

## RECOVERY FROM A SOCCER GAME

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- At an international level quite a number of soccer players participate in more than 50 matches a year and sometimes with only 2 days between games. Therefore, it is of great value to optimize recovery. Nevertheless, it has been observed in a Champions League team that the total distance, and distances with high speed running and number of sprints during a game were not affected by a few days compared to a week between games (Dupont et al, *Am J Sports Med* 2010; 38: 1752-1758). On the other hand, the number of injuries was significantly higher when having a short time between matches.
- Resynthesis of muscle glycogen after a soccer game seems to be impaired and the concentrations of muscle glycogen was still lowered 24 h (2) and sometimes 48 h after a game (3) particular in fast twitch muscle fibers (1). It appears that glycogen storage in skeletal muscles after a soccer game is influenced by subcellular localization-specific mechanisms, which accounts for an increase in number of glycogen particles located within the myofibrils in the period from 2 to 5 days after a soccer game (Nielsen et al, *Eur J Appl Physiol* 2012; 112: 3559-3567). Thus, muscle glycogen rebuilding should be optimized, but it does not appear to be affected by a high carbohydrate and whey protein intake (1). Rate of muscle SR Ca<sup>2+</sup> uptake was reduced after a game, but had recovered 24 after the game, whereas maximum contraction force was lowered immediately and 24 h after a game, and muscle soreness was elevated also 72 h after a game (2). Playing in a hot environment does not appear to aggravate the recovery response from a match (3).
- A number of strategies have been introduced to optimise recovery. Cold-water immersion has been shown to be efficient in reducing the delayed onset of muscle fatigue and edema as well as increasing the recovery of isometric force and dynamic power (Vaile et al, *J Strength Cond Res* 2007; 21: 697-702). In addition, Ingram et al. (*Sci Med Sport* 2009; 12: 417-421.) found reduced decrements in the isometric leg extension and flexion as well as lower muscle soreness rating 24 and 48 h after a simulated game when the players had carried out cold immersion (2 x 5 minutes separated by 2.5 minutes at room temperature immediately and 24 hours after the game) compared to a passive recovery, whereas cold-warm water immersion (consisting of 2 minutes cold followed by 2 minutes hot water repeated three times) had no effect. Thus, cold-water immersion may have some benefits.
- Few studies have examined the effect of active recovery. Reilly & Rigby (Effect on active warm-down following competitive soccer. In: Sprinks W, Reilly T, Murphy A, EDS; *Science and Football IV*. Routledge; London 2002, pp. 226-229) found that that a group who performed an about 15 minutes active recovery programme after a match had less muscle soreness ratings and was closer to their pre-match vertical jump and short running performance two days after a game compared to a group not performing the post-match activities. On the other hand, Rey et al. (*J Hum Kinet* 2012; 31:121-129) did not find differences between a 20 minutes active programme and passive recovery after a training session, except that the counter-movement jump performance did increase 24 hours after the training in the active group and not in the passive group. Similarly, Anderson et al. (*Med Sci Sports Exerc* 2008; 40: 372-380) found in elite female soccer players that a number of performance variables were reduced after a match and countermovement jump even 69 hours after a game, but with no difference between passive and active recovery, performed 22 and 46 hours after a game, consisting of 30 minutes of submaximal cycling and about 30 minutes of low-intensity resistance training. Taken together there may be positive effects of active recovery immediately after a game and training, but they appear to be minor.

**References**

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