



# 20<sup>th</sup> Global Obesity Meeting

August 24-25, 2018 Singapore

**Workshop**  
Day 1

# 20<sup>TH</sup> GLOBAL OBESITY MEETING

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## Orlando Gonzalez

LIFE\*MOD LLC, USA

### Obesity management: A multifaceted approach

**Introduction:** Obesity is a worldwide epidemic that has proven difficult to treat. In the United States, over 70% of Americans are considered overweight. Using a multifaceted psychosocial approach appears to have higher impact than traditional obesity management in combating obesity rates and decreasing dependence on medication for chronic morbidities due to obesity.

**Objectives:** In this prospective observational study, we aimed to employ specific multifaceted approaches to decreasing weight in overweight individuals and follow their progress.

**Methods:** This was an observational case series study that is ongoing. Our primary endpoint was to employ different methods, including lifestyle questionnaire, body composition analysis, dietary journaling, nutritional consultation, physical therapy evaluation, blood specimen analysis and motivational coaching, by various professionals including physicians, nutritionists, physical trainers and therapists and life coaches. Our goal here was to see if using this multifaceted approach actually increased weight management compliance.

**Results:** One thousand one hundred (1001) patients were included. Average overweight in pounds was measured by our InBody Composition machine, and was 35 pounds. Targeting the patients' objective by trying to change lifestyle incrementally, using a nutritionist for consultation and interpreting lab results and close follow-up resulted in an average weight loss of 30 pounds over a one-and-a-half year period. Every single patient lost some weight. One hundred (100) patients stopped their hypertensive medications and another 40 stopped their high cholesterol medications. This was an unexpected finding of our study. Of those that lost weight, 90% have kept the weight off. We lost 58 patients to follow up. Ninety-eight percent (98%) of patients reported feeling better and having more energy and 85% reported increase in life appreciation and enjoyment.

**Conclusion:** Using different approaches within different disciplines and careful follow up appear to increase self-information awareness and better compliance which then leads to losing weight. It appears as well, that this approach would improve health outcomes and prolong and encourage more healthy lifestyle, as a number of our patients that were once hypertensive and hypercholesterolemic, no longer carried that diagnosis. Larger, comparative studies need to be performed before this multifaceted approach can be routinely and largely employed.

### Biography

Orlando Gonzalez is a Sports Medicine Specialist and a Member of The Society of Bariatric Physicians. He has been involved in obesity medicine and weight management for over a decade. He is also a Member of the American Academy of Anti-Aging Medicine. He currently practices orthopedics, sports medicine and family medicine in Jersey City, New Jersey and has his Anti-Aging & Wellness Program (LIFE\*MOD LLC), headquartered in the financial district in downtown Manhattan. He is the Founder and CEO of LIFE\*MOD LLC.

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## Scientific Tracks & Abstracts Day 1

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## Fasting increases FGF21 expression in liver and changes gene expressions in metabolic organs in a sex-specific manner in mice

Nadezhda Bazhan, Yakovleva T, Denisova E, Dubinina N, Feofanova N, Chepeleva E and Makarova E  
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Fasting is often used for obesity correction. Fibroblast Growth Factor-21 (FGF21) is a hormone secreted by the liver during fasting that elicits diverse aspects of the adaptive fasting response. In mice, FGF21 is induced through a peroxisome proliferator-activated receptor  $\alpha$  (PPAR  $\alpha$ )-dependent mechanism. It is unknown that whether fasting increases the FGF21 expression in the liver in a sex-specific manner. We found, that in females, 24 hours-fasting increased hepatic PPAR $\alpha$  and FGF21 gene expressions and blood FGF21 and adiponectin levels to a greater extent than in males. Fasting-induced changes in hepatic expression of genes related to gluconeogenesis, glucose oxidation and fatty acid synthesis were the same in males and females. In females, adaptation to fasting was associated with up-regulation of UCP3 and CPT1 expressions in muscle and multidirectional changes in SLC2A4 gene expressions: Increased in muscle and decreased in visceral White Adipose Tissue (WAT). In males, down-regulation of PPAR $\gamma$  in visceral and subcutaneous WAT was the only adaptation to fasting. Thus fasting induced more pronounced increase in the FGF21 signaling and wider range of transcriptional responses in females compare to males. These data can be taken into account when using fasting for body weight regulation. This study was supported by the Russian Science Foundation, grant No 17-15-01036.

