC we reveal that 1-5 mol. eq. of myristate, palmitate, stearate, palmitoleate and palmitelaidate reduce Zn^{2+} binding to HSA. Addition of myristate and Zn^{2+} increase thrombin-induced platelet aggregation in platelet-rich plasma and increase fibrin clot density and clot time in a purified protein system. The concentrations of key saturated and monounsaturated NEFAs positively correlated with clot density in subjects with T2DM (and controls). Collectively, this work increases our understanding of the roles metal ions play in T1DM and T2DM pathogenesis and will have future implications for the management of diabetes.

Audience Take Away:

- Coagulatory defects in T1DM correlate with deficiency in plasma Mg2+, which may play a direct role in regulation of clot lysis.
- Elevated plasma FFA levels in T2DM may impact on fibrin clotting through dysregulation of plasma Zn2+ handling .
- Our work provides mechanistic insights into the thrombotic complications that are associated with diabetes.We are confident that these new findings will lead to improvements in the management and treatment of coagulatory disorders.
- Fasting blood sugar level is stronger predictor then HbA1c value.
- HbA1c level helps in prevention of long-term complications of diabetes.

Alan J. Stewart

School of Medicine, University of St Andrews, Medical and Biological Sciences Building, North Haugh, St Andrews, UK

Biography

Dr Alan J. Stewart is a reader in Molecular Medicine at the University of St Andrews. His research is focused on metal ion handling in the body and the roles they play in regulating medically/physiologically relevant processes. Collectively, his work provides detailed and reliable data relating to the transport and speciation of metal ions (particularly Zn2+) in the circulation and new insights into their cellular functions and role in disease states. He has published >80 peer-reviewed publications, many in world class and field-leading journals. He sits on the Editorial Boards of the journals, Scientific Reports, Frontiers in Endocrinology, Nutrients and BioMetals.

Indicaxanthin from opuntia ficus indica fruit ameliorates glycidic metabolism and counteracts insulin resistance in high-fat-diet-fed mice

Dysmetabolic conditions related to insulin-resistance (IR) are amongst the most common cause of death globally and their primary prevention has become a compelling goal of public health-oriented strategies. In recent years, there has been a growing interest in those natural, dietary, bioactive compounds able to improve "metabolic health" and reduce cardiovascular risk at population-level. Despite the explosive research interest in the development of novel chemicals to treat IR, its prevalence and associated complications remains extremely high, underlying the unmet and urgent need for novel candidates with sufficient effectiveness.

Indicaxanthin (Ind), a betalain pigment from Opuntia ficus *indica* fruit has been the object of sound research over the last 20 years. Explored, at first, for its mere antioxidant potential, Ind has been reported to interfere with redox- dependent signalling pathways, exerting significant anti-oxidative and anti-inflammatory effects both *in vivo* and *in vitro*. Along these lines and taking into account the strict interconnections between inflammation, oxidative stress and IR, this work has explored whether Ind extracted from Opuntia ficus indica fruit, could exert protective effects in an *in vivo* model of metabolic disorder related to IR.To this end, Ind was purified as detailed in the Italian Patent Application No. 102021000015167 filed on 10.06.2021. C57BL/6J mice (n=24) were grouped as follows: 1. a negative control group was fed with a standard diet for 14 weeks; 2. a positive control group was fed with a high fat diet (HFD) for 14 weeks; 3. an Ind-group was fed with HFD for 10 weeks and subsequently received Ind *per* os at a nutritionally relevant dose of 0.86 mg/kg/day for 4 weeks with a HFD regimen. Body weight, food intake, fat mass, glucose metabolism-related parameters, inflammatory and oxidative status in liver and adipose tissue were compared among the different animal groups. To this end, biochemical, histological, western blotting and RT-PCR analysis were employed. Our results clearly show that Ind-treatment significantly reduced body weight, daily food intake, visceral and subcutaneous fat mass, and visceral adipose tissue hypertrophy.

More interestingly, Ind-administration brought about remarkable, beneficial effects on HFD-induced glucose dysmetabolism. A significant reduction of fasting glycaemia, an improvement of both glucose tolerance and sensitivity to exogenous insulin was, indeed, observed in the Ind- group. Coherently, Ind-treatment decreased plasma fasting insulinaemia and IR as evaluated by the reduction of the homeostatic model assessment index. From a mechanistic perspective, Ind-mediated effects on HFD-induced glucose dysmetabolism were associated with a reduction of tissue oxidative stress and inflammation. Indeed, a decrease

Mario Allegra
University of Palermo, Italy

Biography

Prof. Mario Allegra studied Chemistry and Pharmaceutical Technologies at the University of Palermo, Italy and graduated (MPharm) in 1998. He then joined the research group of Prof. Perretti at Queen Mary, University of London and afterwards the University of Palermo. He received his PhD degree in 2010 at the same institution where is now Associate Professor of Biochemistry. He has published more than 60 research articles in SCI(E) journals and has an h index of 27. His research interests cover the role of phytochemicals in oxidative-dependent pathologies.

of reactive oxygen and nitrogen species, malondialdehyde and NO levels in both visceral adipose tissue and liver of the Ind-group was observed. In the same tissues, Ind-treatment significantly induced a reduction of TNF-α, CCl-2, F4-80 gene expression and p65, p-JNK, COX-2, i-NOS protein levels. Coherently, a decrease of adipose tissue crown-like structures and hepatic inflammatory foci was detected in the Ind-group. As a whole, our present results indicate that Ind treatment is able to counteract IR in an in vivo model of metabolic syndrome via anti-oxidative and anti-inflammatory mechanisms, at a nutritionally relevant dose. In perspective, our data suggest a potential employment of the phytochemical, alone or in combo-therapy, to prevent and treat metabolic disorders related to hyperglycaemia and IR.

Audience Take Away:

- The effectiveness of Indicaxanthin as a novel, combotherapeutic agent against insulin resistance.
- Relevant information for biochemists, diabetologist, nutritionists, pharmacologists.

Blood sugar fasting, post prandial and HbA1c level co-relationship in the management of diabetes mellitus

Objectives: There are only three main markers for the diagnosis and management of diabetes Mellitus. Fasting and post prandial blood sugar level gives the amount of glucose present during single point of time. On the other hand, HbA1c value reflects your average blood glucose concentration over the period of three to four month.

In this study, association between HbA1c and FBS was assessed through a cross section population-based study.

Methods: 100 people who are above 25 years of ages irrespective of Sex, occupation or economic status came for executive health check-up are selected. Their blood sugar fasting (10 hrs) level and HbA1c values are assessed for sensitivity and predictive values are determined.

Results: HbA1c is a strong marker in dividing diabetic, non-diabetic and pre-diabetic among the normal population. There is a strong co-relation between HbA1c and fasting blood glucose level particularly in known diabetic patients.

Fasting blood glucose level is more reliable predictor in the management of diabetes. In this study of patient found to be prediabetic.

Conclusion: There are many clinical situations when fasting blood glucose level is normal. But HbA1c level between 5.71% to 6.1% is important in segregation of prediabetics in normal population. Fasting blood glucose level with HbA1c level are principal prediction in management of known diabetic patient.

Audience Take Away:

- Always measure fasting blood glucose level and HbA1c regularly.
- Fasting blood sugar level is stronger predictor then HbA1c value.
- HbA1c level helps in prevention of long-term complications of diabetes.

Ashok Sharma

Department of Internal Medicine, Apollo Hospital, New Delhi, India

Biography

Dr. Ashok Sharma is a senior physician working at department of internal medicine at Apollo Hospital, Sarita Vihar, Delhi. He passed out M.D. (Medicine) in year 1988. He is member of global association of Physicians of Indian origin. He is member of Delhi Diabetic Forum. He is working in various state and national conferences of diabetes for last 15 years.

Computer assisted quantifiable diagnostic tool for diabetic retinopathy

Rising prevalence of diabetic retinopathy (DR) and diabetic macular edema represents significant burden in the society and raises challenges both in establishing effective screening and in enlargening the screening scope and mitigating the risk of DR progression. Our goal is to provide the professional community with a tool which should address these present needs. The aim of the talk is introduction of the of the unique computer-assisted diabetic retinopathy (DR) screening and diagnostic tool, which is based on novelty methods of supervised learning, convolutional neural network, and deep machine learning (DML). The proprietary design of the decision algorithm, amended by standard DML protocols will be demonstrated.The development and design of this specialized software was started in 2018 with many cooperating partners and use of supercomputing powers. The diagnostic tool was trained on thousands of retina images with multiple defined retinal pathologies. The anonymized images were firstly described and annotated by retinal specialists in the reading centers with a proprietary retina-optimized marker tool. Over a dozen different characteristic DR pathologies were selected and over > 200.000 annotations were individually marked by the retina specialists.The images were double-checked and cross annotated and ground truth was established. Then the images were delivered to the deep machine learning programmes. Almost 20 different neural networks were created and a unique algorithm for aggregation of all artificial intelligence outputs was developed.Our diagnostic and screening software tool provides a very high accuracy rate in recognizing individual pathologies, classification of DR and mistake self-detection to dramatically minimize false positive/negative results.

The potential outcomes of our tool are twofold – firstly - the ability to screen a wide population in risk of diabetic retinopathy, secondly and most importantly to quantify pathologies on each image of the retina. This will allow disease progression tracking in the first phase, and once enriched by meta data it will eventually lead to quantifiable decision making of any medical professionals.Cooperating partners of the project are Government of the Czech Republic (grant funding), University Eye Clinics (Charles University, Ostrava University) and a network of local reading centers with over 20 cooperating retina specialists. From a computing power perspective we used the supercomputing center provided by Technical University Ostrava, IT4 Innovation Department (grant funding by European Union).

Jan Nemcansky*[1], Pavel Rozsival[2], Jarmila Heissigerova[3], Jan Skrha[4], Petr Svrcek[2], Dipl. Ing. Jiri Kruta[2], Jan Studnicka[2]

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[2]Viderai plc, Prague, Czech Republic

[3]Ophthalmology Department, Charles University, Prague, Czechia

[4]Diabetology Department, Charles University, Prague, Czechia

Biography

Dr. Nemcansky studied general medicine at Charles University, Prague, Czechia, graduated as MD in 2003. He started his career in University Hospital Ostrava, Czechia, since 2017 he has been Head of the Oph Dpt. He received PhD degree at the Charles University, under supervision of research group of Prof. Rozsival in 2016. In 2017 he obtained a position of an Assistant Professor at the recently established Medical Faculty in Ostrava University, he is lecturer at Charles University, Prague and international consultant for leading industry companies. He published 28 research articles in SCI(E) journals, presented over 150 lectures nationally and internationally.

