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Titolo	The Human Body and Weightlessness : Operational Effects, Problems and Countermeasures / / by William Thornton, Frederick Bonato
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ISBN	3-319-32829-8
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Descrizione fisica	1 online resource (XIX, 320 p. 181 illus., 142 illus. in color.)
Disciplina	571.4
Soggetti	Biophysics Biological physics Human physiology Aerospace engineering Astronautics Rehabilitation Space sciences Biological and Medical Physics, Biophysics Human Physiology Aerospace Technology and Astronautics Space Sciences (including Extraterrestrial Physics, Space Exploration and Astronautics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	1. An Introduction to Weightlessness and Its Effects on Humans -- 2. Basic Mechanisms -- 3. Space Motion Sickness and Vestibular Adaptation to Weightlessness -- 4. Fluid Shifts and Loss -- 5. Cephalic Fluid Dynamics and Ocular Changes in Weightlessness -- 6. Loss of Muscle and Bone During Spaceflight -- 7. Countermeasures to Loss of Muscle and Bone During Spaceflight -- 8. Loss of Aerobic Capacity During Weightlessness -- 9. Neuromuscular Inhibition -- 10. Loss of Body Mass During Weightlessness -- 11. Accommodations to Weightlessness.
Sommario/riassunto	This book focuses on all of the major problems associated with the

absence of body weight in space, by analyzing effects, adaption, and re-adaptation upon returning to Earth, using sound scientific principles embedded in a historical context. Serious problems for space travelers range from Space Motion Sickness (SMS) to recently discovered ocular effects that may permanently impair vision. Fluid loss and shifts, spinal changes, and bone and muscle loss are also all results of weightlessness. Starting with a brief definition and history of weightlessness, the authors then address in detail each problem as well as the countermeasures aimed at alleviating them. In some cases, alternative hypotheses regarding what can and should be attempted are also presented. As plans for long-term missions to the Moon and Mars develop, it will be essential to find countermeasures to weightlessness that are effective for missions that could span years.