

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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