

Commentary

Preparticipation physical evaluation: An opportunity for Malawian athletes

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Preparticipation Physical Evaluation (PPE) is the screening of athletes for injuries and some risk factors for disease, with an aim of minimising the risk of injury, disease exacerbation, and even sudden death during training and competition. Generally, PPE is conducted prior to athletic performance, and athletes who are identified as unfit are subsequently excluded from or advised against participation and referred for medical consultation.¹ Following evidence on its successes in reducing the incidence of sudden death among athletes,^{1,2} PPE is currently being practiced in most parts of the world. However, Malawi currently does not implement PPE as an integral part of the basic requirements for sports participation. This may be, among other reasons, because of financial constraints, lack of interest among Malawi's sporting administrators, and the public's lack of knowledge about PPE and its benefits. This exposes Malawian athletes to risks that might be avoided after being detected by routine medical screening, such as PPE.

The major components of PPE include medical screening, musculoskeletal screening, and performance screening.³⁻⁶ The medical screening section of PPE obtains information about an athlete's personal and family medical history, general health, history of previous injuries, and relevant information related to all body systems. Examination of body systems, blood tests, and diagnostic imaging investigations are also conducted.³ The general medical examination includes measurements of pulse rate, blood pressure, respiratory rate, peak flow rate, fundoscopy, visual acuity, and skin measurements. Blood and radiographic investigations may include a full blood count, blood glucose and lipid tests, x-rays, and ultrasound scanning. The musculoskeletal screening section of PPE uses special tests to assess tone, power, coordination, reflexes, and range of motion of the limbs.³ The performance screening section uses special functional tests and quality of movement tests to assess areas that may not have an impact on health but could affect performance.³

Athletes of all levels and ages are encouraged to undergo PPE.⁷ Although there are currently no globally accepted standardised procedures for carrying out PPE,⁷⁻⁹ its potential benefits are enormous. For example, athletes may be affected by conditions that do not have clear symptoms and can only be detected through periodic screening.¹⁰ Cardiovascular conditions, such as hypertrophic cardiomyopathy, congenital coronary artery anomalies, or arrhythmogenic right ventricular cardiomyopathy, are naturally silent until a potentially fatal arrhythmia occurs. Such cardiovascular conditions may be detected earlier through careful cardiovascular screening during PPE. In that way PPE helps to identify pathologic conditions early to enable timely intervention and management with the hope of reducing future morbidity and mortality.¹⁰

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Conducting PPE regularly also provides an opportunity to diagnose some common conditions that may not be severe from a health perspective but may influence sporting performance.¹⁰ Mild iron deficiency, for example, is common in female athletes. Astigmatism, which can be detected by visual acuity testing during PPE, is another condition that may hinder sports performance if undiagnosed and untreated. Periodic administration of PPE presents an opportunity to diagnose and manage such conditions.¹⁰

Sponsoring institutions, governing bodies, as well as individual sports clubs and franchises throughout the world require that athletes undergo PPE prior to engaging in organised training and competition. For professional and elite-level athletes, PPE can have significant financial implications in addition to the health-related benefits already discussed. Contrary to the suggestions by some sports administrators that athlete screening is prohibitively expensive, PPE can actually be a money saver for sporting organisations.^{3,11} A famous example is that of Ruud van Nistelrooy, a former Dutch national team football player, who failed a screening examination with Manchester United in April 2000. Within days, he ruptured his anterior cruciate ligament (ACL) while training with his Dutch club at the time, PSV Eindhoven. PPE saved Manchester United millions of pounds in wages that would have been paid to a player who did not play a competitive match for that entire year. On top of addressing legal as well as insurance requirements, PPE also serves as a tool for monitoring athletic fitness and performance.⁷ In addition, PPE may also provide an opportunity for athletic counselling and anticipatory guidance.¹² Over and above this, the PPE process helps to establish a relationship between the athlete and the health practitioner who will be involved in providing continuing care.¹⁰

Due to huge benefits attributed to PPE,^{2,3,10,11,13} its administration has been made mandatory by athletic associations in many parts of the world. Despite the recent rise in competitive and organised sports participation, PPE is generally not carried out in Malawi. There is a lack of knowledge on the benefits and administration of PPE among sports administrators and athletes in Malawi. Therefore, this article explores the risks of not performing PPE and presents the opportunity that exists for Malawian athletes to perform PPE.

