CARENCES EN OMÉGA 3 DHA CHEZ LES FEMMES ENCEINTES

NUTRANAT
Vos Nutriments Au Naturel

=> **CONSÉQUENCES DIRECTES SUR LES NEURONES ET SYNAPSES** DU FŒTUS ET DU NOURRISSON; CARENCES **RÉVERSIBLES** VIA L'ENRICHISSEMENT DE LA DIÈTE JOURNALIÈRE EN DHA

=> **VALIDÉES** PAR DE RÉCENTES ÉTUDES

=> D'OÙ **L'IMPORTANCE D'UNE SUPPLÉMENTATION EN DHA** (DÉS 200MG/JOUR) DE LA FEMME ENCEINTE AINSI QUE PENDANT L'ALLAITEMENT

Le DHA à la base de tout…

Le DHA (Acide Docosahexaénoïque ou « acide cervonique ») (C22:6 n-3) est un acide gras polyinsaturé à longue chaîne de la série Oméga 3.
Du fait de son rôle capital dans l'architecture des membranes, il est présent dans toutes les cellules humaines et animales. Il est essentiel au bon fonctionnement des cellules et à l'équilibre biologique. A ce titre, il joue un rôle très important dans le développement et le bon équilibre de l'organisme humain car il est l'acide gras Oméga3 est le plus représenté dans l'organisme. Il est particulièrement abondant dans les cellules du système nerveux

1) DANS UNE RECENTE ETUDE PUBLIEE DANS LE JOURNAL DES NEUROSCIENCES, DES NEUROBIOLOGISTES RAPPORTENT QUE LES **DEFICIENCES ALIMENTAIRES EN ACIDES GRAS ESSENTIELS DE CEUX DU TYPE TROUVE DANS LE POISSON PEUVENT LIMITER LA CROISSANCE DU CERVEAU PENDANT LA GROSSESSE**
=> LES CARENCES EN OMÉGA 3 INFLUENT NÉGATIVEMENT SUR LA CROISSANCE DES NEURONES ET DES CONNEXIONS SYNAPTIQUES DES FŒTUS ET NOURRISSONS.

In a study appearing today in *The Journal of Neuroscience*, UCI neurobiologists report that dietary deficiencies in the type of fatty acids found in fish and other foods can limit brain growth during fetal development and early in life. The findings suggest that women maintain a balanced diet rich in these fatty acids for themselves during pregnancy and for their babies after birth.

Susana Cohen-Cory, professor of neurobiology & behavior, and colleagues **identified for the first time how deficits in what are known as n-3 polyunsaturated fatty acids cause molecular changes in the developing brain that result in constrained growth of neurons and the synapses that connect them.**

These fatty acids are precursors of docosahexaenoic acid, or DHA, which plays a key role in the healthy creation of the central nervous system. In their study, which used female frogs and tadpoles, the UCI researchers were able to see how DHA-deficient brain tissue fostered

poorly developed neurons and limited numbers of synapses, the vital conduits that allow neurons to communicate with each other.

"Additionally, when we changed the diets of DHA-deficient mothers to include a proper level of this dietary fatty acid, neuronal and synaptic growth flourished and returned to normal in the following generation of tadpoles," Cohen-Cory said.

DHA is essential for the development of a fetus's eyes and brain, especially during the last three months of pregnancy. It makes up 10 to 15 percent of the total lipid amount of the cerebral cortex. DHA is also concentrated in the light-sensitive cells at the back of the eyes, where it accounts for as much as 50 percent of the total lipid amount of each retina.

http://news.uci.edu/press-releases/brain-development-suffers-from-lack-of-fish-oil-fatty-acids-uci-study-finds/

2) -LES ETUDES MONTRENT QUE LA SUPPLEMENTATION EN OMEGA 3 DHA DES MERES QUI ALLAITENT AUGMENTE BIEN LA TENEUR EN DHA DE LEUR LAIT CE QUI PERMET D'AMELIORER LE RATIO OMEGA 3/6 DU BEBE
-ET CE DES 200 MG DE SUPPLEMENT DE DHA

✓ DHA supplements for lactating women offer breast milk and baby benefits

02-Apr-2015
Last updated on 02-Apr-2015 at 14:06 GMT

Supplementation with DHA omega-3 in lactating women increases breast milk levels of the essential fatty acid, and could help infants achieve a better omega 3:6 ratio, finds new research from Abbot Nutrition.

The study, published in *Prostaglandins, Leukotrienes and Essential Fatty Acids (PLEFA)*, investigated the effects of docosahexaenoic acid (DHA) supplementation on the fatty acid composition of breast milk and plasma concentrations in lactating women and their infants – finding that supplementation significantly improved levels of the fatty acid in breast milk and in the plasma of both mother and baby.

