Medical considerations in the female football player

Although South Africa has been a pioneer of women's football in Africa, myths and prejudices surrounding the women's game remain. From a health perspective, the benefits clearly outweigh the risks.

DEMITRI CONSTANTINOU, ***MB BCh, BSc (Med) Hons, FFIMS***

Adjunct Professor: Sports and Exercise Medicine, Centre for Exercise Science and Sports Medicine and FIFA Medical Centre of Excellence, School of Therapeutic Sciences, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg

Demitri Constantinou completed his medical degree at the University of the Witwatersrand (Wits) and postgraduate qualifications in sport science at UCT. He is a Fellow of the International Sports Medicine Federation and is actively involved in teaching and research. He is a past Board member of the South African Institute for Drug Free Sport and current Chairperson of its Therapeutic Use Exemption Committee (TUEC). He is also vice-chairperson of the International Cricket Council's TUEC. He is a member of the International Sports Medicine Federation's Education Commission.

He has been awarded Life Membership of the South African Sports Medicine Association and is a member of the American College of Sports Medicine. He was Venue Medical Officer for Ellis Park for the FIFA Confederations Cup in 2009 and has also been appointed to this position for the 2010 FIFA World Cup South Africa.

Correspondence to: D Constantinou (demitri.constantinou@wits.ac.za)

Women's football had been played for more than two decades before Banyana Banyana (the South African national women's team) played their first international game in 1993. General practitioners should be prepared to counsel women on individual benefits and risks and on preparation and participation when menstruating, pregnant or breastfeeding. They need to know the causes and the most common types of injury and their prevention.

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Pre-participation examination

Football is a sport mainly comprised of walking and jogging, with intermittent bouts of high-speed running, placing high demands on the aerobic energy system.[1] The game appears to be an ideal physical exercise to prevent disease.[2]

The primary aim of the pre-participation examination (PPE) or the pre-competition medical assessment (PCMA) is to assess the risk of sudden cardiac death (SCD). SCD is less frequently observed in female athletes compared with males,[3,4] and the causes are less often identified. Possible explanations include a lower prevalence of underlying cardiac abnormalities in women and less participation in competitive sports globally.[5]

Regardless of gender, careful history taking may identify up to 75% of problems affecting athletes.[6] As the most common causes of SCD in sports are inherited diseases, family history is an important aspect of risk identification.

The PPE should comprise a menstrual history, physical examination including nutritional status, orthopaedic assessment focusing on the lower extremities, and further examinations (ECG, exercise test, echocardiography) as indicated. However, history and clinical examination represent the most cost-effective tools in PPE.[7]

The female athlete triad

The elements comprising the female athlete triad are eating disorders, menstrual cycle disturbances and osteoporosis. Eating disorders may result in a negative energy balance, which seems to be the main causative factor. Although the 'classic' triad is less common in football compared with other sports,[8] other conditions leading to energy deficits such as limited food availability have to be considered in South Africa. As the diagnosis can easily be missed, and long-term consequences are significant, awareness and surveillance of players are vital.

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Counselling of players

The nutrition and hydration needs of female players do not differ substantially from those of male players.[9] Weight-conscious women, especially, may need to be reminded that carbohydrates are an essential fuel for training and playing of matches. Protein may enhance training effects if consumed in small quantities just before or after exercise. In players with restricted eating practices or food choices, the focus should be on iron and calcium, which are important for avoidance of anaemia and iron deficiency and for good bone health, respectively. Adequate hydration should be encouraged by self-assessment of urine colour (pale urine indicates adequate hydration).

Nothing prevents women from playing football during menstruation. To counteract persistent beliefs that football decreases fertility,

Fig. 1. Location of injuries in female players. Illustration reproduced with permission, FIFA Medical Assessment and Research Centre F-MARC.

advice should be given that either too much or too little exercise may hinder fertility but moderate exercise will increase the chances of becoming pregnant. During pregnancy, the benefits of moderate exercise (weight control, fewer complications, prevention of pregnancy-induced diseases) outweigh the potential risks. Certain absolute and relative contraindications to exercise while pregnant should be considered. However, individual counselling by an obstetrician is indispensable. Breastfeeding should be encouraged, provided that proper hydration is maintained.

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Common injuries

More specific data from women's international elite competitions show an incidence of 67.4 injuries per 1 000 playing-hours, with the majority being mild to moderate.[10]

The incidence is known to decrease with the level of play[11] and is lowest in amateurs. Data on female black players are scarce and comparison is difficult because of different assessment methods. At an U-20 competition in South Africa, one player per match was injured sufficiently badly to require medical attention.[12] In 106 high school players in Johannesburg the 1-year prevalence was retrospectively assessed at 46%.[13]

As in men, the lower extremity is mainly affected and the knee and ankle are the most frequently injured joints (Fig. 1). However, the types and causes of injury in women differ. Sprains, particularly of the ankle, occur more frequently in women.[10,14] The much higher incidence of non-contact anterior cruciate ligament (ACL) ruptures in women is well known,[14,15] and head injury and concussion occur 2 - 3 times more often in women.[16] Half of the injuries in men are caused by foul play compared with only one-third in women.

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This translates into different preventive approaches. In women, prevention programmes that stress neuromuscular control through the use of strengthening exercises, plyometrics, and football-specific agilities to correct proprioceptive and biomechanical deficits are of particular importance. The key element is regular performance several times per week, ideally before training and playing a match.

Injury prevention

- Balance-board exercise decreases the incidence of ankle injuries[17]
- Prevent injury, enhance performance (PEP) reduces ACL tears by up to 80%[18,19]
- In a randomised trial with 1 892 female players, the 11+ – a complete warm-up to prevent injuries – generally reduced injuries by one-third and severe injuries by almost one-half[20]

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In a nutshell

Female football players:

- gain health benefits with regard to prevention of diseases, including cardiovascular, musculoskeletal and metabolic diseases
- do not suffer any limitation of their reproductive capacity
- may play safely during pregnancy and breastfeeding when well nourished and hydrated
- suffer slightly fewer injuries than men
- experience more ACL injuries and sprains than men
- sustain ankle sprain as the most frequent individual injury
- suffer more head injuries and concussions than men
- should perform exercise-based programmes to prevent non-contact injuries.