Audience Take Away:

- New insight into the area of AI applied to digital retina image analysis (quantification, repeatability, tracking) .
- What the state of the art generation of the algorithm may provide to the professional community (speed of analysis, user friendly interface, capacity limit removed, cost & time efficiency, accuracy, interpretability).
- Quantification, time tracking, and predictive function of optional interventions (pharma, laser, surgery)

Functional roles of dietary fibres from selected agricultural by-products in lowering glycemic index values of foods

Statement of the Problem: Presently, the prevalence of non-communicable diseases is increasingly growing with the number of diabetic people expected to increase from 171 million in 2000 to 366 million in 2030. This is the main cause of morbidity and mortality all over the world because it can lead to problems in health and affect the quality of life. High intake of refined carbohydrates coupled with low intake of dietary fibres (DF), particularly from fruit and vegetables, has increased the risk of CVD, diabetes and other illnesses. The purpose of this study is to develop and investigate the effects of incorporation of selected agricultural by-products in enhancing DFs content and lowering glycemic index (GI) values in foods.

Methodology: The GI was determined according to WHO/FAO 1998's protocols as outlined by Brouns (2005).

Findings: A low GI diet is beneficial to reduce the risks and complications of different health conditions such as diabetes. Mechanistically, the DF enhances glycemic response by raising the rate of absorption of glucose in the small intestine, thereby lowering the GI value. Our research reveals that incorporation of agricultural by-products/materials from banana (over-ripe banana), oyster mushroom and cornlettes in a few baked-based products such as cookies, pasta, cakes, muffins and flatbread are successfully formulated and scientifically proven in improving nutritional composition and DF content while lowering the GI values. A low GI diet will make us feel full for a longer duration while minimizing overeating at the same time. Besides, the scanning electron microscopic (SEM) observation reveals that the damaged cornlettes starch reduces starch hydrolysis, thus slowly raises blood glucose. Also, the ethyl acetate fraction of cornlettes was possessed higher antioxidant and scavenging capacities followed by other fractions in the antioxidant assay tested.

Conclusion & Significance: Being physically active and eating a sufficient amount of DF from fruits and vegetables are vital in reducing the risks of having diabetes, maintaining the health status and sustaining quality of life and societal well-being.

Wan Rosli Wan Ishak

Universiti Sains Malaysia, Malaysia

Biography

Over the last 16 years, as a young researcher in food science and nutrition began to realize the importance of developing food products that have health and therapeutic properties. This is because he is aware of the increase in the prevalence of non-communicable diseases (especially diabetes, hypertension, cancer, and obesity) which has been a burden to many people including Malaysians lately. Realizing this situation, our group has proactively done research and innovation on the development of therapeutic and functional food products. Our product development strategy focuses on the Total Food's concept, which uses all parts of edible items of natural products which are based on vegetables, fruits, fungi and brown rice.

Audience Take Away:

- The audience will be able to apply or practice the use of any locally available agricultural by-products from fungi, fruits and vegetables for the development of nutritious and low glycemic index foods in their diet.
- The audience should be able to identify various types of cheap available raw materials in the food products they want to develop.
- The audience shall explore the possible joint research and innovations with relevant food companies to joint develop food that is not only healthy but also exhibits therapeutic benefits.
- Any agencies or NGOs are also may use this knowledge and findings to promote and convince the communities to increase their daily intake of dietary fibres from fruits and vegetables for the reduction of the prevalence of non-communicable diseases especially diabetes.

Update on obesity & assisted reproductive techniques

Introduction:

- prevalence of obesity in reproductive age
- Effect of obesity on reproduction
- Effect of obesity on embryo
- Effect of obesity on endometrium
- Effect of obesity on art outcome Management: Guidelines & Lines of management Conclusions

Description: One half of women of reproductive age are either overweight or obese. High prevalence seeking ART. Impact of elevated BMI on IVF outcomes remains somewhat controversial. Obesity is associated with: ovulatory dysfunction, reduced ovarian responsiveness to ovulatory drugs, altered oocyte as well as endometrial function, increased risk of infertility & lower birth rates after IVF. Increased risk of developing maternal & fetal complications during pregnancy: miscarriage, preterm birth, fetal deaths, and pregnancy complications. Men with obesity may exhibit impaired reproductive function. No increased rates of aneuploidy with increasing BMI suggesting that poor oocyte "quality" in obese patients may be due to factors more complex than chromosomal competence. Molecular alterations in the oocytes of obese patients have been observed in RNA-seq studies Each 5-unit increase in female BMI is associated with statistically significant decrease in risk by 5% and 7%for CPR and LBR, respectively & 9% increase in the relative risk of miscarriage. No medical or ethical directive for adopting a society-wide BMI threshold for denying a patient or couple access to infertility treatment. Evaluation before an IVF cycle with a multidisciplinary team to determine the safety of oocyte retrieval under anesthesia, considering factors such as BMI and comorbidities. No compelling evidence of the value of lifestyle intervention for weight loss on LBR. Conflicting data on the effects of bariatric surgery on reproductive outcomes have been published. Bariatric surgery had no significant impact on IVF success.

Audience Take Away:

- Definition of obesity.
- Counseling patient asking for ICSI.
- Recommendations of scientific societies in preventing & treating obesity.

Aboubakr Elnashar

Benha University Hospital, Egypt

Biography

He is Prof of Obs Gyn. from Benha University Hospital, Egypt. He is President of Clinical Society of Obs & Gyn. He is an Editor of Middle East Fertility Society Journal, Egyptian Fertility Sterility Journal, Benha Medical Journal. He is Member of Egyptian fertility sterility society board. He has 37 international publications in: Lancet, Human Reproduction, British J Obs Gyn, Fertility Sterility, J Assist Reprod Genet, International J Gyn Obs, Acta Obstet Gynecol Scand, J Obstet Gynaecol. He is a speaker in international conferences: ESHRE (5 times), RCOG, European Congress of Obs Gyn, MEFS. He has given 480 lectures on Slide share. He is an International reviewer of ESHRE Guidelines: 1. PCOS 2. COS3. Female fertility preservation 4. Terminology of ectopic pregnancy.

Therapeutic ketosis and the broad field of applications for the ketogenic diet: Ketone ester applications & clinical updates

It has been recently shown that nutritional ketosis is effective against seizure disorders and various acute/chronic neurological disorders. Physiologically, glucose is the primary metabolic fuel for cells. However, many neurodegenerative disorders have been associated with impaired glucose transport/metabolism and with mitochondrial dysfunction, such as Alzheimer's/Parkinson's disease, general seizure disorders, and traumatic brain injury. Ketone bodies and tricarboxylic acid cycle intermediates represent alternative fuels for the brain and can bypass the rate- limiting steps associated with impaired neuronal glucose metabolism. Therefore, therapeutic ketosis can be considered as a metabolic therapy by providing alternative energy substrates. It has been estimated that the brain derives over 60% of its total energy from ketones when glucose availability is limited. In fact, after prolonged periods of fasting or ketogenic diet (KD), the body utilizes energy obtained from free fatty acids (FFAs) released from adipose tissue. Because the brain is unable to derive significant energy from FFAs, hepatic ketogenesis converts FFAs into ketone bodies-hydroxybutyrate (BHB) and acetoacetate (AcAc)-while a percentage of AcAc spontaneously decarboxylates to acetone. Large quantities of ketone bodies accumulate in the blood through this mechanism. This represents a state of normal physiological ketosis and can be therapeutic. Ketone bodies are transported across the blood-brain barrier by monocarboxylic acid transporters to fuel brain function. Starvation or nutritional ketosis is an essential survival mechanism that ensures metabolic flexibility during prolonged fasting or lack of carbohydrate ingestion. Therapeutic ketosis leads to metabolic adaptations that may improve brain metabolism, restore mitochondrial ATP production, decrease reactive oxygen species production, reduce inflammation, and increase neurotrophic factors' function. It has been shown that KD mimics the effects of fasting and the lack of glucose/ insulin signaling, promoting a metabolic shift towards fatty acid utilization. In this work, the author reports a number of successful case reports treated through metabolic ketosis.

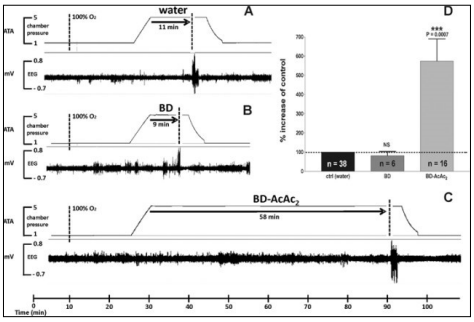

Figure 1: Ketone Ester significantly increased resistance against Central Nervous System Oxygen Toxicity seizures (D'Agostino D.P. et al., 2013 Am J Physiol Regul Integr Comp Physiol. 304(10):R829- 36).

Raffaele Pilla

Pharm D, PhD – St. John of God Hospital – Fatebenefratelli, Benevento, Italy

Biography

Raffaele Pilla, Pharm.D., Ph.D., Doctor Europaeus, received his Master's degree in Pharmacy at G. d'Annunzio University in Chieti-Pescara, Italy in 2005, where he also served internships at the Cell Physiology Laboratory and Molecular Biology Laboratory. Prior, he was an Erasmus Student at Faculté de Pharmacie de Reims in Reims, France. He received his Doctor Europaeus in 2010 from Pitié-Salpétrière Institute in Paris, France. Also in 2010, he received his Ph.D. in Biochemistry, Physiology, and Pathology of Muscle at G. d'Annunzio University in Chieti-Pescara, Italy. He was hired as a Postdoctoral Scholar in the Department of Pharmacology and Physiology at the University of South Florida in Tampa, on two research grants funded by the Office of Naval Research (US Navy) and Divers' Alert Network. He has written and lectured widely worldwide. He has been involved in ongoing research at the University of South Florida with the use of ketone esters.