### Biography

Nadezhda Bazhan is the Chief Researcher at the Institute of Cytology and Genetics, Russian Academy of Sciences and Professor of Novosibirsk State University.

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## Atypical anorexia (Luigi Cornaro diet) as a precaution against diseases and a sustainable weight management strategy

Ligen Yu, Boxuan Yu and Bowei Yu

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Many studies show that Infection-Induced Anorexia (IIA) as an active host defense strategy promotes health recovery during an infection. IIA belongs to the atypical anorexia that are not induced by mental disorder, and should not be confused with anorexia nervosa (an eating disorder). It is atypical because the host generally has a normal weight. The first person who stated explicitly that IIA contributes to health recovery is Luigi Cornaro (1464-1566) and he used this reasoning to explain why his anorexic diet helped him to stay healthy and live long until a ripe old age of 102. In his discourses, he wrote: “When men are taken ill they discontinue, or nearly so, their food (IIA). Now, if by reducing themselves to a small quantity (IIA), they recover from the jaws of death, how can they doubt, but that, with a slight increase of diet consistent with reason, they will be able to support nature, when in health.” By substantially decreasing food intake only “enough to keep body and soul together”, Luigi Cornaro had found that atypical anorexia could promote health and prolong life span. The reason is, the starvation state induced by atypical anorexia is a strong stimuli for autophagy. And autophagy is an intracellular process that has multiple physiological functions such as cellular quality control, energetic balance maintenance and pathogen cleaning. So we propose that atypical anorexia (Luigi Cornaro diet) can be adopted as a promising disease-free life style and a sustainable strategy to combat the prevalent obesity epidemic.

### Biography

Ligen Yu has his expertise in materials sciences, surface engineering, powder metallurgy, bibliometrics analysis and diet and weight management.

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## Sex-specific changes of gene expression in response to obesity are associated with different FGF21 expression in obese male and female mice

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Propensity to develop obesity-related metabolic complications is higher in males than in females. The liver-derived hormone FGF21 improves obesity-induced metabolic abnormalities. It is unknown if FGF21 is involved in sex-specific metabolic response to obesity. We studied expression of FGF21 and the genes, which are under its control (PPAR $\alpha$ , CPT1, UCP1 and UCP3) or mediate its signaling (KLB) in fat tissues, muscles and liver of obese male and female C57BL mice. The gene expression response to obesity was sex and tissue-specific. The blood FGF21 concentrations and gene expression of FGF21 in liver and Brown Adipose Tissue (BAT) and CPT1 in the subcutaneous white adipose tissue were elevated in obese mice and were much higher in males than in females. Elevation of FGF21 in males was associated with inhibited CPT1B and UCP3 expression in muscles and inhibited KLB and PPAR $\alpha$  expression in BAT, which was not observed in females. These changes indicate the development of resistance to FGF21 in muscles and BAT of males. The results suggest that sex-specific FGF21 expression in obese animals may contribute to the sex differences in fat accumulation and resistance to FGF21 in some tissues may be a reason of more male vulnerability to obesity complications. This study was supported by the Russian Science Foundation, grant No 17-15-01036.

### Biography

Elena Makarova is currently a Senior Researcher in the Laboratory of Physiological Genetics in the Institute of Cytology and Genetics, Novosibirsk, Russia. Her researches focus on the studies of sex-specific influence of maternal leptin on metabolic characteristics in progeny of rodents. She along with her colleagues found maternal leptin retarded obesity development in male progeny of mice.

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## Obesity and protein exchange

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**Objective:** The body has a number of idle energy-dependent metabolic cycles that contribute to the conservation of energy balance. The protein turnover increases with excess intake of calories and decreases with their deficiency, so it can contribute to maintaining the energy balance.

**Methods:** The approach was to develop a model for establishing the key role of protein metabolism in coordinating the metabolism of carbohydrates and fats.

**Results:** A model was developed for the relationship between proteins, fats and carbohydrates exchange. In the absorptive period, a decrease in protein synthesis with a protein deficit (low protein diet) leads to a reduction in glucose utilization, which is manifested by its increase in blood and an increase in the discharge of its carbon skeleton into lipids. On the contrary, on the high-protein diet the negative manifestations of the restriction of physical activity on the exchange of glucose and fats are smoothed out. In the post-absorptive period, proteins are the main supplier of the substrate for the process of gluconeogenesis, which is provided by the energy of fat oxidation, so fat oxidation increases on the high protein nutrition. This allowed us to offer a product for obesity diet therapy.

