Super, Natural Cows Make the Best Sports Recovery Drink

UMD study shows it outperforms top commercial products

COLLEGE PARK, Md. — The magic formula for the ultimate sports recovery drink starts with cows, runs through the University of Maryland and ends with capitalism.

Two concerned parents figured it out.

Richard Doak and Kurt Williams stood behind a fence at a high school football game in the mountains of western Maryland and wondered why kids were getting injured more often. If it wasn't their training, they thought, then it had to be their nutrition.

Next they did what any good parents would do—they conducted research, created a solution and started a company so athletes everywhere could benefit from their

Fifth Quarter Fresh on the production line at Frederick, Md.-based Dairy Maid Dairy

discovery.

What they found surprised them. The freshest milk legally possible, from the best cows, provided more of what athletes' bodies need than any artificial commercial drink: protein—20 grams, as much as most whey drinks, along with a special kind of protein that remains available for hours after drinking it; electrolytes—far more than products on the shelf; and calcium and vitamin D for strong bones. They added natural cane sugar and cocoa to make it tasty for kids and to restore glycogen to muscles.

Fifth Quarter Fresh, a new, natural, fat-free, high-protein, high-electrolyte, high-calcium chocolate milk, was born.

Doak and Williams knew their product was good for athletes. But they needed proof.

That's where the University of Maryland comes in. Jae Kun Shim, a professor of kinesiology in the School of Public Health, conducted a year-long study to test how well Fifth Quarter Fresh aides the post-exercise recovery of muscular endurance compared to other popular sports drinks. It outperformed competing products by 13-17 percent. The $100,000 study was funded in part by the Maryland Industrial Partnerships (MIPS) program.

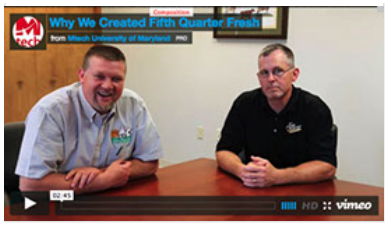
"I was very surprised at the results," said Shim. "I knew they had a high-quality milk with less damaged protein [than whey protein drinks] and more electrolytes, but I didn't expect it would make much difference for strength endurance recovery. There are many studies out there that show the cardiovascular recovery benefits from milk-based products, but this data is unique because we are showing that the muscular endurance recovery from this chocolate milk is significant. Our data suggests that athletes may be ready faster and better for the next game or practice if they drink Fifth Quarter Fresh chocolate milk."

One secret to making higher quality milk, Doak and Williams discovered, is in the cows—Jerseys and Guernseys—whose milk innately has higher amounts of protein, electrolytes, calcium and carbohydrates than the milk we typically buy in stores. Store milk is produced primarily by Holsteins, which comprise 90 percent of the herds in the U.S. simply because they produce more milk per cow.

"Jerseys naturally produce the highest quality milk for human consumption," said Erick Metzger, general manager of National All-Jersey Inc., an industry group. "Compared to average milk, a glass of Jersey milk has greater nutritional value. Nutrient-dense Jersey milk tastes better because there are more non-fat solids, protein and calcium in Jersey milk when compared with other breeds."

Great taste and better performance as a sports recovery drink—all achieved by using higher quality, fresh milk, Doak and Williams contend.

"When you look at the nutritional profile of Fifth Quarter Fresh over conventional chocolate milk, you get 40 percent more protein, calcium and electrolytes," said Doak, who works full-time as a dairy veterinarian. "We hand-selected our cow breeds to provide these nutrients through the superior components in their milk."



Jersey cows at a farm in Boonsboro, Md.

Fifth Quarter Fresh label

Williams and Doak discuss the dangers of ingesting large quantities of whey protein without calcium

The other secret was pasteurization, which is the process of heating milk to kill the bacteria that makes it go sour. The higher the pasteurization temperature, the longer it lasts in stores.

But the commonly used ultra-high temperature pasteurization, in excess of 200 degrees Fahrenheit, also damages something called casein protein. In its natural state, casein forms a gel in the stomach and takes longer to break down, providing a longer-term protein to the body, according to Doak and Williams. Fifth Quarter Fresh is pasteurized at 165 degrees Fahrenheit, five degrees over the FDA-recommended minimum of 160 degrees, preserving the casein protein.

