

ÇOKLU DOYMAMIŞ YAĞ ASİTLERİNİN ANTI-TROİT ETKİSİ VE BİTKİLER

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ÖZET

Çoklu doymamış yağ asitleri (PUFA), troit uyarımını baskılar. PUFA'lar troit hormonu seviyelerini baskılayarak şişmanlığa neden olur. Baskılanan troid metabolizmayı yavaşlatır. Aşırı PUFA diyeti kilo alımına neden olur. Böylesi düşük kalori alımı da kalıcı olan kilo alımına yol açabilir. Bu sonuç azalmış troid aktivitesi ile uyusmaktadır.

Anahtar Sözcükler: Çoklu doymamış yağ asitleri, bitki, troit.

ANTI-THROID EFFECTS OF PUFAS (POLYUNSATURATED FATS) AND HERBS

ABSTRACT

Polyunsaturated fats (PUFA) suppress thyroid signaling. PUFAs suppress thyroid hormone levels and cause weight gain. Inhibiting the thyroid slows the metabolism. The high-PUFA diet promoted weight gain: it caused excess weight to be retained at a lower calorie intake. This is consistent with reduced thyroid activity.

Keywords: Polyunsaturated fats, herb, throid.

INTRODUCTION

The thyroid gland controls the body's metabolic rate, among other things. The thyroid gland secretes two types of iodine-containing amine hormones derived from the amino acid tyrosine: L-thyroxine (T_4) and 3,5,3'L-triiodothyronine (T_3). T_3 and T_4 are essential for the normal growth, development and function of organs (Malik and Hodgson, 2002). As with any other hormone, the tissue response depends on the amount of hormone and the tissue's sensitivity to the hormone.

Polyunsaturated fatty acids with 20 carbon atoms exhibit unique physiological activities in the human body, for example lowering of cholesterol and triacylglycerols in plasma, prevention of atherosclerosis and other cardiovascular diseases and reduction of collagen-induced thrombocyte aggregation. Moreover, these fatty acids are of great value in the nutrition of edible marine animals reared in mariculture, and as precursors of eicosanoid hormones. Potential sources of such fatty acids include fungi, mainly lower phycomyces, microalgae, viz. dinoflagellates, diatoms and unicellular red algae, marine macroalgae, particularly phaeophyta and rhodophyta, and mosses. The biomass may be enriched with C20-polyunsaturated fatty acids by chilling, nitrogen starvation, controlled illumination and incubation with lipophilic compounds (Radwan, 1991).

Free radicals then bind with polyunsaturated fatty acids (PUFAs) to generate lipid peroxides. Lipid peroxides are highly reactive, alter enzyme activities, and eventually induce injury or necrosis (Weber et al., 2003). CCl_4 induces oxidative DNA damage as well as causing the formation of DNA adducts, genetic mutations, strand breakage and chromosomal alterations (e.g., deletions and translocations) (Jia et al., 2002; Poirier, 2004).

The brain is the body's richest source of cholesterol, which, with adequate thyroid hormone and vitamin A, is converted into the steroid hormones pregnenolone, progesterone, and DHEA (dehydroepiandrosterone), in proportion to the quantity circulating in blood in low-density lipoproteins. The brain is also the richest source of these very water-insoluble (hydrophobic) steroid hormones; it has a concentration about 20 times higher than the serum, for example. The active thyroid hormone is also concentrated many-fold in the brain. Broda Barnes' work clearly showed that hypothyroid populations are susceptible to infections, heart disease, and cancer (Broda and Galton, 1976).

THE MECHANISMS OF ACTION

Further studies should reveal the extent to which observed effects of excess thyroid hormone are amenable to control by dietary polyunsaturated fat. Linoleic acid may interfere with thyroid signaling by inhibiting thyroid hormone binding to its receptor.

Butter and coconut oil contain significant amounts of the short and medium-chain saturated fatty acids, which are very easily metabolized, Coconut oil can be particularly helpful because it's almost exclusively saturated, so it doesn't interfere with thyroid signaling. That may be why it increases energy expenditure and aids weight loss. Coconut has a long history of use by healthy non-industrial cultures in tropical areas (Babayan, 1987) inhibit the release of histamine (Brockelhurst, 1963), promote differentiation of cancer cells (Prasad, 1980), tend to counteract the stress-induced proteins (Prasad, 1980), decrease the expression of prolactin receptors, and promote the expression of the T3 (thyroid) receptor (Montiel et al., 1986). (A defect of the thyroid receptor molecule has been identified as an "oncogene," responsible for some cancers, as has a defect in the progesterone receptor.). Coconut oil which had been stored at room temperature for a year was found to have no measurable rancidity. Since growing coconuts often experience temperatures around 100 de grees Fahrenheit, ordinary room temperature isn't an oxidative challenge. Fish oil or safflower oil, though, can't be stored long at room temperature, and at 98 degrees F, the spontaneous oxidation is very fast.

Some data reported that PUFA inhibited binding of T3 to TR- α and TR- β (Van der Klis et al., 1991). Several lines of evidence suggest that n-3 fatty acids reduce the risk of some chronic diseases, including heart disease, diabetes, and cancer. Other research, mainly in animals, also suggests a role in bone health. An increasing ratio of total dietary n-6 to n-3 fatty acids was also significantly and independently associated with lower BMD (bone mineral density) at the hip in all women and at the spine in women not using hormone therapy (Weiss et al., 2005). n-3 polyunsaturated fatty acids (PUFAs) present in fish oil (FO) potently decrease serum lipids, which is also an effect of thyroid hormones.

