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Meeting Abstracts

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Gender Comparison of Surgical Outcomes in Patients Undergoing Different Bariatric Procedures - A Historical Cohort Study

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Abstract

Introduction: Clinical trials in the field of bariatrics, have frequently been gender imbalanced, with males representing only 20% of examinees. Long-term gender-oriented results, specifically the quality of life (QOL) parameters, have not been addressed sufficiently. Our study aimed to examine the long-term gender association with the outcome of one anastomosis gastric bypass (OAGB), including its impact on QOL.

Methods: A retrospective cohort study of patients who underwent different bariatric procedures at Soroka Medical Center, Israel, between 2017 - 2024. This cohort was selected from all patients fitting the inclusion criteria. Demographics, body mass index (BMI), and renal function were extracted from the national medical records. QOL and weight parameters were supplemented via telephone questionnaires using the bariatric analysis and reporting outcome system (BAROS).

Results: The final analysis included 250 patients; 67% were females. Basic demographics showed no significant differences between males and females, and there was no difference for procedural variables. Males had a higher BAROS score in OAGB and lap adjustable band (LAGB). At the same time, no significant difference was seen in lap sleeve gastrectomy (LSG), even though failure rates (as defined by BAROS) were similar in all procedures studied.

Discussion: OAGB and LAGB surgery result in better outcomes for male than female patients as measured by the BAROS despite a similar BMI reduction. This difference was not seen in LSG patients, and further studies are needed to understand this phenomenon. These results reiterate that gender-specific outcomes should be considered in optimizing patient selection and preoperative patient counseling.

Losing Weight and Keeping it Off: Different Mechanisms and Approaches

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Abstract

The relative long-term consistency of adult weight despite highly variable daily caloric intake and physical activity, suggests energy intake and expenditure are coupled and co-vary at usual weight to "regulate" energy stores. If this co-variance persisted after weight loss, then there would be a natural tendency to maintain a reduced weight and the bulk of the work to maintain weight reduction would be done in the weight loss phase. However, for most individuals attempting to keep weight off, energy intake and output vary discoordinately in a manner that favors weight regain. Genotypic and phenotypic predictors of weight loss (negative energy balance) and reduced weight maintenance (energy balance) and their response to leptin and thyroid repletion are significantly different. Treatment to promote weight loss is only necessary until the weight loss is achieved whereas treatment to keep it off usually requires a lifetime of attention. In addition, the social support offered to someone who is actively/visibly losing weight is much greater than to the same individual trying to maintain that reduced weight. The phenotypic, genotypic, and physiological differences between losing weight and keeping it off and the possible means of leveraging these dissimilitude's in service of better application of precision medicine to obesity treatment.

Coupling Time-restricted Feeding and Circadian Rhythms for Unlocking Secrets of Lipid Modulation, Obesity, and Metabolic Wellness

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Abstract

Disruptions in circadian rhythms are associated with aging, as well as cardiac, muscle, and various metabolic disorders. Our research has demonstrated that the time-restricted feeding (TRF) approach alleviates age-related cardiometabolic and muscle issues. Population studies indicate that midlife obesity significantly increases the risk of dementia, yet the mechanisms behind this relationship remain unclear, highlighting the need for urgent interventions. Our findings show that middle-aged obese flies exhibit marked cognitive dysfunction. Additionally, obesity leads to abnormal lipid accumulation in the brain, accompanied by heightened inflammation markers and neuroinflammation. Similar to effects seen in peripheral tissues, TRF helps regulate circadian rhythms by reducing inflammation, neuroinflammation, and lipid dysregulation in the brain. We also found that apolipoprotein E (APO-E), a major genetic risk factor for Alzheimer's disease, promotes lipid accumulation in neurons. This lipid accumulation in ApoE2 and ApoE3 is dependent on diacylglycerol O-acyltransferase 2 (DGAT2), while ApoE4 shows a different pattern. TRF reduces ApoE-related lipid buildup in neurons by reversing age-associated changes in fatty acid and triglyceride synthesis genes. Furthermore, TRF-mediated inhibition of Dgat2 prevents lipid metabolism dysfunction in peripheral tissues, thereby mitigating age and obesity-related impairments. These groundbreaking findings are essential for understanding the link between lipid dysmetabolism, obesity, aging, and metabolic disorders, as well as the potential benefits of TRF in addressing these issues.

Obesity Through the Gender Lens: How Men and Women Differ

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Abstract

Obesity is far more than just excess weight - it's a complex, chronic disease influenced by multiple factors including gender, cultural, environmental, and biological aspects. Men and women carry and process fat in strikingly different ways, which affects their health risks and how they respond to treatment. Men generally have more muscle mass and tend to store fat around their abdomen - the so-called "apple shape" with a higher amount of visceral fat. This type of fat wraps around internal organs and is linked to serious metabolic issues like spikes in insulin and triglycerides after meals, leading to an increased risk of heart disease. Women, on the other hand, usually have more fat under the skin, especially around the hips and thighs the "pear shape" which is metabolically less harmful. This difference explains why men often face higher rates of type 2 diabetes, cardiovascular diseases, and certain obesity-related cancers. Intriguingly, the hormone leptin, which helps regulate hunger and body weight, is found at up to four times higher levels in women, highlighting another layer of biological difference. Yet, perception plays a role too. Studies show that men with obesity are less likely than women to recognize their weight problem, feel unhappy about it, or try to lose weight. Understanding these gender-specific nuances is crucial. More research is needed to tailor obesity treatments from lifestyle changes to medication so that both men and women receive the personalized care they need for better health outcomes.