"Most processors cook milk to death," Williams explained. "Our protein is natural and is better utilized by the body. An athlete will get 95 percent of our protein rather than the 70 percent they get from some of the chemical slurries on the market."

But athletes' bodies need calcium to come with that protein, according to Doak.

"Whenever your body metabolizes excessive protein, it leads to an acidification of the blood stream," he explained. "The body then balances this by pulling calcium from bones. So if you are drinking in lots of protein without that calcium, you will, over time, experience a decrease in bone density."

Becky Walter is the head track and cross country coach at Boonsboro High School in Maryland. Over the past five years, her teams have won eight state titles between girls and boys in both indoor and outdoor track and cross country.

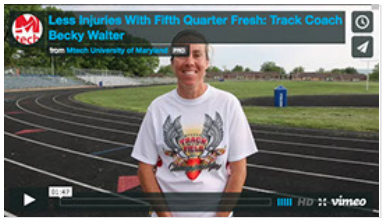
Three years ago, she began offering Fifth Quarter Fresh to her student athletes after meets and practices.

"Since we started using Fifth Quarter Fresh, we have fewer kids that are injured," said Walter "I don't think we've had any kids with stress fractures (aside from shin splints) or cramping and a lot fewer kids complain about aches and pains."

The University of Maryland study involved non-athletes, who conducted measured leg extension workouts, drank one of the four drinks in the study, waited for four hours and then conducted the same workout. Two weeks later they came back and did the same thing with another product.

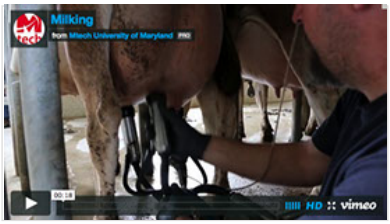
"We were interested in their recovery before and after fatiguing exercise," said Shim. "The recovery of strength was similar across all of the different products; however,

Jersey calf at a farm in Boonsboro, Md.



Fewer injuries with Fifth Quarter Fresh: Boonsboro High School Track Coach Becky Walter

Fifth Quarter Fresh compared to competing sports recovery drinks



the recovery of muscular endurance was as much as 17 percent better in the Fifth Quarter Fresh Group when compared with the other drinks."

Doak, Williams, and their partners are now trying to get Fifth Quarter Fresh into stores and provide it in bulk to athletic programs in schools and universities.

Fifth Quarter Fresh is produced through the Hagerstown-based Lanco-Pennland Dairy Co-operative, a farmer-owned and farmer-run organization with nearly 800 members that spans the U.S. East Coast. Frederick-based Dairy Maid Dairy bottles it.

The University of Maryland study was made possible by the Maryland Industrial Partnerships (MIPS) program, which jointly funds commercial product development projects teaming Maryland companies with University of Maryland faculty.

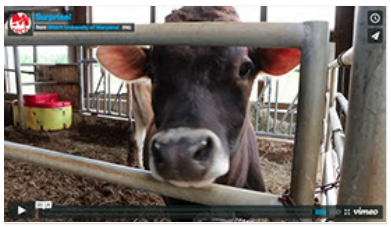
About the Maryland Industrial Partnerships (MIPS) Program

MIPS, a program of the Maryland Technology Enterprise Institute (Mtech) in the A. James Clark School of Engineering at the University of Maryland, supports university-based research projects to help Maryland companies develop technology-based products. Commercial products benefiting from MIPS projects have generated more than $30.2 billion in revenue, added thousands of jobs to the region, and contributed to successful products such as Martek Biosciences' nutritional oils, Hughes Communications' HughesNet™, MedImmune's Synagis®, and Black & Decker's Bullet® Speed Tip Masonry Drill Bit.

Dropbox

Download high-quality Fifth Quarter Fresh videos, photos and logos via Mtech's public Dropbox folder.

Cows being milked at a farm in Boonsboro, Md.



Surprise!

Fifth Quarter Fresh bottle

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