

## Medical Obesity Treatment: Long-Term Success in a Primary Care Setting

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The one-third of adults who are obese learned they could reduce their risk of diabetes, heart disease, stroke, and cancer by 70% with weight control [body mass index (BMI) < 30], healthy diet, and exercise.<sup>1</sup> Unfortunately, such weight loss is rarely achieved. Traditional diets and medications yield, at best, 5% weight loss in one year.<sup>2</sup> Bariatric surgery has better results but reaches <1% of those eligible.<sup>3</sup> Effective medical weight loss alternatives are needed. A study using modern low-calorie diet (LCD) technology gave obese patients a 15.5% initial and 9.6% 2-year weight loss.<sup>4</sup> Our own clinical series shows that such LCD research can be applied and improved on in the primary care setting to sustain meaningful medically supervised weight loss.

The 917 patients in our 1991–2004 clinical series were treated with Health One meal replacement and the Program for Health and Weight Management curriculum (Health and Nutrition Technology, Inc., Carmel, CA). Governor Mike Huckabee also used Health One when he lost over 100 lb in 2004.<sup>5</sup> While on Health One (800 kcal/day) to goal weight, our patients attended weekly classes—first the 16-week Foundation (Phase I) core curriculum, then ongoing Practice (Phase II) maintenance. The classes teach and reinforce healthy eating and exercise habits for long-term weight control following major weight loss. Data were analyzed using SAS version 9.1 (SAS Institute, Cary, NC).

For all patients, initial BMI was  $38.0 \pm 7.4$  ( $107.6 \pm 24$  kg) and weight loss was  $16\% \pm 8.4\%$  ( $17.5 \pm 10.7$  kg) after  $14.2 \pm 8.0$  weeks. For the 39% of patients ( $n = 352$ ) who completed Foundation and attended Practice (completers), weight loss was  $21.4\% \pm 7.6\%$ , and BMI fell to  $29.7 \pm 5.8$ . After  $11.9 \pm 14.6$  months in maintenance, weight loss was still  $16.4\% \pm 8.7\%$  ( $18.4 \pm 11.4$  kg).

**Figure 1** shows percent weight loss versus months in Phase II maintenance (mean  $\pm$  standard deviation). A locally weighted smoothing curve (Lowess) was fitted to the scatter plot, and regression lines were approximated to the Lowess curve. Weight loss is approximately 20% initially and 14% after 2 years ( $p < .05$ ). No further gain occurs during years 3 and 4 with the trend for modest weight loss ( $p = .34$ ). Of those in maintenance, 72% stayed at least 6 months and 18% remained after 2 years.

We hypothesize that our significant initial weight loss followed by intensive lifestyle classes over several years may produce greater weight loss and lower dropout rates than other traditional and LCD diets.<sup>2,4</sup> A common perception