Low Carb vs Low-fat Diets: Time for Precision Medicine

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Abstract

Low carbohydrate (low carb) diets were first suggested by Dr. William Banting in 1864 while public recommendations for low-fat diets did not begin until more than a century later. There are numerous studies comparing an energy balance model and carbohydrate-insulin model for body weight regulation as well as studies of the effects of low carb vs low-fat diets on energy metabolism and adiposity-related comorbidities. This is a discussion of the history and data regarding low carb and low-fat diets. Numerous studies and commercial advertisements claim that one diet is best for everyone's weight, health, etc., and should be the default recommendation by clinicians. A literature review shows that there is tremendous variability in dietary response such that health-related differences between low carb and low-fat diets are usually not significant in diverse populations. A literature review shows that there is tremendous variability in dietary response such that health-related differences between low carb and low-fat diets are usually not significant. However, within each population there is wide variability in response regarding weight,

comorbidities, and adherence. Future studies should examine the factors that identify the best diet on a precision medicine basis rather than making generalizations. These data suggest that we should work to identify the best predictors of diet response in order define the phenotypes and genotypes for whom a given diet is most likely to be effective before prescribing it and thereby better leverage dietary macronutrient content.

Impact of Obesity on Biologic Therapy Outcomes in Adult Inflammatory Bowel Disease: A Systematic Review

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Abstract

Background: Obesity is increasingly recognized as a modifier of chronic inflammatory diseases, including inflammatory bowel disease (IBD). While biologic therapies are the cornerstone of moderate-to-severe IBD management, the impact of obesity on treatment outcomes remains unclear.

Methods: A systematic review was conducted according to preferred reporting items for systematic reviews and meta-analysis guidelines. PubMed and Embase were searched through August 2025 for cohort studies, randomized controlled trials, and systematic reviews evaluating the relationship between obesity (Body mass index ≥ 30) and biologic therapy outcomes in adults with Crohn's disease or ulcerative colitis. Outcomes of interest included clinical response, clinical remission, treatment persistence, and pharmacokinetics.

Results: Preliminary screening identified 1,200 records, of which 200 underwent full-text review and 8 studies (n ≈ 20,000 patients) were included. Most studies evaluated anti-tumor necrosis factor (anti-TNF) agents, with limited data on newer biologics. Obesity was consistently associated with reduced likelihood of achieving clinical remission or response. For example, in one study it is reported that 27% lower odds of remission in obese patients on anti-TNFs (Odds ratio is 0.73, 95% confidence interval (CI) is 0.62 - 0.85), while in others it was found a 34% increased risk of loss of response (Relative risk is 1.34, 95% CI is 1.11 - 1.61). Recent registry data also suggested reduced ustekinumab persistence in obese patients ($p = 0.041$). Overall, obesity appears to impair biologic efficacy in IBD.

Conclusion: Obesity adversely impacts clinical outcomes of biologic therapy in IBD, highlighting the need for personalized treatment strategies and further investigation into weight-based interventions. A full quantitative meta-analysis is ongoing.

Obesity, Non-alcoholic Fatty Liver Diseases and Role of Short and Long-term Soy Protein Feeding Protection with Different Isoflavone Levels on Fecal Microbial Composition

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Abstract

Non-alcoholic fatty liver disease (NAFLD) is a major public health concern that is exacerbated by the obesity pandemic. Dietary interventions have the potential to alleviate obesity-associated NAFLD through variable mechanisms, including optimizing the gut microbiota. To characterize the effects of obesity and dietary soy protein with different isoflavone levels on fecal microbial composition, six-week-old male obese (fa/fa) Zucker rats were randomly assigned to receive a diet (6 - 7 rats per group) with protein supplied as casein (CAS) control, soy protein concentrate with low isoflavone (SPC-LIF) is 0.154 mg isoflavone/g protein, or SPC with high isoflavone (SPC-HIF) is 2.153 mg isoflavone/g protein. DNA from fecal samples collected at 9 and 18 weeks were analyzed for microbial diversity, and differential abundance at the genus level. After 9 and 18 weeks, both obesity and dietary soy protein (i.e., SPC-LIF and SPC-HIF) altered fecal microbial beta-diversity. Generally, all beta-diversity metrics supported significant differences across obesity and soy protein diets (SPC-LIF and SPC-HIF). Most of all alpha-diversity metrics were not significantly different between groups. At both time points, differential enrichment of microbial taxa showed segregation of samples based on obesity status and dietary treatments. Several genera (e.g., *Lactococcus*, *Terrisporobacter*, and *Butyribacter*) significantly differed between the SPC diets and the CAS diet regardless of isoflavone level and time, whereas the abundance of other genera (e.g., Lachnospiraceae ND3007 and *Akkermansia*) was also affected by the isoflavone level in SPC. In conclusion, lean and obese Zucker rats had different fecal microbial compositions across dietary soy protein and isoflavone concentrations over short-term (9 weeks) and long-term (18 weeks) durations.

Dietary Diary App to Promote Pro-healthy Eating Habits: Changes in Body Composition and Cardiometabolic Disorders After 10 Weeks

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Abstract

Introduction: Mobile digital tools can support users in following nutritional recommendations.

Aim: The study analyzed changes in body composition and the occurrence of cardiometabolic disorders after 10 weeks of using dietary diary app (DDApp).

Materials and Methods: DDApp includes 11 food groups, each with defined nutritional goals: a recommended minimum or maximum number of servings (per day or week). Users reported each consumed portion of food in the app (just "a click" was enough). The DDApp was tested for 10 weeks in 40 participants. Measurements of body composition, systolic (SBP) and diastolic (DBP) blood pressure, total cholesterol (TC), fasting blood glucose (FBG), and blood glucose concentration were taken before and after 10 weeks of DDApp use. The number of nutritional goals achieved was calculated for each user.

