ENERGY EXPENDITURE BY DOUBLY-LABELLED WATER TECHNIQUE FOR ACTIVE AND INACTIVE SUBJECTS

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In a previous paper (Forbes-Ewan et al, 1988) the energy expenditure (EE) as estimated by doubly-labelled water (DLW) technique, was reported for a very active group - soldiers training for jungle warfare. This paper reports the food intake (FI) and energy expenditure of an "active" group (five males who averaged more than 100 minutes of vigorous leisure time activity each day) and an "inactive" group (five males and one female who averaged less than 8 minutes vigorous leisure time activity). No subject had a physically arduous occupation.

FI during meal times was measured for each subject by direct weighing. Intake outside meal hours was subject-reported. A nutritional database based on the NUTTAB database of the Department of Community Services and Health was used to convert food intake into energy (kJ).

EE was estimated by the method of Schoeller et al (1986) and by the intake/balance (I/B) method as used previously (Forbes-Ewan et al, 1988).

The table shows mean (±SD) FI and EE (by DLW and I/B) in kJ/day for the inactive and active groups.

	Inactive			Active		
	FI	DLW	I/B	FI	DLW	I/B
kJ/day	11640	11830	10790	15680	16050	16070
± SD	2240	1620	3730	3020	1200	3010

Although the mean I/B results for EE agreed quite well with mean EE by DLW, there was poor concordance between the two methods for individuals. This occurred equally in both the active and inactive groups. Using the I/B result as the reference, the DLW method overestimated daily EE in six subjects by an average of 2625 kJ, and underestimated daily EE in five subjects by an average of 1930 kJ. There was better agreement between FI and EE, as measured by DLW, for individuals - the mean absolute difference between these results was 1740 kJ.

It is concluded that DLW technique clearly differentiated between the EE of active and inactive groups. Further, it appears that FI, I/B and DLW can all give similar estimates of mean, but not always individual, EE.

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