Led by Dr Christina Sherry from Abbott Nutrition, the research team noted that the composition of human breast milk reflects the nutritional status and dietary intake of the lactating mother – adding that DHA has gained increasing attention in pregnancy and lactation, due to its role in brain development, *"as it accounts for over 10% of brain fatty acids and is essential for infant development."*

*"This study demonstrates that in a population with low dietary intake of DHA, supplementation results in an increase in breast milk and maternal DHA at levels that would reflect adequate dietary intake and beneficially impact fatty acid ratios in infants important for brain development,"*wrote the team – who tested mother's with both lower (200 mg of DHA) or higher (400 mg of DHA) levels of supplementation.

"These data are the first to demonstrate that the infants from both the low and high dose supplemented mothers reported a 40% and 51%, respectively, lower n-6:3 fatty acid ratio, as compared to infants from the placebo mothers," they added.

Research details

In the study, 89 lactating women all of whom were 4–6 weeks post-partum received either a placebo, 200 mg or 400 mg DHA for six weeks alongside their usual diets. Breast milk fatty acids and maternal plasma fatty acids were measured at the beginning and end of the study and infant plasma at the end of the study.

Sherry and her team found that breast milk and maternal plasma DHA were significantly greater with 200 mg and 400 mg DHA compared with placebo – with increases of 50% and 123% respectively for breast milk and 71% and 101% for plasma.

Infant plasma omega-6:3 and arachidonic acid (AA):DHA were also significantly greater in the placebo group compared to both supplement group, said the team – noting that a lower omega-6:3 ratio diet during brain development has been suggested to result in a greater relative percentage DHA accumulation in three critical regions of the brain, while other research has suggested that an imbalance in omega-6:3 early in life may lead to irreversible changes in the hypothalamus.

While the Sherry and her colleagues noted that findings on the long-term cognitive impact of DHA supplementation during pregnancy remain are inconclusive, *"the importance of adequate PUFA in the infant diet for normal growth and development is well established."*

They added that 'numerous' consensus statements recommend at least 200 mg per day of DHA for pregnant and lactating women, but that data from the current research and other research show that many lactating women are only receiving around 25% of this recommended amount.

Indeed, research last week reported that **almost three-quarters of pregnant women have an omega-3 intake that does not meet European recommendations.**

Source: *Prostaglandins, Leukotrienes and Essential Fatty Acids (PLEFA)*
Volume 95, April 2015, Pages 63–69, doi: 10.1016/j.plefa.2015.01.005
"Docosahexaenoic acid supplementation in lactating women increases breast milk and plasma docosahexaenoic acid concentrations and alters infant omega 6:3 fatty acid ratio"
Authors: C.L. Sherry, *et al*

Voir http://www.nutraingredients.com/Research/DHA-supplements-for-lactating-women-may-offer-breast-milk-and-baby-benefits

Docosahexaenoic acid supplementation in lactating women increases breast milk and plasma docosahexaenoic acid concentrations and alters infant omega 6:3 fatty acid ratio

April 2015Volume 95, Pages 63–69 C.L. Sherry, J.S. Oliver, B.J. Marriage Abbott Nutrition, Scientific and Medical Affairs, 3300 Stelzer Road, Columbus OH 43219, United States

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- ✓ **THIS STUDY INVESTIGATED THE EFFECTS OF DOCOSAHEXAENOIC ACID (DHA) SUPPLEMENTATION ON THE FATTY ACID COMPOSITION OF BREAST MILK AND PLASMA CONCENTRATIONS IN LACTATING WOMEN AND THEIR INFANTS.**

  Eighty-nine lactating women 4–6 weeks post-partum received placebo, 200 mg or 400 mg DHA for 6 weeks with usual diets. Breast milk fatty acids and maternal plasma fatty acids were measured at the beginning and end of the study and infant plasma at the end of the study. Breast milk and maternal plasma DHA were significantly greater with **200 mg and 400 mg DHA compared with placebo (50% and 123% breast milk** $p<0.05$; **71% and 101% plasma**, $p<0.0001$), respectively. Infant plasma omega 6: (compared with)omega 3 and arachidonic acid (AA):

(compared with)DHA were significantly greater in the placebo group compared to both supplement groups (67% and 106%; 71% and 116%, respectively, $p<0.05$). **DHA supplementation impacts infant fatty acids important for brain development and breast milk fatty acid composition.**

http://www.plefa.com/article/S0952-3278%2815%2900030-7/abstract

3) PRES DES TROIS QUARTS DES FEMMES ENCEINTES NE CONSOMMENT PAS SUFFISEMMENT D'OMEGA 3

✓ NEARLY THREE-QUARTERS OF PREGNANT WOMEN DO NOT GET ENOUGH OMEGA-3, FINDS STUDY

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Despite being critical for infant development, just 27% of pregnant women get enough omega-3 to meet current European Union (EU) recommendations, say researchers. The Canadian study, published in the journal *Applied Physiology, Nutrition, and Metabolism*, estimated the total intake and dietary sources of eicosapentaenoic acid (EPA), docosapentanoic (DPA), and docosahexaenoic acid (DHA) in a group of 600 women – finding that approximately three quarters of pregnant women and recent mothers do not meet intake recommendations for DHA.