Results: During the 10 weeks, the number of dietary goals achieved by users for not-so-healthy foods increased (by 0.30 goals/week; $p < 0.01$) and non-healthy-diet-index decreased (20.1%; $p < 0.01$). After 10 weeks, the number of users with FBG ≥ 100 mg/dL (54%; $p < 0.01$), TC ≥ 200 mg/dL (90%; $p < 0.001$), SBP ≥ 140 mmHg or DBP ≥ 90 mmHg (67%; $p < 0.01$) decreased and average: body weight (2.0 kg; $p < 0.001$), body mass index (0.7 kg/m^2; $p < 0.001$), body fat (1.7% b.wt; $p < 0.001$), waist circumference (1.7 cm; $p < 0.05$), waist-to-height ratio (0.01; $p < 0.05$), FBG (19.3 mg/dL; $p < 0.001$), TC (43.5 mg/dL; $p < 0.01$), SBP (8.5 mmHg; $p < 0.001$), and DBP (5.3 mmHg; $p < 0.001$).

Conclusion: It was shown that reducing the consumption of not-so-healthy foods, despite no change in the consumption of pro-healthy foods, led to favorable changes in body composition and a reduction in cardiometabolic risk factors. DDApp can be a useful tool in motivating users to improve their diet and health on a daily basis.

Possibilities and Limitations of Dietary Support in Mood Disorders and Depression in People with Obesity

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Abstract

Introduction: The impact of diet on mental health is increasingly being recognized. Dietary components alter brain biochemistry and can lead to changes in behavior and thought processes. When considering the nutritional treatment of depression and mood disorders, the importance of the gut-brain axis should be considered. Diet plays an important role in influencing the gut microbiota's role in proper brain function.

Materials and Methods: Based on body mass index measurement, 177 patients meeting the inclusion criteria aged 22 - 47 years were included in the study. The analysis of dietary habits and food consumption was carried out based on the validated food frequency questionnaire. The well-being indicators (World Health Organization-5) were used to assess well-being. The questionnaire consists of five questions that cover the past two weeks.

Results: In this study, analyzing all food groups, only significant differences were noted related to the frequency of sweets consumption. Individuals who reported eating sweets more frequently scored lower on the well-being scale, indicating the need to modify dietary behaviors by limiting the consumption of sweets, which are a source of simple sugars in the habitual diet and contribute to poor mood.

Conclusion: Further research is needed to explore the underlying mechanisms and potential benefits of controlling food intake in patients with depression. Research on the impact of food and dietary patterns can contribute to the development of dietary recommendations for the implementation of mood disorder prevention strategies and treatment at multiple metabolic levels.

Microbial Metabolites Synchronize Diurnal Rhythms in Host Metabolism via Histone Deacetylase-3

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Abstract

Environmental light cycles entrain rhythmic eating and sleeping behaviors in mammals, leading to diurnal fluctuations in microbiota exposure and rhythmic regulation of intestinal functions such as nutrient absorption, metabolism, and immune responses. Previous studies have shown that histone deacetylase 3 (HDAC3) in intestinal epithelial cells (IECs) mediates microbiota-driven programming of host energy homeostasis. However, the molecular mechanism by which microbial signals crosstalk with the host to dictate metabolism remains incompletely understood. Here, we show that the gut commensal bacterium (*Bacteroides thetaiotaomicron* (Bt)) programs diurnal rhythms in histone acetylation and metabolic gene transcription via HDAC3 in IECs. We further reveal that the diurnal oscillation of Bt-derived metabolite is temporally associated with rhythmic assembly of the HDAC3-nuclear receptor corepressor 1 complex, enhancing the oscillation enzyme activity of HDAC3. Intriguingly, both Bt and its metabolite promote nutrient uptake and exacerbate diet-induced obesity in an HDAC3-dependent manner. Collectively, our findings reveal that gut bacteria and their metabolite integrate epigenetic signals to program the diurnal rhythm in metabolism and nutrient absorption, suggesting potential strategies for addressing obesity-related diseases.

Clinically Effective Child Change in Family-based Behavioral Treatment for Pediatric Obesity: A Mega-analysis

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Abstract

Family-based behavioral treatment (FBT) is an evidence-based treatment that has shown statistically significant short and long-term outcomes for children, but statistical and clinical significance are different ways to study the impact of a treatment. The purpose of this paper is to assess average body mass index (BMI) change and clinical effectiveness of FBT at 6, 12, 24, 60, and 120 month follow-up. Results of FBT groups were combined over 11 randomized controlled trials (N = 473) of 6 - 12-year-old children with overweight (> 85th - 95th BMI percentile) or obesity (> 95th BMI percentile). Studies were implemented in three sites from 1980 to the present. Recruitment includes a child and parent with overweight or obese. FBT included parent and child as weight control targets, the traffic light diet and activity program, stimulus control, positive parenting, self-monitoring of diet, exercise and weight, and reinforcement to promote healthy eating and activity behaviors. Average BMI changes were -0.45, -0.40, -0.31, -0.43, and -0.52 for 6, 12, 24, 60, and 120 month time points, respectively. The percentage of children meeting criteria of good change (-0.25 BMI) plus reversal of obesity were 75%, 65%, 52%, 64%, and x% for the same points. At 5 and 10 year follow-up, 50% and 55% of the children showed reversal of obesity. These results show FBT is associated with significant and sustained clinical effectiveness for children, with long-term effects improving over time. These data support the utility of providing data on the clinical effectiveness of pediatric obesity treatments.

