심폐재활
발표일시 및 장소 : **10 월 26 일(금) 14:25-14:35 Room B(5F)**

OP1-2-2

The association of sarcopenia with low back pain and lumbar spine degeneration

Yu Jin Seo[1*], June Hong Bae[1], Hyun Ho Kong[1], Kyoung Hyo Choi[1], Won Kim[1†]

Asan Medical Center, University of Ulsan College of Medicine, Department of Rehabilitation Medicine[1], University of Waterloo , Faculty of Applied Health Sciences-Kinesiolgy[2]

OBJECTIVE
There were few studies about on the association between low back pain (LBP) and lumbar spine degeneration (LSD) with sarcopenia. In particular, there were few published descriptions of the effects of sarcopenia on LBP and LSD simultaneously. The aim of this study is to investigate the association of low back pain and lumbar spine degeneration with sarcopenia using nationwide survey in men over 60 years old.

METHODS
We conducted a cross-sectional study using the 5th Korea National Health and Nutrition Examination Survey (2010-2011). Men ≥ 60 years of age were included. Skeletal muscle mass index (SMI) and body composition were evaluated using Dual-energy X-ray absorptiometry. We defined sarcopenia as a modified SMI (ASM/ht2) value less than 20% of the participants. LSD was evaluated using a modified version of the Kellgren–Lawrence (KL) grade and was defined if the modified KL grade was 2. The risk of LBP and LSD with sarcopenia were investigated with multivariate logistic regression analyses. Model 1 was adjusted by age group. Model 2 was adjusted by age group, obesity, occupation, and physical activity. We also adjusted for LSD.

RESULTS
Of 1032 participants, 849 participants had no LBP and 183 participants had LBP. Sarcopenia was associated with increased risk of LBP (OR=2.08; 95% CI 1.39-3.11) (OR=2.03; 95% CI 1.36-3.02 and OR=2.23; 95% CI 1.38-3.59, respectively for model 1 and 2). This increased odds ratio was maintained after adjusting for LSD (OR=2.16; 95% CI 1.43-3.25 and OR=2.37; 95% CI 01.45-3.86, respectively for model 1 and 2). However, sarcopenia was associated with decreased risk of LSD in multivariated analysis (OR=0.62; 95% CI 0.42-0.93 and OR=0.61; 95% CI 0.40-0.92, respectively for model 1 and 2). (Table 2, Table 3)

CONCLUSION
Our Results suggest that sarcopenia was associated with increased risk of LBP in men ≥ 60 years old. It was also maintained after adjusting for LSD. However, sarcopenia was associated with decreased risk of LSD.

Table 1. Demographics of the study participants

	No LBP (n=849), no. (%)	LBP (n=183), no. (%)	p-value
Mean age, yrs[a]	68.22 ± 0.24	69.22 ± 0.56	0.107
Height, cm[a]	165.83 ± 0.24	165.46 ± 0.43	0.451
Weight, kg[a]	65.04 ± 0.43	62.18 ± 0.70	0.005
BMI, kg/m^{2a}	23.59 ± 0.14	22.96 ± 0.23	0.007
ASM	20.14 ± 0.13	19.62 ± 0.26	0.041
ASM/ht2	7.31 ± 0.04	7.15 ± 0.08	0.066
ASM/wt	31.15 ± 0.15	31.40 ± 0.28	0.334
ASM/bmi	0.86 ± 0.00	0.86 ± 0.01	0.721
Obesity			0.161
Absent	577 (66.47)	134 (72.50)	
Present	272 (33.53)	49 (27.50)	
LSD			0.020
Absent	555 (67.73)	93 (56.16)	
Present	294 (32.27)	90 (43.84)	
Occupation			0.001
WC workers	212 (20.98)	44 (24.54)	
PC workers	127 (13.46)	18 (9.65)	
BC workers	244 (32.53)	34 (17.27)	
AL workers	266 (33.02)	87 (48.54)	
Vigorous PA[b]			0.166
Absent	739 (87.01)	154 (82.48)	
Present	110 (12.99)	29 (17.52)	
Moderate PA[c]			0.017
Absent	762 (90.09)	155 (82.84)	
Present	87 (9.91)	28 (17.16)	
Walking[d]			0.743
Absent	445 (54.85)	105 (56.44)	
Present	404 (45.15)	74 (43.56)	

Values are expressed as the mean ± standard deviation or as numbers (%).

$p < 0.05$ was considered statistically significant

PA physical activity, LBP low back pain, LSD lumbar spine degeneration, ASM appendicular skelet mass, WC white-collar, PC pink-collar, BC blue-collar, AL agribusiness, fisheries, and low-level labor

[a]The data are presented as mean ± standard deviation

[b]Vigorous PA, =20 mins of vigorous exercise on =3 days per week.

[c]Moderate PA, =30 mins of moderate intensity exercise on =5 days per week.

[d]Walking, =30 mins of walking on =5 days per week.

Table 2. Odds ratios of sarcopenia on low back pain and lumbar spine degeneration

		OR	95% CI	*p-value*
LBP				
	Univariate analysis	2.08	1.39-3.11	.000
	Model 1[a]	2.03	1.36-3.02	.000
	Model 2[b]	2.23	1.38-3.59	.001
LSD				
	Univariate analysis	0.82	0.56-1.19	.296
	Model 1[a]	0.62	0.42-0.93	.019
	Model 2[b]	0.61	0.40-0.92	.018

$p < 0.05$ was considered statistically significant

LBP low back pain, LSD lumbar spine degeneration

[a]Model 1 was adjusted by age group.

[b]Model 2 was adjusted by age group, obesity, occupation, and physical activity.

Table 3. Odds ratios of sarcopenia on low back pain adjusted by lumbar spine degeneration

		OR	95% CI	*p-value*
LBP				
	Univariate analysis			
	Sarcopenia	2.08	1.39-3.11	.000
	Model 1[a]			
	Sarcopenia	2.03	1.36-3.02	.000
	Plus, adjusted by LSD	2.16	1.43-3.25	.000
	Model 2[b]			
	Sarcopenia	2.23	1.38-3.59	.001
	Plus, adjusted by LSD	2.37	1.45-3.86	.000

$p < 0.05$ was considered statistically significant

LBP low back pain, LSD lumbar spine degeneration

[a]Model 1 was adjusted by age group

[b]Model 2 was adjusted by age group, obesity, occupation, and physical activity.