

Poster Session: Professional Skills; Nutrition Assessment; Medical Nutrition Therapy**Comparison of Four Different Methods for the Determination of Body Composition against Air Displacement Plethysmography**

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Learning Outcome: Choosing the adequate body composition methodology for clinical practice and research.

Considering the great variability of techniques and methods to determine body composition as well as the difficulty of applying the techniques accepted as main reference methods (hydrodensitometry and DXA), the present study aims to validate different methods of estimating body composition against the method of air displacement plethysmography, considered the gold standard in clinical practice. In this cross-sectional study, a sample of 45 students was evaluated through five indirect methods for estimating body composition. Three of them using electrical bioimpedance: 4 electrode 150 to 900 Ω 50 kHz (Tanita TBF-300A), 4 electrode 0 to 1000 Ω 50 kHz (RJL) and 8 electrode multifrequency 1, 50, 250, 500 & 1000 kHz (InBody 720); infrared interactance (Futrex) and air displacement plethysmography (Bod -Pod). Lean body mass (LBM) and body fat mass (BFM) determinations by electric bioimpedance and infrared interactance methods were compared with those obtained by air displacement plethysmography using a bilateral Pearson's correlation. According to the results, it was observed that electric bioimpedance and infrared interactance methods correlate significantly with air displacement plethysmography, showing that there is no significant difference between the measurements of LBM and BFM compared to the gold standard. However, the method of multifrequency 8 electrode bioelectrical impedance had the best correlation for both determinations, concluding that it may be a good tool that can be used not only for clinical practice but also for research studies.

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Accuracy of Predicted vs. Measured Resting Energy Expenditure in Patients Receiving Parenteral Nutrition

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Learning Outcome: To understand the level of accuracy of various predictive equations as compared to the indirect calorimetry.

Background: Predictive equations (PEs) are used to calculate the resting energy expenditure (pREE). Indirect calorimetry (IC) is the 'gold standard' for measuring REE (mREE). However, PEs are more commonly used as alternative to IC due to their practicality.

Aim: To evaluate the accuracy of pREE by PEs compared to mREE by IC.

Methods: Adult in-patients requiring Parenteral Nutrition (PN) were included. Critically ill, ventilated patients and those unfit for IC procedure were excluded. pREE was calculated using following PEs: Harris-Benedict (HB) (current weight), HB (ideal weight), Mifflin-St. Jeor (MSJ), 25 kcal/kg/day, Schofield, Owen and World Health Organization (WHO). Patient's mREE was measured by MedGem[®] handheld IC. The accuracy of PEs was defined as pREE to be within 10% of mREE. Agreement between pREE and mREE was evaluated by Bland-Altman Limits of Agreement (LoA) analysis.

Results: Twenty three patients {M/F: 15/8; Age 52 \pm 13; BMI 19.0 \pm 5.2 kg/m²; SGA: A(39%), B(57%), C(4%)} were recruited. MSJ equation estimated pREE to within 10% of mREE in 48% of patients followed by HB (current weight), 44%; Owen, 35%; HB (ideal weight), 35%; Schofield, 26%; WHO, 26% and 25 kcal/kg/day, 22%. MSJ equation showed the greatest LoA with the least mean difference between pREE and mREE of 93 \pm 189 kcal followed by HB (current weight) of 112 \pm 162 kcal, yet all estimations were imprecise with high standard deviations of bias.

Conclusion: PEs show inconsistent accuracy and are imprecise which may lead to overfeeding or underfeeding in patients receiving PN. REE should be measured by IC whenever possible.

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Accuracy of Self-Reported Waist, Hip and Neck Circumference of Mothers Using Video Instructions

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Learning Outcome: To describe the accuracy of mothers' self-reported anthropometric measurement after instruction via video.

Alternative adiposity measures are important ancillary markers of BMI. Waist (WC), hip (HC), and neck circumferences (NC) are related to body fatness and disease risk. Mothers (n=17, 37.94 \pm 3.96SD years) participated in a 2-phase validation of a self-report WC, HC, NC tool. In A-Phase, mothers independently downloaded a PDF measuring tape (MT); watched a video explaining how to create a MT by cutting the PDF into strips and taping them together; and watched video instructions for taking measurements. In B-Phase, mothers visited a lab where trained researchers observed them measuring themselves as they did in A-Phase. Researchers then measured mothers in duplicate. Mothers' A-Phase and B-Phase self-measured WCs, HCs, and NCs differed by 6.12%, 4.08%, and 4.84%, respectively, with 53%, 44%, and 19% of A-Phase and B-Phase measurements differing $>\pm 1$ -inch. Researchers' and mothers' A-Phase WCs, HCs, and NCs differed by 7.70%, 4.78%, and 8.25%, with 82%, 47%, and 18% of measurements differing $>\pm 1$ -inch. Researchers' and mothers' B-Phase WCs, HCs, and NCs differed little (2.64%, 3.36%, 3.74%, respectively), with 33%, 24%, and 6% of measurements varying $>\pm 1$ -inch. Waist-Hip ratios of researcher and A-Phase mother measurements differed by 4.60% and 5.85% in B-Phase. Improved maternal accuracy in B-Phase vis-à-vis the researcher "gold standard" may result from greater diligence while under observation and/or experience gained from A-Phase. Common maternal measurement errors were: not keeping MT flat, incorrect MT positioning, errors reading measurements, and interference of clothing. Results indicate that self-report anthropometric measurements are feasible additions to research protocols, but would benefit from further refinement.

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Usability Testing of the Beta-Version of Myfood24 among British Adolescents

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Learning Outcome: Participant will be able to understand the method used to test the usability and acceptability of myfood24 tool.

Myfood24 is an innovative UK online 24-hour dietary recall tool for large scale population studies. Successful web-based dietary assessment software needs to be intuitive, simple and engaging for users. However, limited information is available on how to test such a new tool's usability, especially dietary assessments tool. This study aims to assess the usability of the beta-version of the myfood24 interface design and identify the acceptability and overall satisfaction of using myfood24 among 11-18 years old adolescents. A total of 14 adolescents were involved. Seven adolescents used standardized tasks in a testing room with screen capture software. Each individual session lasted about one hour. The other seven adolescents were asked to record their food intake using myfood24 in their home setting in order to gain a clear indication of how myfood24 performs in a real situation. All of them then completed a usability questionnaire. Task analysis criteria were used to identify all usability issues. myfood24 was found to be acceptable and suitable for British adolescents. Its colour and design were the most preferred features commented on by the adolescents. Some navigation and presentation error and failure to find functions were the main issues identified by usability-testing. In order to develop the final version of myfood24, a number of aspects need to be amended, although the system usability score (SUS) of myfood24 (beta-version) was high at 67/100. Furthermore, using an interactive tutorial (walk-through example) and phonetic spell checker may enhance adolescents' performance. This feedback will help to enhance myfood24 final version.

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