ANALYSIS OF INJURIES, OVERTRAINING AND DEHYDRATION IN THE ELITE FEMALE BEACH HANDBALL ATHLETE: A LITERATURE REVIEW

Robelyn Garcia
ASU School of Criminology and Criminal Justice, Senior University and Arizona State University
George S. Bebetsos
Anatolia College, Physical Education Department

Beach handball practical applications of identifying symptoms for overtraining syndrome

The fast-paced high-scoring game of Beach Handball has erupted and is gaining popularity across the world (Piankova, 2013, Bebetsos, et. al., 2012). "The International Handball Federation's (IHF) Development Plan has helped the sport to progress from a basic level to highly competitive competitions, and, ultimately, to one of its most successful activities, thus allowing effective product integration and developing a compelling lifestyle" (Bebetsos, et. al., 2012). The development of a stronger and faster style of play in Beach Handball has contributed to a more exciting and dynamic sport. The pressure on world-class athletes to perform at high levels has increased as the sport of Beach Handball has gained popularity. When athletes push themselves or are pushed too hard without sufficient recovery, the result often leads to injury, dehydration and overtraining syndrome (Corbin, et.al, 2013). Fatigue during Beach Handball training is normal when the athlete participates in a hard workout. Overtraining syndrome appears when the athlete does not have adequate rest following this type of excessive overloading exercise.

The pressure on many athletes to perform at a high level has increased as sports (in particularly youth) programs have flourished. The number of acute and chronic injuries among young competitive athletes has also increased (Vetter, et. al., 2010; Rearick, et. al, 2013).

Beach handball overtraining syndrome symptoms

Understanding overtraining syndrome is of import for coaches in the evaluation and management of their athletes. The skill of preventing, identifying, and treating symptoms of overtraining is imperative in the world of sports.

The symptoms that Beach Handball coaches and players need to look for include ongoing abnormal fatigue, irritability, drastic mood changes, a change in sleeping patterns, evidence of heaviness of the arms or legs, loss of appetite, a lack of interest in training, anxiety, a decrease in performance, poor or irregular heart rate and a high resting heart rate coupled with a maladapted response to daily training (Urhausen, et. al., 2002, Black Johnson, et. al. 1992). If three or more of these signs are present methods of preventing further symptoms of overtraining syndrome need to be considered and incorporated (Corbin, et. al., 2013).

Rise of injury following intermission

A special characteristic of beach handball is the environment in which the games take place: Sand, high temperatures and many matches during the same day. The cause of injuries in each sport and its versions can differ between different subgroups of the athletes' population (Manavis, et. al., 2008). Of particular note is the rise of injury during the second period of the match immediately following the five-minute intermission (IHF, 2014). Holdhaus (2011) revealed that 66% of all of injuries during the Women's Euro 2010 Championships occurred during the second half of competition. This rise in injury can be attributed to a combination of

fatigue due to overtraining or improper training, poor beach handball skills, cold muscles and dehydration. If Beach Handball "athletes do not consume enough fluid to maintain euhydration then a detriment in performance is almost certain" (Karras, et. al., 2007). Beach Handball players may lose one liter of fluid during training and games. This equates to 2% of body mass for the female Beach Handballer (Karras, et. al., 2007). It has been empirically established over decades of sport science research that even small fluid deficits challenge the cardiovascular system and drastically reduce performance (Graig, et. al., 1966; Karras, et. al., 2007). Further, the blood lactate concentration is affected by dehydration, resulting in the faster appearance of athlete's fatigue (Kaya, et. al., 2013).

Coaching and training adjustments

Coaches need to make immediate adjustments addressing the multiple body systems causing negative changes in performance. Although overtraining syndrome remains a clinical diagnosis, coaches need to be educated on the prevention, warning signs, and treatment of overtraining to protect the safety of their athletes. The training load should be altered to include tapering and breaks for sufficient recovery (Corbin, et.al, 2013). Other successful prevention and treatment options include increasing hydration, resetting athletic performance goals, diet modification and educating athletes on the risks for injury and dehydration (Piankova, 2013). It is recommended that female Beach Handballers consume at least 2% of their body mass in fluids during training and competitions to stay properly hydrated (Karras, et. al., 2007). The skill of preventing, identifying, and treating symptoms of dehydration, injury, and overtraining in Beach Handballers is imperative as Beach Handball is posed to become one of the most popular sports in the U.S.A.

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