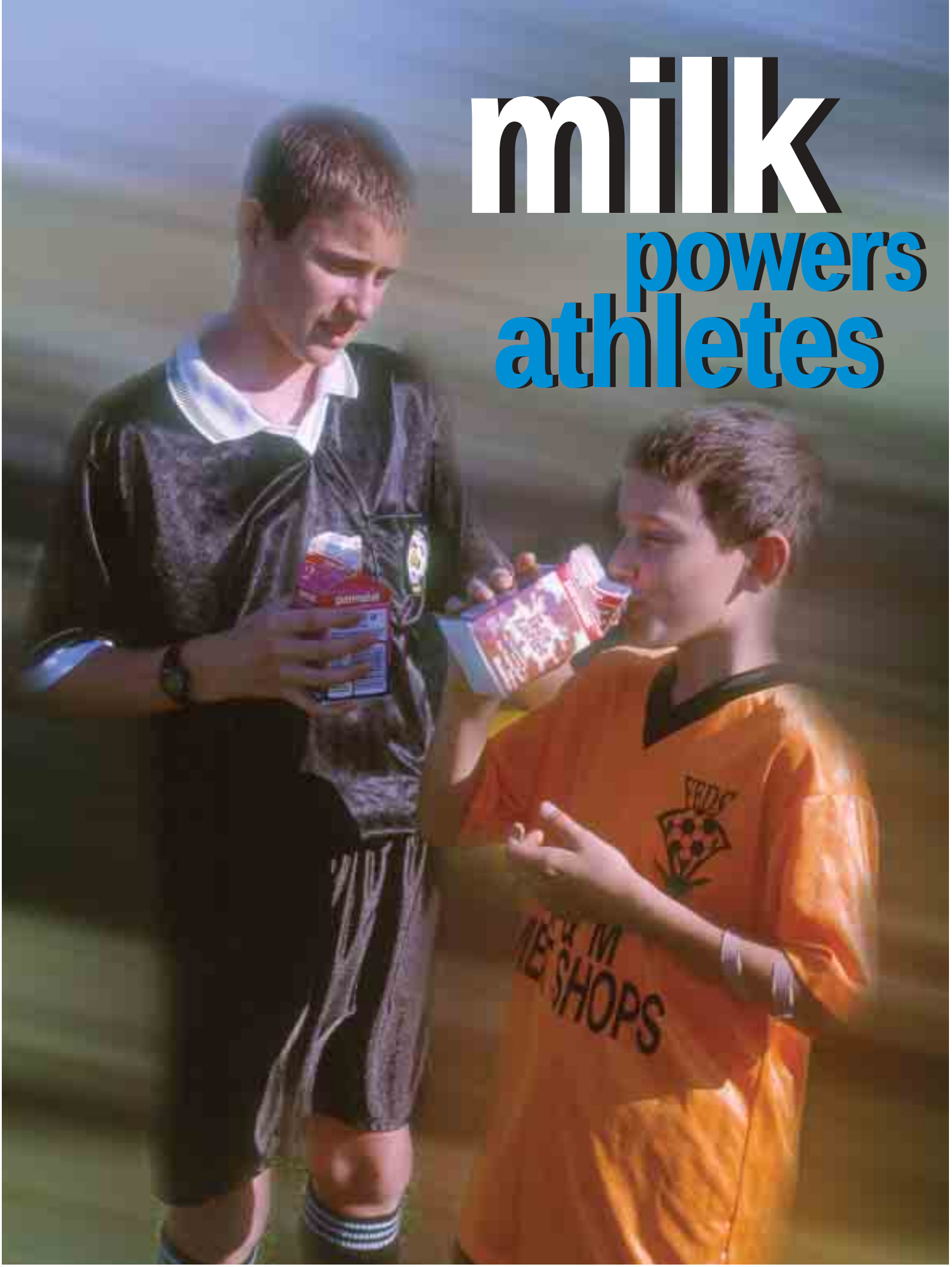

milk
powers
athletes

Growing interest in sports nutrition could fuel new market for milk

Looking to get the most from your workout? Want to gain muscle and burn fat? Then look no further than your dairy case. More than just 15 essential nutrients, recent studies are promoting milk's ability to rehydrate the body and increase muscle mass compared with conventional sports drinks.