Validation and Characterization of Obstructive Sleep Apnea in Obese Minipig Model

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Abstract

This study comprehensively evaluated physiological, anatomic, tissue, functional, and modeled air flow characteristics of obstructive sleep apnea (OSA) in obese and non-obese control minipigs (8.5 months to 6.5 years). The approaches included: 1) sleep monitoring to identify and validate OSA during natural and sedated sleep; 2) sonometric technique to quantify three dimensional (3D) respiratory deformational changes of the tongue base (TB) and soft palate (SF); 3) fat-weight magnetic resonance imaging (MRI) and endoscopic ultrasound to calculate the percentage of fat composition and tissue strain in TB, SF, and pharyngeal wall; 4) sleep video fluoroscopy to trace respiratory movements of SF and TB; 5) MRI to quantify 2D and 3D oropharyngeal airway dimensions and volumes along with respiratory airflow measurements; and 6) computational flow dynamic (CFD) to model airflow dynamics. Results indicated: 1) the respiratory parameters of sedated sleep were similar to those of natural sleep, and the majority of OSA episodes occurred during rapid-eye-movement stage in obese minipigs; 2) significantly extended respiratory deformations of TB and SF were seen in obese OSA minipigs; and 3) the fat deposition of TB increased from rostral to caudal and reached the highest in TB. Higher TB stiffness was seen in obese OSA minipigs; 4) larger ranges of respiratory movements of TB and SF were seen in obese OSA minipigs; 5) lower inspiratory tidal volume and slow inspiratory airflow speed were seen with decreased airway dimensions and volumes in obese OSA minipigs; and 6) CFD confirmed that the decreased airflow speed occurred in the transitional region of nasal to oral pharynx. Therefore, OSA in obese minipigs presents similar characteristics to those of human, making obese minipig an ideal large animal model for OSA studies which would inform future human clinical trials.

Tips and Tricks for Bariatric Surgery

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Abstract

Obesity has become a serious health problem worldwide. Besides non-invasive conservative treatments (e.g., lifestyle modifications, medical treatment, and behavioral therapy), bariatric surgery is now playing an important role in the treatment for obesity. Surgery is seen as the most important weapon in the fight against obesity. The robotic approach allows easier performance of the handsewn anastomosis technique in patients with visceral obesity and allows software-based stapling, both of which may contribute to the decreased rate of postoperative bleeding, anastomotic stenosis/ulceration, and gastrointestinal leak. Nevertheless, improvements in perioperative medicine and growing expertise in minimally invasive surgery over time are also likely strong contributors to the observed quality improvement. Actualization of global benchmarks for laparoscopic bariatric surgery is needed to demonstrate whether the established outcome standards for robotically assisted bariatric surgery are achievable laparoscopically. The secret of success in obesity surgeries is a uniform surgery and an established system. All surgeries are performed by specialized surgeons who have received special training in bariatric surgery and have adopted the same surgical technique. Obesity is an important consideration when making decisions about the optimal surgical approach for a patient. However, robotic surgery excels over traditional laparoscopic surgery in dexterity and visualization and may be advantageous in this population. Robotic platforms may help the surgeon to overcome the technical difficulties in superobese (body mass index ≥ 50 kg/m^2) patients, in which multi-quadrant operations could be challenging.

Obesity and Oral Health: A Pandemic with Dental Consequences

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Abstract

Obesity has emerged as a global health crisis, affecting over 1 billion individuals worldwide and surpassing the thresholds of a pandemic due to its widespread prevalence, chronic nature, and far-reaching health consequences. The World Health Organization recognizes obesity as a major risk factor for numerous non-communicable diseases, including diabetes, cardiovascular disease, and certain cancers. However, its impact on oral health remains underrecognized and underexplored in both clinical practice and public health discourse. Obesity is strongly associated with chronic inflammation, dietary habits high in sugar and refined carbohydrates, and altered metabolic function, all of which significantly contribute to oral diseases such as dental caries, periodontitis, and xerostomia. Moreover, obesity may complicate the provision of dental care due to physical limitations, increased risk of comorbid conditions, and challenges in sedation or anesthesia management. In pediatric populations, early-onset obesity correlates with poor oral hygiene and increased risk of early childhood caries. From a systemic perspective, the bidirec-

tional relationship between periodontal disease and obesity emphasizes the need for integrated, multidisciplinary approaches to care. This abstract underscore the urgent need for dental professionals to recognize obesity not merely as a medical concern but as a critical determinant of oral health. Integrating obesity screening, patient education, and collaborative care models within dental settings is essential to improving outcomes. As the obesity epidemic continues to rise, its oral health implications demand increased research, clinical awareness, and policy-level interventions to address this growing global burden.

Dynamics of Increase in Body Mass Index in Women Under the Influence of War Stress

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Abstract

Background: War is the most powerful social stress, which causes negative transformations not only in the mental, but also in the somatic sphere, in particular, it contributes to an increase in body weight.

Aim: Aim was to study the dynamics of changes in body mass index (BMI) and psycho-emotional response in women under the influence of war stress.

Materials and Methods: In a previous study, we studied indicators of BMI, depression, anxiety and post-traumatic symptoms in 126 non-combatant women aged 30 to 39 years who lived in Ukraine during hostilities (G1) and in 112 women of the same age who left Ukraine after the start of hostilities (G2), with an interval of 5 months, with calculation of BMI, Beck depression inventory, reactive anxiety scale S. Spilberger and the Mississippi scale of post-traumatic stress disorder. We were able to re-examine 51 G1 women and 37 G2 women 30 months after the initial examination using the same technique.