**Conclusion:** Thus, protein metabolism plays a coordinating role in the mechanism of carbohydrate and fat metabolism, and in order to increase the effectiveness of technology in the prevention and treatment of obesity, adequate substrate support of the protein synthesis process (quantity and quality).

### Biography

Mukhamejanov E K has worked for 20 years at the Institute of Nutrition in Almaty. In 1981, he travelled as an expert on nutrition to WHO obesity centres in the Netherlands, Britain, Sweden and Denmark. He has developed metabolic model of the relationship between the exchange of proteins, fats and carbohydrates. He has participated in the development of dietary products for obesity.

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## The prevalence of overweight, obesity and abdominal obesity in Bangladeshi university students

**Sujan Banik and Mohammad Salim Hossain**  
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A sustained economic growth in Bangladesh leading to nutrition transition with negative impact on health followed to sedentary lifestyle and obesity. In this study we assessed the prevalence of overweight, obesity and abdominal obesity in university students of Bangladesh at different ages. This cross-sectional study in Bangladeshi university students was conducted in December, 2016 to June, 2017. Randomly selected participants, aged 18 to 25 years were analyzed from three specific universities as per gender variation. The height and waist-circumference were measured using measuring tape and weight by personal weight scale. Of the 500 participants, 64.6% (n=323) were males, 35.4% (n=177) were females and mean age (standard deviation) was 21.76 (1.86) years. The prevalence of overweight and obesity (14.86% vs. 11.86%) were significantly 1.29 fold higher in males than females (OR: 1.29, 95% CI: 0.75-2.25,  $p<0.001$ ). Mean waist-circumference was significantly ( $p<0.001$ ) higher in males than females, but the Waist-to-Height Ratio (WHtR) was higher in females than in males ( $p<0.001$ ). This study revealed the prevalence of overweight and obesity is higher in male than female in Bangladeshi students. However, future study and public health efforts are needed to address complications of obesity problem and to promote active lifestyles.

### Biography

Sujan Banik is presently working as an Assistant Professor, Department of Pharmacy, Noakhali Science and Technology University, Bangladesh

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## Impact of mind interventions on results of weight loss surgery

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**Introduction:** Although weight loss surgery is predominantly sufficient method of treatment of morbid obesity, there is always a risk of weight regain. Additional therapies such as behavioral and psychological interventions are considered to be effective in restricting of gaining weight after bariatric surgery.

**Aim:** The purpose of this study is to assess effectiveness of mind interventions in perioperative period on losing weight.

**Material & Methods:** This study is a Systematic Review (SR), conducted following current guidelines for SRs. Protocol of this study is registered in international prospective register of systematic reviews. In search of relevant papers three databases, register of clinical trials and references were screened. Titles, abstracts and full texts screening and data extraction were performed independently by two reviewers at any stage. We have included RCTs assessing influence of mind interventions on outcome of weight loss surgery with follow up of least 6 months. Risk of bias of each of included study was assessed with ROB Cochrane tool for RCTs. The results were summarized using meta-analysis.

**Results:** Our comprehensive search has indicated 10,339 papers of which 12 were included into qualitative analysis and 9 into quantitative analysis. Mean number of patients in included studies was 269 and average follow-up duration was 16.88 months. Mean difference in weight loss between intervention and control group was 3.95 kg (95% CI: 0.84-7.06, p=0.01, I2=0%) in favor of group with mind intervention.

**Conclusion:** Average change in body weight varies between the group with mind intervention and control group, however this effect is small and its clinical significance remains unclear.

### Biography

Katarzyna Jasinska is pursuing her graduation at the Faculty of Medicine Jagiellonian University Medical College, Krakow, Poland. She is a Member of Student's Scientific Group of Systematic Reviews, Systematic Reviews Unit, Polish Cochrane Branch.

