Are the current thigh skinfold cut-off points for lipodystrophy screening suitable for the Brazilian population?

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Introduction

Lipodystrophies are a heterogeneous group of disorders characterized by different patterns of body fat distribution. In Familial Partial Lipodystrophy (FPLD), there is often a partial lack of subcutaneous fat, more pronounced in the lower limbs. For this reason, cut-off points for thigh skinfold have been recommended for screening of FPLD in international guidelines. However, it is not known whether such cut-off points are valid for the Brazilian population. Thus, this study aims to evaluate the thigh skinfold values in a healthy eutrophic adult Brazilian population and whether the cut-off points recommended worldwide are adequate for such a population.

Methods

This is a cross-sectional study carried out in Fortaleza, Ceará, northeastern Brazil, between 2019 and 2022. Two hundred and eighteen eutrophic (BMI between 18.5 and 24.9 kg/m²) healthy individuals, aged between 18 and 60 years were evaluated. Athletes, pregnant women, people in weight loss programs or using drugs that could interfere in the evaluations were excluded. The assessment of body skinfolds, including the thigh, and body composition by DXA were performed in all individuals on the same occasion, by the same examiner, following a standardized protocol. For the evaluation of the thigh skinfold, a Lange skinfold caliper™ was used. The body composition by DXA was performed in a GE Lunar Prodigy™ equipment (enCORE v17 software™). Cut-off points for clinical suspicion of lipodystrophies were defined as a thigh skinfold < 10 mm for men and < 22 mm for women. The correlation between variables was verified using Spearman's or Pearson's tests ($p < 0.05$).

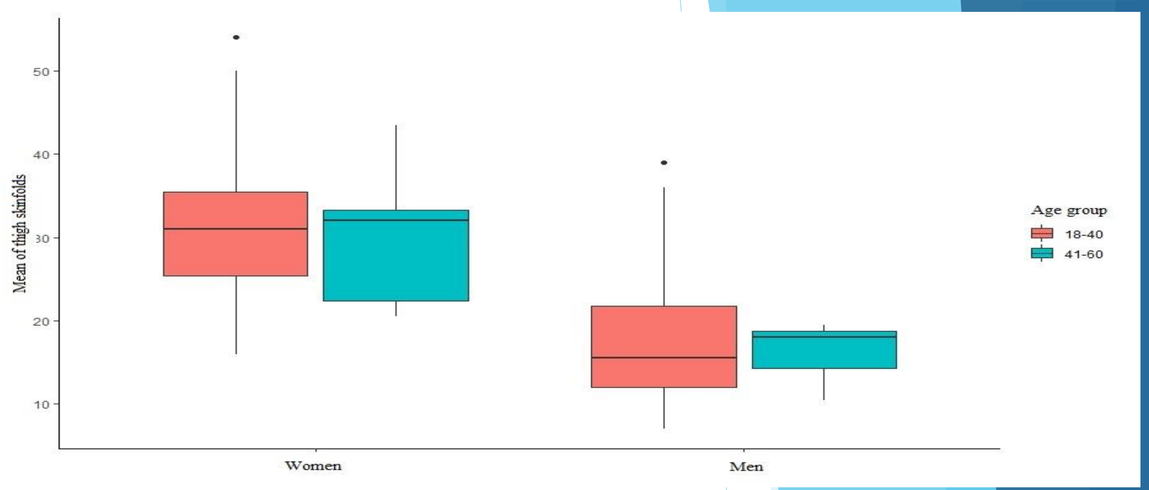
Results

Table 1: Current age and body composition parameters by gender

Parameters	Women (n = 144)	Men (n = 74)
Current age (years)	28 ± 8 (26)	25 ± 7 (24)
BMI - Body Mass Index (kg/m²)	22.2 ± 1.6 (22.2)	22.6 ± 1.3 (22.8)
Thigh skinfold (mm)	31 ± 7 (31)	16 ± 7 (16)
FMR (Fat Mass Ratio)	0.8 ± 0.1 (0.8)	1.0 ± 0.1 (1.0)
Percentage of body fat (%)	34 ± 6 (34)	22 ± 5 (22)

Mean ± Standard Deviation (Median)

Graphic 1: Mean of thigh skinfold by gender and age group



Graphic 2: Normal Distribution of thigh skinfold by gender

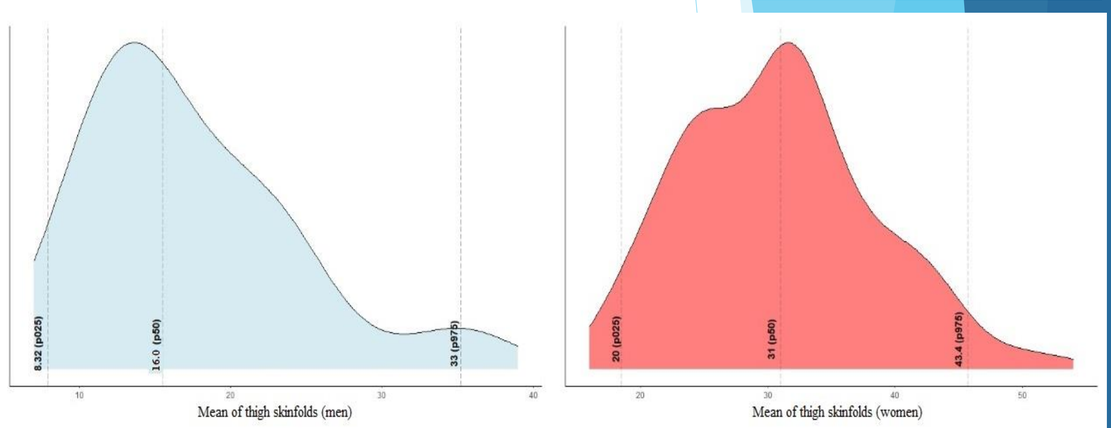


Table 2: Correlation between body adiposity parameters

		Thigh skinfold
BMI (Body Mass Index)	Spearman's rho P-value	0.15 < 0.05
FMR (Fat Mass Ratio)	Pearson's rho P-value	- 0.18 < 0.05
Percentage of body fat	Spearman's rho P-value	0.77 < 0.05

Signficant p-value $p < 0.05$.

Conclusion

This study, the first conducted in a Brazilian population with this purpose, suggests that the cut-off points for thigh skinfolds of Brazilian individuals would be different from those previously defined in other populations. New studies with a larger number of subjects and genotype analysis are needed for a better definition.

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