The efficacy of ursodeoxycholic acid in the treatment of non-alcoholic steatohepatitis: A 15-year systematic review

Non-alcoholic fatty liver disease (NAFLD) is one of the most common forms of chronic liver disease which may progress to non-alcoholic steatohepatitis (NASH). Currently there are no therapeutic strategies for such disease. Only lifestyle modification through diet and exercise were proven to afford some benefit in patients with NAFLD. No pharmacologic agents have so far been approved for the treatment of NAFLD or NASH. Therefore, most clinical efforts have been directed at treating the components of metabolic syndrome, namely obesity, diabetes, hypertension and dyslipidemias. Other interventions are directed at specific pathways potentially involved in the pathogenesis of NAFLD, such as insulin resistance, oxidative stress, pro- inflammatory cytokines, apoptosis, bacterial overgrowth, and angiotensin pathway. However, since the FLINT study, the largest NASH study to date, no drug has ever come close to Obeticholic acid except Ursodeoxycholic acid (UDCA). This lecture aims to show the potential of Ursodeoxycholic Acid (UDCA) as a promising therapeutic option for NAFLD. This is a 15-year Systematic Review of randomized controlled trials on the effects of Ursodeoxycholic Acid on Non-Alcoholic Fatty Liver Disease. (NAFLD). Ursodeoxycholic Acid may yet prove to be a targeted treatment for Non-Alcoholic Fatty Liver Disease.

Higinio T. Mappala

MD, FPCP, FPSG, FPSDE, DPBCN
Jose Reyes Mem. Medical Center, Manila, Philippines

Biography

Professor Higinio T. Mappala is a full-time Medical Specialist IV and administrator at the Jose Reyes Memorial Medical Center, Manila, Philippines. He is Board-certified Internist, Gastroenterologist, Endoscopist, Clinical Nutritionist and Clinical Toxicologist. He has served as a University Professor and Dean of 2 Medical Schools. He is a highly-regarded researcher, with more than 70 scientific papers and more than 30 international publications. He is a former Board Director of the Philippine Societies of Gastroenterology and Digestive Endoscopy. He is an editorial board member of American Journal of Biomedical Science and Research and online research rater of McMaster, Canada. He is a nominee as one of the Top 100 Leading Physicians 2018, Cambridge Biographical Institute. He is a focused lecturer on NAFLD in local and international conventions, with 18 invites as Keynote Speaker in 2018 and 51 invites in 2019 and 53 for 2020.

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DIABETES, METABOLISM AND ENDOCRINOLOGY

VIRTUAL

Rheaume Caroline*[1], Gagnon Marie-Pierre[2], Pelletier Cynthia[1], Chabot Christian[3]

[1]Family and Emergency Medicine Department, Universite Laval, Quebec, Canada
[2]Faculty of Nursing Sciences, Universite Laval, Quebec, Canada
[3]Vitam-Research Center Health durable, Quebec, Canada

Activity tracker to increase motivation for physical activity in patients with type 2 diabetes in primary care: A hybrid Type 1 study

According to the World Health Organization, diabetes is the direct cause of 1.5 million deaths annually. The adoption of healthy lifestyles, such as regular and consistent physical activity, plays an important role in reducing the prevalence of diabetes and its complications. The use of an activity tracker could favor behaviour changes. We realized a hybrid type 1 study to determine effectiveness of a fitness activity tracker to follow lifestyle habits and to better understand the implantation context in primary care. We first conducted a randomized pilot trial to evaluate the impact of an activity tracker on physical activity (PA) in a real-life context among patients with type 2 diabetes. Second, we performed a SWOT analysis (strengths, weaknesses, opportunities, and threats) of this randomized pilot trial to assess the feasibility of an activity tracker implementation in primary care setting. Cardiometabolic risk variables, physical activity and motivation were assessed at baseline and after three months. Physical activity assessed by questionnaires increased in both groups, change being greater in the intervention group ($P< 0.05$). High-density lipoprotein cholesterol increased in the intervention group and decreased in the control group ($P=0.014$). Resting systolic and diastolic blood pressure decreased over time in both groups ($P< 0.05$) whereas glycated hemoglobin tended to decrease in both groups ($P=0.080$). In total, 86% of the patients were satisfied with their activity tracker use, and 79% did with the technical support provided by the team. Its implementation in primary care is feasible as demonstrated by the high satisfaction rate and the high adhesion to the device's wearing. The main strengths of the team members' perspective were the study design, the team, and the device.The weaknesses were the budgetary constraints, the turnover, and the technical issues. The opportunities were the primary care setting and the common technology.The threats were the recruitment, the administrative challenges, and the technological difficulties. Our results suggest that the fitness activity tracker improves the cardiometabolic profile of diabetic patients and is a good source of motivation to increase physical activity. Research team members agreed that implementation can be realize in primary care, but some challenges remain for using this lifestyle tool in clinical practice regularly.

Audience Take Away:

- The audience will learn how to realize a hybrid type 1 study in primary care: randomized pilot trial and SWOT analysis.
- This research will help the audience to know more about the implementation of an activity tracker to increase motivation for physical activity among patients with type 2 diabetes.The audience will better understand how to evaluate the impact of activity tracker on physical activity and cardiometabolic variables and how to assess the feasibility of its implantation in primary care setting. Also, other faculty could use hybrid type 1 design to expand their research or teaching to the health community and patients.

Biography

Dr. Caroline Rheaume completed her undergraduate studies in kinesiology and a dual MD/PhD degree program at University Laval in endocrinology and exercise physiology in Canada. She then joined the research group of Vitam-Research Center Health Durable and Research Center of the Institute of Cardiology and pneumology of Quebec. She obtained the position of an Associate Professor at the Family and Emergency Medicine Department at University Laval. She has published more than 45 research articles in SCI(E) journals.

VIRTUAL

William A. Seeds, MD
[1]SSRP Institute, Founder & Chief Medical Officer, Ashtabula, OH, USA
[2]University Hospital, Chief of Surgery and Residency Site Director, Geneva, OH, USA

Advanced course: GLP-1 agonists - the future of diabetes research and clinical treatments

Heart disease remains the number leading cause of death year after year. The increased risk factors are certainly related to cardiovascular conditions but are also significantly attributable to metabolic disease states. There are significant advances in cardiovascular interventions, but the metabolic and autoimmune side is only just beginning. Statins are and have been the most popular intervention for high cholesterol and other lipids. If we look closely at the lipoproteins that are affected by statins, there are two in particular that stand out: the APO-A and APO-B lipoproteins. These lipoproteins can completely change the way we're translating important biomarkers such as: cholesterol, triglycerides, HDL's and LDL's. These key lipoproteins are made in the enterocyte of the colon and synthesized in the liver. If this isn't supported by a healthy microbiome and balanced immune system, it's clear to see how cardiac issues can arise from these disease states.

The key to a healthy heart is through the microbiome and the immune system. Diet and exercise are mandatory treatments to add to the protocol, but what is the intervention to prevent future degradation? In this advanced course, we will uncover how GLP-1 Agonists will be to the future of treating cardiovascular disease– through the microbiome and immune systems. We will also explore how GLP-1 Agonists will be the future of care for Diabetes and other metabolic diseases.

Audience Take Away:

- How metabolic and autoimmune diseases contribute to the number one leading cause of death - cardiovascular disease.
- What are GLP-1 Agonists and how do they work in the microbiome.
- How GLP-1 Agonists compare to other popular drugs such as Metformin, Statins, and other popular pharmaceuticals.
- This will assist practitioners' diabetes patients and help them lose and maintain a healthy weight.
- Is this research that other faculty could use to expand their research or teaching.
- Absolutely. More is being written in medical literation regarding GLP-1 Agonists in all of its pleotropic effects in changing dementia and Alzheimer's, and other neurological conditions.
- It helps the practitioners care of their patients by understanding the clinical protocol.

Biography

Dr. Seeds is a board-certified orthopedic surgeon practicing medicine for over 27 years, and the Founder and Medical Director of the Seeds Scientific Research & Performance Mastermind. He is Chief of Surgery and Orthopedic Residency Site Director for University Hospital, Conneaut & Geneva, OH. He has been honored at the NFL Hall of Fame for his medical expertise and in treating professional athletes, and serves as Professional Medical Consultant for the NHL, MLB, NBA, and NBC's Dancing With The Stars. Dr. Seeds is also a medical researcher, and continues to write and publish on the NIH and other medical journals. He is also the author of Peptide Protocols Vol.1, the world's first handbook about peptides written for practitioners. Today at the Seeds Scientific Research and Performance Institute, he is dedicated to bringing Cellular Medicine and the study of Epigenome to the forefront of the medical community through research, training, and improved patient outcomes. His practice is at the Olympic training facility: Spire Institute Geneva, OH; and at the Redox Medical Group, Beverly Hills, CA.

VIRTUAL

Brandon Lucke-Wold MD, PhD, MCTS
Department of Neurosurgery, University of Florida

Diabetes management in spinal surgery

Diabetes mellitus can lead to long-standing complications in multiple arenas. An area that is often overlooked is implications for major surgery. Spinal decompression and fusions have unique challenges in the diabetic patient. In this review, we briefly highlight the pathophysiology of diabetes mellitus prior to examining implications for spinal surgery. We focus on the wound healing process, surgical infection risk, and delayed fusion. The paper then transitions to a focus on early diagnostics as well as pre-operative glucose control. Finally, we highlight important management strategies post operatively, continued necessity of monitoring, and emerging treatment and diagnostic approaches. This paper will serve as a key clinical guide that clinicians can utilize for diagnostic, management, and follow-up planning.

Audience Take Away:

- Will allow providers to optimize management of diabetic patients.
- Improves multidisciplinary care.
- Can continue to refine algorithm.
- Will improve workflow and management.
- Can be incorporated into insurance billing.

Biography

Brandon Lucke-Wold was born and raised in Colorado Springs, CO. He graduated magna cum laude with a BS in Neuroscience and distinction in honors from Baylor University. He completed his MD/PhD, Master's in Clinical and Translational Research, and the Global Health Track at West Virginia University School of Medicine. His research focus is on traumatic brain injury, neurosurgical simulation and stroke. At West Virginia University, he also served as a health coach for the Diabetes Prevention and Management program in Morgantown and Charleston, WV, which significantly improved health outcomes for participants. In addition to his research and public health projects, he is a co-founder of the biotechnology company Wright-Wold Scientific, the pharmaceutical company CTE cure, and was a science advocate on Capitol Hill through the Washington Fellow's program. He has also served as president of the WVU chapters for the American Association of Pharmaceutical Scientists, Neurosurgery Interest group and Erlenmeyer Initiative Entrepreneur group. In addition, he has served as vice president for the graduate student neuroscience interest group, Nu Rho Psi Honor Society and medical students for global health. He was an active member of the Gold Humanism Honor Society and Alpha Omega Alpha Honor Society. He is currently a member of the UF House Staff Council, Positive Culture Committee, Quality Improvement Committee, Board of Directors Alachua County Medical Society, and Accreditation Requirements Review Committee. He is married to Noelle Lucke-Wold and has two children. As a family, they enjoy running with their dogs, rock climbing and traveling. In his spare time, Brandon frequently runs half marathons and 10ks together with his wife. Brandon also enjoys reading, playing piano, discussing philosophy, and playing chess. He is currently a Pgy5 neurosurgery resident at University of Florida with pursuing endovascular enfolded training and was awarded the Dempsey Cerebrovascular Research Fellowship.

