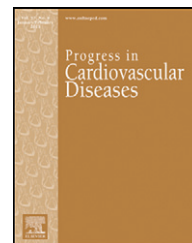


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Changing the Endpoints for Determining Effective Obesity Management



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ABSTRACT

Health authorities worldwide recommend weight loss as a primary endpoint for effective obesity management. Despite a growing public awareness of the importance of weight loss and the spending of billions of dollars by Americans in attempts to lose weight, obesity prevalence continues to rise. In this report we argue that effective obesity management in today's environment will require a shift in focus from weight loss as the primary endpoint, to improvements in the causal behaviors; diet and exercise/physical activity (PA). We reason that increases in PA combined with a balanced diet are associated with improvement in many of the intermediate risk factors including cardiorespiratory fitness (CRF) associated with obesity despite minimal or no weight loss. Consistent with this notion, we suggest that a focus on healthy behaviors for the prevention of additional weight gain may be an effective way of managing obesity in the short term.

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The prevalence of obesity and associated morbidities among North American adults is already high and increasing. Prevalence estimates for overweight and obesity now exceed 70% in United States (US) adults; and approximately 78 million American adults are now obese.¹ Obesity is associated with a wide range of health outcomes from co-morbidities including type 2 diabetes, cardiovascular disease (CVD) and certain cancers, to psychiatric disorders, such as depression.^{2,3} Direct costs attributed to obesity in the US are staggering, with cost estimates now approximating 147 billion dollars annually.¹ These observations are cited by leading health authorities as

the basis for recommendations that encourage weight loss as a primary outcome for determining the efficacy of obesity reduction programs.^{1,4,5} Public awareness of the importance of weight loss is evident as 33% of American men and 46% of American women report that they have attempted or are currently trying to lose weight,⁶ and American consumers now spend over 60 billion dollars each year for weight loss products and services.⁷ Growing awareness and participation in weight loss programs have done little to abate the increase in obesity prevalence, in particular abdominal obesity.^{8–10}

All authors declare that there are no conflicts of interest.

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Abbreviations and Acronyms

BMI = body mass index
CRF = cardiorespiratory fitness
CV = cardiovascular disease
CVD = cardiovascular disease
MET = metabolic equivalent
PA = physical activity
RCT = randomized controlled trial
US = United States

Despite the fact that there is agreement concerning the urgent need to address the growing obesity crisis, few strategies have been successful on a wide scale basis. Past efforts to achieve and sustain weight loss have not been particularly successful long-term.^{11,12} Observations from numerous randomized con-

trolled trials (RCTs) reveal that most adults are not able to sustain the major changes in behavior that are required to maintain even a modest (e.g.,10%) reduction in body weight long term.^{13–15} Thus, although it is a relevant objective from a public health standpoint to try and shift the distribution of body mass index (BMI) values to the left, thereby aiming at a reduction in the number of overweight or obese adults, this goal may be largely out of reach in the short term. The question then is what can be done to address the obesity problem now? In this report we argue that more effective obesity management in today's environment will require an approach central to which are two fundamental principles: 1) The focus of obesity management programs shift from weight loss to improvements in the causal behaviors; diet and exercise/physical activity (PA); 2) A reasonable start point in addressing the obesity problem is to develop diet and physical activity/exercise goals for prevention of weight gain.

Changing the targets for determining effective obesity management

In 2013 the American Heart Association in association with both the American College of Cardiology and the Obesity Society published revised practice guidelines for the management of overweight and obesity in adults.¹ The recommendations from this report were thoroughly considered, based on the best available evidence and expert opinion, and provide valuable insight for general practitioners. Consistent with obesity management guidelines from several health authorities worldwide,^{4,5,16,17} this report identified weight loss as the primary determinant of treatment efficacy. Specifically, that successful management of obese adults should target a weight loss of at least 10% with a 3%–5% weight loss as the minimal target for clinically meaningful benefit.¹⁸

It is established that, on a population basis, excessive weight gain results in a greater BMI and consequently increased health risk.^{2,19} It makes sense, therefore, that weight loss or a decrease in BMI will reduce health risk, hence the resolution by health authorities that effective obesity treatment *requires* weight loss. Indeed, it is clear that intentional weight loss is associated with improvement in many of the intermediate risk factors and medical

complications associated with obesity.²⁰ Unfortunately, sustaining weight loss for most adults is almost impossible in today's environment, and a failure to lose weight is cited as a primary determinant of withdrawal from obesity reduction programs.²¹ A consequence of withdrawal from obesity reduction programs due to a failure to lose body weight is that the individual discontinues adherence to the healthy behaviors that were adopted to lose weight. This is a tragic consequence, as it is clearly established that increasing PA, combined with a healthful diet, is associated with benefit across a wide range of health outcomes, despite minimal or no weight loss.^{17,22–24} More importantly, failed weight loss attempts often result in poor self-efficacy and empowerment.²⁵ Thus a monolithic focus on weight loss as the optimal target for obesity management has not only proven ineffective, it is well argued that it may have negative health effects. As illustrated in Fig 1, with weight loss as the primary determinant of effective obesity management, most adults enter a futile cycle. The 'obesity cycle' described and illustrated in Fig 1 forms the basis for the recommendation that obesity management programs would benefit from a shift in focus from weight loss to the causal behaviors; physical inactivity combined with a low quality, energy dense diet.

Benefits of focusing on causal behaviors for managing obesity

We have long-argued that there is little support for the position that weight loss is mandatory in order to achieve health benefits from lifestyle changes, or that a weight change of 3%–5% is a threshold that must be achieved to reduce obesity-associated health risk.^{17,22} On the contrary, mounting evidence underscores the position that weight loss greater than 3% is not a prerequisite for reducing obesity, in particular abdominal obesity, and related cardiometabolic risk (Table 1). This is particularly true for lifestyle-based strategies that include an increase in PA combined with a healthful diet, particularly since improvements in cardiorespiratory fitness (CRF), which come mainly from increased PA, are likely more important than weight loss per se.^{26,27} Inspection of Table 1 reveals the findings from several randomized controlled studies indicating benefit for several cardiometabolic risk factors in response to minimal weight loss regardless of gender. We²⁸ and others²⁹ have also observed substantial reductions in abdominal obesity in response to positive lifestyle changes despite negligible weight loss.⁹ This is a clinically relevant observation because abdominal obesity is the phenotype that conveys the greatest health risk⁸ and the prevalence of abdominal obesity is increasing at rates greater than obesity per se.³⁰ Furthermore, substantial reductions in abdominal subcutaneous and visceral fat are observed in both obese and type 2 diabetic persons despite the absence of change in body weight.³¹ Corresponding increases in skeletal muscle mass³² explain the stability in body weight and hence *underscore the unique benefits of positive lifestyle changes on obesity management despite weight loss well below recommended targets.*

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