

Energy restriction dieting and weight loss: Comparing intermittent energy restriction versus intermittent fasting, on benefit and harm, between overweight and normal weight subject

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Statement of the problem: Obesity pandemic and the lifestyle diseases it carry with connotation, has spurred many into dieting for not just body image conscious but health benefit. Dieting is a form of Energy Restriction (ER) which has different forms. This does not offer blanket benefit but risk like loss of Fat Free Mass (FFM). A wide array of pattern of dieting is available but which is most suitable and risk free? Not just obese subject has interest but the normal weight subject as well hoping to gain some extra edge on health/beauty benefit.

Methodology & theoretical orientation: A Medline search from 1945-2015 using terms “intermittent” or “fasting” or “diet” or “energy restriction” linking with “body fat”, “body weight”, “hepatic fat”, “fat free mass”, “insulin sensitivity”, “insulin resistance”, “metabolic flexibility”. Trials included have at least 50% energy restriction. To compare weight loss and adherence, we include on RCTs where diets had been matched, for total energy intake. Theoretically is by using a commonly used qualitative & quantitative analysis through reviewing literature, clinical history, interview & observation, and forming focus group to gather data. Use the security framework & lenses of analysis of the social science/behaviour to understand the fasting trend in our health conscious society.

Finding: Commonest dieting studied were the Intermittent Energy Restriction (IER) which include: including two days consecutive 60-70% energy restriction, (with no or voluntary carry over 20% restriction for next five days cycle, translating into overall 35% per week); alternate day energy restriction of 60-70% (ADER); and alternate day total Intermittent Fasting (IF). The benefit for the obese subject in terms of weight loss, ability of preserving the weight loss (meaning at least 10% weight loss maintained at 12th month is much depending on level of support given) were comparable between IER and isoenergetic Continuous Energy Restriction (CER). The compliance with IER is better than CER. The adiposity reduction was readily mobilized from the hepatic and abdominal over subcutaneous and intra-myocellular lipid store by 30% was comparable between the two. This brings about reduced insulin resistance for the obese subjects. In the normal weight subject IER because lipolysis with free fatty acid flux by 3 times of normal overnight fast causing increased skeletal muscle insulin resistance, arterial sclerosis and blood pressure is harmful. Loss of FFM is detected from the entire ER program in obese subject; lowest in IER of 10-20% of total weight loss, to 30% in IF & ADER, to highest of 50% in the normal weight subject. In order not to loss FFM, exercise is a must and adds sufficient protein (1.2 g/kg body weight) in their diet while under ER. Resting Energy Expenditure (REE) is much reduced in all ER, with exception of minor initial increase due to fatty acid recycling & gluconeogenesis. All ER bring down insulin resistance except normal weight subject; IER perform better than CER in 35% Vs 20% reduction. ER brings about metabolic flexibility by switching readily

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from glucose oxidation into fat and amino acid oxidation, and back quickly post-prandial. Metabolic inflexibility is seen in all obese subjects. IER & IF does not cause hyperphagia/bing eating during non-restricted day, mood disturbance like depression, perturbation of thalamus-pituitary-gonadal axis, or ability to exercise, and thus is a relatively safe program except for muscle mass. Coming to the optimality of regiment, IER is preferable over IF due to better compliance. Timing of ER does not affect weight loss performance or compliance. Given one meal a day or spread that same amount out into 3 smaller meals achieves similar result.

Conclusion: This review theme is to compare benefit/risk of IER & CER. IER is preferable for better compliance although both give comparable benefit. To preserve muscle mass, all ER diet must have protein of over 1.2 g/kg body weight and exercise simultaneously, especially for normal weight subject.

Biography

David Ling Sien Ngan, is the member of KL Academy of Social Sciences, has his expertise and passion in improving healthcare delivery and health security of the individual, community & national economic wellbeing, especially through financial planning. He analyse not just as a doctor but through the lens of social scientist from the security perspective as a strategist and policy planner, where much work is done through qualitative analysis via very extensive literature review, augmented by clinical interview and physical assessment. Ageing challenges face more security dimension than just medical and, a constructivist society has a better security provision.

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Amani Kamal Saqallah, J Obes Eat Disord 2022, Volume 08

The role of lifestyle behavior change in managing CVD and obesity

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Other than activity and exercise, lifestyle practices such as healthy nutrition and not smoking, well established for preventing and managing lifestyle-related some diseases (i.e., heart disease, cancer, hypertension, stroke, obstructive lung disease, diabetes, and obesity), are less emphasized in the traditional medical treatment guidelines for addressing chronic disease such as CVD & Obesity. This review examines the relationships between health & lifestyle behaviors, with special reference to the physical activity, and their clinical & research implications.