Led by Catherine Field from the University of Alberta, the research team behind the Alberta Pregnancy Outcomes and Nutrition (APrON) study aim to understand the relationship between maternal nutrient status during pregnancy and maternal mental health and child health and development.In the current study of women during pregnancy and at three months postpartum, the team found that despite a high level of education and income, the majority of participants were not meeting these recommendations for omega-3 (n-3) long-chain polyunsaturated fatty acids (LCPUFA) during pregnancy and lactation. *"Unlike the majority of other studies reporting n-3 LCPUFA intake during pregnancy, the majority of the participants in the APrON cohort are from high socioeconomic status and 97% of the women report taking a multivitamin supplement during pregnancy,"* noted Field and her colleagues. *"Despite this, only 27% of the women met the EU recommendation during the third trimester of pregnancy,"* said the team. *"The vast majority (73% in pregnancy and 75% in postpartum) of women in the APrON cohort were not meeting the current EU consensus recommendation."* However, Field and her team added that participants who reported taking a DHA supplement were more than ten times more likely to meet the recommendation during pregnancy and at three months postpartum.

Omega-3 recommendations

The authors noted that the American Dietetic Association along with Dietitians of Canada recommends that all healthy adults, including pregnant and lactating women, consume at least 500 mg per day of omega-3 LCPUFA.The European Commission and the International Society for the Study of Fatty Acids and Lipids (ISSFAL) specifically recommends that pregnant and lactating women consume a minimum of 200 mg DHA per day, they added.*"Results suggest that the majority of women in the cohort were not meeting the EU recommendation for DHA during pregnancy and lactation,"* said Field and her team.

Study results :
According to the team, the current study found women who took a supplement containing DHA were 10.6 and 11.1 times more likely to meet the current EU consensus recommendation for pregnancy and postpartum, respectively. The results also study suggested that nutritional counselling and education about benefits of a supplement source of LCPUFA should extend beyond pregnancy, noting that 44% of women in the cohort who reported taking a supplement during pregnancy were no longer taking these supplements when breast feeding at three months postpartum.

Source*: Applied Physiology, Nutrition, and Metabolism*
Published online ahead of print, doi: 10.1139/apnm-2014-0313
*"Women who take n-3 long-chain polyunsaturated fatty acid supplements during pregnancy and lactation meet the recommended intake"*Authors: Xiaoming Jia, *et al* http://www.nutraingredients.com/Research/Nearly-three-quarters-of-pregnant-women-do-not-get-enough-omega-3-finds-study?nocount

L'etude en question=

Women who take n-3 long-chain polyunsaturated fatty acid supplements during pregnancy and lactation meet the recommended intake

http://www.nrcresearchpress.com/doi/10.1139/apnm-2014-0313#.VSWJuOHLJBB

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➢ Résumé

La présenté étude a pour but d'estimer l'apport nutritionnel total et les sources alimentaires en acides eicosapentaénoïque (« EPA »), docosapentaénoïque (« DPA ») et docosahexaénoïque (« DHA ») ainsi que de comparer l'apport nutritionnel en DHA à l'apport recommandé, et ce, au sein d'une cohorte de femmes enceintes et allaitantes. **Vingt-quatre enquêtes nutritionnelles et questionnaires sur la consommation de suppléments ont été recueillis auprès de 600 femmes** issues de la cohorte de « l'AprON » (*Alberta Pregnancy Outcomes and Nutrition*) **lors de chaque trimestre de la grossesse et trois mois après l'accouchement**. L'apport nutritionnel a été estimé de deux façons : au moyen d'un logiciel commercial et à partir d'une base de donnée créée pour l'APrON. Seulement 27 % des femmes enceintes et 25 % de celles qui avaient accouché depuis trois mois satisfaisaient les recommandations consensuelles actuelles de l'Union européenne (UE) en matière d'apport en DHA. Les fruits de mer, le poisson et les produits à base d'algues comptaient pour 79 % de l'apport alimentaire global en acides gras polyinsaturés à longue chaîne de type n-3 (tirés du saumon en majeure partie). Les apports nutritionnels estimés en DHA et en EPA étaient semblables dans les deux bases de données, mais l'apport nutritionnel en DPA était de 20 à 30 % plus élevé lorsqu'il était estimé à partir de la base de données détaillée élaborée pour la présente étude. Les femmes ayant pris un supplément renfermant du DHA étaient 10,6 et 11,1 fois plus susceptibles de satisfaire l'apport nutritionnel recommandé pendant la grossesse (intervalle de confiance (IC) à 95 % : 6,952 à 16,07; $P < 0,001$) et le postpartum (IC à 95% : 6,803 à 18,14; $P < 0,001$), respectivement.

