Association of Adherence to The Mediterranean Diet with Adiposity and Muscle Mass in Female Young Adults

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INTRODUCTION

The Mediterranean diet (MD) is a dietary pattern characterized by high consumption of plant-based foods including fruits, vegetables, nuts, legumes, unprocessed cereals and olive oil. It also provides moderate consumption of dairy products (e.g. yogurt and cheese), eggs, white meat and fish. On the other hand, consumption of red meat, processed meats, and foods rich in sugars and in fats is limited [(1)].
A growing body of research shows that the MD is associated with health benefits in different age groups[(2-4)].

AIM

This study aimed to explore the association between adherence to the MD with adiposity and muscle mass, as well as physical activity among Saudi female young adults.

CONCLUSIONS

The findings suggest that higher adherence to the MD was associated with a higher waist circumference, but not with the other adiposity indices or muscle mass among Saudi female young adults.

METHOD

A total of 197 female students from King Saud University, Saudi Arabia [aged 18–25 years, mean±SD; 20.56±1.66 years], enrolled in this cross-sectional study. Adherence to the MD was assessed using Mediterranean Diet Quality Index for children and teenagers (KIDMED index). Based on the KIDMED index score, participants were grouped in three categories, high, moderate and low adherence to the MD. Anthropometric measurements including height, weight, waist and hip circumference were taken. Body composition was assessed using bioelectrical impedance (BIA, Inbody 770). Skeletal muscle mass index (SMI), appendicular lean mass (ALM) divided by height squared and ALM divided by body mass index (BMI) were calculated. One-way ANOVA test followed by a post-hoc analysis was performed to assess the differences between the groups.

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RESULTS

As shown in Table 1, more than half of the study participants (55.8%) were highly adhered to the MD. A significant association between adherence to the MD and waist circumference was observed and waist circumference was higher in females with a higher adherence to the MD. However, no significant differences were observed across the study groups in the other adiposity indices (weight, BMI, waist-to-height ratio, body fat % and body mass fat) or muscle mass (SMM, SMI, ALM/h^2 and ALM/BMI).

Table 1: Characteristics of study participants according to adherence to MD (n=197).

Characteristics	Total	Adherence to MD			
		High	Moderate	Low	P-Value*
N (%)	197 (100)	110 (55.8)	74 (37.6)	13 (6.6)	-
Weight (kg)	56.84 ± 12.11	58.27 ± 12.06	55.06 ± 12.12	54.92 ± 11.89	0.179
High (m)	157.22 ± 5.37	157.05 ± 5.25	157.59 ± 5.42	156.55 ± 6.23	0.718
BMI (Kg/m^2)	22.97 ± 4.64	23.61 ± 4.44	22.14 ± 4.83	22.39 ± 4.71	0.097
Waist circumference (cm)	68.31 ± 8.88	69.78 ± 9.22 [a]	66.43 ± 8.24 [a]	66.55 ± 7.6	**0.032**
Hip circumference (cm)	97.43 ± 10.0 2	98.76 ± 10.53	95.6 ± 8.86	96.66 ± 10.8 8	0.106
Waist to hip ratio (cm)	0.70 ± 0.05	0.71 ± 0.06	0.69 ± 0.05	0.69 ± 0.04	0.210
Body Fat mass (kg)	21.65 ± 8.78	22.67 ± 8.76	20.34 ± 8.81	20.6 ± 8.22	0.191
Body Fat %	36.85 ± 7.39	37.8 ± 6.96	35.54 ± 7.91	36.27 ± 7.14	0.121
SMM (kg)	18.67 ± 2.72	18.93 ± 2.78	18.37 ± 2.64	18.11 ± 2.58	0.292
SMI (kg)	33.41 ± 3.81	32.99 ± 3.68	34.01 ± 4.02	33.51 ± 3.36	0.206
ALM/h^2 (kg/m^2)	5.57 ± 0.74	5.66 ± 0.75	5.47 ± 0.72	5.41 ± 0.77	0.180
ALM/BMI (kg/kg/m^2)	0.61 ± 0.09	0.60 ± 0.08	0.63 ± 0.09	0.61 ± 0.10	0.138

Note: Data are presented as mean ± SD. *P-Value significant < 0.05, p-value tested by one-way ANOVA. [a] a significant difference using post hoc test.
Abbreviations: BMI: Body mass index; SMM: skeletal muscle mass; SMI: skeletal muscle index; ALM: appendicular lean mass; SD: Standard Deviation.

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