

Scientific studies

Childhood Asthma Prevention Study (CAPS) Westmead Children's Hospital

The following papers have been published which indicate:

- Study design paper indicating that CAPS is a randomised controlled trial to measure whether the incidence of atopy and asthma can be reduced by house dust mite allergen reduction, a diet supplemented with Omega-3 fatty acids from tuna oil, or a combination of both interventions. 616 pregnant women whose unborn children were at high risk of developing asthma because of a family history were randomized prenatally.
- At 18 months of age the report indicated the benefit of Omega-3 fatty acids in reducing wheeze.
- At 18 months of age an analysis of Omega-3 fatty acid concentrations in plasma on symptoms of asthma showed that some symptoms had been reduced in children with high Omega-3 fatty acid concentrations in plasma.
- At age 3 years, the dietary intervention of Omega-3 supplementation and Omega-6 restriction significantly reduced atopic cough.

“The results of this second analysis of the CAPS study data are promising in that they suggest that relatively simple interventions designed to be used in large-scale public health campaigns can modulate the development of allergic sensitization and airways disease at an early age. This offers the prospect of being able to prevent the development of asthma and allergy in later life.”

The 3 year results attracted considerable publicity and the researchers were surprised by the high level of interest in their findings.

1. The final 5 year paper will be published in 2005. The children will have been followed up to 5 years of age. Only at this stage will objective asthma diagnosis be made.

References:

1. Mahrshahi S, Peat JK, Webb K, Tovey ER, Marks GB, Mellis CM, Leeder SR. The childhood asthma prevention study (CAPS): design and research protocol of a randomized trial for the primary prevention of asthma. *Control Clin Trials*. 2001 Jun;22(3):333-54
2. Mahrshahi S, Peat JK, Marks GB, Mellis CM, Tovey ER, Webb K, Britton WJ, Leeder SR. Eighteen-month outcomes of house dust mite avoidance and dietary fatty acid modification in the Childhood Asthma Prevention Study (CAPS). *J Allergy Clin Immunol*. 2003 Jan;111(1):162-8.

3. Mahrshahi S, Peat JK, Webb K, Oddy W, Marks GB, Mellis CM; CAPS Team. Effect of omega-3 fatty acid concentrations in plasma on symptoms of asthma at 18 months of age. *Pediatr Allergy Immunol*. 2004 Dec;15(6):517-22.
 4. Peat JK, Mahrshahi S, Kemp AS, Marks GB, Tovey ER, Webb K, Mellis CM, Leeder SR. Three-year outcomes of dietary fatty acid modification and house dust mite reduction in the Childhood Asthma Prevention Study. *J Allergy Clin Immunol*. 2004 Oct;114(4):807-13.
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Cardiac function

University of Wollongong and Smart Food Centre

Researchers at the University of Wollongong have been looking at the effects of tuna oil on the functioning of the heart in both animal and human models.

Experiments have showed that adequate levels of DHA from tuna oil can:

2. Make the heart muscle stronger and more powerful
3. Stop the fatal arrhythmias that take place during a heart attack, leading to death
4. Give the heart muscle a greater ability to adapt and cope with increased stresses and pressures
5. Enable the heart to use less oxygen to do its job, to pump more efficiently, and to reduce the average heart rate - providing greater reserve capacity

The following heart conditions that have shown improvements with increased levels of dietary DHA in Professor McLennan's experimental research include:

- Myocardial Infarction (heart muscle damaged by heart attack)
- Heart failure associated with cardiomyopathy (enlarged heart)
- Heart failure associated with hypertension (high blood pressure)
- Heart failure associated with diabetes

[See also attached media release]

References

1. Pepe S, McLennan PL. Dietary fish oil confers direct antiarrhythmic properties on the myocardium of rats. *J Nutr*. 1996 Jan;126(1):34-42.
2. McLennan PL. Myocardial membrane fatty acids and the antiarrhythmic actions of dietary fish oil in animal models. *Lipids*. 2001;36 Suppl:S111-4. Review.
3. Pepe S, McLennan PL. Cardiac membrane fatty acid composition modulates myocardial oxygen consumption and postischemic recovery of contractile function. *Circulation*. 2002;105:2303-8
4. Owen AJ, Peter-Przyborowska BA, Hoy AJ, McLennan PL. Dietary fish oil dose-

and time-response effects on cardiac phospholipid fatty acid composition. *Lipids*. 2004 Oct;39(10):955-61.

Studies complete but not yet published

1. The effect of dietary fish oil on atrial fibrillation using a rabbit model
 2. The synergistic benefits of tuna oil and exercise on weight have been demonstrated by researchers at the University of South Australia see: {
HYPERLINK "<http://www.unisa.edu.au/researcher/issue/2005March/obesity.asp>"
}
 3. DHA and EPA supplementation from tuna oil reduced aggression and improved memory in children
 4. Adults who received Omega-3 fatty acids from tuna oil showed decreased hostility, aggression and enhanced immune response.
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Studies underway

1. Large study to determine the effects of Omega-3 DHA on neurodevelopment in infants
2. Effects of Omega-3s from tuna oil on perinatal depression
3. Foods rich in Omega-3 from tuna oil and atrial fibrillation
4. Effects of different doses of tuna oil on risk of heart disease
5. Study in colorectal cancer patients looking at Omega-3 DHA effects
6. Omega-3s and renal disease
7. Omega-3s and types of anaemia