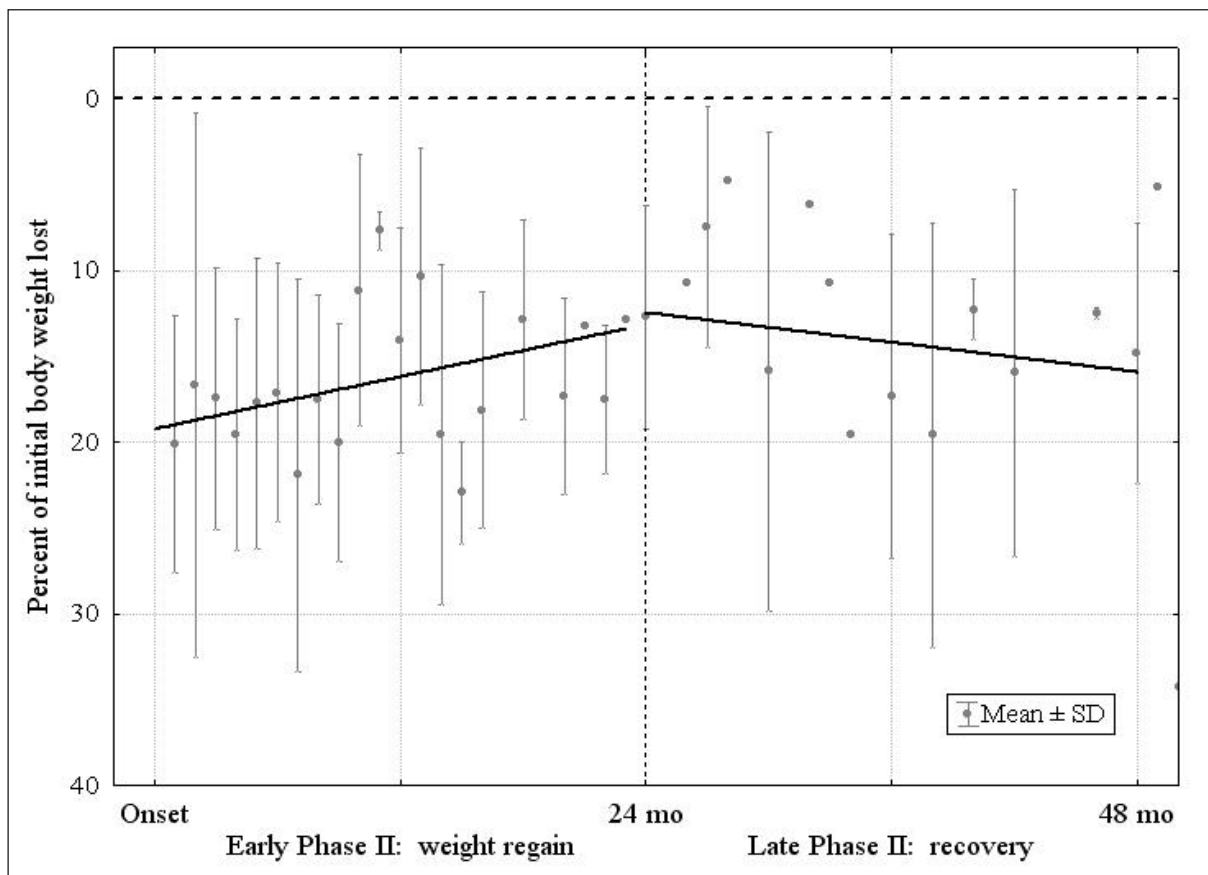
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**Abbreviations:** (BMI) body mass index, (LCD) low-calorie diet

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**Figure 1.** Patients in Maintenance ( $n = 352$ ) by months in treatment. SD, standard deviation.

is that patients have few medical options for significant weight loss. On the contrary, losses in our completers were similar to those reported for surgical gastric banding.<sup>6</sup> Further, our patients showed no further gain after 2 years in maintenance, challenging the traditional view of inevitable gain after nonsurgical weight loss. This study is limited by its observational nature, and more data on those who drop out would be helpful. Still, further application of our primary care obesity treatment model in the medical management of obesity seems justified.

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#### Disclosure:

Dr. Stephen R. Schultz is Health and Nutrition Technology, Inc.'s president and chief scientific officer, and Dr. Douglas M. Carney is medical director.

#### References:

1. Ford ES, Bergmann MM, Kröger J, Schienkiewitz A, Weikert C, Boeing H. Healthy living is the best revenge: findings from the European Prospective Investigation Into Cancer and Nutrition-Potsdam study. *Arch Intern Med*. 2009;169(15):1355–62.
2. Tsai AG, Wadden TA. Systematic review: an evaluation of major commercial weight loss programs in the United States. *Ann Intern Med*. 2005;142(1):56–66.
3. Elliott VS. Treating morbid obesity without surgery: studies aim for primary care alternatives. *AMNews*. April 3, 2006:1–5.

4. Ryan D, Johnson W, Myers V, Brantley P, Gupta A, Broussard A, Barootes B, Elkins B, Datz G, Pothakamuri S, Barbera B, Hudnall T, Stenlof K. Weight loss in class III obese adults primary care settings: results of the Louisiana Obese Subjects Study (LOSS). *Obesity*. 2008;16 Suppl 1:S52.
5. Barnes S. Belt-tightening measure: Arkansas governor Mike Huckabee lost 105 lbs.—now he's putting his state on a diet. *People*. August 16, 2004;62(7):79–80.
6. O'Brien PE, Dixon JB, Laurie C, Skinner S, Proietto J, McNeil J, Strauss B, Marks S, Schachter L, Chapman L, Anderson M. Treatment of mild to moderate obesity with laparoscopic adjustable gastric banding or an intensive medical program: a randomized trial. *Ann Intern Med*. 2006;144(9):625–33.