VIRTUAL

Alberto Angel-Martin*[1], Natalia Moreno Castellanos[2], Jennifer Giorgi-Ortiz[3], Fabrice Vaillant[4]

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Effects of interventions with golden berry (physalis peruviana l.) on animal models of obesity

Golden berry (Physalis peruviana L.) is an exotic fruit exported from Colombia to different countries around the world. A review of the literature tends to demonstrate a hypoglycemic effect with an improvement in insulin sensitivity after oral ingestion of fruit extracts in animal models. However, little is known about its potential effects in weight management, and very little is known about the mechanisms involved. This study aimed to analyze the effect of Golden berry consumption as possible bioactive compounds in the control of obesity compared to an obesogenic diet. Method: Wistar rats were treated for 30 days, distributed in the following groups: CNT: control, fed with a standard diet; WD: western diet, fed an obesogenic diet (rich in fat and sugar); GB: Fed WD+40mg/kg/day Golden berry diet, respectively.

Results: WD animals increased body weight compared to the control group. However, GB animals experienced a reduction in body weight.

Conclusion: The administration of Golden berry prevents body weight gain against an obesogenic diet, and also improves circulating insulin levels. Therefore, the consumption of Golden beer emerges as possible bioactive compounds in the control of obesity and associated alterations.

Acknowledgments: Thematic Network Project 8755 of VIE (UIS).

Audience Take Away:

- Golden berry (Physalis peruviana L.) is a potencial funtional food.
- Demonstrate a hypoglycaemic effect with an improvement in insulin sensitivity .
- Identifying discriminant metabolites after acute and chronic intake of golden berry.
- Showing that Golden berry intake may be associated with lipogenic mechanisms in weight loss and insulin signaling, which could reduce some risk factors related to metabolic syndrome.
- The audience can use what they learn by including cape gooseberry in their diet to improve their eating habits and expect an improvement in the insulin signaling pathway.
- Increasing fruit consumption along with a healthy lifestyle will bring great benefits to metabolism and health.
- This research provides and contributes to a practical solution to a problem like T2 diabetes.
- Including Golden berry in the daily diet will improve the accuracy of personalized hypoglycemic diets for the management and prevention of T2 diabetes.

Biography

Dr. Angel studied Nutrition and dietitian at the National of Colombia University, Colombia and graduated as MSc Biochemistry in 2010 in the same university. He studies at effect to consum of functional food in the gene expression to prevention of cardiovascular disease. He received his PhD degree in 2018 at the University of Balearic Island. After four year supervised by Dr Andrew Palow at the at the Institute of Alimentomic, Spain he obtained the position of an Associate Professor at the Industrial of Santander University, Colombia. He has published several research articles on nutrigenomics in SCI(E) journals.

VIRTUAL

Wenjing Hu*, Xiaoyun Fan
Department of Endocrine Metabolism, Chongqing Prevention and Treatment Hospital for Occupational Diseases, Chongqing, China

Metformin, pioglitazone, liraglutide and exenatide differentially affect metabolic and hormonal profiles in polycystic ovary syndrome: Cross-sectional study

Background and aims: Polycystic ovary syndrome (PCOS) is the most common endocrine disorder affecting up to 13% of women of reproductive age. Although the underlying pathogenesis of PCOS has not been fully understood, there is increasing evidence that supports insulin resistance (IR) and obesity are critically involved in the development and progression of the disease. Currently, the treatment for PCOS must always be individualized as universal treatment is not available. The purpose of this study was to help more clinicians provide more accurate drug selection for PCOS patients.

Materials and methods: This study was an observational cross-sectional study, with additional follow-up studies before and after treatment with four anti-diabetic drugs. 79 patients were treated with Metformin, 42 patients were treated with Pioglitazone, 31 patients were treated with Liraglutide and 30 patients were treated with Exenatide for 12 weeks. Metabolic and hormonal parameters in patients treated with different treatments for 12 weeks. Bioinformatics analysis was performed to explore the association of PCOS with metabolic-related genes and signaling pathways. Finally, we verified the inference of biological information in the crowd experiment.

Results: The BMI, Fins, HbA1c(%), and HOMA-IR decreased significantly, whereas M-value increased significantly in all treatment groups. The WHR decreased significantly in Pioglitazone and Exenatide group and blood pressure only decreased significantly in the Liraglutide group. All treatment groups have different extend of decrease in FBG, 2h-FBG, TG, TC, and LDL-C, but is most significant in Pioglitazone, Liraglutide, and Exenatide group. The HDL-C increased significantly and FFA decreased significantly only in the Pioglitazone treatment group. The AUC glucose is improved in all groups but the Metformin group, whereas the AUC insulin is improved in all groups but the Liraglutide group. There is a different extent of decrease in VAI, but is most significantly in Liraglutide and Exenatide group, whereas the BAI is significantly decreased in Metformin, Liraglutide, and Exenatide group but remains unchanged in Pioglitazon group. The TEST and FAI decreased significantly.

The SHBG and LH decreased and progesterone increased significantly only in the Metformin group. We selected 5 obese control, 7 obese PCOS, 6 Normal-Weight control and 5 Normal-Weight PCOS from GSE10946. In GSE6798, we selected 13 morbid obese control and 16 morbid obese PCOS to analyse by “Connectivity Map”, we have still found 3 significant anti-diabetic compounds from the database-Gliclazide, Pioglitazone, and metformin. More importantly, Gliclazide yield a positive connectivity score , whereas Pioglitazone and metformin yield a negative connectivity score. The results indicate that Pioglitazone is suitable to treat lean PCOS subjects, whereas metformin is better in obese PCOS subjects, and Gliclazide is not suitable to use to treat PCOS in obese subjects. As there is no morbid obese subjects recruited in the study, we divided all patients into two groups: BMI < 24kg/m^2 and BMI≥ 27kg/m^2, according to the bioinformatic analysis. Pioglitazone treatment has a greater effect on △WHR, △2h-BG, △2h-Ins, △HbA1c(%), △FFA, △AUCglucose, △AUC insulin and △LH in the Lean group compared with Metformin treatment and

metformin treatment has a greater effect on △BMI, △FBG, △2h-FBG, △FIns, △2h-Ins, △HOMA-IR, △AUC glucose, △AUC insulin, △VAI, △BAI, △progesterone, and △FAI are better improved compare with those values in metformin treatment in lean subjects which is consisted with Connective Map analysis.

Conclusions: As supported by clinical and bioinformatic evidence, pioglitazone seems to be better in treating lean PCOS patients, metformin provides higher value in correct hormonal parameters, and Gliclazide is not suitable to use to treat PCOS in Lean and Obese PCOS subjects. and our results also suggested that GLP-1RA would be better in treating obese subjects.

Audience Take Away:

- The treatment for PCOS must always be individualized as universal treatment is not available.The purpose of this study was to help more clinicians provide more accurate drug selection for PCOS patients. It suggests a novel idea which may help clinicians conduct studies on drug selection.

Biography

Dr. Hu studied clinical medicine at the Chongqing Medical University, China and graduated as MS in 2014. After a 5-years-work in Chongqing Prevention and treatment Hospital for Occupational Diseases, she is now studying for a doctorate at her Alma Mater. She has published more than 20 research articles in SCI(E) journals during work and study.

VIRTUAL

Martin Kussmann, PhD
German Entrepreneurship, Cambridge, Massachusetts, USA

Proteomics in obesity for molecular phenotyping

While parts of the global population still suffer from mal- and under-nutrition, other parts of the population face – at least caloric – overfeeding. In obesity, too many calories are often accompanied by too few micronutrients (malnutrition). The combined public health care problems of diabetes and obesity ('diabesity') and metabolic syndrome cannot be sustainably addressed by pharmaceutical treatment alone. Systems health strategies complementing reductionist approaches are required to better understand and characterise the continuum of diabesity phenotypes. Nutritional prevention is the key to the solution. We have developed mass spectrometric technologies and workflows to analyse >1'000 human plasma samples each in two independent clinical obesity cohorts across a low-caloric weight reduction and a subsequent weight maintenance phase. This integrated clinical proteomics platform has delivered protein signatures explanatory for the obesity condition, useful for cohort stratification, and – most importantly – predictive of dietary response.

Audience Take Away:

- Multi-omics-based molecular phenotyping beyond genetics in humans is key to derive diagnostic fingerprints that can predict response to (nutritional) intervention and indicate/explain predisposition towards metabolic health conditions.
- Mass spectrometry-based proteomics has matured into a biomarker discovery platform that can deliver candidate diagnostic signatures to be validated and applied in assays compatible with clinics, medical cabinets, and – eventually – households. Robustness and throughput are key for a proteomics platform to be clinically applicable at large scale.
- In (clinical) nutrition biomarker research, minimally invasive sampling is typically required and, therefore, human blood plasma proteomics is often the tissue of choice. Yet, it is the most challenging human body fluid in terms of both composition and dynamic range.
- Replication of proteomic signatures in independent clinical cohorts has to date been rare, yet it is necessary.
- Proteomic signatures predictive of dietary response can help tailor nutritional interventions to specific obese sub-populations and thereby enable personalized nutrition for maintenance or restoration of metabolic health.

Biography

Trained as a biochemist, Dr. Martin Kussmann has accomplished a 30-years dual corporate/academic career with experience in nutrition, pharma, and biotechnology. He held professorships at EPF Lausanne, Switzerland; Aarhus University, Denmark; and Auckland University, New Zealand, where he was also Scientific Director of the National Science Program on Food Innovation. Dr. Kussmann has co-created and managed four research units and scientifically led two institutions. His research focuses on translational human studies in nutrition and health, multi-omics biomarker development, and artificial intelligence-enabled discovery and validation of natural bioactives. Dr. Kussmann is a multi-lingual author, editor, and lecturer credited with >150 publications.

