Improving the efficiency of feeding the Australian Army

CH Forbes-Ewan, DR Waters, GJ Walker

Defence Science and Technology Organisation, Defence Nutrition Research Centre, Scottsdale, TAS, 7260

The Australian Army uses ration scales to determine food entitlements of soldiers in barracks. The basic ration scale that was in use until 1 July 1997 provided approximately 14,400 kJ per entitled soldier per day, with energy derived from protein, fat and carbohydrate (P:F:C) in the ratio 18:32:50. Many supplements were also available for special circumstances. These included supplements for recruits, arduous duties, hot weather, cold weather, cadets/apprentices, and Special Forces soldiers. Three major problems were seen with the Army's basis of rationing:

(i) The basic scale and the supplements were not developed to meet demonstrated nutritional needs of soldiers;
(ii) it was potentially inefficient because food could be drawn for all entitled soldiers regardless of the number actually attending meals; and
(iii) the entitlements of units to supplementary feeding were not always clear.

Research was conducted to determine the nutritional requirements of soldiers (1). Using the doubly-labelled water method (2) the energy expended by soldiers was determined for a wide range of operational and training scenarios. Mean food intake was also estimated by dividing total food consumed by the number of diners. A nutrient database based on NUTTAB (3) was used to convert food consumption to energy and nutrient consumption.

The results of these studies were used to devise 'meal-based' ration scales (with one scale for breakfast and another for lunch/dinner). This was combined with an altered method of determining entitlements to food; this is no longer according to the number of soldiers at the mess, but to meal attendance. A total of 5470 kJ is available for each soldier attending breakfast, with P:F:C = 15:30:55. The scale for lunch/dinner provides 5830 kJ, with P:F:C = 21:28:51. These entitlements include factors for inevitable wastage that occurs during food preparation, at the servery and as plate waste. The meal-based ration scales have obviated the need for supplements, simplifying the determination of entitlements of units to rations.

At a seven day trial conducted in a large Army mess to determine the efficiency of the new system, savings of the order of $10,000 were achieved relative to the previous system. Meal-based rationing was introduced into service by the Army on 1 July 1997.

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3. Lewis J and Holt R. Nutrient data table for use in Australia. NUTTAB91-92. Australian Government Publishing Service, Canberra, 1991.