ARACHIDONIC ACID CONTENT OF COMMON AUSTRALIAN FOODS

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It is generally recognised that the Western diet contains an imbalance of n-6 to n-3 polyunsaturated fatty acids (PUFA) causing an imbalance in the ratio of n-6 to n-3 PUFA in tissue phospholipids, with a consequent exaggerated metabolism of arachidonic acid (AA, 20:4n-6) to eicosanoids. Linoleic acid (LA, 18:2n-6) is the most abundant PUFA in the western diet and is the precursor for AA synthesis in vivo and has been considered to be the primary source of tissue AA. However, there is growing evidence to indicate that dietary AA may also contribute substantially to enrichment of tissue phospholipids in humans. The extent and source of this contribution is unclear.

Arachidonic acid is predominantly found in the polar lipids of membrane tissue of meats and egg yolk, but has often been incorrectly identified and recorded in food composition tables in high amounts in some vegetable products and animal fat. Phinney et al. (1990) have suggested that for US adults eating eggs and meat the intake is probably in the range 200-1000 mg/day. This agrees with the figure of about 500 mg/day determined on a mixed food omnivorous diet by Garg et al. (1988). Others have suggested AA consumption of 100 to 500 mg/day (Baghurst et al. 1988; Dolecek 1992).

The purpose of the present study was to provide an up-to-date assessment of the AA content of major foods in our current diet likely to contribute to dietary AA and to then determine the mean daily intake of AA in the Australian diet. The AA levels (on a 100 g edible basis), were 891 mg and 390 mg respectively for duck and chicken egg yolks, 140-310 mg for liver and kidney, 75 mg for turkey, 56, 45, 44 and 35 mg, respectively for lean pork, lamb, chicken and beef. Atlantic salmon contained 268 mg of AA/100 g edible. The lean portions of the exotic meats, crocodile, emu, venison and kangaroo were also rich in AA (183, 130, 69 and 62 mg respectively). Applying our current AA measurements to previously determined food intakes of Australian adults (National Dietary Survey of Adults 1986), we have estimated AA intake for Australian adult males to be of the order of 130 mg/day and females 96 mg/day.

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