

## DHA in pregnancy

The DHA requirement of the pregnant women and the developing foetus is high especially during the last trimester because of the rapid synthesis of foetal brain tissue (Al et al 2000, Hornstra 2000). The EFA status of the pregnant woman declines during pregnancy and maternal LCPUFA status affects the LCPUFA status of the newborn infant (Otto, Houwelingen, Antal et al 1997). A study of multiple births demonstrated that the EFA status of infants born after a multiple pregnancy is lower than that of infants born after a singleton pregnancy, which supports the view that the maternal EFA supply to the foetus is limiting (Drongelen, Zeijdner, Houwelingen et al 1996).

The foetus depends primarily on placental transfer and although there is a preferential materno-foetal transfer of LCPUFA compared with the transfer of precursor fatty acids (Berghaus, Demmelmair and Koletzko 1998) the maternal concentration of individual fatty acids can have large effects on PUFA delivery to the foetus (Haggerty, Ashton, Joynson et al 1999). Increasing intake of n-3 fatty acids during pregnancy can enhance maternal DHA status. Consumption of sardines or fish oil was found to increase DHA levels in plasma and erythrocytes of pregnant women while DHA and other n-3 fatty acids were transferred into the foetus (Connor, Lowensohn and Hatcher 1996). Levels of n-3 fatty acids in erythrocyte phospholipids of pregnant women were found to reflect n-3 intake (Olsen, Hansen, Sandstrom et al 1995) and in line with this result it was found that vegetarians give birth to infants with less DHA in their plasma and cord artery phospholipids (Sanders and Reddy 1992, Reddy, Sanders and Obeid 1994).

As well as improving the DHA status of the developing foetus it was suggested, following a series of early studies, that increased n-3 intake by the pregnant women was related to increased birth weight (Crawford, Doyle, Drury et al 1989, Olsen, Olsen and Frische 1990, Olsen, Grandjean, Weihe et al 1993) and longer pregnancy (Olsen, Sorensen, Secher et al 1992)

### **Conclusion**

*Supply of DHA to the developing foetus is dependent on maternal concentrations, which may be limiting but can be enhanced by increased dietary intake. Enhanced DHA intake may therefore be of particular value to pregnant women.*

