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Nota di contenuto	Cover; Half Title; Title Page; Copyright Page; Table of contents; List of Figures; List of Tables; List of Contributors; Foreword; Preface; Introduction; References; Section 1 General systems genetics; 1 Why study the systems genetics of sport and exercise?; Introduction; Exercise systems genomics; Exercise presents a high stress; however, the body is able to survive by maintaining its homeostasis...; Exercise systems genetics versus inactivity systems genetics; Physical inactivity is a necessary reference group to show healthy exercise effects -- and turns... A biased positive look to the futureA projection into where technology seems to be taking physical inactivity; Multiple, biased, concerned looks to the future; New technology is often based upon reducing physical activity; Inheritance of low voluntary running behavior; Does epigenetics play a role in type 2 diabetes and in physical inactivity?; Low voluntary running animal model to mimic increased human inactivity; The high economic costs of physical inactivity are contributing in their small way to the bankruptcy of our children's future cost of living What systems genetics could do for humansReferences; 2 Expansion of knowledge and advances in genetics for quantitative analyses; Introduction; The Human Genome Project; Advances in sequencing;

Association studies; Noncoding sequences; Noncoding RNA and antisense sequences; MicroRNAs; Exosomes; Epigenetics; Summary; References; 3 human systems genetic modeling used in exercise; Introduction; Study of families; What are families?; Quantifying family data; Twin studies; Biology of twins and twinning; The classical twin model; Basic concepts of the twin model; The univariate twin model Multivariate twin modelsMZ discordant pairs to study causal associations; Adoption studies; Twin family designs; Genome-wide association studies; The future in the era of molecular genetics; Further reading; References; 4 The translation of systems genetics of exercise to everyday life; Introduction; Theoretical foundations of exercise interventions; Translating exercise genomics into practice; Using genetic information to enhance exercise adherence; Using genetic information to enhance exercise prescription and intervention Using genetic information to identify individuals at risk for exercise dropoutConclusion; References; Section 2 Systems genetics of physical activity; 5 Is physical activity regulated by genetics? Evidence from animal models; What is physical activity in an animal model?; Heritability; Genetic architecture; Genetic mapping; Fine-mapping approaches; Future directions; References; 6 Is physical activity regulated by genetics? Evidence from studies in humans; Introduction; Twin studies; Physical activity phenotypes; Meta-analyses; Results for total physical activity

Sommario/riassunto

"The Routledge Handbook of Sport and Exercise Systems Genetics constitutes the most authoritative and comprehensive reference in this critical area of study, consolidating knowledge and providing a framework for interpreting future research findings. Taking an approach which covers single gene variations, through genomics, epigenetics and proteomics, to environmental and dietary influences on genetic mechanisms, the book is divided into six sections. It examines state-of-the-art genetic methods, applies its approach to physical activity, exercise endurance, muscle strength and sports performance, and discusses the ethical considerations associated with genetic research in sport and exercise"--
