Obesity:
Dealing with a Pandemic

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George's case

- George, 54, was originally referred at the time of diabetes onset.
- His weight and lifestyle presented several key areas for potential improvement.
- George works 10 hour days and travels for business every three weeks.
- He has been entirely sedentary, but a flight of stairs leaves him winded.
- He has gained about 5 kg per year since turning 50 and his weight is now 110 kg.
- His body mass index (BMI) is 41.
- His waist circumference is 112 cm.
- His dietary routine involves a coffee for breakfast, a sandwich or nothing for lunch and a late dinner.
- Despite trying to limit portion sizes at dinner, his hunger leads to frequent seconds and continued snacking well into the late evening.
- He is proud that he avoids desserts and junk food.

For more on George, turn to page 89.

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Obesity has been labeled a pandemic by the World Health Organization. In North America, the prevalence of overweight, body mass index (BMI) > 25, has exceeded 50% of the population and in the US, the prevalence of obesity, BMI > 30, is approaching a quarter of the population.

The metabolic outcomes of obesity (*i.e.,* diabetes, hypertension and dyslipidemia) are receiving more attention as the cardiovascular risk factors increasingly become targets of primary care guidelines and therapies. The lesser-recognized outcomes of obesity (*i.e.,* gastroesophageal reflux disease, osteoarthritis and sleep apnea) are also becoming more recognized.

FAQ

1. My patients want to lose 50 lb. How can I convince them otherwise?

A key role for the primary care physician is re-educating patients with realistic goals. Prospective and cross-sectional studies have repeatedly confirmed that a 5% to 10% weight loss can result in a 58% prevention of diabetes, 30% to 50% reductions in glucose, 10 mmHg reductions in systolic BP, 30% reduction in triglycerides and a 25% reduction in mortality.

Knowledge of the neurophysiology of appetite control (Figure 1) has increased dramatically in the past decade. Key hunger signaling, such as neuropeptide Y (NPY, with agouti-related protein [AGRP]) and satiety signals (melanocortin at the key MC4 receptor) are all targets for therapeutic intervention and the focus of major research initiatives. Their peripheral hormones that signal this final common pathway have been

defined for a decade (leptin, cholecystokinin [CCK] and insulin), but interventions in these areas have proven ineffective or unsafe.

Caregivers are in an era that has recognized obesity as a chronic disease rather than a social stigma, but with the added burden of overcoming the social phenomenon of dieting, which appears to be nearing its end. Dieting has left patients with unrealistic weight loss expectations and implausible body image goals. The average Canadian woman, 162 cm and 70 kg, is still faced with health-oriented publications that highlight photos of models that average 50 kg on a 180 cm frame.

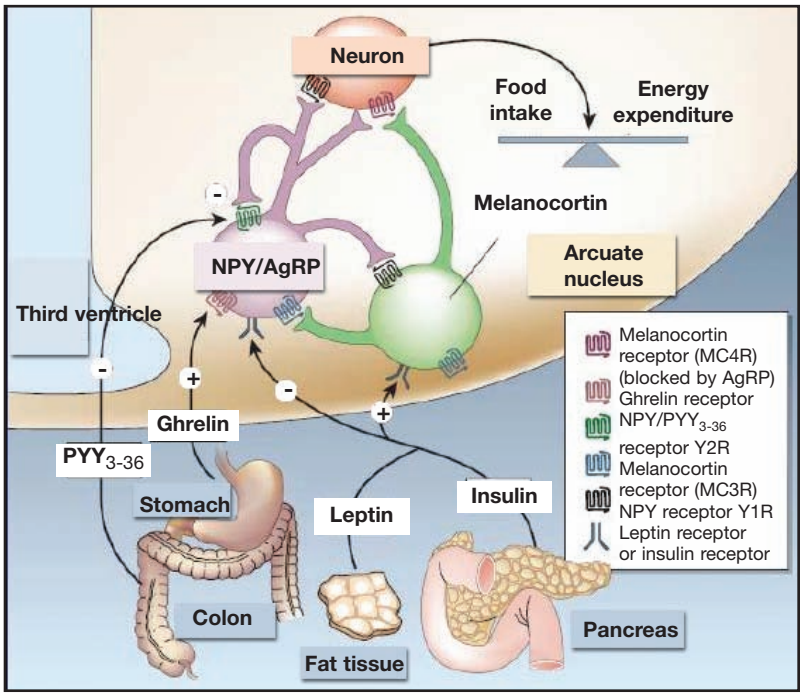

Figure 1. Neuroendocrine weight mechanisms of weight homeostasis.

One study that highlights weight loss expectations, clearly defined the maximal anticipated weight loss of a new medication as 12% of body weight. A week later, participants with a mean weight of 100 kg were asked what their expectations were for the medication. They responded with a goal of 32% weight loss, acceptable results as 20% weight loss and disappointing results as 17% weight loss.

