Got Carrots?
Vegetables May Have Bone to Pick as Calcium Providers

A specially developed carrot has been produced to help people absorb more calcium. Researchers at Texas A&M AgriLife’s Vegetable and Fruit Improvement Center studied the calcium intake of humans who ate the carrot and found a net increase in calcium absorption. The research, which was done in collaboration with Baylor College of Medicine, means adding this carrot to the diet can help prevent such diseases as osteoporosis. “If you eat a serving of the modified carrot, you’d absorb 41% more calcium than from a regular carrot,” said Dr. Jay Morris, a post-doctorate researcher at Baylor College of Medicine in Houston and lead author on the paper.

The finding was reported in the Proceedings of the National Academy of Sciences online edition January 14, 2008. “The primary goal was to increase the calcium in fruit and vegetables to benefit human health and nutrition,” Morris said. “Fruit and vegetables are good for you for many reasons, but they have not been a good source of calcium in the past.”

Morris, who worked on the study while earning a doctorate at Texas A&M University, said fruits and vegetables play a role in good bone health for other reasons.

“We believe that if this technology is applied to a large number of different fruits and vegetables, that would have an even greater impact on preventing osteoporosis,” he said.

For this study, the researchers provided the carrots to a group of 15 men and 15 women. The people were fed either the modified carrots, called sCAX1, or regular carrots in Week 1. On a second visit two weeks later, they were fed the other type of carrot.

Urine samples were collected 24 hours after each feeding study to determine the amount of specially marked calcium absorbed, Morris explained. The study group also was evaluated for their normal absorption rate to compare with the rate of absorption from the calcium-enhanced carrots, he said.

Morris said both men and women absorbed higher amounts of calcium from the modified carrots, but the technology needs to be available in a wide range of fruits and vegetables so that people can get the calcium benefit. “The daily requirement for calcium is 1,000 milligrams, and a 100-gram serving of these carrots provides only 60 milligrams, about 42% of which is absorbable,” he noted. “A person could not eat enough of them to get the daily requirement.”

But if vegetables and fruits could be bred to contain more calcium, then a diet that includes a variety of such produce might come closer to providing necessary calcium, Morris said. “Increased fruits and vegetables (in the diet) are better for a myriad of reasons,” he said.

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Standard Process Scientists Present Carrot Research at National Scientific Conference

Scientists at Standard Process Inc.* presented two posters at the Experimental Biology conference during the week of April 9, 2008. This annual scientific conference was held in San Diego, California and had approximately 14,000 people in attendance.

“Solvent Extract from White Carrots Decreases Viability of Prostate Cancer Cell Lines” was presented by Dr. Paul Hanlon, manager of Discovery Science at Standard Process. Hanlon conducted a series of experiments to examine the effects of different crude carrot extracts on prostate cell proliferation. Certain pigments, common in carrots, have been studied extensively for their effects on cancer. Research has consistently shown that these pigments inhibit cancer cell proliferation, however, little research has been done on the effects of a “crude” extract – an extract that uses the whole food rather than just the carrot pigments alone.

Experiments were conducted using crude extracts of several different carrot varieties: orange, yellow, red, and white carrots. Dr. Hanlon found that while all carrot varieties inhibited prostate cancer cell proliferation, the white carrot variety had the highest level of bioactivity. This experiment demonstrated that other non-pigmented phytochemicals present in carrots also decrease cell viability and that the enhanced bioactivity of the crude white carrot extract must be due to these non-pigmented phytochemicals.

“Purple Carrot (Daucus carota L.) polyacetylenes decrease LPS-induced expression of inflammatory proteins in macrophage and endothelial cells” was presented by Brandon Metzger, a PhD candidate in Nutritional Sciences at the University of Wisconsin, Madison and a research scientist at Standard Process. This study investigated the effects of purple carrot on markers of inflammation. Although the purple pigments in fruits and vegetables, called anthocyanins, are usually considered the bioactive phytochemicals, Metzger found that other phytochemicals, called polyacetylene compounds, were responsible for the anti-inflammatory effects in his scientific model.

Hanlon and Metzger are part of a five-person discovery science team in the research and development department at Standard Process, where they identify and quantify key chemical markers within Standard Process whole-food ingredients and analyze them throughout the manufacturing process to ensure quality and optimal nutritional capacity.

About Standard Process Inc.*

For more than 75 years, Standard Process has provided health care professionals with high-quality, nutritional whole food supplements. Standard Process is involved in every step of production. The company grows crops on company-owned, organically certified farmland, utilizes state-of-the-art manufacturing processes, and employs the highest quality control standards. Standard Process strictly adheres to the Food and Drug Administration’s good manufacturing practice requirements. Through these measures, Standard Process can ensure that its products are of the utmost quality and potency.

Standard Process offers more than 300 products through three product lines, Standard Process whole-food supplements, Standard Process Veterinary Formulae* and MediHerb* herbal supplements. The products are available only through health care professionals. The company continuously researches and develops new whole-food nutritional products to address patient needs.

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