Results and Discussion: In the dynamics of observation, a significant ($p < 0.001$) increase in body weight and BMI were found in G1 women, while in G2 women the dynamics of body weight and BMI were not significant ($p > 0.05$). Differences when comparing body weight and BMI between G1 and G2 after 30 months are statistically significant ($p = 0.004$ and $p = 0.008$, respectively). In G1 women a significant increase was registered in depression scores ($p < 0.001$), reactive anxiety ($p = 0.038$), post-traumatic stress disorders ($p = 0.025$). In G2 women, the absolute indicators and growth dynamics of depression, anxiety and post-traumatic stress disorders were significantly ($p < 0.001$) lower compared to G1, although this group also showed a significant worsening of the psycho-emotional state in dynamics.

Conclusion: The existence of a connection between the stress of war and the growth of BMI and body weight in parallel with the severity of depression, reactive anxiety and post-traumatic stress disorder, as well as the deterioration of these indicators in women exposed to long-term stress of war, was confirmed.

Relative Body Mass Index: A Machine-driven Model for Adolescent Obesity Severity Classification

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Abstract

Background: Body mass index (BMI) percentiles are widely used to assess obesity in adolescents, but they often misclassify adiposity, particularly in moderate to high-risk groups.

Objective: To derive and validate sex-specific relative BMI (rBMI) cut-offs using decision tree models to improve adolescent adiposity classification compared to BMI percentile and receiver operating characteristic (ROC)-based rBMI methods.

Methods: We analyzed data from 567 U.S. adolescents (ages 11 - 19) with DXA-derived body fat percentage (BF%) as the reference standard. Classification and regression tree models were used to generate sex-specific rBMI cut-offs for four adiposity categories: normal weight, overweight, obese, and severely obese. Model performance was evaluated using accuracy, kappa, Matthew's correlation coefficient (MCC), sensitivity, specificity, balanced accuracy, and F1-score. Performance was benchmarked against BMI percentile and ROC-based rBMI cut-offs.

Results: The tree-derived rBMI model achieved the highest overall accuracy (0.720), kappa (0.625), and MCC (0.627). It outperformed alternative methods across most adiposity categories, with substantial improvements in classifying overweight (F1 =

0.572), obese (F1 = 0.636), and severely obese (F1 = 0.808) adolescents. The model showed better alignment with BF% defined categories than BMI percentile and ROC-based rBMI, which tended to underestimate high-risk individuals.

Conclusion: Tree-derived rBMI cut-offs provide a statistically and clinically robust method for classifying adolescent adiposity. This approach enhances early identification of at-risk youth and can be integrated into pediatric screening to guide targeted interventions.

Indicators of Systemic Inflammation Activity in Comorbid Patients with Arterial Hypertension and Type 2 Diabetes Mellitus Depending on the Presence of Obesity

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Abstract

Introduction: It has been demonstrated that the combination of arterial hypertension (AH) and diabetes mellitus type 2 (DM2) is associated with increased risk of developing cardiovascular complications in them and a higher mortality rate compared to the general population.

Aim: The aim is to establish the level of tumor necrosis factor-alpha (TNF-α) in patients with the combined pathology: AH with DM2, depending on the presence of obesity.

Materials and methods: 50 patients were examined (28 men and 22 women, mean age - 50.7 ± 3.9 years) with AH of the 2nd degree and DM2 of moderate severity. Of these individuals, 26 patients (15 men and 11 women) obesity of the 1st degree was determined (group 1). 24 patients (13 men and 11 women) were of normal body weight (group 2). The control group consisted of 20 practically healthy people without obesity (mean age 50.1 ± 2.8 years). All examined people underwent a general clinical examination and anthropometric measurements. Using enzyme immunoassay kits, the concentration of TNF-α (DRG, USA) was determined in the blood serum of patients. **Results:** Results: There were no significant differences between the groups of examined patients in terms of blood pressure levels, duration of AH, lipid metabolism disorders. In patients with AH and DM2 with normal body weight (group 2), the TNF-α content in blood serum of 2.6 was significantly higher than the value in the group of healthy individuals ($p < 0.001$). The maximum levels of TNF-α in blood serum were noted in patients with DM2 in combination with AH and obesity, which were 2.9 times higher than the values of healthy individuals ($p < 0.001$). It was found that with the comorbidity of DM2 and AH and obesity, the TNF-α content in blood serum was 10% higher ($p < 0.05$) compared to patients with AH and DM2 with normal body weight.

Conclusion: In our research a significant increase in TNF-α levels was noted in patients with hypertension and DM2 and obesity compared not only with healthy individuals, but also with patients with hypertension and DM2 with normal body weight.

Up-regulation of Proopiomelanocortin and Cocaine and Amphetamine-regulated Transcript by Intermittent Hypoxia via GATA Transcription Factors in Human Neuronal Cells

