Folic acid found to improve vascular function in amenorrheic runners

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A study led by sports medicine researcher Anne Hoch, D.O. at The Medical College of Wisconsin in Milwaukee has found that oral folic acid may provide a safe and inexpensive treatment to improve vascular function in young female runners who are amenorrheic (not menstruating). The study is published in the May 2010 issue of *Clinical Journal of Sport Medicine.*

While the benefits for women leading an active lifestyle, including running, are profound and well-known, there are serious exercise-associated health risks. Young female athletes who do not eat enough to offset the energy they expend exercising can stop menstruating or develop irregular menses as a consequence. Their resulting estrogen profile is similar to that of postmenopausal women who have low estrogen levels placing the young women at higher risk for early onset heart disease.

There are nearly three million girls in high school sports and approximately 23 million women who run at least six times a week. The prevalence of athletic-associated amenorrhea among these runners is now estimated at 44 percent. A previous study by Dr. Hoch conducted at Divine Savior Holy Angels High School, Milwaukee, revealed that 54 percent of the varsity athletes were currently or had a history of amenorrhea.

"The earliest sign of heart disease can be measured by reduced dilation in the brachial artery of the arm in response to blood flow. Reduced

vascular dilation can limit oxygen uptake and affect performance," says Anne Hoch, D. O., the study's lead author. Dr. Hoch is a professor of orthopaedic surgery and director of the Froedtert & the Medical College Women's Sports Medicine Center.

The current study by Dr. Hoch's research team found that folic acid supplement improved blood flow-mediated dilation in the brachial artery which correlates with increased blood flow to the heart.

Both children and adults require folic acid to produce healthy red blood cells and prevent anemia. Folic acid, also known as vitamin B9, folacin and collate, is the form of the vitamin needed during periods of cell growth.

The researchers recruited 20 female college or recreational runners, ages 18 to 35, who were not on birth control pills and had been running at least 20 miles a week for the past 12 months. At the start of the study, women who were amenorrheic had reduced blood vessel dilation similar to postmenopausal women. Women who were menstruating were included in the control group. Both groups were given 10 mg. of folic acid per day for four weeks. Vascular function returned to normal in the amenorrheic women after folic acid supplementation. Despite supplementation, vascular function remained at normal levels in the control group.

More research is needed to determine the lowest optimal dose of folic acid for athletic amenorrhea which offers the maximum benefit. Folic acid supplementation is important because folic acid may not only decrease cardiovascular risks but also improve athletic performance for these women.

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