

# Preface

## Energy Balance and Cancer Disparities

While great progress has been made across the spectrum of cancer research, extending from prevention, diagnosis, and therapy to survivorship, the benefits of these advances have not been realized by all groups. Significant disparities exist due to a variety of factors including age, gender, ethnicity, socioeconomic status, geography, built environment, and others. Since energy balance impacts the entire continuum of cancer care, from prevention through survivorship, groups affected by disparities in energy balance including the complex issues influencing obesity, exercise, sedentary behavior, sleep, insulin resistance, and more may show profound differences in cancer outcomes. Moreover, these disparities may have diverse contributors and consequences in different regions throughout the world.

The goal of this volume is to identify cancer disparities in different groups in the USA and around the world and compare similarities and variations in energy balance to identify commonalities in order to inform further opportunities for transdisciplinary research and interventions. Specific chapters have been included to provide information regarding application of current state-of-the-art strategies to analyze and alter biologic, behavioral, community, and policy effects on energy balance and the disparities that result from barriers that restrict their generalized implementation.

In Chap. 1, Rory Weier, James Fisher, and Electra Paskett (Ohio State University) along with Jesse Plascak (University Washington) discuss the distinctive features of Appalachia and its unique contribution to the burden of obesity, cancer incidence, and mortality in the USA. In Chap. 2, Donald Nicolson and Una Macleod (Hull York Medical School) and David Weller (University Edinburgh) examine socioeconomic factors that determine disparities in lifestyle factors, cancer incidence and outcomes in the United Kingdom.

In Chap. 3, Donna Spruijt-Metz, Lauren Cook, CK Freddy Wen, Robert Garcia, Gillian A. O'Reilly, Jennifer B. Unger, (University Southern California Keck School of Medicine), Selena T. Nguyen-Rodriguez (California State University,

Long Beach), and Ya-Wen Hsu (Chia Nan University of Pharmacy and Science, Taiwan) discuss behavioral influences on racial/ethnic and socioeconomic disparities versus incidence and mortality by cancer sites. Chapter 4, by Kathryn Schmitz (University Pennsylvania), Tanya Agurs-Collins (National Cancer Institute, Marian Neuhouser (Fred Hutchinson Cancer Research Center), Lisa Pollack and Sarah Gehlert (Washington University in St. Louis), reviews the impact of obesity, race, and ethnicity on cancer survivorship, which is particularly important in view of the projected increase in this group of patients. In Chap. 5, Nathan LeBrasseur (Mayo Clinic), Derek Huffman (Albert Einstein College of Medicine), and Gerald Denis (Boston University College of Medicine) discuss the impact of aging on obesity, inflammation, and cancer. They raise the possibility that healthy aging may maintain fitness or protect against these chronic disorders and examine the social determinants of healthy and unhealthy aging. Focusing on specific malignancies with established disparities, in Chap. 6, Graham Colditz, Kari Bohlke, Su-Hsin Chang, and Kenneth Carson (Washington University School of Medicine) review the evidence that obesity, more common in African Americans, and other factors such as lower serum levels of 25-hydroxy vitamin D, may contribute to the significantly higher incidence of Multiple Myeloma. In Chap. 7, Melissa Kang and Temitope Keku (University of North Carolina) discuss single nucleotide polymorphisms (SNPs) that occur in a racially oriented manner, resulting in differences in obesity and inflammatory genes that may contribute to racial disparities in colorectal cancer incidence and survival. Rebecca Hasson (University Michigan) and Michael Goran (University Southern California) in Chap. 8 and Sarah Cohen (EpidStat Institute) and Loren Lipworth (Vanderbilt-Ingram Cancer Center) in Chap. 9 provide comprehensive assessments of racial differences in biological mechanisms linking obesity to cancer with particular focus on insulin resistance, sex steroids, inflammatory mediators, and adipokines. In Chap. 10, Melinda Stolley (University of Illinois at Chicago) analyzes behavioral factors contributing to disparities in breast cancer survival and describes community-based strategies to alter energy balance and decrease disparities. In Chap. 11, Deborah Bowen (University of Washington) and Stacey Zawacki (Boston University) examine differential responsibilities and potential contributions to change neighborhood-based policies that impact the obesogenic environment or, as uniquely defined in this chapter, the inflammatory environment. In the last section, Chap. 12, Debra Haire-Joshu (Washington University) focuses on the important issue of how public and social policy has been and can be used to prevent obesity-related disparities in young children thereby reducing their predisposition to cancer at later stages of life.

This current volume in the series on Energy Balance and Cancer provides a unique transdisciplinary approach to analyze problems associated with disparities in energy balance and cancer in diverse geographic areas and among different ethnicities from a biological, behavioral, socioeconomic, environmental, and policy basis as well as to suggest where and how potential interventions may be helpful. This volume should provide a valuable resource to all investigators, practitioners,

and policy makers dealing with problems of obesity, energy balance, and cancer. It is the first major book dealing with biology, behavior, and policy that contributes to and results from disparities in energy balance and cancer. It should provide a valuable resource to disparity-focused investigators at the molecular, psychosocial, community, and policy levels and serve as an important guide to the broad range of professionals who regularly deal with these issues.

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