

A SELECTION OF TEN READINGS ON TOPICS RELATED TO BASIC OBESITY MANAGEMENT ACCREDITATION 3

Some are available as free full text, some require payment

Selection of readings made by A/Prof Goh Lee Gan

READING 1 – PHARMACOTHERAPY OF OBESITY: AN UPDATE

Chakhtoura M,¹ Haber R,¹ Ghezzawi M,¹ Rhayem C,¹ Tcheroyan R,² Mantzoros CS.³ Pharmacotherapy of obesity: an update on the available medications and drugs under investigation. *EClinicalMedicine*. 2023 Mar 20;58:101882. PMID: 36992862.

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ABSTRACT

Obesity is an epidemic and a public health threat. Medical weight management remains one of the options for the treatment of excess weight and recent advances have revolutionised how we treat, and more importantly how we will be treating obesity in the near future.

Metreleptin and Setmelanotide are currently indicated for rare obesity syndromes, and five other medications (orlistat, phentermine/topiramate, naltrexone/bupropion, liraglutide, semaglutide) are approved for non-syndromic obesity. Tirzepatide is about to be approved, and other drugs, with exciting novel mechanisms of action primarily based on incretins, are currently being investigated in different phases of clinical trials.

The majority of these compounds act centrally, to reduce appetite and increase satiety, and secondarily, in the gastrointestinal tract to slow gastric emptying. All anti-obesity medications improve weight and metabolic parameters, with variable potency and effects depending on the specific drug. The currently available data do not support a reduction in hard cardiovascular outcomes, but it is almost certain that such data will be forthcoming in the very near future.

The choice of the anti-obesity medication needs to take into consideration the patient's clinical and biochemical profile, co-morbidities, and drug contra-indications, as well as expected degree of weight loss and improvements in cardio-renal and metabolic risk. It also remains to be seen whether precision medicine may offer personalised solutions to individuals with obesity, and whether it may represent the future of medical weight management along with the development of novel, very potent, anti-obesity medications currently in the pipeline.

READING 2 – OBESITY IN SOUTH AND SOUTHEAST ASIA – A NEW CONSENSUS ON CARE AND MANAGEMENT

Tham KW,¹ Abdul Ghani R,² Cua SC,^{3,4} Deerochanawong C,⁵ Fojas M,⁶ Hocking S,^{7,8,9} Lee J,¹⁰ Nam TQ,¹¹ Pathan F,¹² Saboo B,¹³ Soegondo S,^{14,15} Somasundaram N,¹⁶ Yong AML,¹⁷ Ashkenas J,¹⁸ Webster N,¹⁸ Oldfield B.¹⁹ Obesity in South and Southeast Asia-A new consensus on care and management. *Obes Rev*. 2023 Feb;24(2):e13520. PMID: 36453081.

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ABSTRACT

Obesity is a chronic disease in which the abnormal or excessive accumulation of body fat leads to impaired health and increased risk of mortality and chronic health complications. Prevalence of obesity is rising rapidly in South and Southeast Asia, with potentially serious consequences for local economies, healthcare systems, and quality of life.

Our group of obesity specialists from Bangladesh, Brunei Darussalam, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam undertook to develop consensus recommendations for management and care of adults and children with obesity in South and Southeast Asia.

To this end, we identified and researched 12 clinical questions related to obesity. These questions address the optimal approaches for identifying and staging obesity, treatment (lifestyle, behavioural, pharmacologic, and surgical options), and maintenance of reduced weight, as well as issues related to weight stigma and patient engagement in the clinical setting.

We achieved consensus on 42 clinical recommendations that address these questions. An algorithm describing obesity care is presented, keyed to the various consensus recommendations.

READING 3 – INTEGRATED APPROACHES TO COMBATTING CHILDHOOD OBESITY

Verduci E,^{1,2} Di rofio E,^{2,3} Fiore G,^{2,3} Zuccotti G.^{2,4,5} Integrated Approaches to Combatting Childhood Obesity. *Ann Nutr Metab.* 2022;78 Suppl 2:8-19. PMID:35679843.

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ABSTRACT

BACKGROUND: The global prevalence of childhood obesity has grown sharply in recent decades. Obesity is considered a public health problem that directly affects the health status of children in numerous ways. To combat this trend, integrated approaches are necessary to prevent childhood obesity. Strategies require a comprehensive perspective at the individual and parental level alongside the adoption of measures to engage the community and environment.

