

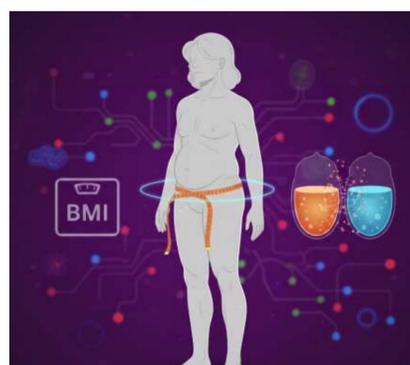
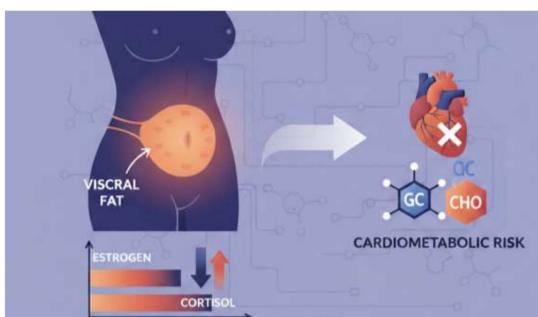
EFFECTS OF A 16-WEEK INTERDISCIPLINARY INTERVENTION ON BODY WATER DISTRIBUTION AND CARDIOMETABOLIC RISK INDICATORS IN OVERWEIGHT MIDDLE-AGED WOMEN

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INTRODUCTION & AIM

Middle-aged women undergo physiological changes, including hormonal fluctuations and body fat redistribution, favoring visceral fat accumulation and increased cardiometabolic risk (Valerio et al., 2025). Anthropometric markers such as waist circumference (WC), waist-to-height ratio (WHtR), and waist-to-hip ratio (WHR) are more sensitive predictors than body mass index (BMI) (Bagheri et al., 2025). Altered body water distribution between intra- and extracellular compartments is linked to metabolic dysfunction in excess weight (Tanasescu et al., 2025).



OBJECTIVE

To assess the effects of a 16-week interdisciplinary intervention on body water distribution and cardiometabolic risk indicators in middle-aged women with excess weight.

METHOD

Design & Sample

- Longitudinal, with pre- and post-intervention measurements over 16 weeks.
- 27 women (54.6 ± 5.15 years; BMI = 32.5 ± 5.2 kg/m²).
- Exclusion criteria: neurodegenerative diseases, recent acute myocardial infarction, and motor limitations.

Intervention (16 weeks)

- Strength training - 2 sessions/week (60 min each),
- Nutritional education and psychoeducational sessions - 1 session/week (60 min).

Measurements (Body composition; Anthropometric assessments)

- Tetrapolar bioelectrical impedance analysis (InBody 570®), measuring total body water (TBW), intracellular water (ICW), extracellular water (ECW), ECW/TBW ratio, visceral fat level, fat mass, and skeletal muscle mass.
- Body mass, height, waist and hip circumferences were measured. BMI, WHR, and WHtR were calculated.

Statistical analysis: Paired t-test ($\alpha = 0.05$).

RESULTS & DISCUSSION

Outcomes related to body composition and body water distribution revealed favorable changes indicating an improvement in functional status.

Table 1. Changes in body variables of participants before and after 16 weeks of multiprofessional intervention.

Variable	Pre-intervention	Post-intervention	P-value
TBW (L)	33.2 ± 4.2	34.1 ± 4.0	0.005
ICW (L)	20.3 ± 2.5	21.3 ± 2.4	0.002
ECW (L)	13.4 ± 2.4	13.1 ± 1.6	0.095
Visceral fat	17.1 ± 2.5	16.7 ± 2.8	0.079
ECW/TBW	0.38 ± 0.01	0.37 ± 0.01	0.039
FM (kg)	37.5 ± 10.1	36.5 ± 10.5	0.030
SMM (kg)	24.6 ± 3.3	25.4 ± 3.2	0.003
BMI (kg/m ²)	32.6 ± 5.3	32.8 ± 5.0	0.166
Weight (kg)	82.6 ± 15.0	81.2 ± 17.1	0.420

Note: Data are expressed as mean (± standard deviation). * = p<0.05. TBW= total body water; ICW=intracellular water ; ECW= extracellular water; ECW/TBW ratio; FM = fat mass ; SMM = skeletal muscle mass ; BMI = Body Mass Index.

Regarding anthropometric measurements, there was a reduction indicating an improvement in body fat distribution.

Table 2: Variation of anthropometric measurements pre- and post-intervention.

Variable	Pre-intervention	Post-intervention	P-value
WC (cm)	98.3 ± 12.7	96.3 ± 12.8	0.007
WHtR	0.61 ± 0.07	0.60 ± 0.07	0.007
WHR	0.9 ± 0.1	0.8 ± 0.1	0.001

Note: Data are expressed as mean (± standard deviation). * = p<0.05. WC = waist circumference; WHtR = waist-to-height ratio ; WHR = waist-to-hip ratio.

CONCLUSION

The 16-week interdisciplinary intervention improved anthropometric indicators, body composition, and body water distribution. These findings suggest potential benefits for cardiometabolic health in middle-aged women with excess weight, considering the study limitations.

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