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Nota di contenuto	1. New Advances in Gastrointestinal Motility Research, by Leo K. Cheng, Gianrico Farrugia -- 2. Role Of Ion Channel Mechanosensitivity In The Gut: Mechano-Electrical Feedback Exemplified by Stretch-Dependence of NaV1.5, by Arthur Beyder, Rachel Lees-Green, & Gianrico Farrugia -- 3. ICC Network Density: Regulation and Consequences, by Simon J. Gibbons, Jerry Gao, and Gianrico Farrugia -- 4. The Principles and Practice of Gastrointestinal High-Resolution Electrical Mapping, by Gregory O'Grady, Timothy R. Angeli, Wim J.E.P. Lammers -- 5. Quantitative Analysis of Electrical Activity in the Gastrointestinal Tract, by Jonathan C. Erickson, Niranchan Paskaranandavadivel, Simon H. Bull -- 6. The Electrical Regulation of GI Motility at the Whole-Organ Level , by Timothy R. Angeli, Gregory O'Grady, Wim J.E.P. Lammers -- 7. Therapeutic potential of gastric electrical stimulation for obesity, by Jieyin Yin, and Jiande Chen -- 8. Gastric Electrical Stimulation: 20th Century Development to 21st Century Implementation and Personalization of Programming, by James Griffith et al. -- 9. Biomagnetic Signatures of Gastrointestinal Electrical Activity, by LA Bradshaw, JK Kim, LK Cheng, and WO Richards -- 10. Modelling

Tissue Electrophysiology in the GI Tract: Past, Present and Future, by Alberto Corrias, Peng Du and Martin L Buist -- 11 Colonic manometry: What do the squiggly lines really tell us?", by Phil G Dinning -- 12. Spatiotemporal mapping techniques for quantifying gut motility, by Patrick W.M. Janssen and Roger G. Lentle -- 13. Computational modeling of gastrointestinal fluid dynamics, by Maria J Ferrua, R Paul Singh.

Sommario/riassunto

Research into gastrointestinal motility has received renewed interest in part due to recent advances in the techniques for measuring the structure and function of gastrointestinal cells, tissue and organs. The integration of this wealth of data into biophysically based computation models can aid in interpretation of experimental and clinical measurements and the refinement of measurement techniques. The contents of this book span multiple scales - from cell, tissue, organ, to whole body and is divided into four broad sections covering: i) gastrointestinal cellular activity and tissue structure; (ii) techniques for measuring, analyzing and visualizing high-resolution extra-cellular recordings; (iii) methods for sensing gastroelectrical activity using non-invasive bio-electro-magnetic fields and for modulating the underlying gastric electrical activity, and finally; (iv) methods for assessing manometric and videographic motility patterns and the application of these data for predicting the flow and mixing behavior of luminal contents by using computational fluid dynamic techniques. This book aims to provide both an overview of historical and existing research techniques as well as to highlight future directions and challenges for the community as a whole. It will be suitable for clinicians to understand the cellular and biophysical underpinnings of gastric emptying, gastroenterologists, surgeons, bioengineers and all scientists with interests in gastrointestinal motility research.
