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## Stress Management can facilitate weight loss in Greek overweight and obese women: a pilot study

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Stress and negative emotions have been shown to be critical factors in inducing overeating as a form of maladaptive coping in obese people<sup>(1,2)</sup>. The study is designed to evaluate the efficacy of an 8-week stress management program that includes progressive muscle relaxation (PMR) and diaphragmatic breathing on weight loss perceived stress, emotional and external eating, and dietary restriction behavior in a sample of overweight and obese women who start a weight loss program. A total of 34 overweight and obese women (BMI > 28 kg/m<sup>2</sup>), 18 and 60 years old, were recruited. The subjects visited the outpatients Obesity Clinic of a public Hospital, in Athens, Greece, referred by their General Practitioner, in order to lose weight. They were randomly assigned into an intervention Stress Management (SM) group and a control group. Standard anthropometric measurements were taken and the subjects completed the following questionnaires: the Dutch Eating Behavior Questionnaire (DEBQ), the Eating Attitudes Test (Eat-26), the Health Locus of Control (HLC) and the Perceived Stress Scale (PSS) before and after the intervention. Findings indicated significant reductions in weight loss in the SM compare to the control group. The SM group lost an average of 4.44 ± 0.83 kg during the 8 weeks of the intervention, whereas the control group lost 1.38 ± 0.78 kg (*p* value < 0.05). Higher restrained eating behaviour (9.45 ± 1.75) was observed at the intervention group after 8 weeks of intervention in comparison with control group (1.51 ± 1.64) (*p* value < 0.05).

	SM (N = 18)	Control (N = 16)	P value
Δ PSS (SE)	-0.969 (3.03)	0.314 (2.86)	0.838
Δ Weight (SE)	-4.44 (0.83)	-1.38 (0.78)	0.012*
Δ BMI (SE)	-1.63 (0.29)	-0.53 (0.28)	0.012*
Δ DEBQ (SE)	9.43 (5.11)	6.59 (4.96)	0.694
Δ Restrained eating behavior (SE)	9.45 (1.75)	1.51 (1.64)	0.002*
Δ Emotional eating (SE)	-0.018 (4.49)	5.26 (4.22)	0.399

Controlled for age\*group, emotional eating\*group and marital status\*group (ANCOVA).

Dieting and dietary restraint are not equivalent. Dietary restraint may contribute to successful weight management more than dieting<sup>(3)</sup>. The intervention group showed greater weight reduction, although there was no significant difference of perceived stress levels between pre- and post-intervention groups. The weight loss differences could possibly be attributed to the stress management program and to the greater dietary restraint demonstrated by the intervention group in comparison to the control group.

1. Manzoni GM, *et al.* (2009) Can relaxation training reduce emotional eating in women with obesity? An exploratory study with 3 months of follow-up. *J Am Diet Assoc* **109**(8), 1427–32.
2. Torres SJ & Nowson CA (2007) Relationship between stress, eating behavior, and obesity. *Nutrition* **23**(11–12), 887–94.
3. Rideout CA & Barr SI (2009) “Restrained eating” vs “trying to lose weight”: how are they associated with body weight and tendency to overeat among postmenopausal women? *J Am Diet Assoc* **109**(5), 890–3.