

日常生活における擬似的な裸足歩行が バランス機能および歩行能力におよぼす影響

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The Effectiveness of Walking Close to Barefoot on Physical Balance Function and Walking Ability

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ABSTRACT

It was reported that toe flexor strength (TFS) was related to physical balance function and walking ability. Since barefoot walking has a situation to catch the ground by toes over and over again, it was supposed that barefoot walking elevate the TFS. But, effectiveness of barefoot walking on physical function is not clear. The purpose of this study was to investigate the effectiveness of walking close to barefoot on TFS, physical balance function and walking ability. Six healthy young males (22.2 ± 2.3 years, 174.0 ± 2.6 cm, 71.3 ± 9.4 kg, 23.6 ± 3.2 kg/m², body fat: 19.1 ± 5.3 %) without exercise habit were participated in this study. Subjects used five-finger shoes which sole is very thin for 6w after 4w control period. Balance function parameters, walking ability and TFS were measured every 2 weeks. Although all parameters were not changed after control period, TFS (pre: 26.8 ± 2.8 kg, post: 35.1 ± 4.8 kg, $p=0.037$) and tandem gait test (pre: 4.73 ± 0.48 sec, post: 3.49 ± 0.18 sec $p=0.033$) were significantly improved after intervention period. In addition, functional reach test ($p=0.077$) and maximum one-step length ($p=0.054$) tended to improve after five-finger shoes intervention.

Center of gravity movement (both-legs and single-leg standing) and 10m walking time were not changed after intervention. Results of this study suggest that walking with five-finger shoes was effective on TFS and dynamic balance function.

要 旨

本研究では、靴底が非常に薄い5本指シューズを用いた擬似的な裸足環境が、足趾把持筋力、バランス機能、歩行能力に及ぼす影響について検討することを目的とした。対象は運動習慣を持たない成人男性6名である。まず5本指シューズを着用しない4週間のコントロール期間を設け、その後の6週間でシューズ介入期間とするデザインとし、2週間毎に各種測定を実施した。コントロール期間には、何れの測定項目にも有意な変化はみられなかったが、シューズ介入後には、足趾把持筋力 ($p=0.037$) および継ぎ足歩行 ($p=0.033$) に有意な改善が認められた。重心動揺軌跡長、ファンクショナルリーチテスト、最大1歩幅、10m歩行時間については、シューズ介入後に有意な変化はみられなかった。以上より、5本指シューズを用いた擬似的な裸足歩行は、足趾把持筋力および動的バランス機能の改善に有効であることが示唆された。