VIRTUAL

Jerzy Kotlinowski*[1], Natalia Pydyn[1], Justyna Kadluczka[1], Piotr Major[2], Andrzej Budzyński[2], Edyta Kus[3], Stefan Chlopicki[3], Magdalena Losko[1], Jolanta Jura[1]

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Molecular studies on MCPIP1 Rnase role in obesity and NAFLD

Nonalcoholic fatty liver disease (NAFLD) is a slowly developing disease that includes a wide range of pathological conditions. In the first stage, NAFLD is characterized by simple hepatic steatosis (NAFL, nonalcoholic fatty liver) that might progress to nonalcoholic steatohepatitis (NASH), fibrosis, cirrhosis or hepatocellular carcinoma. It is known that obesity, type 2 diabetes mellitus, and dyslipidemia are the most common metabolic risk factors associated with both the development and progression of NAFLD. Scientists and physicians estimate that nowadays between 20% to 30% of general population in the western world suffer from NAFLD. Globally it makes more than a billion people worldwide. Besides fat accumulation in hepatocytes, a chronic local inflammation of low intensity is a characteristic feature of NAFLD. Therefore, proteins involved in inhibition of inflammatory response have a very significant impact on this disease.One of the important protein involved in a negative regulation of inflammation is a Monocyte Chemoattractant Protein-Induced Protein 1 (MCPIP1). MCPIP is a member of CCCH-zinc finger protein family, consisting of four proteins (MCPIP1-4) encoded by four genes (Zc3h12a-d in mouse and ZC3H12A-D in humans). Thanks to detailed sequence alignment combined with in vitro experiments, a putative PIN domain responsible for MCPIP1 RNase activity was described for the first time in 2009. After years of study we know, that MCPIP1 binds to mRNAs' 3'UTR fragments and digests a stem-loop structures. Such endoribonuclease activity of MCPIP1 shortens a half-life of selected transcripts and reduces amount of proteins What is more, MCPIP1 is responsible for degradation of translationally active transcripts and is important particularly in the initial stage of inflammation. The anti- inflammatory properties of MCPIP1 have also been confirmed in vivo. Mice deficient in this protein, spontaneously develop systemic inflammatory response leading to splenomegaly, lymphadenopathy, hyperimmunoglobulinemia and ultimately to death within 12 weeks. Moreover, macrophages and lymphocytes isolated from spleen of Zc3h12a knock-out animals (MCPIP1 protein is not expressed) showed increased expression of inflammatory genes, and enhanced activity of JNK and IkappaB.So far, MCPIP1 was shown to modulate a wide plethora of cellular processes e.g. differentiation, proliferation, migration or apoptosis, which are all important for obesity and NAFLD development and progression.

Audience Take Away:

- Description of MCPIP RNase family (mechanism of action, function in tissue homeostasis).
- New results concerning MCPIP1 role in adipogenesis, obesity and NAFLD.

Biography

Dr. Jerzy Kotlinowski studied Medical Biotechnology at the Jagiellonian University, Poland and graduated as MS in 2006. He then completed a PhD studies under the supervision of prof. Jozkowicz and received his PhD degree in 2012 at the same institution. After postdoctoral fellowship at IGC in Portugal in the "Inflammation lab" of prof. Soares, Dr Kotlinowski obtained the position of an Associate Professor at the Faculty of Biochemistry, Biophysics and Biotechnology at the Jagiellonian University. He has published more than 30 research articles.

VIRTUAL

Ricardo Cardoso Cassilhas*[1,2,3,4], Isabella Rocha Dias[2,3], Caíque Olegário Diniz e Magalhães[2,3], Crisley Mara de Azevedo Ferreira[2,4], Gustavo Henrique Bahia de Oliveira[2,4], Júlia Tereza Aparecida Caldeira Prates[2,4], Rosiane Rosa Silva[2,4], Paulo Mauricio Lopes[2,4], Poliany Pereira Cruz[2,4], Marco Fabrício Dias Peixoto[1,2,3,4], Ricardo Augusto Leoni De Sousa[2,3]

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Does caloric restriction improve cognition and anxiety in rat model?

Caloric restriction (CR) has been, since the first published studies, the most used non-pharmacological intervention to investigate mechanisms related to aging and longevity. This intervention has shown beneficial results in reduction and incidence of several chronic diseases and functional declines related to aging such as age-related cancers, immunological and neuroendocrine alterations, motor dysfunctions and development of diseases such as Parkinson's and Alzheimer's. Despite its beneficial results in several conditions, the effects of CR on cognition and behavior show ambiguous results, since its effects vary according to its intensity and period in which it is performed. The objective of this work was to investigate the effects of 50% caloric restriction since birth on cognition and behavior in adult male Wistar rats. The animals were divided into a control group (C) (n=24) and a restricted group (R) (n=24) and started the CR protocol from birth, being breastfed in mothers in a restricted group for the restricted group. After weaning, the pups received the same diet as the mothers until 100 days of age. At 90 days, the animals performed behavioral tests to assess exploratory behavior, learning and memory, spatial memory, anxious behavior and depressive behavior. Data were analyzed using unpaired t-test or Mann-Whitney test, One-Way and Two-Way Anovas followed by Tukey's post-hoc test, with a significance level set at $p<0.05$. The results of the present work showed that CR since birth did not cause cognitive impairment in rats when they were adults, and it was still beneficial to attenuate anxiety-like behavior. Together, these data may contribute to a better understanding of the mechanisms related to the effects of CR on the brain in animal models, especially on cognition and anxiety behavior.

Audience Take Away:

- The CR brings positive effects on anxiety levels in rats.
- The CR not cause cognitive impairment in rats.
- The CR attenuate anxiety-like behavior in rats.

Biography

Ricardo Cassilhas is a Professor in the Physical Education, UFVJM. He had a Master and Doctor of Psychobiology degree and he pursued his PhD at the UNIFESP. He performed the postdoctoral research at UNIFESP and Vrije Universiteit Brussel Universities in pollution and cognition in elderly population. He have enormous passion for exercise and neuroscience and how exercise may influence the heath or unhealthy brain.

VIRTUAL

Rupesh K. Gautam*[1], Rajat Goyal[2]

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An insight view on herbal and alternative remediesused in the treatment of diabetes mellitus

Diabetes is a major public health concern that has been progressively rising worldwide. This disease is associated with a high rate of mortality, morbidity, and long-term consequences and remains a significant risk factor for cardiovascular disorders. Diabetes is a major cause of kidney failure, blindness, stroke, heart attacks, and lower limb amputation. Though several approaches like oral hypoglycemic agents such as sulphonylureas and biguanides can help to reduce the effects of diabetes and complications, herbal and alternative remedies are preferred because they have fewer side effects and are less expensive. Alternative medicines cover a wide range of therapeutic techniques and practices that fall beyond the mainstream of medical practice. Herbal therapies are a subject of great public interest in diabetes mellitus, describing that the antidiabetic activity of medicinal plants is due to the existence of phenolic compounds i.e., flavonoids, coumarins, terpenoids, and other constituents, which show a reduction in blood glucose levels. These products, particularly herbs, may play a direct role in diabetes prevention and management. The purpose of this study is to learn more about the prevalence and factors that influence the use of herbal products and alternative remedies by diabetic patients, as well as to discuss the demographics of these patients and to determine any perceived benefits from using herbal therapy. The study also aims to identify the source of information recommending the use of a particular herbal therapy, as well as a justification explaining the underlying reasons for its usage.

Audience Take Away:

- Role of Herbal and Alternative medicines in diabetes mellitus treatment and management.
- To learn about the prevalence and factors that influence the use of herbal and alternative remedies by diabetic patients.
- To provide an insight view on several herbal and alternative approaches used in the treatment of diabetes.

Biography

Dr. Rupesh K. Gautam is currently working as Professor and Head, Department of Pharmacology, Indore Institute of Pharmacy, IIST Campus, Rau, Indore, India. He did his Ph.D. from Faculty of Pharmaceutical Sciences, JNU, Jodhpur, India, M. Pharm in Pharmacology from Rajasthan University of Health Science, Jaipur and B. Pharm from Rajiv Gandhi Proudyogiki Vishvidyalaya, Bhopal. He is having more than 14 years of teaching and research experience. More than thirty research and review articles are in his credit in various journal of repute.

VIRTUAL

Dominika Kot*, Małgorzata Wrzosek
Department of Biochemistry and Pharmacogenomics, Faculty of Pharmacy, Medical University of Warsaw, 02-097 Warsaw, Poland

The effect of metabolomics profile and depressive symptoms on body mass reduction

Obesity is one of the most common health problems of the 21st century. The effectiveness of therapeutic methods used for obesity treatment of is insufficient, which is indicated by the increasing incidence of the disease among the world population. Patients with a specific set of biomarkers may have a higher risk of developing obesity and its health consequences. Detailed metabolic profile determination can provide insight into the molecular mechanisms underlying obesity and its comorbidities. By examining the metabolic profile, we obtain knowledge about the collection of huge number of molecules that are reagents, intermediates or end products of many enzymatic reactions. As an effective method of obesity treatment, bariatric surgery leads to favorable changes in metabolomic pathways that may affect the remission of comorbidities. The changes are associated with many biochemical compounds and pathways, such as changes in amino acids, lipids, carbohydrates, or the gut microflora. Studies also show the improvement of many clinical parameters, such as BMI, HbA1c, glucose and cholesterol levels, insulin resistance and modulation of intestinal hormones. Application of metabolomics to study effects of bariatric surgery makes it possible to obtain two groups of markers indicating the success or failure of the surgery. Obesity is associated with the development of many chronic complications. It also has an impact on the mental health and quality of life of those affected. The incidence of depression is increasing among obese people. Meanwhile, depression increases the risk of obesity. Depressed patients are more likely to engage in unhealthy behaviors such as sedentary lifestyles and improper diets. The results of our own research indicate that bariatric surgery candidates who reported unhealthy eating behavior scored higher on the Beck Depression Inventory (BDI-II). After surgery the regulation of hormone and pro-inflammatory cytokines production, can diminish symptoms of depression. On the other hand, depression may be a risk factor for weight regain after bariatric procedures. Our experience shows that patients with depressive disorders after bariatric surgery more often gain weight again and require reoperation to reduce excessive body mass. Moreover metabolomic signatures can be predictors of depression treatment.

This work was supported by funds from the Ministry of Education and Science in Poland (SKN/SP/496250/2021). Newgard CB.

Audience Take Away:

- The effect of weight reduction is on the metabolic profile.
- The influence of obesity on the associated diseases.
- The relation between depression and the success of bariatric surgery.

Biography

Dominika Kot is a certified dietitian. She completed BA studies in dietetics at the Medical University of Warsaw, and then MA studies in dietetics at the Siedlce University of Natural Sciences and Humanities. Dominika Kot is currently a PhD student at the Doctoral School of the Medical University of Warsaw, Faculty of Biochemistry and Pharmacogenomics, and a medical student at the same university. Her research interests include obesity, obesity prevention, diabetes, depression, metabolic syndrome, pharmacogenomics and metabolomics analysis.

