

Australian Aboriginal plant foods: evolutionary considerations

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For at least 40-50,000 years, plants played an important but supplementary role in the animal-dominated diet of Australian Aboriginal (AA) hunter-gatherers (1). Knowledge of both the nutrient composition and the special physiological effects of their foods provides another perspective in the current debate on the composition of the 'prudent' diet and the diet on which humans evolved. The aim of the present study (2) was to calculate the average nutrient composition of some 829 Aboriginal plant foods (in total and by food group) and highlight the differences between these and modern cultivated foods. We reasoned that the nutrients may have varied between particular foods and with ambient conditions, but that the average nutrient values should reflect general tendencies.

The mean \pm SD nutrient composition of all the AA plant foods combined is shown in the Table. These figures enable us to calculate the absolute contribution of plant foods to total food and nutrient intake of traditional living AA. If AA derived between 20 and 40% of their food energy from plants (the most likely range), they must have consumed between 360 and 720 g fruit and vegetables each day on a total energy intake of 12,500 kJ (3000 kcal). At the other extreme, if the ratio of plant to animal food was 80:20 (which is unlikely), they ate 1.4 kg plant food a day, including 160 g/day dietary fibre.

	Content per 100 g	Nutrient contribution of plants	
	Mean \pm SD n = 829	if 20% energy from plants	if 80% energy from plants
Energy (kJ)	700 \pm 580		
Protein (g)	6 \pm 8	22	88
Fat (g)	5 \pm 15	18	72
Carbohydrate (g)	28 \pm 21	101	404
Fibre (g)	11 \pm 11	40	160
Vitamin C (mg)	25 \pm 82 ^a	90	360

^a this analysis excludes *Terminalia ferdinandiana*, the world's highest food source of vitamin C

If plants provided 20% of the energy in the diet, they would have contributed a total of 22 g protein, 18 g fat, 101 g carbohydrate, 40 g fibre and 90 mg vitamin C. Since all the carbohydrate came from plant foods, the traditional AA diet would therefore have been low in carbohydrate (other than dietary fibre) and mostly in the form of low glycaemic index sugars (from fruit and honey) and starch (from seeds, roots and nuts). Thus the diet would have exerted a relatively low demand for insulin secretion and this characteristic may have protected AA from a genetic predisposition to non-insulin-dependent diabetes.

Surprisingly, our analysis suggests that AA foods were lower on average in vitamin C than cultivated fruits (25 vs 34 mg/100 g respectively). It is intellectually satisfying and heuristically valuable to estimate the typical diet that human beings were adapted to consume during the long course of evolution. The dietary pattern and active lifestyle of recent hunter-gatherers such as AA may be a reference standard for modern human nutrition and a model for defence against 'diseases of civilisation'.

1. Lee A. The transition of Australian Aboriginal diet and nutritional health. In: Simopolous AP, ed. Metabolic consequences of changing dietary patterns. World Rev Nutr Diet. Basel: Karger, 1996;79:1-52.
2. Brand Miller J, Holt SHA. Australian Aboriginal plant foods: a consideration of their nutritional composition and health implications. Nutrition Research Reviews, in press.