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低成本人体步态分析系统的研究

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蔡付文 王人成 李广庆 王茂斌

清华大学摩擦学国家重点实验室智能与生物机械分室，北京，100084;清华大学摩擦学国家重点实验室智能与生物机械分室，北京，100084

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摘要：

目的：改进原有矢状面人体步态分析系统，增加额状面运动轨迹和肌电信号检测功能，完善系统软件，使其操作更加简单方便。方法：增加部分硬件，改进运动轨迹检测步骤，优化标志点自动识别算法和软件流程。结果：该系统可以检测与分析矢状面和额状面运动轨迹、地面反力和表面肌电信号，并且能够对患者平衡控制功能进行训练治疗。结论：额状面的肩摇晃系数、髋内收和内旋系数、脚面侧翻角度等参数，弥补了单一矢状面运动分析的不足，新系统丰富和完善了原有矢状面人体步态分析系统的功能，为临床提供了一种成本低廉、功能齐全的步态分析工具。

关键词：低成本 人体步态分析系统 轨迹检测 地面反力 表面肌电检测

Development of low cost human gait analysis system Download Fulltext

Division of Intelligent and Biomechanical System, State Key Laboratory of Tribology, Tsinghua University, Beijing, 100084;Division of Intelligent and Biomechanical System, State Key Laboratory of Tribology, Tsinghua University, Beijing, 100084

Fund Project:

Abstract:

Objective:To improve the former sagittal plane human gait analysis system by adding several functions including frontal plane motion track detecting and EMG detecting, consummating system software to make its operation more simple and convenient.Method: Some system hardware were added,motion track detecting process was changed,image processing methods were optimized and more powerful applicable software were developed.Result:This system can be used to detect and analyze several gait information synchronously including sagittal plane and frontal plane motion images, reaction forces, sEMG etc, and even can be used in training patients' balance control. Conclusion:The parameters provided by this system,such as frontal plane shoulder swing coefficient, coax adduction and internal-rotation coefficient, feet side-turning angle,can avoid the limitations of previous simple analysis system. Thus, the new system enriches and consummates functions of the former sagittal plane human gait analyzing system, and provides a low cost, useful gait analysis tool for clinic.

Keywords:low cost human gait analysis system track detecting reaction force sEMG

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