Les résultat laissent entrevoir que les femmes de cette cohorte ne satisfaisaient pas les recommandations de l'UE en matière de DHA pendant la grossesse et l'allaitement, mais que la prise d'un supplément a nettement augmenté la probabilité qu'elles satisfassent ces recommandations.

Introduction

The dietary n-3 polyunsaturated fatty acids (PUFA) include α-linolenic acid (ALA), eicosapentaenoic acid (EPA), docosapentaenoic acid (DPA), and docosahexaenoic acid (DHA). EPA, DPA, and DHA are usually referred to as n-3 long-chain PUFA (n-3 LCPUFA). A source of these long-chain fatty acids is required during pregnancy for fetal and placental development (reviewed by Mennitti et al. 2015; Jones et al. 2014). Maternal intake/status of n-3 LCPUFA during pregnancy and lactation has been found to positively impact maternal, infant, and child health in many systematic reviews (Yang et al. 2013; Imhoff-Kunsch et al. 2012; Larqué et al. 2012; Horvath et al. 2007). The importance of a dietary source of n-3 LCPUFA is supported by stable isotope tracer studies that found only 1%–4% of dietary ALA is converted to DHA (Pawlosky et al. 2001; Emken et al. 1994). Although the conversion of ALA to DHA is reported to increase during pregnancy (Williams and Burdge 2006), maternal supplementation with ALA together with linoleic acid during pregnancy was not found to be effective in increasing blood DHA concentration in pregnant women or their newborn infants (de Groot et al. 2004). Assuming that only a small amount of n-3 LCPUFA can be synthesized from the dietary precursor, at least in some women, a dietary source of n-3 LCPUFA is required during pregnancy and lactation to meet maternal and infant requirements. Although less is known about the role of DPA in fetal development, it has been suggested that there is some conversion to DHA and retro-conversion to EPA (Kaur et al. 2011). There is also recent evidence that dietary intake of DPA is associated with neuroprotective effects (Kelly et al. 2011) and heart health (Sun et al. 2008), suggesting that DPA intake may have additional benefits if consumed during pregnancy and lactation.

The American Dietetic Association (ADA) with the Dietitians of Canada (Kris-Etherton and Innis 2007) recommend at least 500 mg/day of LCPUFA for all healthy adults including pregnant and lactating women. The European Commission with the International Society for the Study of Fatty Acids and Lipids (ISSFAL) specifically recommends that pregnant and lactating women consume a minimum of 200 mg DHA per day (Koletzko et al. 2008, 2007). These recommendations could be met by consuming 1 to 2 portions per week of fish high in n-3 fatty acids, which is the recommendation by Health Canada (Health Canada 2002) and the United States Dietary Guidelines Advisory Committee (Dietary Guidelines for Americans 2005) for all women. There is currently no specific recommendation for dietary DPA.

Although maternal intake of n-3 LCPUFA is important for infant brain and retina development before and after birth (reviewed by Innis 2007), studies done in Canada, Australia, the United States, and Europe have reported that pregnant and lactating women are not meeting the suggested dietary recommendations (Cosatto et al. 2010; Sioen et al. 2010; Friesen and Innis 2009; Denomme et al. 2005; Oken et al. 2004; Innis and Elias 2003). This is likely contributed to by the low fish consumption reported by North American women (Coletto and Morrison 2011), concerns of mercury contamination (Oken et al. 2003), and low supplement use (Friesen and Innis 2009; Denomme et al. 2005; Oken et al. 2004; Innis and Elias 2003). Although n-3 supplements (Natural Health Products (NHP)) are reported to be a major source of EPA and DHA (EFSA Panel on Dietetic Products, Nutrition and Allergies 2012), the prevalence of supplement use was found to be positively associated with socioeconomic status (SES) in the Canadian Community Health survey (Vatanparast et al. 2010).

To estimate intake of dietary n-3 LCPUFA, commercial nutrient analysis programs based on the United States Department of Agriculture (USDA) and the Canadian Nutrient File (CNF) are commonly used in North America. A previous study identified problems with this data base for estimating LCPUFA intake because of missing the content of selective n-3 LCPUFA in the 2007 version of the CNF (Patterson et al. 2012). Although the nutrient file has been updated since this publication, it is not known if it still has missing values that would result in underestimating the intake of n-3 LCPUFA.

The objectives of this study were to estimate in a large maternal-infant cohort (*i*) dietary intake and sources of EPA, DPA, and DHA in each trimester during pregnancy and at 3 months postpartum and to compare intake with various recommendations; and (*ii*) to determine the contribution of supplements to total n-3 LCPUFA intake.