David M Selva

Diabetes and Metabolism Research Unit, Vall Hebron Institut de Recerca (VHIR), Universitat Autonoma de Barcelona and CIBERDEM (ISCIII), Barcelona, Spain

Sex hormone-binding globulin: Regulation by nutritional factors and role in obesity development and progression

Human sex hormone-binding globulin (SHBG) is produced by the liver and secreted it into the circulation where it binds androgens and estrogens with high affinity. Therefore, SHBG acts as a carrier of these sex steroids and regulates their bioavailability. Low plasma SHBG levels are associated with obesity, fatty liver disease, abdominal adiposity and metabolic syndrome, and predict the development of type 2 diabetes. In addition, an inverse relationship between plasma SHBG levels and risk of cardiovascular disease has been reported. The SHBG gene has changed its tissue expression and therefore its function during the evolution. Rodents express the SHBG gene in the Sertoli cells of the testis. While in humans, the SHBG gene is expressed in the liver and in the germ cells of the testis. This change of function and tissue expression can be explained by the appearance during evolution of new footprinted regions in the human promoter and an alternative promoter. The generation of different transgenic mice expressing the human SHBG gene has allowed us to study the SHBG expression and regulation in vivo. We have used these mice, HepG2 cells and human samples to provide evidences that SHBG expression is regulated by thyroid hormone, proinflammatory cytokines (TNFα and IL1β), adiponectin, monosaccharides, olive oil, red wine (resveratrol) and caffeine. We have described the underlying molecular mechanisms by which all these factors regulate SHBG gene expression that involve the regulation of several transcription factors, such as HNF4α, PPARγ and CAR. These findings explain why diseases such as obesity, type 2 diabetes, hyperthyroidism, fatty liver disease and inflammatory disease (rheumatoid arthritis) have altered plasma SHBG levels. Finally, the generation of these mouse models has allowed us to demonstrate that SHBG overexpression can protect against obesity development point-out SHBG modulation as a novel therapeutic strategy for the treatment of these prevalent diseases.

Audience Take Away:

- SHBG regulation by nutritional factors.
- SHBG: a new therapeutic target to treat obesity.

Biography

David M Selva got his Bachelor's Degree in Biology in 1996 at the UB, Spain. He obtained his PhD in Biochemistry and Molecular Biology at the UAB in 2001, Spain. After his PhD he accepted a postdoctoral position for 7 years in Prof. Hammond laboratory first at the LRCC in the UWO (Canada) and later on at the CFRI in the UBC (Canada) where he worked on the molecular mechanisms regulating hepatic SHBG production in several human SHBG transgenic mice. In 2009, he obtained a principal investigator position at the Diabetes and Metabolism Department at the Vall d'Hebron Research Institute in Barcelona, Spain.

Mojgan Forootan*[1], Hamed Atarodi[2], Anahita Sadeghi[3], Behzad Hatami[4], Mohammad Darvishi[5], Mohammad Kermansaravi[6], MD, Prof. Mohammad Reza Zali[7]

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[3]Associate professor of medicine - Digestive Disease Research Institute- Tehran University of Medical Sciences

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[5]Associate Professor of Infectious Diseases and Tropical Medicine Research Center, Tehran, Iran

[6]Associate Professor of Surgery, MIS/Bariatric Surgery Fellowship Program Co-Director, Department of Surgery, Center of Excellence of European Branch of International Federation for Surgery of Obesity, Hazrat_e Rasool Hospital, Tehran, Iran

[7]Research Institute for Gastroenertology and Liver, Shahid Beheshti University of Medical Sciences

Gastric bypass surgery and surveillance for gastric cancer: A crucial consideration in bariatric surgery

In selected patients with severe obesity, bariatric surgery is associated with more durable and significant weight loss, and improvements in blood pressure and glycemic control compared to non-surgical weight loss methods (1). Gastric bypass (GB) and sleeve gastrectomy (SG) is the most common bariatric surgical procedures, with similar mid-term weight loss and control of metabolic comorbidities (2,3). Nevertheless, there are specific conditions in which one surgical approach is preferred for patients who needs bariatric surgery. For instance, among patients with large hiatal hernias, severe gastroesophageal reflux, severe esophagitis (grades C&D) and Barret' esophagus, Roux-en-Y gastric bypass(RYGB) is the best choice (4). A notable feature in GB, both with RYGB or one anastomosis gastric bypass (OAGB), is that the bypassed segment of the stomach and small intestine are kept in place, in contrast to SG where part of the stomach is resected. Notably, the bypassed segments (the gastric remnant) cannot be accessed with routine esophagogastrodudenoscopy (EGD). This limitation is particularly important among patients with existing pre-cancerous lesions—such as intestinal metaplasia or dysplasia—in the gastric remnant since surveillance of such lesions cannot be performed. Although the incidence of gastric cancer in the gastric remnant is rare (5), the estimated incidence of gastric intestinal metaplasia is relatively high with an increasing trend in Asia; therefore, clinicians should be aware of the possibility of gastric cancer and take the necessary steps to minimize its risk. Crucially, patients with a higher risk for the development of gastric cancer should be identified before bariatric surgery and the decision for selecting GB versus SG should be made concerning this risk. Herein, we propose performing gastric biopsy mapping according to the updated Sydney system (6), in addition to routine EGD (4), in candidates for bariatric surgery, especially in patients at higher risk for gastric cancer. This hypothesis should be first tested among candidates of GB with a strong family history of familial gastric cancer, older individuals, patients with multiple risk factors and those from ethnicities and geographies with a higher prevalence of gastric cancer (4,7). While studies are needed to test the feasibility and effectiveness of this proposed approach, clinicians should remain vigilant and be mindful of this important limitation posed by GB in the select group of patients undergoing bariatric surgery.

Audience Take Away:

- Attention to pre-cancerous lesion before bariatric surgery
- These days gastric atrophy (GA) and Intestinal metaplasia (GIM) is increasing so perform gastric biopsy mapping before bariatric surgery is recommended specially in high risk patient and the type of surgery should be chosen based on the biopsy results.

Biography

Dr. Mojgan Forootan professor of gastroenterology Sciences, and Research Institute for Gastroenterology and Liver. She is a member of domestic and international association, designer of board question and part of national cancer prevention campaign of the ministry of health. She has published more than 60 research articles in international journals.After graduating, she studied in different countries of the world to progress in imaging and interventional gastroenterology such as EMR, ESD, POEM, Endoscopic sleeve gastroplasty, HHREM, 2 and 3 D EUS.

Berger Saintius
FETP, Haiti

Epidemiological profile diabetes in the South department from 2015 to 2021, Haiti

Background: Diabetes is an incurable chronic disease caused by a deficiency or failure to use insulin leading to excess sugar in the blood. According to the WHO, diabetes remains a real public health problem, despite the prevention efforts implemented by the health system. In Haiti, the burden of chronic diseases, especially diabetes, is increasing at an alarming rate. In the southern department, the number of cases of diabetes continues to increase. This study consists of analyzing surveillance data on diabetes cases in the South department from 2015 to 2020.

Methods: A retrospective descriptive study covering the period 2015-2020 was carried out. Data from the Departmental Diabetes Epidemiological Surveillance Service database were used. The variables: Sex, age, origin, have been described. Data were analyzed on Excel and Epi Info 7.2; frequency and proportion measurements were calculated.

Results: From 2015-2021, 16,018 cases of diabetes were notified, 11,451 were women with an M/F sex ratio of 0.39. The majority of 12,038 (75%) cases were aged 50 and over. The commune of Les Cayes was the most affected with 7912 (49%). In 2020, the highest number of cases was recorded, 3950 (25%).

Conclusion: An Increase in cases was observed between 2019 and 2020. In 2021, the cases tend to decrease. There is a predominance of cases in women. The age group of 50 years and over was the most affected. We recommended strengthening community awareness actions on the risk factors associated with diabetes. Strengthen the health system response to non-communicable diseases, including diabetes.

Biography

Since 2013, Mr. Berger Saintius holds a Bachelor's degree in Administrative Sciences from the Public University of Les Cayes, South and Haiti. For 9 years, he has worked for the Ministry of Public Health and Population (MSPP) as Communal Epidemiological Surveillance Officer, Coteaux, South (Haiti). Currently, he is training in Field Epidemiology, intermediate level (FETP-Haiti). He has already contributed to the realization of a CASPER (Rapid Needs Assessment) study carried out by FETP-Haiti / DELR in August 2021 following the earthquake of August 14, 2021 in Haiti; he has also already conducted a survey on the Evaluation of the Epidemiological Surveillance System for Malaria in the southern region of Haiti. His area of interest is epidemiological surveillance.

VIRTUAL

Jacquet Dareus Elphana
Nurse, Resident 11th FRONTLINE Cohort, FETP-Haiti

Diabetes morbidity and mortality at Dr. Raoul Pierre Louis Hospital, January 2020-December 2021, West, Haiti

Background: Diabetes is a chronic disease characterized by the presence of excess sugar in the blood called hyperglycemia. People with diabetes are twice as likely to die as healthy people. Diabetes is the leading cause of death among cardiovascular diseases. In 2021, 6.7 million people died worldwide due to diabetes. In Haiti, diabetes is one of the top four causes of death for a population of approximately 8 million. Nearly 300,000 people live with diabetes in Haiti. The national prevalence rate for diabetes, in the 20-79 age group, is 8.2% for women and 4.9% for men. Diabetes is a threat to our Haiti and to the planet.

Methods: A retrospective descriptive study during the period 2020-2021 was carried out. We consulted the registers and files of all patients hospitalized in internal medicine from January 2020 to December 2021. Variables such as: Age, sex, year, municipality were taken into account. Data was analyzed on Epi Info 7.2. And the frequency and incidence measures were calculated.

Results: For 142 patients admitted to the internal medicine department during the study period, 98 were women, that is a percentage of 69%, 44 were men, that is a percentage of 31%. The majority of cases were women aged 50 and over, and three (3) female deaths were recorded.

Conclusion: During the period, there was an increase in cases among women at the Dr Raoul Pierre Louis Hospital. There were 3 deaths during the year 2021, this proves that diabetes is indeed a disease to be taken seriously by the Ministry of Public Health. The problem of this pathology shows us the importance of paying sustained attention to this disease in order to educate and sensitize the population on the disease.