Not only does milk provide liquid for hydration and carbohydrates for energy, it is also rich in protein, a nutrient vital for repairing muscle fibres damaged during exercise, say researchers in one new study.

These findings—along with growing interest in sports nutrition—are helping to fuel a relatively new market for milk. For high-performance athletes and weekend warriors alike, milk's nutritional qualities give it a competitive edge that could help make it the sports drink of choice, tapping a $500 million a year market.

It's all in the research

A study conducted by McMaster University researchers in Hamilton, Ont., which was recently published in the *American Journal of Clinical Nutrition*, demonstrated milk's advantages over rival beverages. The study put 56 men through a 12-week weightlifting program. It examined the effects of consuming fat-free milk, soy or carbohydrate-based beverages on muscle mass, strength and body composition.

Following their workouts, study participants drank one of three beverages: either two glasses of skim milk (about 500 millilitres each) that contained 17.5 grams of protein, 25.7 grams of carbohydrates and 0.4 grams of fat; a soy beverage with equivalent amounts of protein and energy; or a carbohydrate drink. All three beverages contained the same number of calories and vanilla flavour.

Upon the study's conclusion, researchers found all the men gained muscle mass and most lost fat. The milk drinkers, however, showed more promising results, says Stuart Phillips, associate professor of kinesiology at McMaster and senior author of the study.

Those who consumed milk lost nearly twice as much fat as those who drank the carbohydrate beverage—two pounds in fact. The soy drinkers lost no fat. Further, muscle gain was much greater among the milk drinkers. They added 2.5 pounds more muscle on average than participants in the soy group and 3.3 pounds more than those drinking the carbohydrate beverage, which was similar in composition to a sport drink.

"The loss of fat mass, while expected, was much larger than we thought it would be," says Phillips. "I think the practical implications of these results are obvious; if you want to gain muscle and lose fat as a result of working out, drink milk."

Research elsewhere points to other benefits.

A study conducted by Loughborough University's school of sports exercise sciences reported participants in their study retained their hydration level better with milk than with other sports drinks. The researchers recruited 11 volunteers who underwent a series of exercises and then consumed one of four drinks—skim milk, skim milk with added sodium chloride, water or Powerade. Urine samples were taken five hours after participants exercised.

Researchers reported urine excretion during the recovery period was unchanged for milk drinkers, while excretion increased one to two hours after participants drank water or the sports drink, resulting in a greater risk of dehydration.

"It is likely the presence of sodium along with a relatively large quantity of potassium in milk accounts for the effectiveness of milk at restoring fluid balance following exercise-induced dehydration," write the researchers in their study.

"(Milk) is not just plain water, it's also made up of sodium and potassium, electrolytes the body needs to stay hydrated," Phillips says. Regularly consuming fat-free milk immediately and one hour after resistance exercise promotes greater benefits in body composition. Benefits include more lean body mass and reduced body fat compared with consuming a fat-free soy beverage equal in protein content and calories or a carbohydrate-based beverage, he adds.

"Milk may be best known for its calcium content in supporting bone health, but our research, and that of others, continually supports milk's ability to aid in muscle growth and also promote body fat loss. To my mind, milk is the ideal post-workout drink for recreational exercisers and athletes alike," he says.

More than just nutrition

Research has shown carbohydrates consumed in the first few minutes after exercise move readily through the bloodstream and into muscles to replace glycogen (muscle energy) used up during exercise, says Susie Langley, a registered dietitian and certified specialist in sport dietetics.

Phillips says there is a window of opportunity for optimal recovery. "For rapid glycogen replacement, a carbohydrate-rich fluid should be consumed within 15 minutes after

exercise as absorption rates slow to normal after two hours," he says.