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Abstract

Sleep apnea syndrome (SAS) is characterized by intermittent hypoxia (IH) during sleep. SAS and obesity are strongly related to each other. Here, we investigated the direct effect of IH on the expression of major appetite regulatory genes in human neuronal cells. We exposed neuroblastoma (NB)-1, SH-SY5Y, and SK-N-SH human neuronal cells to IH (64 cycles of 5 min hypoxia and 10 min normoxia), normoxia, or sustained hypoxia for 24 h and measured the mRNA levels of proopiomelanocortin (POMC), cocaine and amphetamine-regulated transcript (CART), galanin, galanin-like peptide, ghrelin, pyroglutamylated RFamide peptide, agouti-related peptide, neuropeptide Y, and melanocortin 4 receptor by real-time reverse transcription polymerase chain reaction (RT-PCR). IH significantly increased the mRNA levels of POMC and CART in all the neuronal cells. Deletion analysis revealed that the -705 to -686 promoter region of POMC and the -950 to -929 region of CART were essential for the IH-induced promoter activity. As possible GATA factor binding sequences could be found in the two regions, we performed real-time RT-PCR to determine which GATA factor was expressed and found that GATA2 and GATA3 mRNAs were predominantly expressed. Therefore, we introduced siRNAs against GATA2 and GATA3 in NB-1 cells and found that GATA2 and GATA3 siRNAs abolished the IH-induced up-regulation of both POMC and CART mRNAs. These results

indicate that IH stress up-regulates the mRNA levels of anorexigenic peptides, POMC and CART, in human neuronal cells via GATA2/GATA3. IH can have an anorexigenic effect on SAS patients through the transcriptional activation of POMC and CART in the central nervous system.

From Knowledge Gaps to Collaborative Opportunities: Chinese Psychiatrists Perspectives on Weight Management

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Abstract

Background: The global convergence of obesity and mental health disorders represents a critical public health challenge. In China, where obesity affects over one-third of adults and mental health disorders impact nearly one in ten annually, the healthcare system faces unique challenges including rapid bariatric service expansion amid psychiatrist shortages. Despite international guidelines mandating psychiatric evaluation in weight management, evidence examining mental health professionals' obesity management competency remains limited.

Research question: This study assessed Chinese psychiatrists' knowledge, attitudes, and clinical practices regarding weight management, examining their readiness for multidisciplinary collaboration.

Study design: A nationwide cross-sectional survey was conducted among psychiatrists (December 2024 - April 2025) trained at Beijing Anding Hospital. A validated 43 item questionnaire assessed demographic characteristics, obesity-related knowledge, clinical practices, referral behaviors, and educational needs. Logistic regression identified factors associated with collaborative willingness and referral intentions.

Results: Participants (N = 229, 58.9% female, 61.1% from tertiary hospitals) demonstrated significant knowledge gaps: only 29.7% correctly identified obesity diagnostic criteria across age groups, though 84.3% knew of specialized treatments. While 55% proactively referred severely obese patients with mental illness to specialists, 37.1% only suggested referral upon patient inquiry. Notably, 85.6% expressed willingness to join multidisciplinary teams (MDTs). Prior MDT exposure significantly increased collaborative willingness (Odds ratio (OR) = 0.69, p = 0.0157), while diagnostic knowledge familiarity enhanced referral intention (OR = 1.42, p = 0.0288).

Conclusion: Chinese psychiatrists show moderate obesity knowledge with diagnostic gaps, yet strong collaborative interest. The association between MDT exposure and collaborative willingness highlights opportunities for targeted education. These findings provide baseline data for developing training programs and collaborative frameworks, prioritizing standardized diagnostic education and formal MDT structures to enhance integrated obesity-mental health care delivery.

Adolescent Body Weight Overestimation and its Impact on Dieting Behaviors and Psychological Well-being: A Narrative Review

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Abstract

Adolescence is a pivotal stage for the development of body image and long-term health behaviors. While global efforts have focused on combating obesity, evidence suggests that body weight overestimation may contribute to maladaptive health behaviors and adverse psychosocial outcomes. Accurate weight perception is recognized as an essential step for effective weight management. This review examines the association between adolescent body weight overestimation, engagement in dieting behaviors, and psychological consequences. A narrative review was conducted using evidence from observational, experimental, and review studies that examined adolescents' weight perception, dieting behaviors, and mental health outcomes across diverse cultural and geographical contexts. Relevant literature was retrieved through structured searches of the PubMed, Scopus, and PsycINFO databases. The main findings indicate that adolescents who overestimate their body weight are significantly more likely to engage in dieting behaviors, including restrictive eating, 24 h fasting, meal skipping, and use of weight-loss supplements. These behaviors are frequently accompanied by weight-related psychological distress, including body dissatisfaction, internalized stigma, and depression. Parental and peer support appear to offer protective effects, whereas sociocultural pressures-particularly those propagated by media amplify weight misperception. Body weight overestimation, which contributes to both unhealthy dieting

behaviors and psychological vulnerability in adolescents, has become a prominent concern in both clinical and social domains. This phenomenon warrants integration into obesity prevention strategies to mitigate unintended harm associated with weight misperception. Future longitudinal and interventional studies are crucial to establish causality and to guide the development of interventions that promote accurate weight perception and healthy behavior adoption.

Correlation Between Quantitative Indicators of Bilirubin Exchange and Antioxidant Status in Men with Ischemic Heart Disease

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Abstract

As of January 2025, relevant literature has been selected from four international databases (PubMed, Web of Science, Cochrane Library, and Embase) using a search strategy. The concept of bilirubin (BR) as a product of vital activity has undergone significant changes. An analysis of new literature data has shown that BR exhibits dual behavior: it has both potentially protective properties and toxic effects in certain pathological conditions. BR is considered as a molecule that performs many biological functions, from cell signaling and metabolic modulation to immune regulation, influencing biological activity with clinical and even therapeutic consequences. Within the physiological range, BR is the most powerful antioxidant in the blood serum, has metabolic, immunosuppressive and endocrine effects. Concentrations of BR in blood serum below 10 micromol/l are within the physiological range but have a negative effect on the course and prognosis of many diseases. Threshold values of BR below 7 mmol/l are proposed as reflecting health risks. The level of BR in the blood serum in women is lower than in men, depending on race, age, circadian rhythm, time of blood collection, and other factors. Evidence has been obtained for the key role of BR in predicting the risk of development, clinical course, and outcomes of myocardial infarction, cerebral stroke, diabetes mellitus, and metabolic syndrome. BR-based drugs are considered as a promising new target for improving the results of conservative and surgical treatment, including organ transplantation. The use of strategies to increase blood BR (delivery of BR using nanocarriers) improved the results of therapeutic and surgical treatment of patients.