Biography

Jacquet Dareus Elphana graduated in nursing since 2012. She worked with PIH/Zanmi Health from 2010-2011. She is working at Dr. Raoul Pierre-Louis Hospital as an Epidemiological Surveillance Officer since 2012. Currently she is resident at FETP-Haiti, Fontline level.

VIRTUAL

Olguine Artiste*, Clervilus
FETP, Haiti

Statistical profile of new case of diabetes in the department of grand'anse 2020-2022, Haiti

Diabetes sweet is defined by elevation chronicle of the concentration of glucose in the blood, to fasting 1.26 g/L or > 2g/L whatever collection time in presence of symptoms clinics, there are 2 types of diabetes: diabetes type1 and 2. An estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The prevalence world of diabetes has almost double since 1980, rising from 4.7 to 8.5% of the adult population, In Haiti according to a study by Fhadimac, in 1986, 44% of diabetics would have a retinopathy. Data collected in Grand'Anse during these 3 years prove it clearly with 792 new cases of Diabetes. The objective of this study was to analyze departmental data on new cases of diabetes from 2020 to 2022.

Method: A descriptive study was carried out. The data exported on MESI from 2020 to 2022 on new cases of diabetes were used to analyze the variables gender, age, year, municipality, and morbidity the results were presented in the form of tables and graphs.

Result: 792 new cases were recorded 548 (69.1%) were women. 553 (69.8%) were aged 50 and over. The commune of Jeremie was the most affected with 521 (65.7 %). St Antoine de Jérémie hospital recorded 28% of these cases.

Conclusion: Upward trends in new cases of diabetes in the department of Grand'Anse, the commune of Jeremie, the capital of the department, recorded the highest number of cases. Practicing physical exercise, having a healthy diet, reducing stress, maintaining a normal body weight can help prevent type 2 diabetes.

Biography

Artist Olguine has a degree in nursing science since 2013, she works for the Department of Epidemiology of Laboratories and Research (DELR) as an Epidemiological Surveillance Officer since 2016 in the department of Grand'Anse, commune Moron(Haiti). She has been working as a nurse at the Moron health center in the department of Grand-Anse/ Haiti for 6 years. She is currently a resident at FETP-Haiti, intermediate level.

VIRTUAL

Tatiana A. Korolenko*, N.P. Bgatova
Research Institute of Neurosciences and Medicine, Novosibirsk, Russia

Trehalose, inductor of autophagy, positive effects in obesity in db/db mice

Db/db mice with obesity (carrying a mutation in the gene encoding leptin receptor) show autophagy suppression. Our aim was to evaluate the effect of autophagy inducer trehalose on liver and heart autophagy in *db/db* mice and to study inflammation dysregulation and the suitability of chitinases' expression levels as diabetes markers. The *db/db* model manifested inflammation symptoms: overexpression of TNF-α in the spleen and under expression of IL-10 in the liver and spleen (cytokine imbalance). Simultaneously, we revealed decreased expression of chitotriosidase (CHIT1) and acid chitinase (CHIA) in the liver of db/db mice. Compared to a control, CHIA expression in db/db mice is significantly lower only in the spleen, indicating different expression changes for these two enzymatically active chitinases. Trehalose treatment of *db/db* mice was followed by increased autophagy induction in the heart and liver (in addition to autophagy induction in the brain, as shown by us previously). Trehalose exerted the beneficial cardiac effects possibly via increased lipophagy (uptake of lipid droplets). The autophagy activation by trehalose had several positive effects on the heart and liver of *db/db* mice; therefore, lipophagy activation seems to be a promising therapy for diabetes. We propose some mechanisms for the observed positive influence of trehalose.

Biography

Tatiana A. Korolenko is a Professor at Laboratory of experimental models of neurodegeneration, Scientific Research Institute of Physiology and Basic Medicine.

VIRTUAL

Małgorzata Wrzosek*, Dominika Kot
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Is obesity in our genes? Genomics in obesity

Obesity is a complex disease, and genetic background plays an important role in its pathogenesis, apart from environmental factors, such as a high-energy diet and low physical activity. The great person-to-person variation seen in response to an obesogenic environment suggests the existence of a genetic predisposition to excessive accumulation of fat tissue. The genetic background of obesity is currently the area of interest of numerous research centers, and its cognition is regarded as an important factor that may contribute to the increase in the effectiveness of preventive and therapeutic interventions. Among the genes associated with obesity, the FTO gene plays a special role. In humans, it was first identified in 2007 in Genome-Wide Association Study (GWAS). The fat mass and obesity-associated (FTO) gene is one of the genes recognized as associated with enhanced adiposity and seems to influence the risk of obesity. It is located in chromosome region 16q12.2 10 and encodes the nucleic acid demethylase of the AlkB family proteins. The FTO gene is expressed mainly in the hypothalamus and plays an important role in energy homeostasis and in the regulation of adipose tissue mass by influencing lipolysis and differentiation of preadipocytes. The strongest association of FTO gene with obesity and Body Mass Index (BMI) was shown with risk alleles such as rs9930609 and rs9930506 (alleles A and G, respectively). Our results indicate that some individuals in the Polish population are carriers of a genetic variant that can significantly enhance the risk of developing obesity. This is an additional argument indicating the need to make a continuous and intensive effort to promote changes in lifestyle and dietary habits in order to stop the epidemic of obesity. The assessment of the FTO variants may be helpful in identifying persons with a greater predisposition to excessive weight gain, in order to take early prevention and increase personalization. Patients with an unfavorable FTO variants must attach greater importance than the rest of the population to the composition of their diet and the level of physical activity in order to prevent a positive energy balance. This work was supported by funds from the Ministry of Education and Science in Poland (SKN/SP/496250/2021) Berthoud, H.R.

Audience Take Away:

- The audience will learn about risk alleles of Fat Mass and Obesity Associated Gene (FTO), identified in Genome-Wide Association Studies (GWAS), that can predispose to obesity and metabolic disorders.
- The carriers of a genetic variants that can significantly enhance the risk of developing obesity need to make a continuous and intensive effort to promote changes in lifestyle and dietary habits in order to stop the epidemic of obesity.

Biography

Dr. Malgorzata Wrzosek is presently working as the Assistant Professor in Department of Biochemistry and Pharmacogenomics at Medical University of Warsaw. Dr. Wrzosek completed her Masters in Pharmacy from Medical University of Warsaw in the year 2007. She received her PhD degree in 2011 and obtained her habilitation in 2018 at the same institution. Her research interest include obesity, obesity prevention, diabetes, hypertension, metabolic syndrome, pharmacogenomics, and genetic analysis.

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Serum haptoglobin is associated with obesity and lipids in Mexicans

Background: Haptoglobin is an acute-phase inflammatory protein mainly produced by the liver. Although recent literature evidence that rs2000999 in the *HP* gene is associated with total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-C) levels in Mexicans, little is known about the association between serum haptoglobin, obesity, and lipids in this population.

Objective: To analyze the association between serum haptoglobin, obesity, and lipids in 447 and 395 Mexican children and adults, respectively.

Methods: In this obesity case-control study, anthropometric data and serum lipids (TC, high-density lipoprotein cholesterol [HDL-C], LDL-C, and triglycerides [TG]) were analyzed. Haptoglobin was determined by immunoturbidimetry.

Results: Serum haptoglobin level was positively associated with childhood and adult obesity (Children: OR=1.014, 95% CI, 1.009-1.018, p=6.55x10-9; Adult: OR= 1.015, 95% CI, 1.010-1.021; P= 7.2 × 10-8). In children, a significant association was found between serum haptoglobin, TC (β= -0.068 ± 0.030, p= 0.023) and HDL-C (β= -0.031 ± 0.011, p= 0.004) levels. Additionally, significant interactions between obesity and serum haptoglobin level on LDL-C (β= -3.376±1.109, p=0.001), TC (β= -4.592±1.408, p=0.001), and TG (β= -9.318±2.600, p=0.001) were observed. In adults we did not find any significant association between serum haptoglobin level and lipids (p≥ 0.061).

Conclusion: Our results evidence a significant association between serum haptoglobin and childhood and adult obesity in Mexico. In addition, an obesity-specific association of serum haptoglobin with TC and LD levels was observed only in children.

Biography

PhD. Miguel Vazquez-Moreno. A National Investigator Level 1 and Posdoctoral Fellow in the Unidad de Investigación Médica en Bioquímica of the Instituto Mexicano del Seguro Social, in Mexico. PhD. Graduated with honors from the Universidad Naiconal Autónoma de México in 2020. Author of 11 journal articles with 74 citations. In biomedical science, he has graduated 1 master and 2 medical specialty students. His scientific interest is in the Genetic bases of obesity and type 2 diabetes through the: 1) Creation of new study cohorts of children and adults, and 2) genetic identification and its biological, ethnic, and environmental interactions.

VIRTUAL

Esha Sharma
Marketing, MDI, Gurgaon, Haryana, India

Gamification and engagement among obese regarding weight management

Gamification has been recognized as one of the effective approach in attracting the attention of the health care consumers, causing behavioral changes. Although its application is widespread, in health care has been associated to several challenges. It has been established in several studies that gamification is associated to many benefits including enhanced engagement of the patient and increased adherence to the treatment. The types, benefits and challenges of the gamification process should be considered with higher priority for the proper understanding and implication of the same in the health care system as well.

Considering the current research's purpose, the research methodology adopts primary methods of data collection with the utilization of interview with five patients. The ongoing research found that gamified applications in the medical care setting for actual wellness, drug management, sustenance, persistent disease management, recovery, and physiotherapy are prevalent. The research found that gamification is associated with various benefits, including improved patient commitment and treatment program adherence. However, regardless of the advantages, instances of privacy infringement, cheating, and moderate loss of interest has been archived, which might hinder the appropriate reception of game mechanics in medical care.

The overall findings revealed that the gamification and health related application involving games in those, have significant positive impact upon healthcare consumers, especially obesity patients to adhere onto their weight loss and weight management programs. The findings suggested that reward, recognition, personalization and socialization through these games can positively motivate patients to achieve their health related goals and modify their lifestyle.

Audience Take Away:

- This presentation will help the audience to identify the importance and effectiveness of gamification in health care sector for the engagement development among obese and overweight people regarding weight management
- Also it will facilitate to promote the most effective ways of gamification that can eventually help in the improvement of the health care sector for the consumer engagement

Biography

Esha Sharma studied BTech at DAIICT, Gandhinagar, India and PGPM at MDI Gurgaon, India and graduated in 2008 and 2012 respectively. She has worked in Marketing and IT domains across different industries ranging from Healthcare, Tobacco, IT and Chocolates. She is currently pursuing her PhD at MDI Gurgaon, India in the area of digital health and patient engagement.

