

CHAPTER IV

RESULTS



This chapter details results of the study. The details contain subject participation and results of the study as follows;

1. Subject Participation

Three hundred and seventy-seven older adults from 12 communities in Khon Kaen province agreed to participate in this study. However, 105 of them were excluded because of;

1. Having a BMI less than 20 kg/m^2 (41 subjects)
2. Having a BMI more than 30 kg/m^2 (14 subjects)
3. Having inflammation in LE joints with a pain scale more than 5 (19 subjects)
4. Impairment of balance control (18 subjects)
5. Walking by using gait device (10 subjects)
6. Unable to follow instructions of inst the experimental protocol (3 subjects)

Thus, 272 males and females, aged 65 to 80 years with a BMI of $20\text{-}30 \text{ kg/m}^2$, were recruited to participate in the study (95 insufficiently active subjects, 104 lifestyle active subjects, and 73 exercise subjects). In order to minimize effects of age and gender differences which might affect the results (Lusardi et al., 2003), and to normalize the data, the researcher randomly selected subjects into the groups using age and gender, and excluded any outlier subjects. Finally, the data were analyzed in 150 subjects (50 individuals/ group) with 19 males in each group.

Table 2 presented baseline characteristics of subjects. There were no significant differences of baseline characteristics including age, BMI and genders of subjects among three groups ($p>0.05$). Active (lifestyle active and exercise) subjects reported a higher rate perceived exertion score (Borg scale) of their daily physical or exercise activity than that of insufficiently active subjects ($p<0.001$). Lifestyle active

subjects executed the longest duration of their routine physical activities, such as gardening, farming, caregiving, household chores and walking. In contrast, exercise subjects conducted shorter duration (38.40 ± 10.74 minutes) including brisk walk, jogging, bicycling, aerobic dance and Thai wand exercise.

Table 2 Baseline characteristics of subjects

Variables	Groups (n=50/group)*						p-value**
	Insufficiently active		Lifestyle active		Exercise		
	Mean±SD	Range (Min:Max)	Mean±SD	Range (Min:Max)	Mean±SD	Range (Min:Max)	
Age (year)	71.88±4.12	65 : 80	71.50±4.22	65 : 80	71.02±3.87	66 : 80	0.573
BMI (kg/m ²)	24.58±2.81	20 : 30	24.45±2.78	22 : 29	24.85±2.96	20 : 30	0.787
Borg scale (score)***	9.46±0.84	8 : 13	12.27±1.38	11 : 15	12.10±1.15	11 : 15	<0.001
Duration (min)	29.40±21.82	5 : 80	161.56±116.83	45 : 360	38.40±10.7 [#]	30 : 60	<0.001

* 19 males in each group

** p – value from the One-way Analysis of Variance (ANOVA)

*** The Borg scale was measured by using the 15 point scale (6-20).

[#] Duration of exercise

2. Results of the study

The study evaluated balance performance, fall and QOL of insufficiently active, lifestyle active and exercise subjects. The findings of each parameter are as follows;

2.1 Balance performance

2.1.1 Results of the TUGT

Exercise subjects required the shortest time to complete the TUGT (10.35 ± 1.67 seconds), followed by the lifestyle active (11.40 ± 2.96 seconds) and the insufficiently active subjects (12.17 ± 2.55 seconds) respectively (Table 3). The significant differences were found between exercise and insufficiently active subjects ($p=0.001$) but there was no significant differences between exercise and lifestyle active subjects ($p>0.05$).

2.1.2 Results of the BBS

Exercise subjects achieved the best BBS scores (53.36 ± 1.79 scores), followed by the lifestyle active and insufficiently active subjects (52.74 ± 2.47 and 52.02 ± 2.92 scores) respectively (Table 3). The significant differences were found between exercise and insufficiently active subjects ($p=0.034$), but not between exercise and lifestyle active subjects ($p>0.05$).

2.2 Incidences, consequences, time and places of falls

There were 11 insufficiently active subjects experienced falls during the past 6 months (range 1-3 times), followed by the exercise subjects (6 subjects, range 1-2 times) and lifestyle active subjects, (5 subjects, range 1 times, respectively) (Table 3). All falls occurred during walking in which causes of falls were reported to be impaired balance control, hazard environment, inattention and rapid movement, inappropriate footwear, poor lighting, and alcohol drinking (Table 3). The consequences of all falls were reported as a mild injury such as scratch and bruise. Furthermore, most falls occurred during daytime, both inside and around the house.

2.3 Quality of life

QOL scores of subjects were presented in Table 3. The results demonstrated that subjects in all groups had a moderate level of QOL. Insufficiently active subjects showed the best QOL scores, followed by the exercise and lifestyle active subjects (92.08 ± 13.38 , 90.40 ± 11.84 and 89.94 ± 12.77 scores, respectively). However, there were no significant differences in QOL of subjects among the groups ($p>0.05$).

Table 3 Results of the study

Variables	Groups (n=50/group)								p-value
	Insufficiently active		Lifestyle active		Exercise		Mean±SD	95% CI	
	Mean±SD	95% CI	Mean±SD	95% CI	Mean±SD	95% CI			
TUGT (sec)	12.17±2.55	11.44 – 12.89	11.40±2.96	10.56 – 12.24	10.35±1.67	9.88 – 10.82			0.001*
BBS (scores)	52.02±2.92	51.19 – 52.85	52.74±2.47	52.04 – 53.44	53.36±1.79	52.85 – 53.87			0.025*
Fall (number of subjects, number of times)	11, 1 – 3		5, 1 – 1		6, 1 – 2				-
Causes of fall (number of subjects)**	<ul style="list-style-type: none"> - Impaired balance control (9) - Hazard environment (4) - Inattention to movement (2) - Rapid movement (1) - Inappropriate footwear (1) - Poor lighting (1) 		<ul style="list-style-type: none"> - Hazard environment (5) - Impaired balance control (3) - Inattention to movement (2) - Rapid movement (1) 		<ul style="list-style-type: none"> - Hazard environment (3) - Rapid movement (2) - Inappropriate footwear (1) - Alcohol drinking (1) 				-
QOL (scores)	92.08±13.38	88.28 – 95.88	89.94±12.77	86.31 – 93.57	90.40±11.84	87.04 – 93.76			0.675

Note: * Significant differences between insufficiently active and exercise groups

** One subjects reported one or more causes of fall