A portion-control plate was effective for weight loss in obese patients with type 2 diabetes mellitus

Pedersen SD, Kang J, Kline GA. **Portion control plate for weight loss in obese patients with type 2 diabetes mellitus: a controlled clinical trial.** Arch Intern Med. 2007;167:1277-83.

Clinical impact ratings: GIM/FP/GP ★★★★★☆☆ Endocrinology ★★★★★★☆

QUESTION

In obese patients with type 2 diabetes mellitus, is a portion-control (PC) plate effective for weight loss?

METHODS

Design: Randomized controlled trial (RCT).
Allocation: {Concealed}†.*
Blinding: {Unblinded}†.*
Follow-up period: 6 months.
Setting: An outpatient diabetes center in Calgary, Alberta, Canada.
Patients: 130 patients 31 to 77 years of age (mean age 56 y, 59% women) with type 2 diabetes mellitus and body mass index > 30 kg/m^2 who were clients of the diabetes center and had ≥ 6 months prestudy teaching and management by dietitians and diabetes nurse educators. Exclusion criteria were cancer, use of weight loss drugs, history of bulimia or anorexia nervosa, psychiatric care, surgery in the past 3 months or during the study period, weight loss > 4.5 kg in the past 2 months, and consumption of > 30% of all meals or dinner > 2 times/wk at restaurants.
Intervention: A commercially available PC dinner plate and breakfast bowl (n = 65) or dietary teaching (usual care) (n = 65) for 6 months. PC plates were divided into sections for carbohydrates, proteins, vegetables, cheese, and sauces. Men's PC plates were calibrated for 800-calorie (3347 J) meals, women's PC plates were calibrated for 650-calorie (2720 J) meals, and breakfast bowls were calibrated for 200 calories (837 J) of cereal and milk. In the PC group, patients were told to use PC plates for the largest meal of the day and breakfast bowls only for cereal, and to keep daily logs. All patients agreed not to use weight loss drugs or participate in special diets during the trial.
Outcomes: Patients achieving ≥ 5% weight loss. Secondary outcomes included use of hypoglycemic medication; changes in levels of glycosylated hemoglobin (GHB), triglyceride, and low-density lipoprotein (LDL) and high-density lipoprotein (HDL) cholesterol; and blood pressure (BP).
Patient follow-up: 94% (100% included in the intention-to-treat analysis).

MAIN RESULTS

At 6 months, more patients in the PC group had ≥ 5% weight loss and used less hypoglycemic medication than did the dietary-teaching group (Table). The PC group had higher systolic BP than did the dietary-teaching group (Table), but groups did not differ for changes in levels of GHB, triglyceride, LDL and HDL cholesterol, and diastolic BP.

CONCLUSION

A portion-control plate was effective for weight loss and decreased use of hypoglycemic medication in obese patients with type 2 diabetes mellitus.

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*See Glossary.
†Information provided by author.

A portion-control (PC) plate vs dietary teaching in obese patients with type 2 diabetes mellitus at 6 months‡

Outcomes	PC plate	Dietary teaching	RBI (95% CI)	NNT (CI)
≥ 5% weight loss	17%	4.6%	267% (17 to 1085)	9 (5 to 56)
Decreased use of hypoglycemic drugs	26%	11%	143% (12 to 441)	7 (4 to 48)
			RRR (CI)	
Increased use of hypoglycemic drugs	14%	34%	59% (20 to 80)	5 (3 to 19)
	Mean change from baseline		Difference (CI)	
Systolic BP	5.5%	−4.2%	9.7% (4.8 to 15)	

‡BP = blood pressure; other abbreviations defined in Glossary. RBI, RRR, NNT, and CI calculated from data in article.

COMMENTARY

The RCT by Pedersen and colleagues evaluated the effectiveness of a PC plate for weight loss in obese patients with type 2 diabetes.

The procedural differences in both groups (i.e., only 1 group received intervention materials—PC plate and bowl) may have affected the behavior of the patients and influenced the results. Also, documenting adherence in daily logbooks was only required in the PC group, and patients in the PC group may have been more worried about what they were eating because they were using logbooks. Thus, although the PC group achieved greater weight loss and behavior modification, patients may have been more motivated because they received more attention than did the dietary-teaching group.

The significant reduction in weight in the subgroup taking insulin compared with the subgroup not taking insulin needs further analysis. It is unclear if adherence in those taking insulin was higher than in those not taking insulin. The energy intake in both groups is also unclear.

Although the PC plate is an inexpensive tool for nutritional education, the conclusion that it is effective for weight loss in obese patients with type 2 diabetes must be interpreted with caution.

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