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Nota di contenuto	"The modulation of pain by circadian and sleep-dependent processes: A review of the experimental evidence" by Megan Hastings Hagenauer, Jennifer A. Crodelle, Sofia H. Piltz, Natalia Toporikova, Paige Ferguson, and Victoria Booth -- "Investigating circadian rhythmicity in pain sensitivity using a neural circuit model for spinal cord processing of pain" by Jennifer A. Crodella, Sofia H. Piltz, Victoria Booth, Megan Hastings Hagenauer -- "A two-process model for circadian and sleep-dependent modulation of pain sensitivity" by Natalia Toporikova, Megan Hastings Hagenauer, Paige Ferguson and Victoria Booth -- "Introduction to Mathematical Modeling of Blood Flow Control in the Kidney" by Anita T. Layton and Aurélie Edwards -- "Modeling autoregulation of the afferent arteriole of the rat" by Maria-Veronica Ciocanel, Tracy L. Stepien, Aurélie Edwards, Anita T. Layton -- "Modeling blood flow and oxygenation in a diabetic kidney" Ioannis Sgouralis and Anita T. Layton -- "Tracking the distribution of a solute bolus in the rat kidney" by Anita T. Layton -- "Mathematical modeling of the effects of nutrient competition and bile acid metabolism by the gut microbiota on colonization resistance against Clostridium difficile" by Arietta Fleming-Davies, Sara Jabbari, Suzanne L. Robertson, Tri Sri

Noor Asih, Critina Lanzas, Suzanne Lenhart, and Casey M. Theriot --
"Revisiting the physics of spider ballooning" by Kimberly S. Sheldon,
Longhua Zhao, Angela Chuang, Iordanka N. Panayotova, Laura A. Miller,
Lydia Bourouiba -- "Flying spiders: Simulating and modeling the
dynamics of ballooning" by Longhua Zhao, Iordank N. Panayotova,
Angela Chuang, Kimberly S. Sheldon, Lydia Bourouiba, Laura A. Miller
-- "On the dynamic suction pumping of blood cells in tubular hearts"
by Nicholas A. Battista, Andrea N. Lane, Laura A. Miller --
"Undergraduate research highlight: Modeling movement behavior
among interacting species" by Anne Talkington.

Sommario/riassunto

Inspired by the Research Collaboration Workshop for Women in Mathematical Biology, this volume contains research and review articles that cover topics ranging from models of animal movement to the flow of blood cells in the embryonic heart. Hosted by the National Institute for Mathematics and Biological Synthesis (NIMBioS), the workshop brought together women working in biology and mathematics to form four research groups that encouraged multidisciplinary collaboration and lifetime connections in the STEM field. This volume introduces many of the topics from the workshop, including the aerodynamics of spider ballooning; sleep, circadian rhythms, and pain; blood flow regulation in the kidney; and the effects of antimicrobial therapy on gut microbiota and Clostridium difficile. Perfect for students and researchers in mathematics and biology, the papers included in this volume offer an introductory glimpse at recent research in mathematical biology. .
