

Relationship between physical function and body composition/bone status in cancer survivors and healthy subjects



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Purpose

- The aim of this study was to compare physical function, body composition, and bone status between long-term cancer survivors and healthy subjects.
- We also investigated the differences in relationships of physical function and body composition/ bone status between long-term cancer survivors and healthy subjects.

Methods

This study was a prospective, observational investigation of body composition, bone status and physical function in cancer survivors and healthy subjects.

Body composition



Bio-impedance analysis device

Bone status



Ultrasound bone densitometer

Physical function



Handgrip



Knee extensor strength



Functional reach test (FRT)



Timed Up and Go test (TUG)

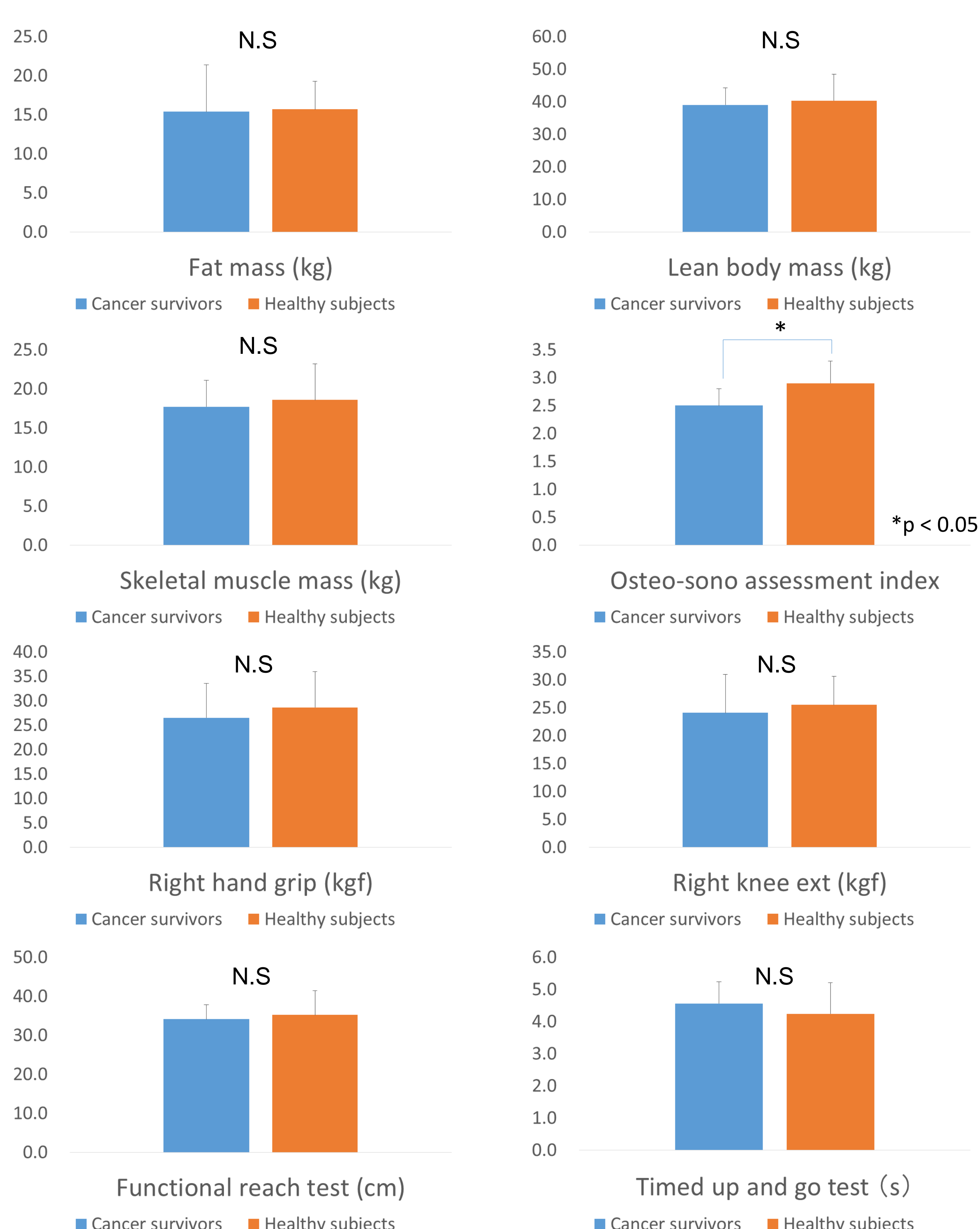
Participants

Socio-demographics, clinical characteristics, and body composition of cancer survivors and healthy subjects

Characteristics	Cancer survivors (n = 17)	Healthy subjects (n = 15)	p-value
Age, years	52.7 ± 10.9	48.0 ± 12.5	0.264
Men, n (%)	3 (17.6)	3 (20)	0.865
Female	14 (82.7)	12 (80)	
Height, cm	161.3 ± 7.4	159.9 ± 8.0	0.609
Body weight, kg	53.8 ± 7.2	55.9 ± 9.8	0.555
BMI	20.8 ± 3.2	21.8 ± 2.4	0.347
Diagnosis, n (%)			
Breast cancer	10 (58.8)		
Gastric cancer	4 (23.5)		
Malignant lymphoma	1 (5.9)		
Lung cancer	1 (5.9)		
Colorectal cancer	1 (5.9)		
Duration of disease (days)			
Mean (± SD)	2580 ± 1996		
Median (range)	2393 (201–7231)		

Results

Results 1. Differences in of body composition, bone status and physical function between cancer survivors and healthy subjects



Results 2. Correlations between physical function and balance and bone mineral by group

Group	Fat mass (kg)	Lean body mass (kg)	Skeletal muscle mass (kg)	Osteo-sono assessment index
Right hand grip (kgf)		0.80**	0.83**	
Healthy subjects		0.87**	0.86**	
Right knee ext (kgf)		0.53*	0.5*	
Healthy subjects				
Functional reach test (cm)				
Healthy subjects				
Timed up and go test (s)				-0.71**
Healthy subjects				

Statistical analysis using Pearson correlation coefficient
 **p < 0.01 *p < 0.05

Conclusions

Physical function is related to body composition and bone status in cancer survivors more than in healthy subjects. We suggest the importance of physical exercise to increase physical function. This intervention could dramatically improve body composition and bone status in cancer survivors.