

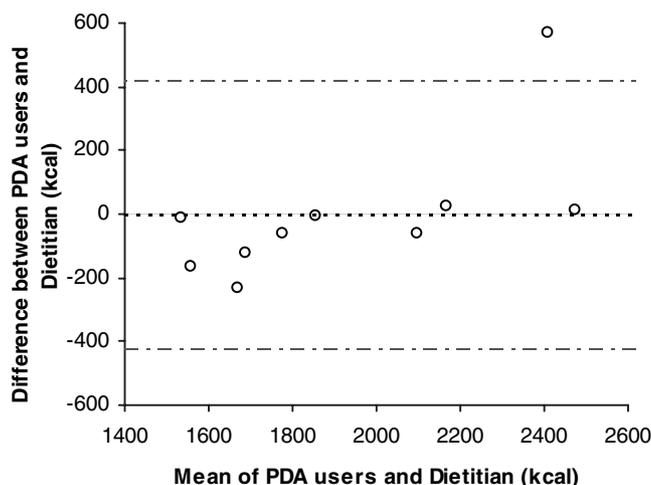
Use of a personal digital assistant to estimate refeeding syndrome risk and total parenteral nutrition requirements by untrained personnel

D. J. Cartwright¹ and D.-L. Clee²

Departments of ¹Clinical Biochemistry and ²Dietetics, Addenbrookes Hospital NHS Trust, Hills Road, Cambridge CB2 0QQ, UK

The calculation of the nutritional requirements of individuals requiring total parenteral nutrition is performed by experienced dietitians using appropriate guidelines⁽¹⁾. When dietitians are not available, such as over a weekend, other clinicians may be required to administer parenteral nutrition. Certain patient factors put some individuals at high risk of refeeding syndrome, a fact that may not be recognised or taken into account by non-dietetic staff. In the UK, NICE guidelines are available to identify these at-risk individuals⁽²⁾. The calculation of an individual's nutritional requirements can be expedited by using desktop computerised algorithms⁽³⁾. We investigated the use of a JavaScript programmed personal digital assistant (PDA) to calculate refeeding risk and nutritional requirements by individuals with no prior training in nutrition provision. We aimed to determine whether this might prove useful in a hospital environment at times when specialised dietetic input is not available.

Using the PDA, five untrained laboratory personnel calculated the refeeding syndrome risk, energy and protein requirements of ten typical clinical cases referred for nutritional assessment. Training for use of the PDA consisted of a single trial case example. The results obtained were compared to those of a specialist nutritional support dietitian using standard practice. The time taken to perform the calculations was measured.



A Bland-Altman plot of the calorific requirements estimated by PDA users and the dietitian gives a mean bias of -4.4 kcal with 95% limits of agreement of -430.5 to 421.8 kcal.

In all cases (twenty-five of twenty-five), the individuals not at refeeding risk were correctly determined by the PDA users. Of cases at some or high risk twenty-three of twenty-five were correctly identified; one individual at some risk was labelled as high risk and *vice versa*. PDA users stated that the feeding of refeeding-risk patients should not start with full estimated energy requirements. Estimated energy requirements determined by PDA users were within $\pm 13\%$ of the dietitian result on 88% of occasions and the range of protein requirements defined by PDA users contained the dietitian-defined value on 78% of occasions. PDA users' mean calculation time was 23.4 (range 16–29.5) min, the dietitian's 25 min.

The evaluation of an individual's refeeding syndrome risk and nutritional requirements is feasible by untrained staff using a PDA. This may improve out-of-hours patient care by reducing the risk of refeeding syndrome in patients admitted when dietitians are not available to direct therapy. It is possible that dietetic time could be saved using these devices.

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3. Paschidi M, Skouroliakou M, Archontovassilis F, Papassantopoulos P & Markantonis SL (2006) *Pharm World Sci* **28**, 265–273.