

THE EFFECT OF DIETARY SUPPLEMENTATION WITH EVENING PRIMROSE OIL
OF HYPERKINETIC CHILDREN

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Although anecdotal reports of improvements in the behaviour of hyperkinetic children in response to dietary changes are many (Colquhoun & Bunday, 1981), the verification of these reports by controlled clinical trials are few. Only one study (Mitchell et al, 1985) using EPO as a dietary supplement has been reported and these workers concluded in a rigorously defined group of hyperkinetic children (n=49) that EPO produced minimal or no improvement in behaviour.

We recently completed a trial involving over 90 children aged 5-15 (mean 7.6 years) in a double blind study designed to test the effect of supplementing the normal diet of hyperkinetic children with either evening primrose oil (EPO) or a placebo substance (safflower oil, SAFF) which had a similar fatty acid composition to EPO but devoid of gamma linolenic acid (GLA), a precursor of dihomogamma linolenic acid (DGLA) and arachidonic acid (AA). Subjects were assigned at random into groups and received either EPO or placebo capsules at the rate of one capsule (0.5g EPO, 0.04g GLA) per 5 kg body weight per day. After six weeks the subjects were crossed over to the alternative treatment. The subject's parents and school teachers were requested to fill out a questionnaire for the entire study period which was designed to assess the behaviour of the child. The changes in the composition of plasma phospholipid fatty acids were assayed at the end of each study period for comparison with starting values.

The influence of consumption of oil capsules at the rate of one per 5kg body weight for six weeks on plasma phospholipid fatty acids (mean±S.D. n=95).

	Fatty Acid (weight %)				
	LA	GLA	DGLA		AA
Start	20.22 ± 2.6	0.74 ± .41	3.06	.61	8.70 ± 1.3
EPO	20.61 ± 2.2	0.95 ± .48***	3.73	.73****	9.06 ± 1.5***
SAFF	21.54 ± 2.7****	0.82 ± .43	3.18	.60*	8.88 ± 1.4*

* p<0.05 ** p<0.01 *** p< 0.001 **** p<0.0001

Levels of LA increased in plasma phospholipids in response to SAFF treatment but not EPO. In contrast only EPO treatment caused an increase in LA's desaturation product, GLA. EPO treatment elevated the metabolites of GLA, namely DGLA and AA, to a greater extent than SAFF. EPO treatment did not cause any significant change in plasma triglyceride, phospholipid or cholesterol levels during the study period.

Despite these biochemical changes there was no discernible difference in any of the behavioural characteristics monitored by either parents or teachers that could be attributed to EPO treatment. When averaged for the last 21 days of any six week treatment period, no differences could be observed for any of the individuals in such parameters as restlessness, obedience, or general behaviour.

We conclude that EPO has no effect on the behaviour patterns of hyperkinetic children, despite significantly altering plasma phospholipid fatty acid composition.

COLQUHOUN, I and BUNDAY, S (1981). Med.Hypothesis 7 : 673

MITCHELL, E.A., AMAN, M.G. and TURBOTT, S. (1985). II Int.Cong. E.F.A. Prostaglandins and Leukotrienes Abs. 114.

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