"Milk and even chocolate milk have both fluid, carbohydrates and protein, which is essential for building and repairing muscle after intense physical activity," says Langley, who has been counseling athletes for more than 20 years.

Also affiliated with the Sports Medicine Fellowship program at the University of Toronto and a nutrition course conductor with the Coaching Association of Canada, Langley notes many athletes don't know about important carbohydrates in milk. "Part of my job is to remind them of this beneficial fact, as well as promote milk's other essential nutrients."

Canada's new food guide, released earlier this year, recommends two to four servings of milk, dairy products or milk alternatives as part of a healthy daily diet.

"Dietitians have long urged that all Canadians aim to achieve Health Canada's recommended servings of milk products in their daily diets," says Joanne Gallagher, assistant director and registered dietitian with Dairy Farmers of Canada (DFC). "Likewise it is standard nutrition advice for athletes and active Canadians to include milk products as a regular part of their dietary regime."

Marketing is key

During the last two years, DFC has been focusing more energy and resources on promoting the benefit of milk products in maintaining a healthy weight with dietitians, nurses and physicians, and plans on expanding its reach to include fitness experts. "It's really great timing, since we had already planned on targeting this audience," says DFC's director of nutrition, Isabelle Neiderer. "These new studies provide additional scientific evidence to support milk's benefits in weight management. We want to expose them (fitness experts) to this new scientific research so that they can communicate this evidence with their clients."

Chocolate milk contains fluid, carbohydrates and protein, essential for building and repairing muscle.

Consumer awareness of the roles specific dairy food components play in athletic performance and endurance, as well as in overall health, has increased substantially in the last five years. This has led to some companies introducing products like probiotic milks and multi-flavoured milk drinks to attract new consumers, especially young people.

For instance, Bravo!, a U.S.-based brand development and marketing company that promotes and distributes vitamin-fortified, flavoured milk drinks and other beverages, recently expanded its Slammers range of beverages to include milk-based sports and energy drinks. According to a company report, Sport Milk, launched this past summer, was developed in response to "a growing body of scientific and empirical evidence that suggests milk can play an important role in post-exercise recovery and rehydration."

Drink up

There is a strong demand for functional beverages (fortified beverages that have added health benefits) in Canada, particularly sports and energy drinks. Total sales of these products are expected to reach $500 million per year, according to Refreshments Canada, a trade association that represents a broad spectrum of companies that manufacture and distribute the majority of Canada's non-alcoholic liquid refreshment beverages.

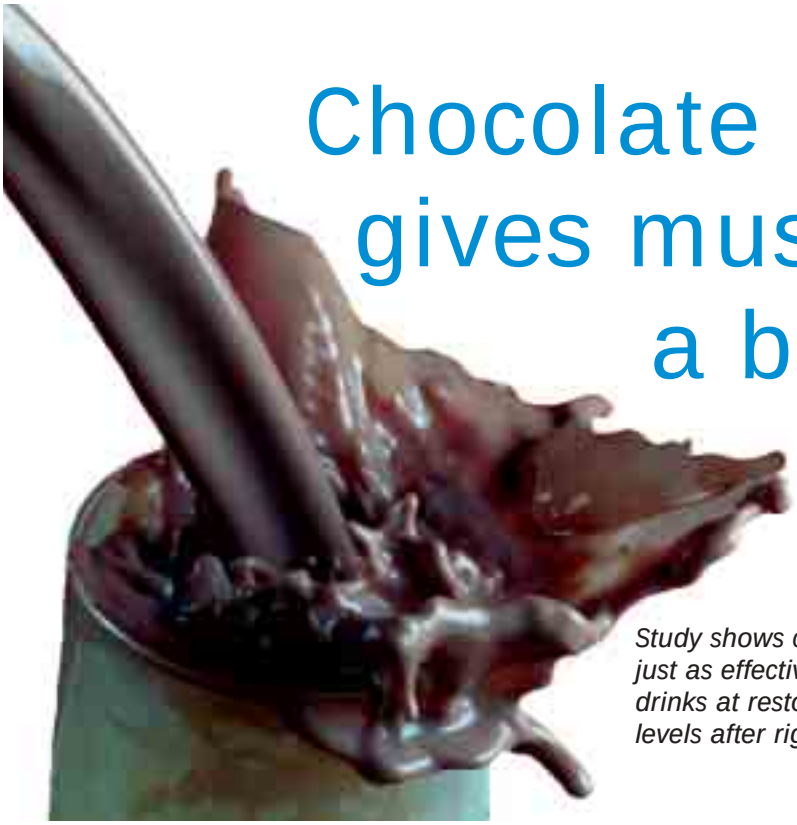
The sports drink category now ranges from advanced sports nutrition for body builders and serious athletes to lighter products for everyday consumers. Along with new and innovative flavours, growth in this market will also be driven by novel concepts, such as incorporating flavoured milk products.

