

Effects of Kohzuki Exercise Program(KEP) on physical function and mental health of frail older people in multifunctional long-term care in a small group home: a randomized, controlled pilot study.

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学 位 論 文 要 約

博士論文題目 Effects of Kohzuki Exercise Program(KEP) on physical function and mental health of frail older people in multifunctional long-term care in a small group home: a randomized, controlled pilot study. (日本のフレイル高齢者における Kohzuki Exercise Program(KEP)の適用と効果検証)

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【Background】 Frailty is a physiological syndrome that is different from normal aging or disability. Although there are several previous studies on improving physical function in frail older people, the effectiveness of the Kohzuki Exercise Program (KEP), which involves lower-limb aerobic exercise, has not been studied. In addition, even though Multifunctional long-term care in a Small Group Home (MSGH) is increasingly used by long-term care insurance services in Japan and is expected to constitute the mainstream of community-based care services, there are no studies of MSGH. The aim of this study was to determine the effect of a 6-month structured KEP on physical function and mental health in frail older people in MSGH.

【Methods】 Exercise Group(EG) participants engaged in the KEP 3 times a week for 6-month, 72 sessions. All sessions began with 5 min of warm-up and stretching, 30 min of lower-limb aerobic exercise using a Terasuerugo^R (Showadenki Co., Ltd., Osaka, Japan), and 5 min of cool-down and relaxation (72 sessions in all). Control Group (CG) participants were asked to maintain their normal behavior over a same 6-month period. The primary outcome measured physical function, using the Short Physical Performance Battery (SPPB). The Secondary outcome measured mental health, using the Medical Outcomes Study 12-Item Short Form Health Survey Instrument (SF-12), Pittsburgh Sleep Quality Index (PSQI), Geriatric Depression Scale-Short Form 15 (GDS), Self-reported modified Barthel Index (BI).

【Results】 There was a significant changes in physical function at 0, 3, and 6 months in the EG. SPPB total score ($p<0.01$), balance time ($p<0.05$), gait speed time ($p<0.01$), and chair stand time ($p<0.01$) were significantly difference at 6 months. There was a significant difference of mean score changes of the physical functions between EG and CG. SPPB total score (<0.01), balance time (<0.001), gait speed time ($p<0.001$), and chair stand time ($p<0.001$) had significantly with-in-group different between the EG and CG.

【Discussion】 During our study period, no participants experienced joint or muscle pain or injury from performing the KEP. In addition, unlike previous studies in which physical function was improved because of multicomponent intervention, our study showed that physical function improved as a result of a single-component intervention. This indicates that the KEP is as effective an exercise to improve physical function in frail older people as multicomponent intervention. Thus, the KEP has been shown to be a safe exercise program for frail older people.

【Conclusion】In summary, for frail older people in MSGH, a 6-month KEP intervention targeting physical function is an effective, long-term, and sustainable program.