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Nota di contenuto	PartI: Skeletal Muscle Adaptability and Plasticity -- Muscle Fuel Utilization With Glycolysis Viewed Right Side Up -- Mitochondrial Biogenesis in Skeletal Muscle -- Mitochondrial Quality Control -- The Structural Adaptations that Mediate Mechanical Load-Induced Changes in Muscle Mass -- Hormesis and Muscle Plasticity -- Circadian Rhythm and Muscle Function -- Muscle Proteome Dynamics.-Part II: Muscle Disuse, Injury and Inflammation -- Muscle Disuse Atrophy -- Skeletal Muscle Damage and Inflammation -- Traumatic skeletal muscle injury and recovery -- Part III: Muscle Diseases -- Muscular Dystrophies -- Cancer Cachexia -- Part IV: Skeletal Muscle Aging -- Mechanisms of Biological Aging with special reference to the Skeletal Muscle --

Mitochondrial DNA deletion mutations: A molecular cause of age-induced skeletal muscle fiber dysfunction and fiber death contributing to sarcopenia -- Prevention of Sarcopenia -- Lifestyle interventions in frailty -- Protein acetylation and NAD<sup>+</sup> Homeostasis in Aging Muscle -- Part V: Epigenetic Regulation of Muscle Function -- Gene Manipulation of Muscle Phenotype -- Redox control of skeletal muscle function and adaptations to exercise -- The Skeletal Muscle Plasticity, Adaptation and Epigenetics -- Training-induced metabolic adaptations in skeletal muscle -- Skeletal Muscle and Whole-body Health -- Skeletal muscle as endocrine organ -- Skeletal Muscle and the Immune System -- Lactate Metabolism in Health and Disease -- Diaphragm function in health and disease -- Skeletal Muscle and Cardiovascular Health.

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#### Sommario/riassunto

Skeletal muscle is not an organ merely for locomotion with simple anatomical and metabolic features as has been viewed for a long time. The understanding that physical activity plays a vital role in health promotion and disease prevention under the slogan of "exercise is medicine" has dramatically increased the enthusiasm and demand for knowledge about the skeletal muscle. This book, "The Skeletal Muscle: Plasticity, Degeneration and Epigenetics", is a follow up of another book authored by the Editor, which provides the morphological, physiological, biochemical and molecular biological foundations for organ's response and adaptation to functional demand, and for the mechanisms and prevention for the organ's pathogenesis and degeneration. Research in the past several decades has demonstrated that skeletal muscle has a tremendous ability to undergo internal changes in response to functional, environmental, nutritional and genetic challenges, through various neural, endocrine and autocrine pathways for signal transduction. Although the contractile proteins show a relatively slow turnover, many organelles and constituents in the myocyte exhibit considerable remodeling throughout the muscle's life cycle. In this regard, mitochondrion plays a central role in the crosstalk of signaling not only in its own turnover and quality control, but also in exerting important influences on other vital cellular functions. On the opposite side, skeletal muscle is highly vulnerable to disuse and misuse that can cause injury, inflammation, degeneration and atrophy. The various chapters in this book, contributed by the experts in the field, will introduce and review the most concurrent knowledge to address important issues related to muscle plasticity, pathogenesis, disease and aging. Potential strategies to prevent and ameliorate the above problems in a whole-body perspective will be highlighted to provide the readers with the inspiration to learn and work with this important and intriguing organ.

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