CHAPTER 7

SUMMARY

The major findings of the present thesis are the following:

In *Chapter 3,*

- DXA and BIA-Tanita were valid methods do detect fat mass and fat-free mass changes in subjects who lost weight in comparison with the reference molecular model (4C-model), despite BIA-Tanita device presenting the best performance criteria to detected fat mass changes regardless of the amount of body weight change;
- BIA-BF300 and Antrform were less accurate to detect changes in body composition compared with the criterion method;
- The methods widely used in clinical settings should not be applied interchangeably to detect body composition changes after a weight loss program.

Therefore, BIA-Tanita seems to be an accurate field method to track changes in body composition over time in overweight or obese women

In *Chapter 4*,

- V_{TG} changes were significantly overestimated by ~0.2 L when the predicted V_{TG} equations *vs* the V_{TG} measured were used.
- The change in the measured V_{TG} was significantly and inversely associated with the change in the waist circumference indicating that a reduction in this measure, and consequently in central adiposity, contributes significantly to the higher measured V_{TG} values, independently of VO_2 max and age;
- Measured and predicted V_{TG}, assessed by Bod Pod tool to corrected "raw" BV should not be used interchangeably because they have different impacts in body composition changes over the course of the 16 month program.

- An important predictor of the change in the measured V_{TG} was the waist circumference change which is an indicator of central adiposity

Therefore, it is necessary to develop new modelling for V_{TG} and body volume assessment in Bod Pod when central obesity is changed.

In *Chapter 5*,

- Bod Pod and DXA are highly related and similarly track changes in percent fat mass after a weight loss intervention in females. Despite the results, before and after weight loss, a significant difference was found between methods where Bod Pod underestimated fat mass, thus overestimating fat-free mass, when compared to DXA.
- Both methods are relatively easy to complete with high subject compliance and both methods tracked changes similarly in absolute and percent fat mass.

Therefore, DXA and Bod Pod can both be applied to assess absolute and relative fat mass changes in overweight or obese women but the same method must be used throughout the weight loss program.