Early Nutrition: Impact on Short- and Long-Term Health
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Contents

VII Preface
IX Foreword
XI Contributors

Late Consequences of Early Feeding

1 Animal Studies of the Effects of Early Nutrition on Long-Term Health

17 Dietary Lipid Quality and Long-Term Outcome
Novak, E.M.; Keller, B.O.; Innis, S.M. (Canada)

33 How Proteins Improve the Development of Preterm Infants

49 The Knowns and Unknowns of Human Milk Banking
Simmer, K. (Australia)

65 Short- and Long-Term Effects of Probiotics Administered Early in Life
Szajewska, H. (Poland)

Complementary Feeding and the Health and Development of the Infant over the Immediate Period of Infancy and Early Childhood

83 New Findings from the Feeding Infants and Toddlers Study 2008
Siega-Riz, A.M.; Kinlaw, A.; Deming, D.M.; Reidy, K.C. (USA)
Contents

107 Weaning Practices in Other Parts of the World: Case Study
   India
   Agarwal, K.N. (India)

117 Weaning Practices in Other Parts of the World: Case Study
   Russia
   Baturin, A.K. (Russia)

127 Micronutrient Deficiencies and Effect of Supplements on
   Correcting Them
   Zlotkin, S. (Canada)

141 Food Allergy and Complementary Feeding
   Shreffler, W.G.; Radano, M. (USA)

153 Early Feeding: Setting the Stage for Healthy Eating Habits
   Mennella, J.A.; Ventura, A.K. (USA)

Late Consequences of Weaning

169 Early Feeding Practices and Development of Food Allergies
   Lack, G.; Penagos, M. (UK)

187 Learning to Prefer the Familiar in Obesogenic Environments
   Birch, L.L.; Anzman-Frasca, S. (USA)

201 Early Feeding Practices and Their Impact on Development of
   Celiac Disease
   Fasano, A. (USA); Catassi, C. (USA/Italy)

215 Infant Feeding Practices and Subsequent Development of
   Adipose Tissue
   Stettler, N. (USA)

227 Early Life Nutrition and Bone Development in Children
   Jones, G. (Australia)

237 IGF-I Signaling and Effects on Longevity
   Holzenberger, M. (France)

251 Concluding Remarks

259 Subject Index
Preface

Over the past decade, major advances have occurred in our understanding of the interaction of genetics and environment (and particularly diet) in health and disease. Thus, it is very germane now to have a workshop dedicated to a review of nutritional practices and feeding behaviors in infancy and early childhood since these not only have a significant influence on the immediate growth and health of the child, but potentially affect long-term health issues such as obesity and hypertension, which often have antecedents early in life. This volume presents the proceedings of the 68th Nestlé Nutrition Workshop held in October 2010 in Washington, DC. The chapters in this book are organized, like the workshop, in a progression from the newborn period to childhood. They are the work of a selected group of international experts in infant and childhood nutrition, and represent the latest knowledge regarding feeding practices during this time and how those impact growth, development and immediate and long-term health.

A significant body of research has demonstrated a major impact of maternal nutrition during fetal life on later health and development of the newborn. This formed the basis of a robust discussion in the first session of the symposium, and draws our attention to the potential long-term effects of specific macronutrients and micronutrients in the maternal diet during human fetal development. One example of this is the recent data on the impact of dietary lipid components as well as proteins in the maternal diet during fetal and early newborn life on various functional outcomes in the developing infant and child. These data are now informing our feeding practices in the newborn critical care unit, particularly with regard to the use of human donor milk and the use of probiotics in the diet of premature and ill newborns. The use of probiotics in this context still poses challenges, since we can clearly influence the gut microbiome to some extent, but the specific microorganisms that should be used, the dose and administration schedule remain subject to significant debate. Thus, this area of fetal and newborn nutrition and its influence on later health is a vibrant and active subject of discussion and investigation, and holds promise for important discoveries on the role of early
nutritional interventions in both short- and long-term health and development.

It is clear from the results of recent surveys presented in the second session of the symposium that in both the developed as well the developing world, even in countries with vibrant economies, a significant number of infants and young children are not consuming the types of foods that have been recommended to support optimal health. As a consequence, an insufficient intake of selected micronutrients, such as iron and zinc, is highly prevalent, particularly in the developing world. A unique and very successful approach using coated micronutrients for supplementing the diets of vulnerable children to address this serious threat to both immediate and long-term health and development is described in this section of the book. Taste perception plays an extremely important role in food preferences. With the current emphasis on reducing the intake of salt and sugars in the diet, the discussion of the science of taste perception and in particular how it develops during gestation, infancy and early childhood contributed significantly to the overall dialogue on nutritional support during this period. In addition to availability, affordability, taste and cultural preferences, the increasing prevalence of allergic reactions to foods during this time of life often determine the types of foods offered. The discussion of the basis and evolution of immunologic reactions to foods in early life was highly informative to the overall dialogue, and provided the basis for further discussion in the next session which focused on the consequences of weaning and subsequent feeding practices on health during late adolescence and adulthood.

The final session of the workshop spanned diverse areas, and major updates were provided on topics that have seen exciting developments in the recent years. Participants could appreciate new – and in some ways revolutionary – information on the influence of early feeding practices on the later development of a number of health-related issues such as food allergies, later food preferences and eating habits, obesity, bone development, the risk of developing celiac disease in genetically predisposed children, and even – albeit at the moment mostly from studies in animals – on longevity! The microbiome and its influence on growth, weight gain and immediate and long-term health are an emerging area of biology that led to a particularly lively discussion. As always, the discussion provided by those who attended the meeting proved exceptionally interesting and informative.

As the Chairs of this workshop, we are particularly indebted to Prof. Ferdinand Haschke and his colleagues at the Nestlé Nutrition Institute. They provided a format and setting that proved to be perfect for engagement, discussion and learning. On behalf of all those who participated in this workshop, we thank you.

Hans van Goudoever
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Ronald E. Kleinman
Foreword

The 68th Nestlé Nutrition Institute Workshop was dedicated to a research area that is gathering a significant amount of interest in the scientific arena: Early nutrition and its impact on long-term health. The International Society for Developmental Origins of Health and Disease has only recently released a position paper on the importance of nutrition in the first 1,000 days [World Nutr 2011;2:195–205].

The scientific evidence from animal and human data showing effects of early nutrition on later health were presented by a group of renowned experts in the field and discussed by an international audience of outstanding health professionals. The topics covered ranged from the nutrition of preterm infants including suggestions on how to improve their short-term outcome by not comprising long-term health, to an evaluation of the current feeding habits of toddlers in different parts of the world. Both problematics, that of ‘over'-feeding and ‘under'-feeding and related malnutrition, were discussed with respect to their long-term outcome. Both weigh equally in their public health burden.

This excellent scientific program was brought together by the three chairpersons, Prof. Hans van Goudoever, Prof. Stefano Guandalini and Prof. Ron Kleinman, to whom we address our special thanks. All three are highly respected in the field of nutrition.

Special thanks go also to Linda Hsieh and her team from the US for her excellent organization and hosting in Washington.

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