Rescuing the Holobiont: A Long-term Solution to Multiple Chronic Diseases

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Abstract

Since the recognition of the importance of the microbiome for human health, it has consistently been equated exclusively with the environmental acquisition of so-called "good" bacteria. By contrast, our own approach has emphasized its evolutionary role as a microbial community with a single primary objective: to transfer information concerning the immune environment of the vertebrate mother to the immature immune system of its offspring. This requires a secondary objective: to develop a "gut-brain axis" enabling the partition of nutrition to ensure that both components of this "holobiont" (i.e., body and microbiome) remain functional regardless of famine and/or illness. We suggest that unicellular eukaryotes, "microbial sentinel cells" should fulfill these roles, and that their absence leads to chronic disease. Interestingly, the term handshaking is used in computing to indicate the initial exchange of the protocols of communication prior to full merger of two electronic devices. As both maternal microbiome and neonate gut wall are independent chemo-electronic "devices", a form of biological handshaking probably takes place early in the development of the infant, thus stressing the importance of the birth process (David Barker's thought-provoking 1990 paper: "The fetal and infant origins of adult disease"). Note that key microeukaryotes are transferred by fecal contamination during natural birth. In conclusion, while seeking a full understanding of the microbiome, we should adopt a microbe-friendly approach to birth, avoiding oral antibiotics and ensuring the transfer of gut microbes (not just vaginal) if delivery by C-section becomes necessary. In this way, subsequent generations should steadily improve.

Long-term Outcomes of Bariatric Surgery: An Eight-year Study at a Tertiary Care Hospital in Lebanon

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Abstract

Obesity management presents a persistent challenge. Bariatric surgery, recognized for its transformative impact on weight loss and comorbidities, demands a thorough examination of its long-term implications. Our goal is to investigate different aspects of bariatric surgery, such as complications, comorbidities, infection rates, the long-term sustainability of weight loss, and factors predicting weight loss over an extended period following the procedure. This study involves 100 patients who underwent primary bariatric surgery. A sophisticated Longitudinal Observational Study design with a retrospective component and a follow-up component spanning eight years. The study included participants with a mean age of 36.4 years (±12.1) and a pre-surgery body mass index (BMI) of 44.5 kg/m^2 (±7.5). Excess weight loss (EWL) peaked at 75.09% by the third year, while total weight loss sustained at 33.41% after two years. Among individuals with type 2 diabetes, medication discontinuation rates reached 26.3% in 5 years. Zero leaks, a low incidence of major complications and no incidence of mortality have been noted. In an extended 7 year follow-up, 40% of patients experienced weight regain. Multivariate analysis identified age and preoperative BMI as negatively associated significant predictors impacting EWL at three years, with standardized beta coefficients of -0.488 ($p = 0.001$) and -0.450 ($p < 0.001$), respectively. Conversely, smoking and type 2 diabetes mellitus exhibited positive associations, with standardized beta coefficients of 0.336 ($p = 0.004$) and 0.286 ($p = 0.063$), respectively. Bariatric surgery is acknowledged as a safe and efficacy procedure for reducing weight and comorbidities, with a relatively low incidence of major complications.

Transient Receptor Potential Melastatin 7 Kinase Signaling is Essential for Preserving Pancreatic Islet Cell Mass and Hormonal Balance in Obesity

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Abstract

Objectives: Most obese individuals do not develop diabetes due to compensatory mechanisms in pancreatic islets that maintain glucose homeostasis. Targeting pathways that enhance islet cell compensation could offer new therapeutic strategies. The kinase moiety of transient receptor potential melastatin 7 (TRPM7) plays an essential role in various cellular processes. Despite the high expression of TRPM7 in islets, its precise role in glucose metabolism and insulin and glucagon secretion remains unclear.

Material and methods: The metabolic phenotype of TRPM7 kinase–dead mice (TRPM7$^{R/R}$) under chow or high-fat diets were investigated. Islets were isolated from these mice, and β- and α-cell function were assessed.

Results: TRPM7 kinase inactivation leads to impaired glucose tolerance and reduced insulin and glucagon secretion in mice. Notably, TRPM7$^{R/R}$ mice under the obesogenic diet exhibited impaired glucose tolerance and hyperglycemia. *Ex vivo* analysis of islets isolated from TRPM7$^{R/R}$ mice revealed a significant reduction in insulin and glucagon content, as well as decreased islet cell mass and proliferation compared to control littermates. RNA-Seq studies of RNA isolated from high-fat–fed TRPM7$^{R/R}$ and control islets demonstrated downregulation of the key genes involved in insulin and glucagon biosynthesis in the absence of functional TRPM7 kinase. Thus, we attribute the detrimental glucoregulatory effects of TRPM7 kinase deficiency to altered transcriptional regulation in islet cells.

Conclusion: In obese individuals, insulin resistance triggers a compensatory response in pancreatic islets. TRPM7 kinase is a key regulator of islet function, supporting β- and α-cell dynamics and maintaining glucose homeostasis under metabolic stress.

Association of Body Mass Index Increase and the Presence of Urinary Tract Infection in Primigravidae

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Abstract

Introduction: The nutritional status of women before and during pregnancy is one of the determinants of the risk of maternal morbidity and mortality.

Objective: To determine the relationship between the increase in body mass index and the presence of urinary tract infection in primigravidae.