Calla Farn, director of public affairs for Refreshments Canada, says the industry is focused on nutritionally enhancing products such as sports drinks, and dairy and soy-based beverages that already contribute to health and hydration. She notes functional beverages address the needs and priorities of today's active individuals and families. "People are pressed for time and are on the move, yet are very focused on their health."

Excess weight is an important preoccupation for consumers and health professionals alike, says Neiderer. She cites growing evidence of the beneficial role milk plays in controlling weight and managing obesity.

"These studies will aid our current nutrition initiatives to promote the nutritional and health benefits of milk products and contribute to the growth strategy in fluid milk sales in Canada" she says. "Not only is this new research of interest to athletes, it applies to anyone pursuing an active and healthier lifestyle."

Chocolate milk gives muscles a boost



Study shows chocolate milk just as effective as sports drinks at restoring energy levels after rigorous training.

It all started when Joel Stager, a coach and competitive swimmer, offered his athletes glasses of chocolate milk to help them recover from their twice-a-day practices and early morning workouts. The effect was so dramatic, "many of their problems disappeared almost immediately," he says.

Chocolate milk, as opposed to a sports drink, has the power to refuel athletes who endure long, intense practices, like swimmers, long-distance runners and cyclists, says Stager.

He found drinking chocolate milk is one the best ways an athlete can recover quickly after rigorous training. It has a high carbohydrate and protein content, and effectively replaces fluids lost through perspiration.

"The sodium and potassium in chocolate milk is much higher than in your typical sports drink," he says. "If it (sports drink) doesn't taste good, no one is going to drink it. Chocolate milk not only tastes good, it's easily accessible and is good for you."

A University of Indiana kinesiology professor, Stager wanted to know why chocolate milk worked so well on his athletes. He, several colleagues and doctoral students decided to conduct a study involving cyclists in a controlled environment. The results were staggering, he says.

"Chocolate milk proved to be just as effective for recovery as one commercial sports drink and almost twice as effective as another," he says. The study, "Chocolate Milk as a Post-Exercise Recovery Aid," was later published in the *International Journal of Sport Nutrition and Exercise Metabolism* in February 2006.

"There was definitely a pronounced difference in the athlete's energy level and ability to perform," says Stager, also the director of the Counsilman Centre for the Science of Swimming at the university. "You have a very short window of opportunity to address recovery symptoms. The first 30 minutes is critical because after that the carbohydrate channels within the muscles start to shut down."

According to research-based recommendations, an athlete of average weight could drink around two eight-ounce glasses of chocolate milk each hour for four to six hours after a hard workout for maximum recovery. Milkshakes are a good alternative for athletes who don't like chocolate milk, he adds.

Chocolate milk may also aid muscle recovery.

Stager also notes the amino acids in chocolate milk play an important role in muscle recovery.

"When you exercise, your metabolic rate goes up, which promotes free radical production that is known to cause cellular damage. The bioactive compounds in chocolate milk might help counter that free radical damage," he says. "More study is needed to determine why chocolate milk is so effective by examining all its different components and what role they play in hydration and muscle recovery."