Challenge for Malawian athletes

The recent rise in organised sports participation in Malawi has led to an increase in the number of sports-related injuries among athletes. Although not much is known about sports injuries in the country, one report suggested that sports injuries account for about 2% of all injuries for which medical attention is sought in Malawi.¹⁴

It is well known that some athletes, when engaged in training or competition, have a small risk of sudden death caused by one of a number of medical conditions that has unclear symptoms.^{15,16} The incidence of sudden death is approximately 2.5 times higher in athletes than in non-athletes.¹⁷ Some recent reports in Malawi of the sudden deaths of elite athletes suggest that Malawian athletes participate in various sporting activities despite carrying injuries or being afflicted by potentially serious illnesses.^{18,19} For instance, *The Daily Times* of 7th April 2015 reported the death of a football player who was diagnosed with an intracranial neoplasm.¹⁸ Though the player had this problem for a long time, as reported in the paper, he continued to participate in competitive sports as evidenced by his registration for Confederation of African Football (CAF) Champions League that year. Further, a pilot study, in which athletes were screened by fourth-year University of Malawi physiotherapy students who were on a sports clinical placement at the College of Medicine Sports Complex, revealed that 12 out of 16 (75%) athletes had injuries.²⁰ It was surprising to note that most of the injuries were sustained between the years 2007 and 2014 without proper management, and these athletes continued to play and participate in competitive games. Routine PPE for the purposes of identifying athletes who are fit or unfit for competition would have served these athletes well and, through medical consultations and targeted interventions, may have saved these individuals years of suffering.

Opportunity for Malawian athletes

There is a window of opportunity for Malawian athletes and sports managers to utilise the resources available within the country to attain optimal levels of safe sports participation. These resources are in the form of equipment as well as facilities and expertise for the implementation of PPE.

PPE should be conducted by practitioners with medical screening skills in both musculoskeletal evaluation and cardiac examination to identify conditions that may predispose athletes to injury or sudden death.³ In Malawi, the introduction of an honours degree programme in physiotherapy at the University of Malawi's College of Medicine in 2010 means the nation will be equipped with competent professionals.²¹ Physiotherapists are trained as direct-access practitioners with expertise in injury assessment, prevention, and management, which are essential in the administration of PPE in a sports setting. Physiotherapists are uniquely qualified to participate in the provision of PPE.²² Therefore, with a placement at the College of Medicine Sports Complex as part of their five years of training, physiotherapy graduates in Malawi present Malawian athletes and sports managers with the opportunity to implement PPE.²²

Effective examination of an athlete during PPE requires that more than one practitioner performs different components of the assessment.²³ Thus, the team approach is essential in performing PPE for an athlete. In addition to physiotherapists, professionals such as medical doctors, sports scientists, exercise physiologists, and psychologists can each play a role in PPE. Apart from the physiotherapists who are being trained in the country, Malawi has medical doctors, sport scientists, and exercise physiologists, as well as psychologists, trained locally and abroad, who could help in the successful implementation and administration of PPE at a national level.

PPE requires an environment that has the equipment required to perform detailed clinical assessments and evaluation of

cardiovascular fitness.³ Guidelines for PPE recommend that the examination be split so that parts of the assessment are done on-field or at a suitable facility, while others are done in the privacy of a clinic.²⁴ The Physiotherapy Department at the College of Medicine houses a clinic equipped with state-of-the-art facilities for assessment, treatment, and rehabilitation of sports injuries. Further, the College of Medicine Sports Complex delivers fitness programmes to athletes and the general public. These resources present the nation with a rich reservoir of equipment, such as treadmills, strength training machines, Olympic lifting equipment, medicine balls, and ergometers, that can be used to screen athletes' cardiopulmonary fitness, as well as sports injuries, among other uses.

Conclusions

The absence of PPE as a basic requirement for sports participation in Malawi places athletes at risk of sports injuries, and even sudden death (as rare as it may be). However, the availability of appropriate equipment and qualified sports medicine professionals in the country presents an opportunity for the implementation of PPE.

Recommendations

The government of Malawi should formulate deliberate policies to enforce PPE as a key requirement for sports participation at the local and national levels. Sports administrators governing various athletic associations should enforce and encourage routine screening of athletes before training or active season.

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