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## Scientific Tracks & Abstracts Day 2

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## Alpha amylase activity is positively lined with the propensity of obesity, diabetes and inflammation

Mohammad Salim Hossain, Md Atiqur Rahman and Md Ariful Islam  
Noakhali Science and Technology University, Bangladesh

Alpha amylases are enzymes which hydrolyze dietary starch into disaccharides and tri-saccharides which are further converted by other enzymes to glucose to supply the body with energy. Thus, alpha amylase acts as a key player in metabolic energy homeostasis. Hence, assessment of the activity of alpha amylase in metabolic disorders such as in obesity and diabetes is of interest. Therefore, the aim of the present study was to demonstrate the role of alpha amylase in the pathological progression of obesity and diabetes and to elucidate the effect of trace mineral in controlling its activity. To implement the hypothesis, alpha amylase activity along with various biochemical markers such as glucose level, triglyceride, total cholesterol, C-reactive protein and creatinine level were assessed. In addition, an attempt was done to characterize the *in vitro* modulation of alpha amylase activity by trace mineral (zinc). In obesity and diabetes, sufficient deviation was observed in the level of biochemical markers including blood glucose, lipid profile, C-reactive protein (CRP), creatinine and alpha amylase activity when compared with healthy participants. Alpha amylase activity found to be positively linked with Body Mass Index (BMI). In addition, alpha amylase also showed a positive correlation with blood glucose level and duration of diabetes. Thus, it can be stated that alpha amylase can initiate a cross-link mechanism between BMI and blood glucose level facilitating the propensity of obesity and diabetes. Furthermore, alpha amylase also showed a significant positive correlation with CRP, an ideal inflammatory marker, suggesting an intricate role of alpha amylase on propagation of inflammation in obesity and diabetes. Serum creatinine also showed an insignificant positive link with alpha amylase activity in obesity and type-2 diabetes. Moreover, *in vitro* serum fortification with zinc represents a significant inhibition on the activity of alpha amylase in obesity and diabetes. Thus, alpha amylase can be considered as a major risk factor in the pathogenesis of obesity and diabetes associated complications and supplementation of zinc trace mineral can be suggested to control this impetuous marker.

### Biography

Mohammad Salim Hossain has completed his graduation in Pharmacy from University of Dhaka, obtained his PhD form Tottori University, Japan. Currently he is a Professor of Pharmacy at Noakhali Science and Technology University, Bangladesh. He has vast experiences in studying the biochemical and molecular regulation of adipogenesis and adipocyte inflammation. He aims to explore the cross linking parameters between obesity and other related life style diseases. He is also studying natural products for combating obesity and linked non-communicable diseases.

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## Notoginsenoside R1 attenuates diabetic retinopathy *via* TFEB-dependent enhancement of mitophagy flux

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A growing evidence have proved that dysfunction of mitophagy in retinal micro-vascular endothelial cells is associated with Diabetic Retinopathy (DR). Notoginsenoside R1 (NGR1) is isolated from *P. notoginseng* and has many pharmacological effects such as anti-inflammatory, anti-oxidative and anti-apoptotic properties. However, its protective effects on DR and the underlying mechanism are still unknown. In the present study, we found that NGR1 could significantly attenuate DR in db/db mice, characterized by the reduced micro-aneurysm in the retina and increased amplitudes of B-wave. NGR1 pretreatment also significantly inhibited apoptosis in RF/6A cell model of hyperglycemia, which were detected by TUNEL and Annexin V/PI staining. NGR1 markedly reduced the production of VEGF, remarkably augmented the level of PEDF and significantly suppressed oxidative stress and inflammation in RF/6A cells exposed to HG and the retinas of db/db mice. Moreover, the increased PINK1 and Parkin expression, the elevated LC3-II/LC3-I ratio, and the lessened p62/SQSTM1 expression were observed in NGR1-treated RF/6A cells exposed to HG and the retinas of NGR1-treated db/db mice. Furthermore, NGR1 pretreatment promoted TFEB nuclear translocation, which resulted in up-regulation of LAMP-1 in RF/6A cells and the retinas of db/db mice. NGR1 pretreatment also increased co-localization of LAMP-1 and Tomm20 in RF/6A cells. Importantly, the knockdown of TFEB could abolish these protective effects of NGR1. In summary, these results demonstrated that NGR1 protected against DR *via* TFEB-dependent enhancement of mitophagy flux.

### Biography

Ping Zhou is currently pursuing her PhD from the Institute of Medicinal Plant Development, Peking Union Medical College, Beijing, China. She has majored in Pharmacology of Traditional Chinese Medicine and her main focus is on the study of pathogenesis of diabetes and its complications and the protective effect of *Panax notoginseng*.