A putative target involved in the mediation of the omega-3 PUFA control of gene expression is the steroid/thyroid/retinoid receptor superfamily. This superfamily of receptors are nuclear receptors that function as ligandactivated transcription factors, and include the retinoid X receptors (RXRa, -b and -c) and the peroxisome proliferator-activated receptors (Duplus and Forest, 2002).

An oil researcher spent 100 days eating what he considered to be the "Eskimo diet," seal blubber and mackerel paste. He observed that his blood lipid peroxides (measured as malondialdehyde, MDA) reached a level 50 times higher than normal, and although MDA is teratogenic (Sinclair, 1986).

In some experiments, the carcinogenic action of unsaturated fats could be offset by added thyroid, an observation which might suggest that at least part of the effect of the oil is to inhibit thyroid (Lev and Grand, 1956).

The increase in thyroid hormone signaling pathways in the liver may be one of the mechanisms by which n-3 PUFAs exert part of their effects on lipid metabolism (Souza et al., 2012).

Oil contents reported by Pereira et al. (2008) (78.83 to 82.4%) were higher than those reported by other researchers (Savage, 2001; Muradoğlu et al., 2010). In general, the fatty acid composition of walnut oil resembles that of soybean oil, but walnut oil contains a greater concentration of linolenic acid. In fact, among vegetable oils, walnut oil has one of the highest amounts of PUFAs (up to 78% of the total fatty acid content).

Unsaturated fats, specifically the existence of any polyunsaturated variety, because of their high susceptibility to oxidation (exposure to oxygen that can immediately damage the molecular structure), thus consisted free-radicals amongst many other immune-suppressing properties (excess estrogen, unstable cell walls, low thyroid response, excess cholesterol levels in the blood, etc.)

When large amounts of PUFAs are consumed, they are stored and between meals, they are released. They poison the mitochondria, impair communication within the cell, impair the action of enzymes that dissolve blood clots and digest dietary protein, and inhibit the thyroid.

A significant body weight loss of 14-18% was observed in hyperthyroid mice on the PUFA diet but not in those on the saturated fatty acids diet. Levels of T3 (15-17 nM) and T4 (250-255 nM) were significantly higher in the respective hyperthyroid groups (Deshpande and Hulbert, 1995).

PUFAs are a masking agent for low metabolic rate. If the low metabolic rate is a direct consequence of cell-membrane rigidity or impermeability, the PUFAs are truly treating the problem directly. But if the low metabolic rate (hypothyroid symptoms) is caused by endocrine problems, the PUFAS are masking the problem. So PUFAS can be used to treat hypothyroidism (low levels of T4 and/or T3), thyroid resistance (inadequate response to normal levels of thyroid hormone), heavy metal poisoning, mitochondrial insufficiency,

insulin resistance and estrogen dominance, but they mask the underlying cause instead of resolving it.

CONCLUSION

Consumption of polyunsaturated fats (PUFA) such as canola oil, flax seed oil, soy oil, safflower oil, sunflower oil, and other polyunsaturated vegetable oils, broccoli, cabbage, cauliflower, brussels sprouts, kale, collard greens, chinese broccoli, kohlrabi, bok choy, turnip root and greens and rutabaga will suppress thyroid function. The exceptions include plants that grow in tropical climates, such as the oils extracted from chocolate and coconuts. These oils are highly saturated, and so are very stable and undoubtedly safe and beneficial.

Adding cystine to the diet (cysteine, the reduced form of cystine, is a thyroid antagonist) also increases the tumor incidence (Tannenbaum and Silverstone, 1949). In a hyperthyroid state, the ability to quickly oxidize larger amounts of the toxic oils would very likely have a protective effect, preventing storage and subsequent peroxidation, and reducing the oils' ability to synergize with estrogen.

The high-PUFA diet promoted weight gain: it caused excess weight to be retained at a lower calorie intake. This is consistent with reduced thyroid activity. This suggests higher thyroid hormone levels on the high-saturated fat diet than on a high-carb diet. One very well known fact is that hypothyroid patients, even when taking T4 hormones, usually struggle to lose fat. This occurs because, when thyroid hormones are low, especially when T3 (triiodothyronine) is low, the basal metabolism is decreased (Danforth and Burger, 1984).

Thyroid hormones are responsible for basal metabolic rate and heat production. If a high saturated fat diet maintains body temperature better than a high carbohydrate diet when the body is subjected to cold, it would seem fair to assume that the thyroid functions better on this high saturated fat diet. Thyroid signaling is dynamic. If PUFA suppresses some thyroid enzymes, the thyroid would compensate by secreting extra thyroid hormone, or lowering the amount of thyroxine binding globulins.

This includes all oils liquid at room temperature including: soybean, canola, safflower, corn, flaxseed, fish, Evening Primrose and borage oils except extra virgin olive oil. The use of polyunsaturated vegetable oils, whether processed or not, interferes with thyroid function.

Inhibiting the thyroid slows the metabolism and diminishes the ability to metabolize the PUFAs, accelerating their toxic effects. Stress, low blood sugar, and high intensity exercise increase the lipolytic enzymes. Niacinamide (vitamin B3) restrains them.

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