Methods: Case-control study in primigravidae records. We studied sociodemographic variables (age, schooling, life as a couple, and occupation), obstetric conditions (obstetric risk, weeks of beginning of prenatal control, weeks of pregnancy resolution, and number of prenatal visits), anthropometry at the beginning and end of pregnancy (weight, height, body mass index and nutritional condition underweight, normal weight, overweight and obesity, weight gain, and body mass index gain), and modification of nutritional condition at the beginning and end of pregnancy. Statistical analysis was performed with percentages, averages, confidence intervals for averages, Chi2 test, odds ratio, confidence intervals for odds ratio, simple linear regression, and projection of event occurrence.

Results: When the increase in body mass index was 5 kg/m^2, the mean urinary tract infection corresponded to 1.62 and, if the increase in body mass index was 10 kg/m^2, the mean urinary tract infection was 2.3.

Conclusion: In our study, the greater the increase in body mass index during pregnancy of the primigravida, the greater her probability of presenting urinary tract infection.

Impact of Roux-en-Y Gastric Bypass Surgery on Metabolic Syndrome Components and on the Use of Associated Drugs in Obese Patients

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Abstract

Background: The prevalence of obesity and metabolic syndrome is increasing worldwide and both behavior modification and drug therapy have low adherence. Gastric bypass has shown effective results in both reducing weight and improving comorbidities.

Objective: To evaluate the impact of Roux-en-Y gastric bypass surgery (RYGB) on both metabolic syndrome components and the use of associated drugs in obese patients.

Methods: Historical cohort of patients subjected to RYGB between January 2007 and March 2014 in a private clinic. The sample consisted of 273 obese class II and III individuals, 86.4% of whom were female, with age ≥20 years, followed up for 2 months after surgery. Sociodemographic, anthropometric, biochemical, clinical, and drug-use data were collected from patients' medical records.

Results: Significant differences were found in weight, body mass index and waist circumference, after 60 postoperative days. Components for metabolic syndrome diagnosis (hypertension $p = 0.001$; hyperglycemia $p < 0.001$; and hypertriglyceridemia $p = 0.006$) were reduced after 60 days of postoperative, with the exception high-density lipoprotein cholesterol (HDL-C) ($p = 0.083$). There was a significant reduction in the use of antihypertensive ($p < 0.001$), hypoglycemic ($p = 0.013$), lipid lowering ($p < 0.001$), and anti-obesity ($p = 0.010$) drugs and increased use of gastroprotective drugs, vitamins, and minerals ($p < 0.001$) after 60 postoperative days.

Conclusion: Patients subjected to RYGB exhibited both weight loss and significant improvement not only in metabolic syndrome components (except for HDL-C) but in the use of drugs associated with obesity and metabolic syndrome.

The Effect of Transcranial Direct Current Stimulation Combined with Hypocaloric Diet on Weight: A Systematic Review and Meta-analysis

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Abstract

Obesity remains a major global health challenge, with hypocaloric diets often limited by poor adherence. Transcranial direct current stimulation (tDCS), a non-invasive neuromodulation technique targeting the dorsolateral prefrontal cortex (DLPFC), has been proposed as a method to enhance dietary self-regulation. This systematic review and meta-analysis evaluated the combined effect of tDCS and hypocaloric diet on weight loss, caloric intake, and adverse effects in individuals with overweight or obesity. Four randomized controlled trials involving 127 participants were included. All studies used multi-session tDCS protocols applied to the DLPFC alongside structured hypocaloric diets. Pooled analysis showed a significant reduction in body weight favoring active tDCS compared to sham (mean difference: -0.73%; 95% confidence interval: -0.98 to –0.48; $p < 0.00001$). Subgroup analysis demonstrated that both left- and right-sided DLPFC stimulation were associated with weight loss, with no significant differences between sites. Caloric intake was reduced in both active and sham groups, but between-group differences were not statistically significant. Reported adverse events were minimal and mild, including transient scalp discomfort and skin redness. These findings suggest that tDCS may modestly enhance short-term weight loss when combined with dietary interventions, although effects on caloric intake remain inconclusive. Larger, longer-term studies with standardized protocols and objective adherence measures are warranted.

Treatment of Eating Addiction and Obesity as Displacement Activity: A Pilot Study

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Abstract

Background: Displacement activity is a behavior that allows an animal to deal with situations that cannot be faced nor avoided, or are thwarting, i.e., stress. Resembling addiction, displacement activity is irrepressible and contextually inappropriate, e.g., sleeping or feeding when threatened by a predator, or binge eating in response to a work altercation. It is thought to be due to rechanneling of an overflow of motivational energy to another drive (e.g., feeding) when two drives (e.g., fight or flight) equally oppose each other. Moving the opposing drives out of equilibrium, by resolving the person's underlying problems/stressful situations or willfully rechanneling the motivational energy to non-harmful behaviors (e.g., deep breathing) theoretically should mitigate the displacement mechanism and addictive overeating.

Methods: A smartphone intervention, based on displacement equilibrium theory, was developed. Thirty-eight youths (14 - 21 years old) with a body mass index >85th percentile will be recruited via various sources to participate in beta testing or the trial stage. Beta testing will enroll eight youths for three weeks and the trial stage 30 youths for 4 months. Participants will check in with the app daily and receive supportive text messages and weekly phone calls from an undergraduate coach.

Results: Engaged participants were able to identify stressful situations associated with "food noise" and implement action plans to deal with these. Associated weight loss occurred.

Conclusion: The displacement mechanism may be a useful basis for treatment of eating addiction and obesity and may provide individuals with hope that they can curb their overeating without relying on willpower.

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