Availability and Nutritional Content of High Energy and High Protein Milk for Malnourished Older Adults

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Objectives: Malnutrition in older adults reduces quality of life and is increasing in prevalence in many countries. Fortified milk (milk powder added to whole milk), typically forms part of guidelines globally for adults at risk of malnutrition. Protein-enriched fresh milk (PEM) may be a simpler option as it is ready to use. This study aims to investigate the availability and nutritional content of fortified milk and PEM.

Methods: The 7 largest supermarket chains (by UK market share) were surveyed in-store and online in a large city over 2 weeks in December 2019. Two were discount retailers and 3 did not offer online shopping. For each chain, a large, mid-size and convenience store type were randomly selected, if present within the city. In total 15 stores were visited (5 large, 7 mid-size and 3 convenience). Price and nutritional information were recorded on a pro forma for all milk powders and PEMs in-store and online. The energy & protein content of a 200 ml portion of fortified milk (made as per guidelines with milk powders found) and cost/g of protein was considered and compared with PEM and standard whole milk.

Results: Six brands of skimmed milk powder (SMP), 1 brand of whole milk powder (WMP) and 3 brands of PEM were found. SMP was the most available (5 large & 5 mid-sized stores), followed by PEM (2 large and 1 mid-sized store), whilst WMP was only found online. The 3 convenience stores and 2 discount retailers did not stock any milk powders or PEM.

Energy in 200 ml portions ranged from 90 – 224 kcals and protein from 8.0 – 14.2 g. Fortified milk made with SMP had the highest protein content (Mdn = 13.8 g, IQR = 13.5 – 14.2 g), double that of standard whole milk. Fortified milk made with WMP had the highest energy content (224 kcals) but less protein than fortified milk made with SMP (12.0 g). PEM had the lowest energy (Mdn = 96 kcals, IQR = 90 – 98 kcals) and lowest protein content (Mdn = 9.4 g, IQR = 8.0 – 10.0 g). Cost/g of protein was highest for fortified milk made with WMP (Mdn = 2.5p, IQR = 2.3 – 2.7p), followed by PEM (Mdn = 2.0p, IQR = 1.9 – 2.5p) and lowest for fortified milk made with SMP (Mdn = 1.8p, IQR = 1.8 – 2.2p).

Conclusions: Based on nutritional content, availability and price, the preferred option found was fortified milk made with SMP; enriched fresh milks did not compare favourably for any of these criteria. Convenience and discount stores had poor availability of the products surveyed.

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