SUMMARY: Prevention is addressed as crucial in limiting the paediatric obesity epidemic in the long term. Breastfeeding and appropriate complementary feeding are recognised as early dietary factors that affect the future risk of obesity development during the first two years of life. During childhood and adolescence, dietary patterns, eating habits, portion size, eating frequencies, and family meals are important dietary factors to target for preventive strategies, as well as parenting

style, which is influenced by parents' education. Physical activity promotion and the reduction of sedentary behaviour are also recommended. The adherence of children and families to obesity prevention programmes is highly dependent on socioeconomic factors. Moreover, setting food quality standards and public policies to promote healthy lifestyle habits is strongly advocated. The implementation of cost-effective preventive strategies is of high priority and requires an integrated approach by healthcare services. All stakeholders involved should take an active role in supporting and empowering children and families in order to cope with this multifactorial and complex disease.

READING 4 – WEIGHT STIGMA

Brown A,^{1,2,3} Batterham RL,^{1,2,3} Flint SW.^{4,5} Pervasiveness, impact and implications of weight stigma. *EclinicalMedicine*. 2022 Apr 21;47:101408. PMID: 35497065.

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ABSTRACT

Evidence has accumulated to demonstrate the pervasiveness, impact, and implications of weight stigma. As such, there is a need for concerted efforts to address weight stigma and discrimination that is evident within policy, healthcare, media, workplaces, and education. The continuation of weight stigma, which is known to have a negative impact on mental and physical health, threatens the societal values of equality, diversity, and inclusion.

This health policy review provides an analysis of the research evidence highlighting the widespread nature of weight stigma, its impact on health policy, and the need for action at a policy level.

We propose short- and medium-term recommendations to address weight stigma, and in doing so, highlight the need for change across society to be part of efforts to end weight stigma and discrimination.

READING 5 – DOWNSIZING FOOD PORTION SIZES

Robinson E,¹ McFarland-Lesser I,¹ Patel Z,¹ Jones A.¹ Downsizing food: a systematic review and meta-analysis examining the effect of reducing served food portion sizes on daily energy intake and body weight. *Br J Nutr*. 2023 Mar 14;129(5):888-903. PMID: 35387692.

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ABSTRACT

Portion sizes of many foods have increased over time. However, the size of effect that reducing food portion sizes has on daily energy intake and body weight is less clear.

We used a systematic review methodology to identify eligible articles that used an experimental design to manipulate portion size served to human participants and measured energy intake for a minimum of one day. Searches were conducted in September 2020 and again in October 2021.

Fourteen eligible studies contributing 85 effects were included in the primary meta-analysis. There was a moderate-to-large reduction in daily energy intake when comparing smaller vs larger portions (Standardised Mean Difference (SMD) = -0.709 (95% CI: -0.956, -0.461), approximately 235 kcal (983.24 kJ)). Larger reductions to portion size resulted in larger decreases in daily energy intake. There was evidence of a curvilinear relationship between portion size and daily energy intake; reductions to daily energy intake were markedly smaller when reducing portion size from very large portions. In a subset of studies that measured body weight (four studies contributing five comparisons), being served smaller vs larger portions was associated with less weight gain (0.58 kg).

Reducing food portion sizes may be an effective population-level strategy to prevent weight gain.

READING 6 – DOWNSIZING ENERGY-DENSE, NUTRIENT-POOR SNACKS AND DRINKS

Liu Q,¹ Tam LY,¹ Rangan A.¹ The Effect of Downsizing Packages of Energy-Dense, Nutrient-Poor Snacks and Drinks on Consumption, Intentions, and Perceptions-A Scoping Review. *Nutrients*. 2021 Dec 21;14(1):9. PMID: 35010886.

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ABSTRACT

The single-serve packaging of discretionary foods is becoming increasingly popular, but evidence is limited on whether smaller package sizes can reduce food intake.

The aim of this scoping review is to assess the effect of reducing the package size of energy-dense, nutrient-poor (EDNP) snacks and drinks on consumption, intentions, and perception, and to examine the effects of potential moderators or mediators.

The search was conducted in six selected databases and grey literature sources, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for the scoping review process (PRISMA-ScR) guidelines.