Diets involving artificial caloric restrictions, of all types, have universally been shown to have a 95% rate of failure (Figure 2). Leibel *et al,*[1] and other groups, have shown that caloric restriction leads to an approximate 40% decline in the resting metabolic rate, creating the weight loss plateau and contributing to the frustration and failure cycle of the recurrent dieter. Twenty per cent to 30% of the weight amplitude in a weight loss cycle is lean body mass. Repeated weight cycling has been linked to a greater morbidity and mortality than stable overweight, in cross-sectional studies.

Several basic opportunities are available to primary care physicians that carry a great potential for patients. The current National Institutes of Health (NIH) Obesity Guidelines advocate the continuing evidence-based approach of moderate calorie deficit to achieve a mean 8% weight loss in six months. Low-fat diets are repeatedly confirmed as the most effective approach to

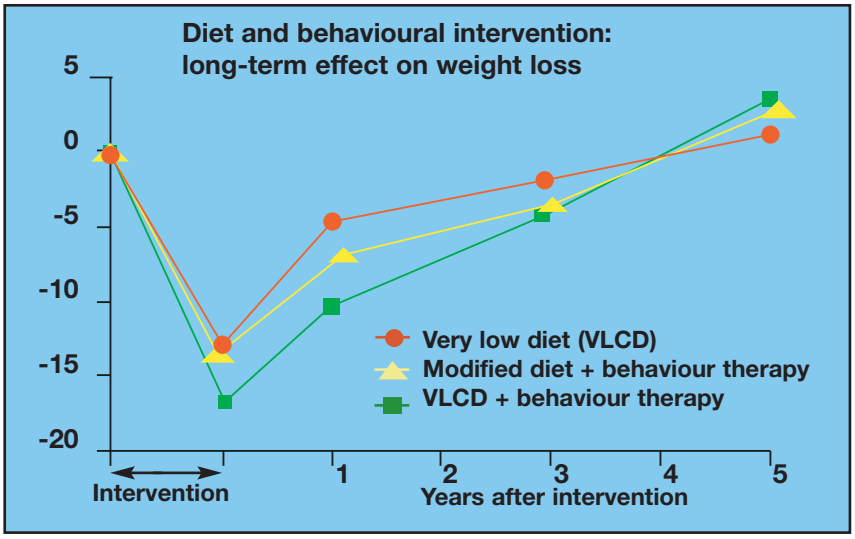

Figure 2. Diet and behavioural intervention: long-term effect on weight loss.

achieving long-term weight loss. Other weight loss strategies aslo include:

- weekly or monthly weight-loss supervision visits with a physician,
- reviewing daily food records and
- keeping a record of eating locations as well as the patients mood at the time of eating.

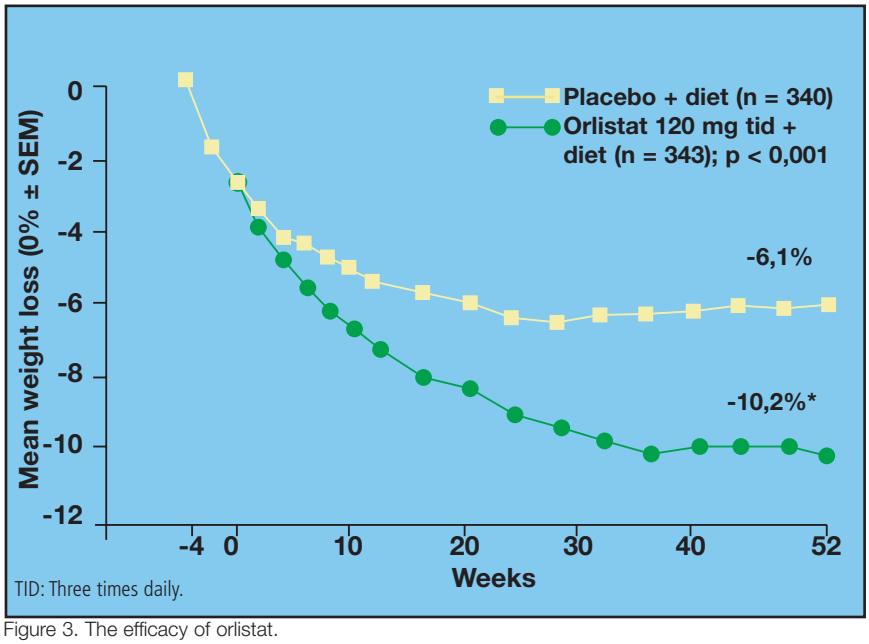

Figure 3. The efficacy of orlistat.

FAQ

2. Is there any difference between the medications that are available?

The two most common medications:
Orlistat creates a partial fat malabsorption. Efficacy studies have shown a benefit vs. placebo of 2% to 4% further weight loss. There are gastrointestinal side-effects from higher amounts of fecal fat (Figure 3).
Sibutramine acts at the appetite centres of the ventral hypothalamus and induces satiety. Patients are twice as likely to achieve successful weight loss and mean weight loss is 6% to 7% greater than placebo controls. Adverse effects include increased heart rate and BP. BP monitoring, twice monthly, is recommended for three months (Figure 4).

