

Diabetes, Weight Loss, and Sisyphus

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“I feel like Sisyphus,” she said with an exasperated smile. A university professor in her mid 50s, she had come to see me after years of frustration with weight loss efforts. Her diabetes, to her, was an afterthought, although it was listed as the reason for referral.

She reminded me of how Zeus had condemned Sisyphus, a king, to an eternity of pushing a boulder up a hill, only to have the boulder fall before reaching

the top. She complained that our medical establishment had likewise punished her by weight loss recommendations that were either inconsistent or ineffective.

First, there are the macronutrient inconsistencies. She weighs > 330 lb with a BMI of nearly 52 kg/m². She has had diabetes for 15 years. She first saw a dietitian near the time of her diabetes diagnosis and was “warned” about the percentage of carbohydrates in her diet. In preparation for an intensive

workout program, she had an exercise stress test and was counseled by a cardiologist to eat a low-fat diet. Three years ago, during an evaluation of an acute episode of renal insufficiency, she saw nephrologists who cautioned her about the proportion of protein in her diet. Calories are characterized by one of three macronutrients: carbohydrates, fat, and protein. Although overall calorie reduction may simultaneously reduce the absolute amount of each macronutrient,

reducing the relative amount of all three is a Sisyphean task.

Second, there are the calorie inconsistencies. She had been told to aim for everything from an absolute intake of 1,200 kcal/day to one of 2,000 kcal/day. Some clinicians focused on relative reduction by recommending that she cut her current calories by 10%, whereas others have told her to cut back by 500 kcal/day (a common recommendation because many believe that a 3,500 kcal net reduction is the equivalent of losing 1 lb; therefore, this would allow for 1 lb of weight loss per week). A relatively sedentary woman at her weight is almost certainly consuming a minimum of 3,000 kcal/day (assuming a minimum requirement of 20 kcal/kg of body weight/day). Simple math reveals that that her absolute reduction recommendations have ranged from 300 to 1,800 kcal/day.

Most troubling for her has been the ineffectiveness. Perhaps this has to do with the confusion created by so many disparate recommendations. Some of these recommendations are improbable (e.g., adhering to a 50% caloric reduction), whereas some are impossible (e.g., decreasing the relative amount of all three macronutrients).

Perhaps this has to do with a 21st century reality that energy intake is so easy and energy expenditure is so hard for some and modest in its effectiveness for nearly all. Consider that one can easily consume 1,500 kcal during lunch at a fast-food restaurant but will only

burn about 250 kcal after 30 minutes of moderate-intensity physical activity. The relatively disheartening “ineffectiveness” of leisure-time physical activity for the purpose of inducing weight loss (compared with its utility for weight loss maintenance)¹ is rarely communicated to patients in our well-intended efforts to promote physical activity, which is truly beneficial in so many ways, albeit not in inducing weight loss (Lance Armstrong–like physical activity excluded). She also recounted numerous named diet plans, all of which she had tried and found “pointless.” She did not agree with her last doctor when he told her that her 12-lb weight loss was a “success.”

In this issue of *Clinical Diabetes*, several authors give attention to efforts to modify weight or attend to nutrition and physical activity in diabetes. Of particular note, Eckhauser et al. (p. 83) call attention to bariatric surgery as a therapeutic approach to obesity, and especially morbid obesity (BMI > 40 kg/m²). A previous meta-analysis² highlighted the remarkable success of this approach (44–110 lb of weight loss) compared to the modest effects of medical approaches. Equally significant, nearly three-fourths of patients with preoperative diabetes no longer required medication after surgery. This procedure is not free of complications as our authors note. Equally important is the lack of conclusive data on its efficacy in patients with milder forms of obesity (BMI 30–35 kg/m²), a group that constitutes a larger proportion of the obese

population. Its limited applicability and potential complications notwithstanding, however, this approach offers substantial hope to a segment of the population who have been so frustrated by the relative ineffectiveness of other options.

I confess to a bit of reluctance in recommending bariatric surgery to my morbidly obese patients or to those with a BMI > 35 kg/m² with comorbidities. Maybe it is some ingrained belief that surgery should be deferred if at all possible. Maybe it is the knowledge that diet and physical activity can work “energy out” > “energy in” should equal weight loss, even as study after study show modest effects. Maybe it is the scientific mindset that solutions should target the cause.

The cause, unfortunately, has more layers than “energy in” > “energy out.” And, some solutions are unrelated to the cause.

My patient had surgery 2 months ago and has discontinued her basal insulin and sulfonylurea while continuing to take a low dose of metformin. We’ll see if the boulder gets to the top of the hill this time.

REFERENCES

¹Church TS, Earnest CP, Skinner JS, Blair SN: Effects of different doses of physical activity on cardiorespiratory fitness among sedentary, overweight or obese postmenopausal women with elevated blood pressure: a randomized controlled trial. *JAMA* 297:2081–2091, 2007

²Buchwald H, Avidor Y, Braunwald E, Jensen MD, Pories W, Fahrback K, Schoelles K: Bariatric surgery: a systematic review and meta-analysis. *JAMA* 292:1724–1737, 2004 [Erratum, *JAMA* 293:1728, 2005]