

The “3 Plus 1 Integrated Program” improved cardiovascular health and physical fitness for community-dwelling healthy older adults in Taiwan

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Aim: To evaluate the effectiveness of an integrated health promotion program in the overall physical health of community-dwelling people aged 60 years and older in Taiwan.

Methods: Data of subjects participating in the integrated health promotion program (“3 Plus 1 Integrated Program”) provided by the Yangsheng Foundation in 2014 were retrieved for analysis. All subjects aged 60 years and older and were free from active diseases. Subjects with significant impairment in activities of daily living or physical activities were excluded for study. The “3 + 1 Integrated Program” consisted of series activities of exercises, healthy diet, health behavior, and interpersonal relationship that continued for 12 weeks. Demographic characteristics, health behavior, living arrangement, marital status, underlying chronic conditions, and medications in use were collected. All subjects received assessment for anthropometric measurements, cognitive function, depressive symptoms, and evaluation of physical fitness, including timed up-and-go test (TUG), 2-minute step test (2m ST), 30-second chair stand test (30s CST), and dominant handgrip strength (HG).

Results: Overall, data of 80 subjects (mean age: 62.8 ± 6.6 years, 80% female) were retrieved for analysis after excluding data with incompleteness. Among all participants, the most common chronic condition was hypertension and almost none of the participants were current smokers or having habitual alcohol drinking. Meanwhile, the participants were physically fit, cognitive intact, having few depressive symptoms, but 17.5% of them had the history of falls in the past year and a half of all participants reported fear of falling. After the 12-week “3 Plus 1 Integrated Program”, the systolic blood pressure, diastolic pressure, body mass index were significantly reduced (131.7 ± 21.8 vs 136.3 ± 22.4 mmHg, $P = 0.047$; 74.2 ± 11.5 vs 77.0 ± 11.0 mmHg, $P = 0.047$, and 23.8 ± 2.8 vs 24.2 ± 2.8 kg/m², $P < 0.001$, respectively by using paired t-test). Meanwhile, the 2mST and 30s CST were both significantly improved (115.3 ± 17.3 vs 104.6 ± 18.7 steps, $P < 0.001$; and 23.9 ± 8.9 vs 20.3 ± 6.9 times, $P = 0.001$, respective by paired t-test). The cognitive function, TUG and HG were not significantly different before and after the program. Spearman correlation showed that the reduction of diastolic blood pressure was significantly associated with reduction in systolic blood pressure, reduction in body mass index, and improvement of 2m ST (P all < 0.05).

Conclusions: The “3 Plus 1 Integrated Program” significantly improved cardiovascular health and physical fitness, which may also prevent the cognitive decline and depressive symptoms among community dwelling older people in Taiwan.