ロコモティブシンドロームの程度と立位・歩行の運動学・運動力学指標の関連性

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［研究報告要旨］

本研究の目的は，高齢者の Locomotive syndrome（LS） risk test によって分類される LS の程度と立位時・歩行時の骨盤・体幹，下肢の運動学的・運動力学的パラメータの関係を調査し，LS の程度に影響を及ぼす要因を明らかにすることである．

地域在住高齢者を対象とし，まず参加者全員に対して LS risk test を実施した．スコア 1 点以上のものを LS 群，0 点の者を非 LS 群とした．全被験者の静止立位と歩行を 12 台の赤外線カメラと 6 台の床反力計で構成される動作分析装置にて計測した．計測したマーカーの座標値と床反力データを組みあわせて，角度，関節モーメント，腰部椎間板圧縮力等の運動学，運動力学的パラメータを算出した．その後 LS 群と非 LS 群を従属変数，運動学，運動力学的パラメータを独立変数としてロジスティック回帰分析を実施した．

結果として，立位時，歩行時の体幹の前屈角度，立位時の椎間板圧縮力そして歩行時の足関節角度が LS のスコアに影響を与える変数として選択された．本研究により LS の運動学，運動力学的特徴を明らかにすることができた．

Relationship between the degree of Locomotive syndrome (LS) and kinematic and kinetic indices of standing and walking

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[Abstract of Research Report]

The purpose of this study was to investigate the relationship between the degree of LS classified by the Locomotive syndrome (LS) risk test and kinematic and kinetic parameters of the pelvis, trunk, and lower extremities during standing and walking in the elderly, and to identify factors that influence the degree of LS. Community-dwelling elderly were recruited. The LS risk test was administered to all participants. The LS group was defined as those with a score of 1 or higher, and the non-LS group as those with a score of 0. The static standing and walking of all participants were measured by a motion analysis system consisting of 12 infrared cameras and 6 floor reaction force meters. The kinematic and kinetic parameters such as angle, joint moment, and lumbar disc compression force were calculated by combining the measured marker coordinates and floor reaction force data. A logistic regression analysis was then performed with the LS and non-LS groups as dependent variables and the kinematic and kinetic parameters as independent variables. As a result, the forward trunk bending angle during standing and walking, the disc compression force during standing, and the ankle joint angle during walking were selected as variables that affected the LS score. This study clarified the kinematic and kinetic characteristics of LS.