

Differentiate with **DHA**...the Smart Omega-3!

How Much Omega-3 DHA Should Be In Fortified Foods?

Why fortify with Omega-3?

There is a significant body of scientific evidence relating to both function of Omega-3 fatty acids and their benefits for good health. However, the Australian National Nutrition Survey of 1995 demonstrated that the median daily intake of these fatty acids was only 29mg¹ indicating that more than 50% of Australians consume less than 30 mg per day.

It is well understood that fish, particularly oily fish, are good sources of omega-3. However, for many reasons children and adults do not consume enough fish to reach desirable Omega-3 intakes. Approximately 75% of the Australian Population and 80% of the general New Zealand population consume fish less than once a week².

So is it better to keep saying, "eat more fish" and hope that people will eventually respond, or is it helpful for alternative food sources of DHA and EPA to be available? If consumption of just 2 slices of omega-3 enriched bread will more than double the daily intake of these nutrients for 50% of the Australian population surely this is a safe and effective way to help people consume sufficient omega-3 to prevent the problems of insufficient intake.

How Much Omega-3 Is Enough?

Before addressing how much Omega-3 DHA manufacturers should include in fortified/functional foods, it is important to understand what our intake needs are. As much of the scientific evidence relating to Omega-3 fatty acids has occurred in the last few years, at the time of publication, there were no government approved Recommended Daily Intakes (RDI's) set for the Omega-3 group of Polyunsaturated Fatty Acids (PUFA's) anywhere in the world.

There exists however, an array of advisory information from world experts and authorities, including the NHMRC Australia, which seem to be converging upon similar targets for Adequate Intakes (AI) of these essential fatty acids (Table 1). Some of these are in finite quantities (e.g. mg or g/day) and others are expressed as a percentage of a typical 2000 kCal daily dietary intake. In such cases, we have used the conversion that each g of fat is equivalent to 9 kCal.

Although scientific evidence supports the therapeutic benefit of the very long chain Omega-3 PUFA's EPA and DHA, some of these recommendations do not differentiate between the three most significant Omega-3 fatty acids: ALA, EPA and DHA (Table 1).



Table 1
Recommended Long Chain Omega-3 Intakes

International Authority	Recommended long chain Omega-3 Intake (mg/day)		
	Total	ALA	EPA + DHA
ISSFAL, 2004 ³	-	1556	500
UK SACN, 2004 ⁴	2000	-	450
US FDA, 2004 ⁵	-	1300	130
NHMRC, 2006 ⁶	-	1050-	520*

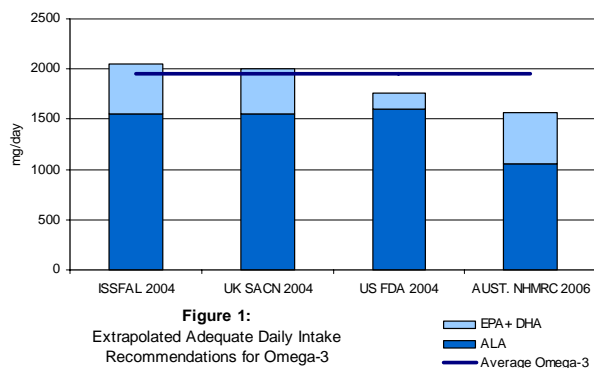
*Averaged across gender

However, when these are extrapolated to “fill in the blanks” quite a consistent result is achieved (Table 2).

Table 2
Extrapolated Omega-3 Intakes

International Authority	Recommended Omega-3 Intake (mg/day)		
	Total	ALA	EPA + DHA
ISSFAL, 2004	2056	1556	500
UK SACN, 2004	2000	1550	450
US FDA, 2004	1430	1300	130
NHMRC, 2006	1570	1050	520

This is represented in Figure 1 below.



Therefore, in the absence of government or otherwise formally approved guidelines or recommendations, it should be nutritionally sound to use the ISSFAL 2004 adequate intake of approximately 500 mg/day of EPA+DHA and 1556 mg/day of ALA³.

How Much Omega-3 Should I Add?

The Australia New Zealand Food Authority mandates that food products bearing Omega-3 content claims have some dietary merit⁷, and thus, takes the position that a maximum nutritional requirement with regard to fat is necessary. In addition, FSANZ rules mandate that food products bearing label content claims must contain prescribed amounts or more of Omega-3, per reference amount customarily consumed (i.e. per serve). Currently to make a labeling statement that a food is a ‘source’ of Omega-3, the product must contain a minimum of 200mg of ALA or 30 mg or combined DHA and EPA per reference quantity. For higher level labeling statements such as ‘a good source of Omega-3’ products must contain 60 mg or more of combined DHA and EPA per reference quality⁷.

Are current fortification guidelines sufficient? Recent media coverage would suggest not. Choice magazine⁸ cites current Omega-3 guidelines permitting labelling claims for foods that contain 30 mg combined DHA + EPA per serve as being “less than 7 % of what is needed” and are less than 6% of the AI as recommended by the NHMRC⁶. Moreover, the Australian Competition and Consumer Commission (ACCC) recently investigated a range of fortified fruit juice products in response to concerns that the nutraceutical composition of the products were being misrepresented⁹.



Therefore it is important for both legal/regulatory and marketing reasons that food manufacturers choose appropriate levels of fortification. Too little and you may invite investigation by the authorities for misleading the consumer and consumers may also view this as a token effort or marketing gimmick. Too much and you may run into increased sensory impact, cost barriers and possibly even contributing to an overdose situation with some nutrients.

In the absence of RDI's proposed fortification levels should pass the "test of reasonableness" a sentiment endorsed by the ACCC who are focused on ensuring that sectors marketing to the health conscious consumer only contain representations that can be substantiated. According to the ACCC, labelling products with health claims can have a significant influence on consumer purchasing decision and therefore manufacturers have a responsibility to ensure that what is represented on a product's packaging is in fact contained in the product and any claims are fair ones⁹.

For other vitamins and minerals FSANZ permits claims to be made in relation to the presence in a food only if a reference quantity of the food contains at least 10% of the RDI or ESADDI (estimated safe and adequate daily dietary intake) for that vitamin or mineral¹⁰. This would suggest that when considering fortification 10% of the Adequate Daily Intake of Omega-3 per serve of food is a good place to start.

In the case of Omega-3 EPA+DHA, 50 mg/serve equates to 10% of both ISSFAL's³ and the NHMRC⁶ recommended Adequate Intake.

Nutritionists would consider a serve of food contributing 10% of the AI to make a significant contribution to the total daily intake of that nutrient and the inclusion of a few serves of foods containing 50mg of DHA and EPA per serve will make a significant contribution to the daily intake. Consider foods containing at least 50 mg of DHA and EPA will more than **double** the intake of these nutrients for around 50% of the Australian population¹.

In the case of some food products, however, there may be a nutritional case for greater than a 10% delivery. For example in ready made or prepared meals which are portion controlled to be a complete meal, there will be limited opportunities to build on the Omega-3 consumption in this meal. As such, it may be more nutritionally responsible, technically practical and economically viable to increase this dosage. The same may equally apply for more nutraceutical or supplement style foods (e.g. Yakult).

The Australia and New Zealand Food Authority permits a claim that a food is a good source of a vitamin or mineral if a reference quantity (i.e. a serve) contains no less than 25% of the RDI or Estimated safe and adequate daily dietary intake (ESADDI) for that vitamin or mineral⁹.

Thus, for Omega-3 EPA+DHA, a reasonable proposition would be 25% of 500 mg/day, being 125 mg/meal.



References

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