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Solid Biomechanics is the first book to comprehensively review the mechanical design of organisms. With a physical approach and a minimum of mathematics, the textbook introduces readers to the world of structural mechanics and sheds light on the dazzling array of mechanical adaptations that link creatures as dissimilar as bacteria, plants, and animals. Exploring a wide range of subjects in depth, from spider silks and sharkskin to climbing plants and human food processing, this immensely accessible text demonstrates that the bodies of animals and plants are masterpieces of engineering, enabling them to survive in a hostile world.

The textbook describes how organisms construct materials from limited components, arrange materials into efficient structures that withstand different types of stresses, and interact mechanically with their environment. Looking at practical and historical aspects of the subject, the book delves into how the mechanics of organisms might be applied to other engineering scenarios and considers the ways structural biomechanics could and should develop in the future if more is to be learned about the form and function of organisms. Solid Biomechanics will be useful to all those interested in how organisms work, from biologists and engineers to physicists and students of biomechanics, bionics, and materials science.