

Contents

Foreword **xiii**

William F. Rayburn

Preface **xv**

Raul Artal

Health Care Costs of Obesity in Women **213**

Jeffrey A. Gavard

This article summarizes and critically evaluates the scientific literature for the annual and lifetime medical care costs of obesity in women in the United States. Studies involving actual and projected costs are reviewed. Studies were favored that included large, nationally representative samples; accounted for the influence of potential confounding factors; and adjusted for decreased survival in obese women when comparing costs with women of normal weight. Despite a wide variety of methodology in model cost estimation and projection in the studies published, the evidence suggests significant costs attributable to overweight and obesity in women that vary throughout the lifespan and by specific racial and obesity categories.

Early Life Origins of Obesity **227**

John P. Newnham, Craig E. Pennell, Stephen J. Lye, Jonathan Rampono, and John R.G. Challis

There is increasing evidence that obesity has its origins in early life. Predisposition is based on interactions between the genome and environmental influences acting through epigenetic modifications. Individuals most at risk are those whose ancestral line has made a rapid transition from a traditional to a Westernized style of life. The process involves not only metabolism, but also behavior. As a result, those people who are most at risk of obesity may be those least likely to respond to educational programs based on lifestyle modification. Understanding the mechanisms and pathways that underpin the early origins of obesity is vital if we are to make progress in addressing this major problem of modern life.

Gender Differences in Lipid Metabolism and the Effect of Obesity **245**

Faidon Magkos and Bettina Mittendorfer

There are many differences between men and women, and between lean and obese subjects, in fatty acid and very low-density lipoprotein triglyceride and apolipoprotein B-100 metabolism. Currently, observations in this area are predominantly descriptive. The mechanisms responsible for sexual dimorphism in lipid metabolism are largely unknown.

Cardiopulmonary Aspects of Obesity in Women

267

Gerald S. Zavorsky

This review discusses the cardiopulmonary aspects of obesity in nonpregnant women. The effects of obesity on pulmonary diffusing capacity and pulmonary gas exchange are related to the waist-to-hip ratio. Obese women have an increased risk for heart failure compared with normal-weight women, a risk that progressively worsens with increasing body mass index. They also have poor cardiac accommodation and possess a lower oxygen pulse at peak exercise. Cardiac output, heart rate, and total blood volume are higher in obese women whereas ejection fraction is lower compared with normal-weight women; substantial weight loss normalizes these parameters.

Pregnancy and Obesity

285

Yariv Yogev and Patrick M. Catalano

Obesity has become a worldwide epidemic: it is associated with increased rate of infertility and with many pregnancy complications. Moreover, it is associated with gestational diabetes mellitus, which increases the risk of these complications. As the prevalence of obesity is increasing, so is the number of women in the reproductive age who are overweight and obese. This article addresses issues concerning pregravid obesity and weight gain during pregnancy and their implication on gestational diabetes and pregnancy outcome.

Exercise Prescription for Overweight and Obese Women: Pregnancy and Postpartum

301

Michelle F. Mottola

Once a low-risk pregnancy has been established, walking in combination with nutritional control may be effective in preventing excessive weight gain in overweight and obese women. Maternal exercise prescription should use the Frequency, Intensity, Time spent and Type of exercise principle, with a frequency of three to four sessions per week as ideal. Intensity based on a target heart-rate zone of 110 to 131 beats per minute for women 20 to 29 years of age and 108 to 127 beats per minute for women 30 to 39 years of age, coupled with use of the rating of perceived exertion scale and the "Talk Test" is suggested. Dieting and exercise together are most effective in reducing weight retention after childbirth and compliance may be improved by incorporating child-care and children into the exercise routine. After medical consultation, postpartum women should begin exercise slowly, starting from 15 minutes, and building to at least 150 minutes of aerobic activity per week, with this activity spread throughout the week.

Childbearing and Obesity in Women: Weight Before, During, and After Pregnancy 317

Erica P. Gunderson

Weight gain and the development of obesity during midlife are strong independent predictors of cardiovascular disease, particularly among women, as well as the metabolic syndrome, type 2 diabetes, and early mortality. Primiparity and maternal body size before pregnancy affect long-term postpartum weight retention and the development of obesity among women of reproductive age. As a modifiable risk factor, body weight during the preconception, prenatal, and postpartum periods may present critical windows to implement interventions to prevent weight retention and the development of overweight and obesity in women of childbearing age.

Obesity and Its Relationship to Infertility in Men and Women 333

J. Ricardo Loret de Mola

This review focuses on the negative impact of obesity in reproduction by considering the pathophysiology of obesity and infertility in men and women, the influence of obesity on the prevalence of polycystic ovary syndrome, and the benefits of weight loss on reproduction and on menstruation, ovulation, semen parameters, and reproductive outcomes.

Obesity and Sexuality in Women 347

Mitul B. Shah

Sexual health is an important part of an individual's overall health. This article presents the definitions and classifications of female sexual dysfunction (FSD), emphasizes the importance of obtaining a sexual health assessment, and describes the tools that can be used for this assessment. The impact of obesity on reproductive health over a woman's entire life span (in the family-planning years, reproductive years, and menopause years) is described. The treatment of obesity will have a positive effect on a woman's sexual health, with a likely improvement in FSD and a decrease in risk factors related to contraception, pregnancy, infertility, and menopause.

Maternal and Child Obesity: The Causal Link 361

Emily Oken

Studies have found that higher maternal weight entering pregnancy increases risk for obesity and its cardiometabolic complications among offspring. Epidemiologic studies have found that higher maternal gestational weight gain is associated with higher weight and consequent risk for obesity, and elevated blood pressure among children. While these associations are partly mediated by shared genes and behaviors, the abundance of human evidence, supported by extensive data from experimental animal studies, suggests that intrauterine exposure to an obese intrauterine environment programs offspring obesity risk by influencing appetite,

metabolism, and activity levels. Efforts to interrupt this cycle of obesity are important for public health and economical, as a successful intervention could benefit the child, the mother, her future pregnancies, and subsequent generations.

Obesity in Minority Women: Calories, Commerce, and Culture

379

Sharon T. Phelan

Obesity is increasing at epidemic rates in all women, but especially in minority women and children. Factors that contribute to this include changes in caloric intake and expenditure (calories), cost and ease of acquiring food along with pressures from the marketplace and media (commerce) and the community response to the increasing prevalence of obesity and sedentary lifestyle (culture).

Index

393