

## Nutrition Discussion Forum

### Aquatic diet and brain evolution – Reply by Langdon

I appreciate the comments of Drs Milligan and Bazinet and of Dr Cunnane and the stimulating questions they raise. However, I do not feel that either letter challenges my observations. The proponents of an explanatory hypothesis must assume the burden of presenting evidence for it. My paper identified the assumptions that must be supported if an aquatic diet hypothesis is to have any bearing on brain evolution; and I found that support lacking. In the absence of gross malnutrition and the presence of natural breast-feeding, DHA does not appear to be a limiting resource for brain development, and I tried to suggest, *post hoc*, why the clinical observations are not relevant to evolutionary scenarios.

Whether the argument is to focus on DHA or some other nutrient, the problems are the same. We can observe normal human brain development across a wide range of pre- and post-agricultural diets and environments. Although the human brain is indeed vulnerable to an array of nutritional insults, that fact only suggests that the brain expanded in one of the many environments where healthy development can occur. The most certain argument we can make about

human diets, past and present, is that they are broad, eclectic, and adaptable. By a half million years ago genus *Homo* with a brain size well over 1000 cm<sup>3</sup> was occupying a range of latitudes and ecological niches approached only by wolves and their relatives. It continued to expand demonstrably (for example, in Europe) on a diet dominated by the meat of terrestrial mammals.

More importantly, no evolutionary mechanism has been proposed to explain why an environment rich in DHA or any other combination of nutrients would induce the relative expansion of brain size in our lineage – a postulated correlation is neither a mechanism nor an explanation.

John H. Langdon

Department of Biology  
University of Indianapolis  
1400 East Hanna Avenue  
Indianapolis, IN 46227  
USA  
langdon@uindy.edu