



Micronutrient intake and food sources in the very old

N. Mendonça^{1,3}, T.R. Hill^{1,3}, A. Granic², J.C. Mathers^{2,3}, W. Wrieden³, M. Siervo^{2,3},
C. Seal^{1,3}, C. Jagger² and A.J. Adamson^{2,3}

¹School of Agriculture Food and Rural Development, ²Newcastle University Institute for Ageing and ³Human Nutrition Research Centre, Newcastle University, NE1 7RU, Newcastle upon Tyne, UK

There is a dearth of data on micronutrient intakes of very old adults (85 years and older) – one of the fastest growing age segments of western societies, including the UK. Our objective was to assess vitamin and mineral intake and respective food sources in 793 eighty-five year-olds (302 men and 491 women) living in North-East of England and participating in the Newcastle 85+⁽¹⁾. Details on the Newcastle 85+ cohort study can be found at <http://research.ncl.ac.uk/85plus>.

Dietary information was collected in 2005/2006 using repeated multiple pass 24-hour recall (2 × 24hr-recall). Vitamin and mineral intakes were estimated using McCance and Widdowson's Composition of Foods 6th edition and compared to current dietary reference values (DRV). Percentage contribution (%) to micronutrient intake was estimated based on 15 food groups viz. cereals and cereal products, milk and milk products, eggs and egg dishes, oils and fat spreads, meat and meat products, fish and fish dishes, vegetables, potatoes, savoury snacks, nuts and seeds, fruit, sugar, preserves and confectionery, non-alcoholic beverages, alcoholic beverages and miscellaneous.

Micronutrients	Median	IQR	% Below LRNI	Top Food Group Contributor (%)
Energy (KJ)*	6646	5489–8156	80.2 [†]	cereals and cereal products (34)
Vitamin A (µg RE)	620	398–910	10.5	meat and meat products (40)
Folate (µg)	208	157–264	3.4	cereals and cereal products (32)
Vitamin B12 (µg)	2.9	1.9–4.4	9.6	meat and meat products (53)
Vitamin D (µg)	2.0	1.2–6.5	95.3 [‡]	fish and fish dishes (34)
Calcium (mg)	731	554–916	5.7	milk and milk products (31)
Iron (mg)	8.7	6.7–11.6	5.7	cereals and cereal products (49)
Potassium (mg)	2477	1890–3022	30.0	non-alcoholic beverages (19)
Selenium (µg)	39.0	27.3–55.5	52.7	cereals and cereal products (47)

IQR, Interquartile range. LRNI, Lower Reference Nutrient Intake. * Does not include energy from alcohol. † % below Estimated Average Requirement (SACN, 2010). ‡ % below Reference Nutrient Intake.

Median intake of selenium was below the Lower Reference Nutrient Intake (40 µg/day)⁽²⁾ and vitamin D intakes were below the Reference Nutrient Intake (10 µg/day) for >95 % of participants. More than 98 % of vitamin D intake that came from fish and fish dishes (34 %) came from oily fish. Meat and meat products was the top contributor to vitamin A (40 %) and vitamin B12 (53 %) intakes with most of these vitamins coming from liver and liver dishes (94 % and 50 % respectively). This partly explained why 4.5 % of participants were above the upper level of 3000 mg/day of vitamin A. Against current DRVs, several micronutrient intakes were inadequate. However, since most DRVs are not age-specific and/or extrapolated from younger populations, caution is warranted upon interpretation.

1. Collerton J, Davies K, Jagger C *et al.* (2009) Health and disease in 85 year olds: baseline findings from the Newcastle 85+ cohort study. *BMJ* 339, b4904.
2. Department of Health: Committee on Medical Aspects of Food Policy (COMA) (1991) *Report on Health and Social Subjects 41: Dietary Reference Values for Food Energy and Nutrients for the United Kingdom*. London.