스포츠재활
발표일시 및 장소 : **10 월 26 일(금) 13:35-13:45 Room B(5F)**

OP1-1-3

Effects of Climbing Stairs in Daily Living on Physical Fitness and Lipid Profiles

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Purpose
The purpose of this study is to identify the effects of climbing upstairs of office workers on blood pressure, lipid profiles, and general health properties.

Methods
Total of 130 adults, 13 male and 117 female office workers aged 20 to 60 were recruited in this study. 72 of them were allocated into stair climbing group(SG), and the other 58 were allocated into control group(CG). SG was asked to climb upstairs in workplace for 12 weeks of period, at least 3 times a week and 3 floors in a time. To investigate the effects of stair climbing on participants' health, blood pressure, heart rate, lipid profiles, the maximum intake of oxygen(VO2max), isokinetic strength of knee joint and other physical performances like strength, balance and flexibility were assessed at the time of start and at the end of this study.

Results
As a result of 12 weeks of stair climbing in daily living, SG showed significant decrease in resting systolic blood pressure($p<.001$), resting diastolic blood pressure($p<.001$), resting heart rate($p<.001$), total cholesterol($p<.01$) and LDL-cholesterol($p<.01$) between two times of assessment, in contrast to CG which showed no significant changes. Also just SG showed significant improvements in strength of both knee extensor($p<.001$), back muscle($p<.001$), VO2max($p<.001$) and maximal HR(<.001) while CG showed no significant changes after 12 weeks. In sit and reach test, which was a measurement tool for flexibility, there was no significant differences after 12 weeks in both SG and CG. In each one leg standing test with eyes-closed, which was a measurement tool for static balance, and forward and backward velocity test, which was a measurement tool for dynamic balance, only SG showed significant improvements ($p=.004$, $p=.015$, $p=.041$)

Conclusions
For workers aged 20 to 60, the 12-week stair climbing program lowered resting systolic blood pressure and heart rate and improved lipid profiles and several health properties. It also had significant effects on improving the static and dynamic balance and increasing

the cardiovascular capacity and strengthening the muscles of the lower limbs. Based on the Results of this study, it is strongly recommended for office workers to climb upstairs in office hours to improve their own health.

Table 1. Results of blood glucose, blood pressure, heart rate, and Lipid profiles (M±SD)

Variables	Stair Group		Control Group	
	pre	post	pre	post
glucose	94.7±.10.2	96.3±.8.1	94.6±.12.2	94.2±10.2
total cholesterol	183.7±.33.3	176.7±.26.6**	180.0±.29.4	182.9±29.6
HDL-C	66.3±16.5	65.9±13.9	63.8±16.1	66.0±16.3
LDL-C	99.9±32.0	94.1±26.5**	99.4±28.3	100.5±28.7
triglyceride	97.1±60.7	87.7±42.6	96.4±62.2	122.0±166.3
SBP	122.7±11.4	115.5±12.1***	119.9±10.5	118.1±12.3
DBP	74.8±7.9	71.5±8.8***	73.1±6.7	71.6±7.3
resting heart Rate	82.4±10.8	76.7±8.5***	80.5±10.6	80.7±11.5

* p<.05, ** p<.01, *** p<.001

Table 2. Results of knee joint strength, back muscle strength, flexibility, VO2max, maximal HR(M±SD)

Variables		Stair Group		Control Group	
		pre	post	pre	post
knee flexor (60degree/sec)	Lt	48.7±18.3	51.8±18.5*	44.5±13.3	44.7±14.1
	Rt	51.0±18.7	51.7±21.4	47.1±15.5	44.8±17.0
knee extensor (60degree/sec)	Lt	99.8±34.3	113.2±38.3***	90.0±25.1	94.1±34.3
	Rt	101.7±35.9	112.3±41.1***	90.0±27.2	89.6±32.9
Back muscle strength		60.8±23.2	71.8±24.4***	57.8±17.2	60.2±20.3
sit and reach		7.7±11.7	8.7±9.9	8.1±9.5	8.3±10.0
VO2max		35.9±9.8	41.9±9.6***	39.0±9.8	39.3±9.6
maximal HR		140.1±16.1	126.5±15.6***	134.3±14.7	134.3±14.8

* p<.05, ** p<.01, *** p<.001