Record Nr. UNINA9910132324903321 Autore Cheze Laurence **Titolo** Kinematic analysis of human movement / / Laurence Cheze Pubbl/distr/stampa London, England;; Hoboken, New Jersey:,: ISTE:,: Wiley,, 2014 ©2014 **ISBN** 1-119-05799-X 1-119-05814-7 1-119-05802-3 Descrizione fisica 1 online resource (145 p.) Collana Bioengineering and Health Science Series, , 2051-249X Disciplina 612.76 Soggetti Human mechanics Equilibrium (Physiology) Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. ""Cover"": ""Title Page"": ""Copyright"": ""Contents"": ""Foreword"": ""1: Nota di contenuto Introduction and State of the Art""; ""1.1. Historical benchmarks""; ""1.2. Current needs in different domains""; ""1.2.1. Simulation of movement in ergonomics""; ""1.2.2. The command of humanoid robots""; ""1.2.3. The analysis of sporting movements""; ""1.2.4. Clinical applications of movement analysis"": ""2: The Different Movement Analysis Devices Available on the Market""; ""2.1. Which tools for different applications?""; ""2.2. Optical capture systems and passive tags"" ""2.2.1. Working principle of an optical system with passive markers""" 2.2.2. Implementation steps of an experimental protocol using this type of system""; ""3: From Measurement to Interpretation""; ""3.1. The different parameters""; ""3.2. Recommendations by the International Society of Biomechanics to standardize the presentation of joint angles""; ""3.3. Joint translations or displacements""; ""4: Errors in Measurement"; ""4.1. Instrumental errors""; ""4.2. Experimental errors""; ""4.2.1. Soft tissue artifacts""; ""4.2.1.1. Assessment""; ""4.2.1.2. Modeling""; ""4.2.1.3. Compensation"" ""4.3. Error in locating anatomical landmarks"""4.3.1. Assessment"";

""4.3.2. Sensitivity of joint kinematics to these errors""; ""5: Some Clinical Applications""; ""5.1. Evolution of biomechanical parameters of

gait in infants, from first steps to 7 years old""; ""5.1.1. Materials and methods""; ""5.1.2. Results and discussion""; ""5.2. Upper limb, assessment of functional movements""; ""5.3. Mobility of a healthy cervical spine""; ""5.3.1. Materials and methods""; ""5.3.2. Results and discussion""

""5.4. Changes in the three-dimensional kinematics of the knee with medial compartment arthrosis"""5.4.1. Materials and methods""; ""5.4.2. Results and discussion""; ""Conclusion and Future Perspectives""; ""Bibliography""; ""Index""

Sommario/riassunto

After a quick survey of the famous pioneers of human movement analysis and the actual needs in different domains, this book presents the main types of systems available on the market (with the pros and cons), and then details the most widely used: the optoelectronic systems using passive markers. The theoretical background for joint kinematics calculation is explained, specifying the international standardization for parameters reports. One chapter is dedicated to measurement errors and their management, followed by several applications, mostly in the clinical field.