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Nutrient Reference Values for Australia and New Zealand
Including Recommended Dietary Intakes

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CARBOHYDRATE

BACKGROUND

The primary role of dietary carbohydrate is the provision of energy to cells, particularly the brain that requires glucose for its metabolism. Other nutrients (eg fat , protein and alcohol) can provide energy but there are good reasons to limit the proportion of energy provided by these nutrients as discussed in the 'Chronic disease' section. Carbohydrate is also necessary to avoid ketoacidosis. However, as limited data exist on which to base an estimate of requirements, it was not possible to set an EAR, RDI or AI for carbohydrates (either collectively or individually) for most age/gender groups.

The lack of an RDI or AI for total carbohydrates in no way reflects a lack of value as a key component of the diet. The type of carbohydrate consumed is paramount in terms of health outcome (see 'Chronic disease' section and FNB:IOM 2002).

It was deemed inappropriate to set an upper level of intake for carbohydrates, however, evidence of the role of various carbohydrates in relation to chronic diseases is discussed in the 'Chronic disease' section where an acceptable range of intake is given.

Some exceptions have been made as detailed below.

RECOMMENDATIONS BY LIFE STAGE AND GENDER

Infants	**AI**	**Carbohydrate**
0–6 months	**60 g/day**	
7–12 months	**95 g/day**	

***Rationale*:** In infancy, the brain is large relative to body size and uses 60% of the infant's total energy intake (Gibbons 1998). Animal experiments indicate that the infant brain can use keto acids as fuel (Edmond et al 1985, Sokoloff 1973). It is also known that the gluconeogenic pathway is highly developed, even in premature infants (Sunehag et al 1999).

However, it is not known whether gluconeogenesis can provide all of the glucose requirements of infants, so an AI has been set based on the average carbohydrate (mostly lactose) content of breast milk (74 g/L) and an average daily milk volume of 0.78 L in the first 6 months, giving 60 g/day (with rounding). For ages 7–12 months, an estimate was made based on an average volume of 0.60 L/day milk at 74 g/L (44 g/day) plus an amount from complementary foods of 51 g/day (from NHANES III as detailed in FNB:IOM 2002).

Pregnancy and lactation

Although no specific EAR, RDI or AI recommendations are made for pregnancy and lactation, these physiological states require additional fuel to support the development, growth and metabolism of maternal and fetal tissues, or for milk production, respectively. Glucose is the optimal fuel, particularly for the maintenance of maternal and fetal brain function, although keto acids can meet some needs (Patel et al 1975).

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