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Validation of protein intake assessed from DietPhone against nitrogen excretion determined from 24 h urine collections in health adults

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Dietary assessment is essential for investigating the relationship between diet and disease. Existing methods of collecting dietary intake data are fraught with difficulties in terms of accuracy and participant compliance. It has been suggested that the development of new and innovative techniques for obtaining dietary intakes could improve the accuracy of reporting. This study aims to validate the DietPhone, comparing protein intakes with nitrogen excretions using 24 h urine collections.

DietPhone is an application downloadable onto mobile phone handsets. It has been developed and designed by staff at Queen Margaret University to record and analyse dietary intake. It contains the complete food database published by the FSA⁽¹⁾. DietPhone is essentially the same self-report dietary intake method as diet diaries.

Eleven healthy students at Queen Margaret University aged 18–59 years old were recruited and kept a 3-d food diary using DietPhone. Mean energy and protein intakes were ascertained and assessed against unverified 24 h urine collection and estimated energy requirements. Nitrogen analysis was conducted using the Costech Nitrogen Analyser.

Of the eleven subjects recruited one subject failed to collect a urine sample correctly and was removed from the data analysis. Therefore ten subjects remained in the study. Pearson's correlation analysis was performed showing a significant correlation between nitrogen intake (g) and urinary nitrogen (g) ($r = 0.83$, $P = <0.01$).

The significant correlation between nitrogen intake and excretion shows validity at the group level. Mobile phones are lightweight, portable, practical to carry around and prominent enough to act as a reminder to record data⁽²⁾. DietPhone removes the need to record on paper after eating, thus reducing the burden and embarrassment associated with completing diaries. Additionally, it cuts down on the cost and difficulties involved in distributing diet diaries to participants. Therefore, DietPhone has the potential to be used to assess the dietary intakes in adults.

1. Food Standards Agency (2002) McCance and Widdowson's. The Composition of Foods, sixth summary edition. Cambridge: Royal Society of Chemistry.
2. Connelly KH, Faber AM, Rogers Y, Siek KA and Toscos T 2006. Mobile applications that empower people to monitor their personal health. *e&i elektrotechnik und informationstechnik* **123**, 124–128.