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Chloe Muntefering*[1], Anna Englund[2], Anna Englund[3], Kelsey Johnson[4]

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Primary prevention interventions for adults at-risk for obesity: A scoping review

Research Objective: An increasing number of adults with obesity are experiencing poorer mental and physical health outcomes, with annual healthcare expenses expected to top $1.2 trillion by 2025 in global obesity-related diseases. To reduce the annual obesity-related health care costs, systems and providers must aim to prevent obesity before it occurs among adults. This scoping review aimed to characterize and identify gaps in primary prevention interventions targeting adult populations at risk for obesity.

Study Design: The scoping review was conducted using the Arksey and O'Malley framework. Electronic literature searches of PubMed, CINAHL, Cochrane, and PscyINFO were completed. Articles published in English between 2006 and present were sought on primary prevention interventions with adult populations at risk of obesity. Four independent reviewers screened 7216 articles for inclusion and exclusion.

Population Studied: Non-obese adults with Body Mass Index (BMI) ≤ 29.9.

Principle Findings: Sixteen articles were included in this review. Of these 16 articles, 4 were published in the United States. Seven articles were targeted specifically at adult women as intervention participants, whereas the remaining 9 articles included both men and women. Primary prevention interventions generally included content related to assessing weight, increasing physical activity, promoting dietary changes, and providing health education. The review found over 12 different outcome measures aimed to assess the efficacy of interventions, with the majority of interventions using changes in BMI as an outcome measure.

Conclusion: This is the first scoping review to characterize and identify gaps in the adult primary prevention literature addressing obesity. Findings illustrate that primary prevention interventions frequently occur outside of the United States. These interventions often target women at risk for obesity and vary significantly in regards to content and how outcomes are measured.

Implications for Research and Practice: This scoping review indicates that primary prevention interventions targeting adults at risk for obesity are limited. Findings highlight the need for research to develop and test primary prevention interventions tailored to meeting health needs of both women and men. Additionally, this review demonstrates the need for the United States health care system to better address chronic conditions like obesity by shifting from diagnostic models of care to more preventative care models. Further examining the potential of primary prevention in adult populations at risk of weight gain could be valuable to reducing the mounting prevalence of obesity.

Audience Take Away:

- Identify what populations are targeted by primary prevention interventions.
- Describe content that is included in primary prevention interventions.
- Understand the efficacy of primary prevention interventions targeting adults at risk for obesity.

Biography

Chloe Muntefering is an occupational therapist who graduated with her MS in occupational therapy in 2015 from Colorado State University. She worked as a practicing occupational therapist for six years before returning to the University of Wisconsin- Madison to pursue her PhD in Kinesiology- Occupational Science. Chloe has research interests in preventative health, health promotion, obesity, and aging adults.

VIRTUAL

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Evaluation of adiponectin and myostatin for preserving skeletal muscle mass in weight loss program

Background: We often experience loss of skeletal muscle mass while weight loss. It is going to be useful to find indicators for prevention of skeletal muscle loss. Adiponectin and myostatin are affected through changes in body composition due to weight loss. We examined changing of myostatin and adiponectin in patients with obesity undergoing a weight loss program.

Methods: We examined 66 patients with obesity (age: 46.8 ± 14.0 years, body mass index: 34.3 [31.0–38.4] kg/m2) attending a hospital weight loss program. All patients underwent blood tests and were assessed for body composition, insulin resistance, serum adipocytokine and myokine levels, exercise tolerance, and muscle strength at baseline and post-intervention.

Results: The mean weight loss was 7.5% after treatment. The %fat was significantly decreased, and the rate of lean body mass (%LBM), myostatin, and adiponectin were significantly increased. Change in (Δ) myostatin correlated with Δ%fat ($r = 0.347$, $p = 0.004$), Δ%LBM ($r = -0.359$, $p = 0.003$), and Δadiponectin ($r = -0.250$, $p = 0.043$). Δadiponectin was an independent predictor of Δmyostatin ($\beta = -0.262$, $p = 0.035$).

Conclusions: Myostatin and adiponectin might cross-talk and regulate changes in skeletal muscle and fat mass. Regular evaluation of serum myostatin and adiponectin levels in weight loss program suggested that it could contribute to optimal weight loss, in particular the maintenance or increase in skeletal muscle mass and a decrease in body fat mass.

Audience Take Away:

- This study evaluated the relationship between weight loss effects and serum myostatin and adiponectin in clinical practice.
- Evaluation of myostatin and adiponectin in clinical practice helps prevent weight loss from loss of muscle mass.
- By measuring myostatin and adiponectin, interventions can be modified to achieve body composition.

Biography

Nana Takao graduated from Ehime University Faculty of Education, Health sports course in 2004. She then started work at Health Science Center, Kansai Medical University as a exercise instructor and cardiac rehabilitation instructor. She graduated as MS from Graduate School of Education, Osaka Kyoiku, University in 2009. She received her PhD degree in 2022 from Department of Health Science, Graduate School of Medicine, Kansai Medical University. She is engaged in cardiac rehabilitation and exercise therapy for patients with cardiovascular diseases.

VIRTUAL

Daniela Laranja Gomes Rodrigues*[1], Gisele Silvestre Belber[1], Alexandra Vitti[2], Greta Barrique[1], Pompermaier[2], Mariana Selbach Otero[2], Tanise Baveldi Damas[2], Marcos Aurelio Maeyama[3], Ligia Fonseca Spinel[1], Ana Paula Marques Pinho[1], Haliton Alves de Oliveira Junior[1]

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Endocrinological teleconsultation as a strategy in the Brazilian public health system: Randomized clinical trial

Brazil has approximately 20 million people with Diabetes Mellitus. Early identification and treatment should be a concern of public authorities, to improve glycemic control and reduce it`s deleterious impacts on the individual's health and consequent cost reduction for health systems.

Objective: Present the partial results of the Teleconsulta Diabetes trial. This is a randomized clinical trial that evaluates the non-inferiority of endocrinological teleconsultation of patients with type 2 diabetes mellitus in the Brazilian public health system, compared to face-to-face consultation.

Method: Phase 2, single center, randomized, open study with data analyzed by an independent researcher. Inclusion criteria are adults, both sexes, ≥18 years old, glycated hemoglobin (HbA_{1c}) ≥8%. Outcomes are hypoglycemic symptoms, laboratory, anthropometric measurements, blood pressure, adverse events, and satisfaction level after 6 months. Teleconsultation costs will be assessed using the time-driven activity-based costing method to compare the costs with the face-to-face consultations. The noninferiority margin was set at 0.5%. Assuming an SD of 1.3% for both groups, a true difference between the means of zero, and a type I error level of 5% (one-sided), it was estimated that 1at 125 individuals per group would be necessary to achieve 90% power. Statistical analysis will be done using intention-to-treat and per-protocol approaches.

Results: until Dec/2021, 128 participants were included, 64 in the face-to-face group and 64 in the teleconsultation group. 54.84% are female, the mean age of 61 years. The percentage of participants by race was: 79.03% white, 10.50% black and 9.67% pardos (brown-skinned). The interim analysis of the study is scheduled for July/2022, when participant number 125 (which represents half of the sample) will complete the six months of follow-up required to complete the research. Discussion: in addition to being a model of assistance aimed at the public health system, this study covers a modality of telemedicine, teleconsultation, in which access to the specialist is made directly between the user and the doctor, increasing the capillarity of health, with the potential to have a positive impact on the outcomes of this disease.

Conclusion: We expect that providing remote access to health care may result in improvements in the health outcomes and quality of life of patients with type 2 diabetes. Furthermore, it might be possible to provide healthcare rat lower costs taking both patients and clinicians to benefit from this technology. This trial is sponsored by PROADI-SUS (Programa de Apoio ao Desenvolvimento Institucional do SISTEMA Unico De Saude), from Brazilian Ministry of Health.

Audience Take Away:

- This trial can help other physicians and health managers to create new strategies to offer specialized care to diabetic patients.
- This trial could help other researchers to develop new strategies to improve access to specialized care, especially in poor countries.

Biography

Dr. Daniela is neurologist, specialized in Cerebrovascular Diseases and Transcranial Doppler at Federal University of Sao Paulo. Also has a master's degree in clinical research at Harvard T.H. Chan School of Public Health. She works as a physician and research at Hospital Alemao Oswaldo Cruz, for projects to Brazilian´s Health Ministry.

VIRTUAL

Ravi Kikar Sinha
Private Researcher, India

Reducing blood sugar level by ascending or descending the hexose sugar into nontoxic high or low carbon sugars or through superimposing glucose mirror image sugars by shaking it into a 12 carbon sugar, In Vivo

Organic Chemists and Biochemists' attention is brought to the task of searching for enzymes and procedures to affect in vivo enzymatic ascending or descending glucose sugars into nontoxic high or low carbon sugars or in vivo superimposing mirror image glucose sugars into 12 carbon compounds. Diabetes is addressed at molecular level,by affecting the decrease in the population of glucose in the cellular pool. This is just an idea,on which the researchers can act upon. The author is a theoretician, with no lab facility. He is not attached to any instituition or department . As for finding a suitable enzyme for ascending, descending the sugar series or superimposing mirror image glucose molecules, in vitro studies will have to be initiated. Once the objective is achieved invitro, in vivo studies in laboratory animals could be done. A physical method which is very simple for superimposing "+" and "-" forms of glucose will be to shake their mixture for short or long duration till there is marked change in the specific rotation. At this time It is presumably, that most of the "+" and "-" forms have intertwined and through electrostatic forces have superimposed mutually. The solution, then it may be assumed that "+" and" "-" component of mixture have superimposed on one another.

Audience Take Away:

- They will learn a very simple tentative method to superimpose mirror image molecules in general, and mirrorimage glucose molecules in particular.

1) In any solution of "+" and "-" glucose, about 50% would be "+" type and 50% "-" type. If we shake the mixture vigorously, "+" and "-" components will superimpose on one another. This will be a simple method, which I am proposing.

- They will learn multidisciplinary research in carbohydrate metabolism.
- They can learn superimposing other mirror image molecules in their field.

Biography

The author is presently a member of " American association for the advance of science" Washington dc, USA. He is a frequent communicator to NASA and Whitehouse. He has ten Copyrights from copyrights office, Quebec, Canada.

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We wish to meet you again at our upcoming conferences...

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