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## Effects of electrical muscle stimulation on waist circumference in adults: A randomized controlled trials

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Obesity is one of the leading preventable causes of death worldwide and the biggest concern of public health. To the best of our knowledge, no Randomized Controlled Trials (RCT) evaluating the effect of EMS on obesity or regional fat distribution have been performed. We hypothesized that EMS is an effective and safe treatment of man and woman with abdominal obesity so that EMS decrease Waist Circumference (WC) or abdominal fat, increase abdominal muscle mass and improve biochemical markers. Therefore, we designed first RCT study to investigate EMS efficacy for 12-week program by comparing it with Transcutaneous Electrical Nerve Stimulation (TENS). EMS group had a  $5.1 \pm 2.8$  cm decreased in WC while TENS group showed a  $2.9 \pm 3.3$  cm loss in WC after 12 weeks. In EMS group, WC declined more sharply in the latter half than in the first half of the study. Furthermore, when dividing participants in subgroups according to the degree of WC loss (less than 2 cm, 2 cm to 4 cm and more than 4 cm), 70.0% of EMS group lost 4 cm more off of their WC while 46.7% of TENS group lost less than 2 cm of their WC. There was no difference between EMS and TENS in self-rated satisfaction scores at week 1 but there was significant difference at week 12 ( $3.3 \pm 0.7$  vs.  $3.7 \pm 0.7$   $p < 0.05$ ). In abdominal fat distribution and other metabolic and biochemical characteristics, there were no differences between EMS and TENS groups throughout 12 weeks. However, fasting FFA levels were significantly higher in EMS than TENS group at week 12. All participants completed the protocol without adverse symptoms. No changes in CK, LDH, AST, ALT and Cr were observed in both groups during the experimental period. Therefore, 12-week program of EMS significantly reduced the waist in abdominal obese adults without side effects. Therefore EMS is an effective and safe treatment of man and woman with abdominal obesity.

### Biography

Eun Jung Choi is very popular in Busan as a professional Dieter because she lost 20 kgs in 2 years by lifestyle modification and is maintaining her BMI as 22 for 1 year. She gave lecture at Korean Society for the study of obesity in 2016 about losing weight. She was on KNN TV talkshow on Jan 7, 2018 about diet and also wrote many newspaper articles.

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## Effect of dietary chitosan extracted from carapace of freshwater crab *Sartoriana spinigera* on body weight, liver weight and food intake of hyper-cholesterolemic albino rats

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Ranchi University, India

Obesity may be defined as a condition where over accumulation of fat occurs in adipocytes that might have a negative effect on one's health. Excess body weight due to uncontrolled eating habits leads to increased risk of many diseases. Treatment of obesity is very costly, therefore, the present society demands for medicines of natural origin that can cure, rather prevent obesity from developing. Chitosan is one such natural zoo-therapeutic medicine that is found in the exoskeleton of arthropods, crustaceans. Chitosan, a cationic biopolymer has affinity towards anionic fatty acids and does not allow them to get deposited in the body tissues and organs. In this experiment, Chitosan was extracted from carapace of *Sartoriana spinigera*, a locally found freshwater crab of Jharkhand, India. The obtained chitosan was characterized by FTIR and degree of de-acetylation was found to be 78.53%. 20 albino rats were divided into 4 groups: Group-A (normal diet), Group-B (high fat diet), Group-C (high fat diet+5% chitosan) and Group-D (high fat diet+5% synthetic hypo-lipidemic drug). Parameters of body weight, liver weight and food intake in all groups were measured after 30 days. Statistical analysis by student's t test revealed that Group-C fed with chitosan showed lower body weight gain than Group-B at 1% significance. Statistical analysis also showed that average food intake of Group-C was least amongst all groups and was significantly lower than that of Group-B at 0.1%. The final liver weight of rats was also found to be significantly lower in Group-C than Group-B at 0.1% level. Ultra-structural studies of hepatocytes of different groups also confirmed that chitosan fed rats showed curing of pathological deformities observed in HFD fed rats. The findings confirm that chitosan causes satiety and decreases body weight gain and liver weight, thereby preventing obesity. Thus, chitosan extracted from *Sartoriana spinigera* should be encouraged as medicines against obesity.

### Biography

Shiny E C Kachhap is currently pursuing her PhD in Zoology with special interest in the use of natural zoo-therapeutic sources that are ethno-biologically used by tribal of Jharkhand, India and to establish the scientific significance of medicines acquired from such sources so as to acknowledge the society about utilization of locally found species and encouraging the culture of such species that can financially support the farmers and cultures of the area. Attaining biopolymers from animal sources and determining their use is also her interest of study. She is currently an Assistant Professor and has been contributing in teaching for more than 2 years.

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