

Preface

Due to the inherent biological differences between the two sexes, multiple aspects of glucose homeostasis and energy balance are regulated differently in male and female mammals and influence both the development of diabetes and obesity and the response to drugs. In 1993, the National Institutes of Health Revitalization Act mandated the inclusion of women in clinical trials, but many investigators still do not analyze the results by sex. In addition, most researchers avoid studying female rodents due to the added complexity of research plans. The consequence is a generation of data that risks being relevant to only males. NIH director Francis Collins and associate director for research on women's health Janine Clayton finally asked scientists to consider sex in preclinical research, to ensure that women get the same benefit of medical research as men. The NIH released a notice on new rules to promote the study of animals and cells from both sexes to prevent the overreliance on male animals in preclinical studies. In March 2017, I organized (with the help of Debbie Clegg and Art Arnold) the first Keystone Symposium on "Sex and Gender Factors Affecting Metabolic Homeostasis, Diabetes and Obesity" in Lake Tahoe, CA, to connect interdisciplinary groups of scientists who otherwise would not have an opportunity to meet. Participants came from a wide range of basic and clinical backgrounds but shared a common focus of studying sex differences in metabolic disease. The meeting was a success and generated new knowledge and ideas on the importance of sex and gender biology and medicine, from a molecular standpoint to the population level. This book was conceived as a necessary follow-up to this meeting. Each chapter was written by participants who are experts in their respective fields of sex differences in metabolic homeostasis and disease.

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