

Tocotrienols Boost Immunity

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BOSTON—Results from a study at Tufts University suggest a beneficial effect of *tocotrienols* (T3) in improving the age-related decline in T cell function (*J Nutr.* 2010;140(7):1335-41). Alpha-tocopherol (alpha-toc AKA vitamin E) enhances T cell function, whereas little is known in this regard for *tocotrienols* (T3), the less-known members of the vitamin E family, so researchers pair-fed young (4 months old) and old (23 months old) C57BL/6 mice 0.1 percent Tocomin 50 percent, a mixture of T3 and alpha-Toc or a control diet containing an equal amount of alpha-toc for six weeks.

Lymphocyte proliferation was lower in the old mice compared with the young mice. Lymphocyte proliferation in the old T3 group was significantly higher than that in the old control group, whereas no significant difference was found in young mice. Splenocytes from old mice produced less interleukin (IL)-2, IL-4, IL-6 and IL-10 compared with young mice, whereas no significant age-related difference was found in IL-1beta, tumor necrosis factor-alpha, and interferon-gamma. T3 feeding was associated with a higher IL-1beta production in old mice but not in young mice. Peritoneal macrophages from old mice produced significantly more IL-1beta, IL-6, IL-10, and prostaglandin E2 (PGE2) compared with those from young mice. Mice of both ages fed T3 had higher production of IL-1beta but not PGE2 or other cytokines. In the in vitro study, splenocytes isolated from young and old mice were supplemented with the purified form of each individual T3 (0.01–10 µmol/L) and mitogen-stimulated cell proliferation was determined. **All T3 enhanced lymphocyte proliferation in old but not young mice with a potency order of alpha-, gamma- and delta-T3** (tocotrienol).