



## The effect of a community-based fitness and aerobic exercise program for older adults : A Randomized, Controlled trial.

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### Background :

In 2013, Taiwan's elderly population was 2.6 million:11.5% of its total population. The importance of improving and maintaining activity levels in later life is well established. However, intervention studies show that the uptake of and adherence to physical activity programs by older adults are highly variable. The consequences of physical activity are particularly detrimental in older adults with chronic disease. Many evidence-based studies indicated that the lack of accessible and appropriate community-based exercise programs could lead to further sedentary lifestyle and additional declines in functional status. Providing a good model of community-based physical activity program for older people not only could prevent secondary diseases but also improve healthy fitness.

### Purpose :

The purpose of study aimed to examine the effects of a fitness and aerobic exercise program(FAEP) on muscular strength, flexibility, cardiorespiratory fitness and balance in community-dwelling older adults.

### Method :

A prospective, single blind, randomized, controlled intervention trial was undertaken. A sample of 64 older adults (aged\_60+) was recruited from community centers. The participants were randomly assigned to the intervention or control group.

### Intervention :

Participants were randomized into intervention group (n=31) or control group (n=33). The intervention group underwent a fitness and aerobic exercise program (FAEP) which designed for older adults to improve leg muscle strength, flexibility cardiorespiratory fitness, agility and balance training program. This is 1-hour session and twice per week for 8 weeks. The control group underwent a walking program.

### Measurement :

Upper Muscle strength (Chair stand test), lower muscle strength (arm curl test), flexibility (Chair sit-and reach test and Back scratch test), cardiorespiratory fitness (2-minute step test), agility (8-foot up-and-go test) and balance (30-second opened eyes one foot).

### Result :

The results showed that a fitness and aerobic exercise program(FAEP) adapted to older adults can effectively increase in physical abilities associated with aging, depending on the purpose of the study. There were no significant pretest differences between the groups for any of the demographic characteristics and fitness components. Table 1 shows the effects of FAEP on physical fitness in community-dwelling older adults. There were significant differences between group on chair stand test (lower muscular strength) , 30-sec.opened eyes one foot (balance) and 8-foot up-and-go test (agility). No significant differences were found on Arm curl test(upper muscular strength), 2-min. step test(cardiorespiratory fitness), Chair sit-and reach test (lower flexibility)and Back scratch test (upper flexibility).

Table 1 Outcome measurements at pretest and posttest

Measurement	Experience group	Control group	t	p
	( N=29 )	( N=30 )		
	mean±SD	mean±SD		
Chair stand test				
pretest	17.17±3.08	19.03±8.49		
posttest	22.66±3.67	18.07±3.72	4.39	.000
Arm curl test				
pretest	17.45±4.42	18.3 ±3.09		
posttest	21.00±3.42	18.30±3.10	1.56	.124
2-min. step test				
pretest	93.79±22.51	89.90±13.65		
posttest	97.76±18.91	100.63±14.36	-1.63	.109
Chair sit-and reach test				
pretest	6.09±9.26	.75±11.56		
posttest	4.95±12.51	.88±10.07	-1.19	.241
30-sec.opened eyes one foot				
pretest	21.57±10.27	20.42±10.65		
posttest	27.10±7.76	20.32±11.25	2.85	.006
Back scratch test				
pretest	.144±9.13	7.93±11.55		
posttest	2.36±9.95	8.99±12.47	.073	.942
8-foot up-and-go test				
pretest	5.50±1.44	4.80±.97		
posttest	4.80±.97	5.77±.85	-3.784	.000

### Conclusion :

These findings indicate that participation in FAEP can improve muscle strength; balance and agility .The FAE program is a feasible and beneficial for improving physical conditions in older adults.

### Implication :

The fitness and aerobic exercise program (FAEP)may serve a good model of a community-based fitness program for improving health and preventing chronic conditions in community-dwelling older adults.