

Overweight and obesity in the young and old

Prevalence, prevention and eating behavior

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Göteborgs Universitet kommer att offentligens försvaras i sal 2118, Hus 2, Sahlgrenska Akademin, Arvid Wallgrens Backe, Göteborg, fredagen den 30 mars 2007, kl 09.00

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Avhandlingen baseras på följande delarbeten:

- I Eiben G, Dey DK, Rothenberg E, Steen B, Björkelund C, Bengtsson C, Lissner L. Obesity in 70-year-old Swedes: Secular changes over 30 years. *International Journal of Obesity* (2005) 29, 810–817.
- II Eiben G, Andersson CS, Rothenberg E, Sundh V, Steen B, Lissner L. Secular trends in diet among elderly Swedes – cohort comparisons over three decades. *Public Health Nutrition* 2004;7(5):637-644.
- III Eiben G, Lissner L, Lichtenstein P. Genetic and environmental factors in relation to body shape, body image and disordered eating in 15-17-year-old Swedish twins. Manuscript.
- IV Eiben G, Lissner L. Health Hunters - an intervention to prevent overweight and obesity in young high-risk women. *International Journal of Obesity* 2006 Apr;30(4):691-6.



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Background: During the last 25 years the prevalence of overweight and obesity has increased dramatically, both in developed and developing countries. The World Health Organization is declaring it an epidemic. In Sweden the increase was almost 50% between 1980 and 2005. The largest increases occurred in the 16-24-year age group. The highest prevalence can be observed in older age groups.

The general aim of this thesis is to study obesity and its determinants in the young and the elderly. The specific aims are to document secular trends in overweight and obesity and lifestyle determinants in the elderly, to investigate the influence of genetic and environmental factors in body shape and behavioral aspects of weight in teenagers and to conduct an intervention study to prevent overweight and obesity in young high-risk women.

Methods: Five cross-sectional samples of 3 702 70-year-olds born between 1901 and 1930 in Göteborg, Sweden were examined in the Gerontological and Geriatric Population Studies (H70). Cohort differences in anthropometric parameters and lifestyle determinants such as diet, physical activity, smoking habits and education were assessed.

The Twin Study of Child and Adolescent Development (TCHAD) is a population-based longitudinal study including all twin pairs born in Sweden between 1985 and 1986. The 15-17-year-old twins reported their anthropometric data and answered a questionnaire about body image and disordered eating. Respective genetic and environmental influences were estimated.

Young women, aged 18-28, with severely obese parents, were randomized to control or intervention groups in which they participated in a year-long individualized behavioral program (Health Hunters) focusing on diet and physical activity.

Results: The prevalence of overweight and obesity increased in 70-year-olds and was about 65% and 22% respectively in 2000. BMI increased in all lifestyle groups, but the increase was lowest among the physically active. Many secular changes in food selection patterns were observed in the elderly and the nutritional content of their diets was generally adequate.

In the young twins, genetic factors had a major effect on anthropometric parameters while environmental factors were most important for body image and eating behavior.

Young women with a familial predisposition to obesity were at high risk for weight gain; however the Health Hunters prevention program succeeded in preventing weight gain.

Conclusion: Both the young and the elderly are afflicted by the obesity epidemic. Research activities and prevention initiatives must draw attention to both age groups. Our results indicate the importance of focusing on body image in the young, while diet and physical activity are relevant for all age groups. Working with prioritized groups is one component of managing the obesity epidemic.

Key words: prevention, BMI, elderly, young adults, lifestyle, diet, intervention, secular trends, Twin study, EDI-2, genetic, environment

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