

幅広い高齢者に適応可能なサルコペニア予防法 (地域の介護予防現場で使える実践的方法の確立)

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The Establishment of Effective Intervention to Prevent Sarcopenia for Elderly

by

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ABSTRACT

The aim of this study was to compare the effects of class-style supervised intervention (CS) versus home-based unsupervised intervention (HB) in improving muscle mass and physical function in older adults. A total of 288 older adults (65–87 years) living independently participated in this cluster-randomized trial. They were assigned to one of two groups (CS and HB) and instructed on resistance exercise program in two lectures. Also, all participants were provided with exercise materials (ankle weight, Thera-Band, triaxial-accelerometer/pedometer and exercise log),

and then encouraged to perform resistance exercise and to increase the mean daily activity level. In CS intervention, the participants conducted a resistance exercise program at weekly class-style sessions. In other days, they performed the program independently. In HB intervention, the participants were only given instruction and practice about exercise. They were also instructed to increase 2,000 steps per day. Lower limb muscle mass (both front thigh muscle thickness and intracellular volume of lower limb) and knee extension strength were significantly increased in both groups. Significant increase in intracellular volume of upper limb was observed only in the CS intervention group. There were significant improvements of physical function (maximal gait velocity and chair-stand time) in both groups. Additionally, the mean number of daily steps significantly increased in both groups. None of these variables showed a significant difference between groups. These results indicated that low intensity resistance training with increase in daily walking steps can induce muscle hypertrophy, strength gain, and improvement of physical function. Particularly, it is important that there was no significant difference in the training effects on lower limb muscle and physical function between CS and HB interventions. Thus, HB intervention is considered a cost-effective method to prevent sarcopenia for elderly with a wide range of physical fitness level. Wide acceptance of this program on a community basis is anticipated for the future.

要 旨

本研究では、現実的な運用を想定したプログラムが高齢者の筋機能に及ぼす効果を検証した。高齢者 288 名 (65 ~ 87 歳) を教室型と自宅型の 2 群に分け、12 週間の介入を行った。介入プログラムは自体重・アンクルウエイト・セラバンドを利用したレジスタンストレーニングおよび 3 軸加速度計の配布による活動量を増やす動機づけとした。教室型は週に一度の運動教室に参加し、他の日は自主的にプログラムを実施した。自宅型は数回のレクチャーのみを受け、自主的にプログラムを継続した。介入の結果、有意な下肢筋量 (大腿前部の筋組織厚・下肢筋細胞量) の増加は両群で認められたが、上肢筋細胞量の有意な増加は教室型のみで観察された。膝伸展筋力、最大歩行時間、5 回椅子立ち上がり時間といった運動機能や平均

歩数は両群で有意に改善した。なお、これらの改善に有意な群間差はなかった。比較的低コストで実施可能な自宅型でもほぼ同様の効果が得られた意義は大きく、今後地域での大規模展開が期待される。