Biography

Amani Kamal is splashiest in nutrition science and policy with the combination of public health from Tufts University- Boston USA after her study of nutrition science in King Faisal University. She joined college of Nature Sciences and Public Health at Zayed University in 2014 until 1-2020, and she is a member of UAE health authority Nutrition task force where she directed her role to nutrition policy and CVD preventions'. This led to the development of important regulations and guidelines in Weqaya nutrition program and school nutrition in 2011 until 2019. She was leading nutrition department and community nutrition education projects from 2003. And she had an affiliation with the emirate strategic research center. Now she works as freelancer in education and research, and in 2020 she created with some talented volunteers, students and fresh graduates an education accounts in social media called @mansa.waay.

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

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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 antidiabetogenic 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 (ADAM10 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 receptor deficient mice (IL-6R-KO), sIL-6R+/+ mice and wild-type littermates fed a Standard Chow (SC) 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, hyperglycaemia 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.

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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 École Polytechnique Fédérale 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, Düsseldorf (Germany), in the Institute of Biochemistry and Molecular Biology of Prof. Dr. Jürgen 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.

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Sarcopenic obesity in childhood a growing problem

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Childhood obesity is a condition with an exponential growth in the world population, to the point of being considered a public health problem. The modern lifestyle, the excessive consumption of ultra-processed foods, added to the global trend towards a sedentary lifestyle, are factors directly related to this condition, which in turn adds to low protein intakes that in the context of physical inactivity generates poor muscle mass, hence the importance of describing and understanding the component of sarcopenia in childhood, a condition that until now has been described to a greater extent in adult patients.

Some authors such as Steffl, M. et al and collaborators in 2017 proposed to measure it from hand grip, forearm strength and the risk of infantile sarcopenia; given the above, the objective of this review is to search the literature and describe sarcopenic obesity in childhood, risk factors for suffering from it, how to measure it and possible approaches to it.

Conclusion: Loss of skeletal muscle mass is an important component in childhood malnutrition and has been shown to have a negative impact on growth, neurocognitive development and overall quality of life. Taking into account that malnutrition is the imbalance between nutritional requirements and food intake that is highly prevalent in populations with chronic diseases, sarcopenia can be associated as a triggered component of it. Although they are two different clinical conditions, both bring alterations related to the depletion of lean muscle mass effects which decrease quality of life.

Biography

Harold Arevalo MD Sports Medicine and Rehab is Consultant in lifestyle medicine. He is past president of the sports medicine association of Colombia. He is a professor of the postgraduate degree in sports medicine at the University El Bosque. He is a scientific coordinator of TAU biomechanics laboratory, Orlando Fl. Developer of attention model in rehabilitation in RehabNow, USA.

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Effect of sleeve gastrectomy on metabolic status in type 2 obese diabetics

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Background: Limited data are available about evaluation of the effects of sleeve gastrectomy on the glycaemic control on diabetes mellitus. The objective of this study is to evaluate the effectiveness of sleeve gastrectomy in improving the control of glycemic status in obese diabetic patients.

Patients and methods: This is retrospective cross sectional study to review the maintained data base, collected from May 2018 to April 2021 in department of laparoscopic surgery in Farwaniyah hospital-Kuwait.

A total 120 patients with diabetes mellitus who had undergone laparoscopic sleeve gastrectomy were studied at 3 months and 6 months of follow up visits, collected data about variation in Body Mass Index (BMI). And glycosylated hemoglobin (HbA1c) and fasting blood glucose were analyzed.

Results: Of the 120 diabetic patients with ≥ 6 months post-operative follow up 48 diabetic patients (40%) are still taking medications for diabetes mellitus and 72 diabetic patients (60%) are resolved at 3 months and 6 months of follow up. HbA1c has decreased from 9.22 ± 1.36 ($n=18$) preoperatively to 6.02 ± 0.22 after 3 months of surgery and 30 diabetic patients, HbA1c become 5.88 ± 0.22 after 6 months. Body Mass Index (BMI) has decreased from 47.43 ± 11.33 in the sample of the study (120 diabetic patients) preoperatively to 37.82 ± 6.80 at 3 months and to 33.25 ± 3.12 Kg/m after 6 months of surgery. Patients with short duration of diabetes less than 5 years have had better weight loss after surgery and achieved greater resolution rates (euglycemic state).

Conclusion: Sleeve gastrectomy has improved the glycemic control in obese diabetic patients in the form of improvement and resolution and also succeeded in reduction of the body weight in the sample of the study.

Keywords: Sleeve gastrectomy, Diabetes control, Excess weight loss, Bariatric operation.

Biography

Ibrahim El Bayoumy is a Professor of public health and community medicine-Tanta faculty of medicine-Egypt-Master of Diabetes care and education-Dundee faculty of medicine-Scotland-UK and Lecturer and tutor of post graduate public health studies-University of South Wales-UK.

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