The physician's dietary knowledge is not necessary, nor is it significantly linked to weight loss. In many cases, common sense-based advice and a focus on future meal planning can make a significant contribution to successful weight loss. Physician nutritional knowledge was not a significant factor in their ability to effect weight loss in their patients.

Similarly, the NIH Obesity Guidelines review the importance of exercise in helping to maintain weight loss and to provide cardio-respiratory fitness, but confirm that exercise alone has a 2% to 3% effect on weight loss. Physicians can help patients balance exercise programs, which may have been based entirely on aerobic activity, and include muscle training, which has benefits in metabolic rate, strength and balance.

Emotional or impulsive eaters are a particular challenge. NIH Guidelines advocate behaviour modification tools for these patients, which may require specific expertise. Some techniques include stimulus control, contingency planning, building an improved social support infrastructure and stress management. Cognitive restructuring is a particularly useful tool. Using self-talk or mindfulness to change "I ate the donut so I may as well eat the whole box" to "Yes, I ate the donut and no, that doesn't mean I'm a failure and yes, I can get back on track for the rest of the day."

Primary Care physicians can further support their patients in their weight loss efforts by removing obstacles, such as medications or medical conditions that perpetuate obesity. Therapy of both sleep apnea and gastroesophageal reflux disease, each caused by and contributing to obesity has been shown to result in spontaneous weight loss and reduction of food intake. Anti-inflammatory therapy and/or physiotherapy can restore an obese patient's ability to begin an activity program. Replacement of beta-blockers, reduction in insulin and sulfonylurea usage and trying alterna-

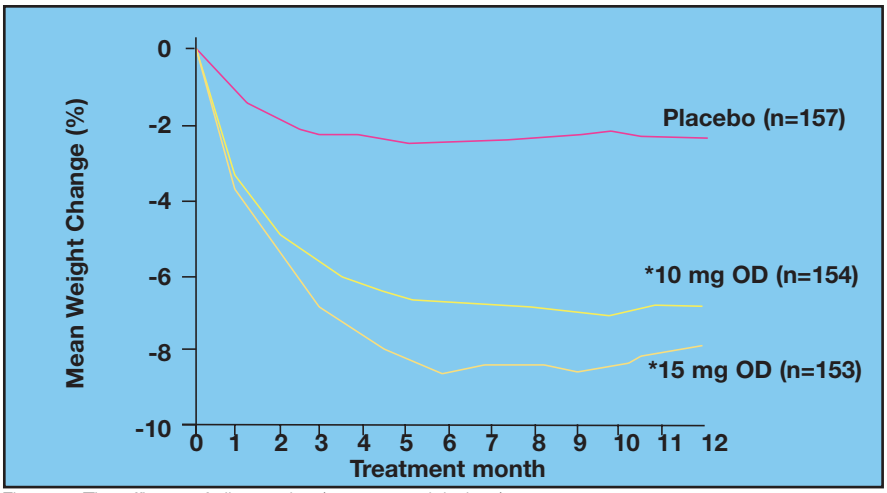

Figure 4. The efficacy of sibutramine (per cent weight loss).

tives to SSRI's and atypical antipsychotics can have dramatic impact on weight loss success.

The NIH Obesity Care Guidelines were recently validated by the US Preventive Services Task Force, but Obesity Canada is in the process of finalizing an expert consensus panel that will provide Canadian physicians with a set of clinical practice guidelines that is more appropriate for Canada's population.

We anticipate that future directions in dietary management will move away from the firm macronutrient emphasis of the past (55% carb, < 30% fat, 20% protein) to a greater awareness of more metabolically appropriate choices (*i.e.,* complex, low-glycemic index carbs, more lean protein and continuing limitations of fat intake, made up primarily of poly- and mono-unsaturates). Dx

George's followup

- George is surprised to see how little he understands about food balance.
- Eating three meals and an afternoon snack daily almost eliminates his evening hunger.
- He learns that his diet was largely based on simple carbohydrates, such as pasta and potatoes and he began to incorporate sources of fibre and leaner proteins.
- Finally, he re-channels his trips to the fridge into quick, 10-minute walks that leave him refreshed.
- He lost 7 kg in four months and feels comfortable with the new approaches and he plans to continue them.

References
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Resources
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4. McTigue KM, Harris R, Hamphill B et al: Screening and interventions for obesity in adults: summary of the evidence for the U.S. Preventive Services Task Force. Ann Intern Med 2003; 139(11):933-49.
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Web reading

- **American Obesity Association www.obesity.org**
- **The Obesity Society www.naaso.org**
- **About Obesity http://www.obesite.chaire.ulaval.ca/websites.html**