After screening 5,562 articles, 30 articles comprising 47 intervention studies were included. Twelve of 15 studies found a significant effect in lowering the actual or intended consumption when a single smaller package was offered compared with a single larger package. When the total serving size was held constant between varying package conditions, such as a multipack, single package, or unpackaged, the results on the actual and intended consumption were inconsistent and varied according to the presence of moderators.

Overall, these findings suggest that an overall reduction in the size of a single package is a more promising strategy than providing multipacks to reduce consumption. Changes to the current food environment to promote single smaller packages of EDNP snacks and drinks are necessary to support the better selection of appropriate portion sizes and reduce consumption.

READING 7 – EFFECTS OF BARIATRIC SURGERY ON CARDIO-RESPIRATORY FITNESS

Ibacache-Saavedra P,¹ Jerez-Mayorga D,¹ Miranda-Fuentes C,¹ Carretero-Ruiz A,² Artero EG,² Cano-Cappellacci M.³ Effects of bariatric surgery on cardiorespiratory fitness: A systematic review and meta-analysis. *Obes Rev*. 2022 Mar;23(3):e13408. PMID: 34927337.

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ABSTRACT

Although bariatric surgery (BS) is recognised as an effective strategy for body weight loss, its impact on cardiorespiratory fitness (CRF) is still unclear.

We aimed to examine postoperative changes in CRF (VO₂max/peak) and its relationship with weight loss among adults undergoing BS.

We systematically searched the WoS, PubMed, MEDLINE, and Scopus databases. Observational and intervention studies were selected reporting the pre-surgery and post-surgery CRF, measured by breath-by-breath VO₂ or its estimation.

Eleven articles (312 patients) revealed that BS leads to a reduction in absolute VO₂max/peak in the short term (effect size, ES = -0.539; 95%CI = -0.708, -0.369; p < 0.001), and those patients who suffered a more significant decrease in BMI after BS also had a greater loss of absolute VO₂max/peak. However, VO₂max/peak relative to body weight increased after surgery (ES = 0.658; 95%CI = 0.473, 0.842; p < 0.001). An insufficient number of studies were found investigating medium- and long-term changes in CRF after BS.

This study provides moderate-quality evidence that the weight loss induced by BS can reduce CRF in the short term, which represents a therapeutic target to optimise BS outcomes. More high-quality studies are needed to evaluate the impact of BS on VO₂max/peak in the short, medium, and long term including normalised values for fat-free mass.

READING 8 – THE EFFECT OF MEAL REPLACEMENT ON WEIGHT LOSS

Min J, Kim SY, Shin IS, Park YB, Lim YW. The Effect of Meal Replacement on Weight Loss According to Calorie-Restriction Type and Proportion of Energy Intake: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. J Acad Nutr Diet. 2021 Aug;121(8):1551-1564.e3.PMID: 34144920.

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ABSTRACT

BACKGROUND: Portion control is a useful component of weight reduction interventions. Meal replacement (MR) plans represent a promising strategy for portion control. Research performed with pooled data on the effect of MR plans according to various characteristics of MR interventions remains scarce.

OBJECTIVE: Our aim was to assess the effects of MR-based diets compared with food-based diets on weight loss, according to calorie-restriction types and energy intake proportions from MR.

METHODS: Electronic databases (Cochrane Central Register of Controlled Trials, PubMed, Embase, and Research Information Sharing Service) were searched for randomised controlled trials on weight loss results of MR-based calorie-restricted diets compared with food-based calorie-restricted diets from January 2000 to May 2020. Standardised mean differences (Hedges' g) from all study outcomes were calculated using a random-effects model. Heterogeneity was quantified by Q test and I². Publication bias was assessed using a funnel plot and a trim-and-fill method. Both interventions (MR and control) were separated into very-low-energy diets and low-energy diets (LEDs). A meta-analysis of variance was conducted by dividing patient-related factors and treatment-related factors into subgroups. In multivariable meta-regressions, background variables were selected first, after which main independent variables were included.

RESULTS: Twenty-two studies involving 24 interventions and 1,982 patients who were overweight or obese were included. The effect size in which MR-based LED was compared with food-based LED for weight loss was small, favouring MR (Hedges' g = 0.261; 95% CI 0.156 to 0.365; I²=21.9; 95% CI 0.0 to 53.6). Diets including ≥60% of total daily energy intake from MR had a medium effect size favouring MR with regard to weight loss among the groups (Hedges' g = 0.545; 95% CI 0.260 to 0.830; I²=42.7; 95% CI 0.0 to 80.8).

