Abstract

Engineers play an important role in physical therapy and rehabilitation. Biomechatronics has been integrated into devices for truly innovative treatments and for highly specific assessments. This chapter describes human-centered design of rehabilitation products as well as some of the most important biomechatronic products in this field separately for upper-limb therapy, lower-limb therapy (primarily gait training), and balance therapy. Within each of these sections is a separate description of design strategy, treatment technologies, and assessment technologies. Finally, a central concept emphasized throughout the chapter is the need for biomechatronic technology to match resources available with individual patients' abilities and limitations. Hence, the chapter begins with describing the wide range of population needs and resources available in physical therapy and rehabilitation.

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