

Nutrition in the female life cycle

editors
Emanuel Lebenthal, MD
Niva Shapira, PhD



DANONE INSTITUTE OF ISRAEL
<http://www.danone-institute.org.il/danone/>

ISBN 965-90350-0-4

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Published by: ISAS International Seminars Ltd.
P.O. Box 34001, Jerusalem 91340, Israel

Printed in Israel

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CONTRIBUTORS

Yona Amitai, M.D. - Director, Department of Mother, Child and Adolescent Health, Ministry of Health, Israel; Associate Professor of Pediatrics, external staff at Hadassah-Hebrew University School of Medicine, Jerusalem, Israel.

Hanoch Bar-On, M.D. – Head, Diabetes Unit, Division of Internal Medicine, Professor, Hadassah-Hebrew University School of Medicine, Jerusalem, Israel.

Elliot M Berry, M.D., FRCP - Senior Physician, Department of Internal Medicine and Department of Human Nutrition and Metabolism, Hadassah-Hebrew University School of Medicine, Jerusalem, Israel.

Eran Dolev, M.D., Ph.D. – Head, Department of Internal Medicine E, Tel-Aviv Sourasky Medical Center; Associate Professor, Tel-Aviv University School of Medicine, Tel-Aviv, Israel.

Yosef Dror, Ph.D. – Senior Lecturer, Institute of Biochemistry, Food Science and Nutrition, Faculty of Agricultural, Food and Environmental Quality Sciences, The Hebrew University of Jerusalem, Rehovot, Israel.

Gal Dubnov, M.D., M.Sc. - Research Associate, Department of Human Nutrition and Metabolism, Hadassah-Hebrew University School of Medicine, Jerusalem, Israel.

Arthur I Eidelman, M.D. – Director, Department of Neonatology, Shaare Zedek Medical Center; Associate Professor of Pediatrics, Hadassah-Hebrew University School of Medicine, Jerusalem, Israel.

Ester Gonen, M.Sc. – Sport Dietician, Lecturer, Wingate Institute, Netanya, Israel.

Yossi Harel, Ph.D. – Senior Lecturer, Chairman, Department of Sociology & Anthropology, Bar-Ilan University, Ramat-Gan, Israel.

Sophia Ish-Shalom, M.D. – Head, Metabolic Bone Diseases Unit, Rambam Medical Center; Senior Lecturer, Faculty of Medicine, Technion, Israel Institute of Technology, Haifa, Israel.

Emanuel Lebenthal, M.D. - Professor and Chairman, Department of Pediatrics, Hadassah-Hebrew University Mount Scopus Medical Center, Jerusalem, Israel

Joseph Levy, Ph.D. - Professor, Clinical Biochemistry Department, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer-Sheva, Israel.

Yair Lyel, M.D. – Associate Professor, Endocrine Unit, Soroka Medical Center and the Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

Zecharia Madar, Ph.D – Professor, Director, School of Nutritional Science, Institute of Biochemistry, Food Sciences and Nutrition, Faculty of Agricultural, Food and Environmental Quality Sciences, The Hebrew University of Jerusalem, Rehovot, Israel.

Michal Molcho, M.A. – Research Associate, Department of Sociology & Anthropology, Bar-Ilan University, Ramat-Gan, Israel.

Dorit Nitzan Kaluski, M.D., MPH, R.D. - Director, Department of Nutrition, Ministry of Health, Israel.

Sharon Rabinovitz, Ph.D. – Research Associate, Psychopharmacology Lab, Department of Psychology, Bar-Ilan University, Ramat-Gan, Israel.

Betty Schwartz - Ph.D. – Lecturer, Institute of Biochemistry, Food Sciences and Nutrition, Faculty of Agricultural, Food and Environmental Quality Sciences, The Hebrew University of Jerusalem, Rehovot, Israel.

Eliezer Shalev, M.D. – Chairman, Department of Obstetrics & Gynecology, HaEmek Medical Center, Afula; Associate Professor, Faculty of Medicine, Technion, Israel Institute of Thchnology, Haifa, Israel.

Niva Shapira, Ph.D., R.D. - Lecturer, Department of Health Professionals, Medical School, Tel-Aviv University, Ramat Aviv, Tel-Aviv, Israel.

Yoav Sharoni – Ph.D. - Associate Professor, Clinical Biochemistry Department, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer-Sheva, Israel.

Isaiah D. Wexler, M.D., Ph.D. – Attending Physician, Department of Pediatrics, Mt. Scopus – Hadassah Medical Center, Jerusalem, Israel.

Shlomo Yehuda, Ph.D. – Professor, Psychopharmacology Laboratory, Department of Psychology, Bar-Ilan University, Ramat-Gan, Israel.

PREFACE

There are four main concerns unique to nutrition in the female life cycle. The first concern is eating disorders, dieting and body perception of adolescent girls. The second is the special needs for micronutrients and macronutrients during pregnancy and nursing. The third relates to the management of obesity, osteoporosis, diabetes and nutritional deficiencies during the menopause period; while the last relates to the possible nutritional impact on cancer in women, especially breast cancer.