CONCLUSIONS: The effect of MR-based LED on weight loss was superior to the effect of food-based LED, and receiving ≥60% of total daily energy intake from MR had the greatest effect on weight loss.

READING 9 – STRATEGIES TO REDUCE CONSUMPTION OF UNHEALTHY FOODS AND BEVERAGES

James-Martin G, Baird DL, Hendrie GA. Strategies to Reduce Consumption of Unhealthy Foods and Beverages: Scenario Modeling to Estimate the Impact on the Australian Population's Energy and Nutrient Intakes. J Acad Nutr Diet. 2021 Aug;121(8):1463-1483. PMID: 33495107.

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ABSTRACT

BACKGROUND: Overconsumption of energy-dense, nutrient-poor "discretionary" foods and beverages can indicate poor diet quality, which is a risk factor for obesity and chronic disease. With 60% of Australians exceeding the recommended intake of discretionary foods, there is a need for interventions to reduce their consumption.

OBJECTIVE: The objective was to model the impact of 26 specific scenarios to limit discretionary food intake on energy and nutrient intake.

DESIGN: The scenario modelling analysis was based on reduction strategies targeting portion size, frequency, or variety of discretionary food and beverage items consumed.

PARTICIPANTS/SETTING: Data from 12,153 respondents aged two to 85 years from the 2011-12 Australian National Nutrition and Physical Activity Survey were used.

OUTCOME MEASURES: The outcome measures were changed in servings of discretionary foods and key nutrients (energy, total fat, saturated fat, sugar, alcohol, sodium, trans fat) for the population, and by sex, age group, weight status, and socioeconomic status.

STATISTICAL ANALYSES PERFORMED: Descriptive and inferential statistical analysis were conducted.

RESULTS: Scenarios reduced total energy intake by up to 26% across the population as a whole. The removal of discretionary foods (not beverages) resulted in the greatest reduction in servings and energy (74.8% and 25.6%, respectively), followed by the removal of discretionary items in portions greater than 143 kcal (59.1% and 24.3%) and not consuming discretionary items at main meals (51.2% and 17.8%). Targeting single categories of discretionary foods reduced energy intake by an average of 5.6% for the removal of cakes and biscuits, 4.4% for alcohol, and 3.9% for sugar-sweetened beverages. Strategies reduced total fat, saturated fat, and sugar by up to 35%, 38%, and 40% respectively.

CONCLUSIONS: Strategies that are specific to discretionary food and beverage intake targeting reductions in portion size, frequency, or variety have the potential to reduce energy intake and improve diet quality. These findings have implications for designing interventions with potential to tailor messages to current dietary habits. Exploration of how these strategies could be effectively implemented will be the focus of further research.

READING 10 – EVIDENCE-BASED WEIGHT LOSS INTERVENTIONS

Bray GA,¹ Ryan DH.¹ Evidence-based weight loss interventions: Individualized treatment options to maximize patient outcomes. Diabetes Obes Metab. 2021 Feb;23 Suppl 1:50-62. PMID: 32969147.

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ABSTRACT

Against the backdrop of obesity as a major public health problem, we examined three questions: How much weight loss is needed to benefit patients with obesity? How well do current therapies do in producing weight loss? What strategies can be used to improve patient outcomes using evidence-based studies?

This paper reviews literature on the outcomes of lifestyle, diet, medications, and surgical treatments for obesity using literature searches for obesity treatments.

Current treatments, including lifestyle, diet, and exercise, produce a weight loss of 5-7% on average. Despite continued attempts to identify superior dietary approaches, most careful comparisons find that low-carbohydrate diets are not significantly better than low-fat diets for weight loss. The four medications currently approved by the US Food and Drug Administration for long-term management of obesity are not as effective as surgery, adding about 5% on average to lifestyle approaches to weight loss. Two new medications that are under investigation, semaglutide and tirzepatide, significantly improve on this. For all treatments for weight loss, including lifestyle, medications, and surgery, there is enormous variability in the amount of weight lost.

Examination of this literature has yielded evidence supporting baseline and process predictors, but the effect sizes associated with these predictors are small and there are no prospective studies showing that a personalised approach based on genotype or phenotype will yield uniform success. Because obesity is a chronic disease, it requires a "continuous treatment model" across the lifespan.