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Faculty research nutritional effects of blueberries

By **Jeff Samoray**, OU Web Writer

Everyone knows how important it is to incorporate fruits and vegetables into one's diet, but fewer people know about the potential benefits that come specifically from eating blueberries. Can increasing your blueberry intake help the body fight the aging process, enhance memory, and prevent cancer, heart disease and vision loss? Oakland University faculty recently worked with student-athletes to test their hypothesis.

"Historically, plants have played a large part in helping scientists find ways for human beings to be healthier," said Associate Professor of Health Sciences Charles Marks, one of three OU professors who conducted the study. "Blueberries are antioxidants. They help prevent the formation of free radicals in human blood, which can cause cell damage. Tests have been conducted on the effects blueberries and other fruits and vegetables have with regard to rats, but there haven't been many similar studies done on humans and none on the effects of blueberries on plasma antioxidants and athletic performance."

The idea for the study developed at the USDA Jean Mayer Human Nutrition Research Center at Tufts University in Boston. The head of the neuroscience laboratory, James Joseph, and his colleague, Antonio Martin, wondered if blueberry extract could help a basketball player increase his athletic performance. Clinical Adjunct Assistant Professor of Exercise Science Vickie Kimler began researching the topic while she was a visiting scientist at Tufts.

With funds provided in part by the **Wild Blueberry Association of North America**, Kimler, Marks and Assistant Professor of Medical Lab Sciences Mary Ann Weller chose to study the effects of blueberry supplements on the blood antioxidant levels of athletes after vigorous exercise.

"We recruited cross country athletes from Oakland University and University of Detroit-Mercy," Kimler said. "We wanted endurance athletes, people who already were exercising vigorously. When your body uses a lot of oxygen, such as during exercise, you also produce a lot of free radicals. Tufts sent us 100 pounds of wild blueberries to use for the study. Our subjects were six men and six women, all between the ages of 18-24 and all within 10 pounds of their own ideal weight as an athlete."

Each student-athlete was given eight-ounces of liquefied blueberries to drink about two hours prior to exercising in Oakland's **School of Health Sciences** labs. The placebo beverage consisted of Kool-Aid mixed with wheat bran to provide texture. Both beverages were of the same flavor, texture and color, and by all accounts tasted very good.

Each athlete exercised on a stationary bike set at 85 percent of their age-predicted maximum heart rate for 45 minutes. In addition to measuring each athlete's heart rate, oxygen intake and carbon dioxide release, blood was drawn for analysis before and after the exercise period. Weller and the Tufts scientists analyzed all of the blood parameters, and junior exercise science major Andrea Staley helped perform statistical analysis. Graduate student Ingrid Laan-Saffert also assisted during the tests.

"The data showed trends favoring those who took the blueberry supplement, but the analysis was not statistically significant," Marks said. "Having 12 subjects for such analysis is small. But we believe our data demonstrates that we can do a larger study. We'll write some grant requests to expand the study."

Marks and Kimler will give a poster presentation on their research at the American College of Sports Medicine's annual meeting this June in Indianapolis. They also recently submitted an article on the effects of blueberry or placebo beverages on food selection based on macronutrients and food groups to the "Journal of the American Dietetic Association."

Future tests will have a similar design, but Marks will probably increase the amount of exercise time to 60 minutes to provide a greater stimulus. The researchers also want to investigate how blueberry supplements affect muscle

recovery time after intense exercise, and how an individual's food selection and intake changes afterwards based on plasma concentrations of macro and micronutrients.

"I think future studies will more clearly demonstrate the antioxidant potential in blueberries," Kimler said. "Our overall goal is to look at the variables that affect cell damage and also see how an individual's behavior changes afterwards based on food intake. In addition to demonstrating the impact blueberries have on athletes, we also hope it will motivate people to have a better diet."

For more information on the potential affects of incorporating blueberries into your diet, visit the [Wild Blueberry Association of North America](#) Web site.

SUMMARY

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