This book addresses the above concerns. In order to advance the understanding and teaching of women's nutrition there is a discussion of issues of nutritional education for women, emphasizing the taboos of the past related to the female body and misconceptions of body image and eating disorders. The adolescent preoccupation with obesity and dieting is also discussed. The book emphasizes women's attitudes toward nutritional problems in Israel which are relevant to the international community.

Many young adolescent girls do not know how to classify themselves in terms of weight and are thus engaged in incorrect diet behaviors. Therefore, we have included a chapter discussing the prevalence of different types of diet behavior among Israeli girls and the prevalence of poor body image, frequency of food intake and recreational activities.

To illustrate the problems of body image and diet in adolescent girls, the special case of adolescent female dancers is presented. The extent of nutritional deficiencies in female dancers and their impact on skeletal abnormalities, endocrine problems, menstrual irregularities, etc. illuminates the complexity of eating disorders in adolescents.

The second concern relates to pregnancy. During pregnancy nutritional deficiencies of women can have a deleterious effect on the mother and newborn. Children of a malnourished mother may be born small for gestational age and face a higher risk of disease. Maternal iron deficiency is another risk factor for the mother and infant while maternal folate deficiency is associated with neural tube defects in the newborn. Nutrition related risk factors such as obesity, hypercholesterolemia, etc. are associated with cardiovascular disease, hypertension and diabetes mellitus later in women's lives.

A chapter is dedicated to periconceptional administration of multivitamins for preventing congenital anomalies and improving maternal health. As an example, providing multivitamins to pregnant women has been shown to cause a marked reduction in the incidence of neural tube defects, congenital heart defects, genitourinary abnormalities, cleft lip and palate and limb reduction defects. Furthermore,

folic acid administration may, in addition, improve the outcome of pregnancy, including significant risk reduction in spontaneous abortion, ectopic pregnancy, stillbirth and premature delivery.

In this book a comprehensive chapter is presented on the fat soluble vitamin D interaction with the reproductive system during the female life cycle. The interaction of vitamin D with estrogens is associated with post menopausal osteoporosis and an increase in the incidence of colorectal cancer. Maternal nutrition during pregnancy reflects both the increased metabolic requirements of the mother per se and the ever-growing nutritional demands of the developing fetus. Therefore, there is also a chapter dedicated to the complex interrelationship of the maternal, placental and fetal metabolic processes. It becomes apparent that greater attention should be paid to micronutrient intake, especially in the first trimester, including vitamin C, zinc and iron.

Iron has many functions in the body and is important in maintaining the normal structure and function of the central nervous system. Pregnant females and developing infants require a large amount of iron. Dangerous effects of decreases in the bioavailability of iron in the brain have been demonstrated. A deficiency of iron can result in pathological changes in which the dopamine system of the hippocampus is more severely affected, with consequent cognitive impairment.

A new modality to improve nutrition and health in the pregnant woman is the use of probiotics. The use of Lactobacilli can be important in reducing prematurity and this concept is presented in one of the chapters.

The third concern in nutrition in the female life cycle is related to menopause. During this period, obesity is apparent in a high percentage of women because of withdrawal of endogenous estrogens, sedentary life style, availability of high-energy dense foods, etc. Obesity is a risk factor for hypertension, diabetes mellitus and coronary artery disease. It has been suggested that cancer, gallstones, kidney stones and osteoarthritis can also be associated with obesity. Weight loss can reverse some of the above complications. A chapter is dedicated to treatment modalities of obesity that highlight proper diet, behavioral changes and physical activity.

Another problem during menopause is osteoporosis and bone fractures. Osteoporosis is dependent on peak bone mass that is achieved during adolescence and bone loss and microstructural changes after menopause. Bone mass is correlated with calcium intake and provision of vitamin D. Addition of vitamin D and calcium to the diet of women after menopause reduced hip joint fractures by 30%.

Menopause is associated with a higher risk of developing atherosclerosis. On the other hand, young diabetic women share the same risk as men. When diabetic women reach menopause their risk of coronary artery disease is more than double that of men.

It has become apparent that supplementation of vitamins and minerals for women at menopause in Israel is a first priority. A discussion is presented based on the conclusions of a special report of a committee appointed by the Ministry of Health. It has been suggested that during menopause, supplementation of folic acid, vitamin B6 and vitamin B12 and probably antioxidants may decrease the risk of vascular disease.

Two chapters dealing with nutritional practices which may affect breast cancer are presented at the end of the book. It is suggested that a high intake of fruit and vegetables is associated with a reduced risk of many types of cancers including those of the breast. The growing interest in the role of the tomato carotenoid, lycopene, in cancer prevention and treatment is discussed. In addition, suggested nutritional risk factors for breast cancer such as phytoestrogen are highlighted. Adolescence may be a window of opportunity for early nutritional prevention of breast cancer. The adolescent is exposed to fast food that may interfere with DNA repair. There is a suggestion that enriching the adolescent diet with carotenoids, lignans, phyto-estrogens, flavonoids, antioxidants, etc. may help prevent breast cancer.

This book is dedicated to nutrition and health practices in women. We hope that it will help all those who are interested in the nutritional aspects of women's health and will lead to new ideas, concepts and studies to advance the frontiers of knowledge and research in nutrition in the female life cycle.

Emanuel Lebenthal, M.D., Niva Shapira, Ph.D., editors