

## Editorial

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### The health benefits of cherries and potential applications in sports

When Hippocrates stated, “Let food be thy medicine and medicine be thy food,” he probably was not referring specifically to cherries. Nevertheless, there is a long tradition of anecdotal claims of health benefits associated with eating cherries. Until recently there has been minimal scientific evidence to support such claims. However, in the last 12 years there have been several studies that indirectly substantiate some of the traditional health claims. In the food science literature numerous studies have identified a range of different phenolic compounds in cherries that have antioxidant and anti-inflammatory actions (for review see McCune et al., 2011). Furthermore, *in vivo* antioxidant and anti-inflammatory effects of cherries have been demonstrated in animal models of cancer, cardiovascular disease and arthritis (for review see McCune et al., 2011). While these findings indicate a potential role for cherries in the management and prevention of inflammatory diseases, the new research also has a particular relevance to athletes with respect to exercise recovery. Antioxidant and anti-inflammatory effects from eating cherries have been demonstrated in healthy humans (Kelley et al., 2006; Traustadóttir et al., 2009; Howatson et al., 2010). Kelley et al. (2006) found that markers of inflammation were decreased when healthy women ate 280 g of sweet cherries each day for 28 days. Traustadóttir et al. (2009) showed that consumption of 480 mL of tart cherry juice per day, for 2 weeks, reduced lipid peroxidation and oxidative damage to nucleic acids. Howatson et al. (2010) demonstrated decreased exercise-induced inflammation and oxidative stress in runners drinking 480 mL of tart cherry juice for several days before and after running a Marathon. Additionally, runners taking cherry juice experienced a more rapid return of quadriceps strength in the days after the Marathon. This latter finding parallels prior findings by Connolly et al (2006) showing that tart cherry juice accelerated recovery of strength and reduced pain following damaging eccentric exercise. Thus, the antioxidant and anti-inflammatory effects of cher-

ries appear to be associated with functional benefits in terms of protection against muscle damage and accelerated recovery of strength.

Optimizing recovery from exercise is the holy grail of exercise science. While recovery strategies for glycogen repletion and protein resynthesis are well established, much less is known about how exercise stress affects the immune system. Specific interventions that maintain antioxidant and immune function in athletes are lacking. Sports with high levels of physical contact, multiple games in short periods of time, long seasons and constant travel, especially across time zones, place excessive stress on athletes that compromise recovery. This stress can go unrecognized until the athlete breaks down with an injury or illness. For example, Dupont et al. (2010) found that professional soccer players were six times more likely to get injured when they played two games a week compared with one. Importantly physical performance was not different when playing two vs one game a week. So while athletes had recovered sufficiently to meet the energy demands of the game they clearly had not recovered sufficiently to avoid injury. Optimizing recovery to reduce this increased risk of injury or to reduce an athlete's susceptibility to illness is a major challenge for sports medicine practitioners and exercise scientists. Interventions that reduce exercise-induced muscle damage, inflammation and oxidative stress may be a step in the right direction. In light of the recent research on tart cherry juice it is not surprising that athletes and sports teams have begun to incorporate cherry juice into their recovery strategies. Future field studies will hopefully shed light on the efficacy of these practices.

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### References

- Connolly DA, McHugh MP, Padilla-Zakour OI, Carlson L, Sayers SP. Efficacy of a tart cherry juice blend in preventing the symptoms of muscle damage. *Br J Sports Med* 2006; 40(8): 679–683.
- Dupont G, Nedelec M, McCall A, McCormack D, Berthoin S, Wisløff U. Effect of 2 soccer matches in a week on physical performance and injury rate. *Am J Sports Med* 2010; 38(9): 1752–1758.
- Howatson G, McHugh MP, Hill JA, Brouner J, Jewell AP, van Someren KA, Shave RE, Howatson SA. Influence of tart cherry juice on indices of recovery following marathon running. *Scand J Med Sci Sports* 2010; 20(6): 843–852.
- Kelley DS, Rasooly R, Jacob RA, Kader AA, Mackey BE. Consumption of Bing sweet cherries lowers circulating concentrations of inflammation markers in healthy men and women. *J Nutr* 2006; 136(4): 981–986.
- McCune LM, Kubota C, Stendell-Hollis NR, Thomson CA. Cherries and health: a review. *Crit Rev Food Sci Nutr* 2011; 51(1): 1–12.
- Traustadóttir T, Davies SS, Stock AA, Su Y, Heward CB, Roberts LJ, Harman SM. Tart cherry juice decreases oxidative stress in healthy older men and women. *J Nutr* 2009; 139(10): 1896–1900.