



Winter Meeting, 9–10 December 2014, Nutrition and age-related muscle loss, sarcopenia and cachexia

Higher levels of fatigue are associated with poorer functional status in healthy community dwelling older adults

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It is well established that higher levels of activity increase muscle mass and attenuate the progression of sarcopenia in older adults⁽¹⁾. However there are many barriers to older people engaging in increased activity levels and in particular insufficient activity levels have been associated with fatigue in both men and women⁽²⁾. Whilst fatigue is commonly reported in older adults⁽³⁾ the relationship with functional status in healthy older adults is not fully understood. The aim of this study was to determine the relationship of levels of fatigue with functional status in healthy older adults.

Healthy older adults (aged 65 years and over) were recruited from a variety of social settings across central Scotland. Participants were screened for sarcopenia using the European consensus statements criteria⁽⁴⁾ and in those participants without sarcopenia, functional status was measured by handgrip dynamometry (HGD) in the non-dominant arm, the sit to stand five (STS5) test, the six minute walk (6MW) test and gait speed calculated from distance of the 6MW test were measured. Levels of fatigue were measured using the Multi-dimensional Fatigue Inventory (MFI)⁽⁵⁾ (Smets *et al.* 1995). The MFI measures fatigue across five domains with a maximum score of 20 in each domain indicating the highest level of fatigue. Spearman's Rho correlation analysis was used to identify associations between variables.

Forty three non-sarcopenic older adults (23 females, 20 males) with a mean (sd) age of 72.6 (5.4) years and a mean (sd) BMI of 26.7 (2.8) kg/m². years were recruited. Results of tests for functional status and measures of fatigue are shown in table 1.

Parameter	All n = 44		Males n = 21		Females n = 23		p
	Median	(IQR)	Median	(IQR)	Median	(IQR)	
HGD (kg)	27	20, 38	38.5	34, 44.8	20	17.8, 24	<.001
STS (s)	12.5	11, 16.7	12.2	11.1, 17.1	13.3	11, 15.4	.438
6MW (m)	463	360, 551	440	349, 559	477	360, 547	.438
gait speed (ms ⁻¹)	1.3	1.0, 1.5	1.2	1.0, 1.6	1.3	1, 1.5	.438
general fatigue	8	6, 10	9	6.3, 10	7	6, 9	.01
physical fatigue	8	5, 10	8	5.3, 10	7	5, 10	.760
reduced activity	8	5, 10	8	5.5, 11	6	4, 9	.711
reduced motivation	6	5, 8	6	5.3, 8.8	6	4, 8	.836
mental fatigue	6	4, 9	6	4, 9.8	6	6, 8	.870

p values – Mann Whitney U males vs females

No statistically significant associations were found between HGD and any measure of fatigue or between mental fatigue and any measure of functional status. However significant positive associations were evident with indices of fatigue and STS5 (general fatigue $r = .396$, $p = .009$, physical fatigue $r = .345$, $p = .024$, reduced activity, $r = .320$, $p = .036$, reduced motivation $r = .395$, $p = .009$) and significant negative associations were evident with 6MW and indices of fatigue (general fatigue $r = -.424$, $p = .005$, physical fatigue $r = -.424$, $p = .005$, reduced activity, $r = -.376$, $p = .013$, reduced motivation $r = -.378$, $p = .012$).

Higher levels of fatigue were associated with poorer functional ability even in non sarcopenic healthy older adults. Fatigue may therefore be an important factor to address when considering appropriate physical activity interventions to prevent the onset or delay in progress of sarcopenia in older adults.

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