

A LETTER FROM

JOHANNESBURG, SOUTH AFRICA

Protecting Africa's football player potential – today's vision, tomorrow's mission or naive illusion?

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Driving through Johannesburg or anywhere in (South) Africa for that matter, the beautiful game is a permanent feature – testifying to the one passion that unites black Africans across the continent. Kids probing their football skills in streets, waste dumps, school yards and sometimes on pitches, using whatever they can turn into a ball and goal posts. Often, these children are disadvantaged, defined as 'deprived of some of the basic necessities or advantages of life, such as adequate housing, medical care or

educational facilities.' Many of these players nourish hopes of a career as a professional as the pinnacle of their life's prospects, lifting them out of poverty into prosperity and respectable social status. This is not forging clichés, but setting the background of injury prevention in 4.6 million football players in South Africa, and about 46 million in Africa.

Football is acknowledged for being uniquely powerful in promoting health and developing personal and social skills, but also having a high risk of injuries – albeit mostly minor – compared to other sports. Therefore, from a sports medicine and public health perspective, the implications mass participation has for injury occurrence and sequelae cannot be ignored. Our current knowledge of these implications in Africa is negligible.

SWISS STUDY

In sharp contrast, detailed knowledge of the growing direct and indirect costs of the treatment, rehabilitation and time off work resulting from leisure-time football became a major economic factor for Swiss accident insurance about 10 years ago. Switzerland has only 8 million inhabitants in total and football is but one sport in a nation renowned for its skiing and tennis talents.

Exceptionally well organised and wealthy, it lent itself to host so far the only study on country-wide football injury prevention. In a collective effort with the Swiss Football Association (SFV) involving the training of 5,000 coaches, FIFA's exercise-based prevention programme 'The 11+' achieved a reduction of match injuries of 12% and of training injuries of 25% over 5 years in a cohort study with evidence level 3.

However, the findings in Switzerland cannot be extrapolated to approximate the prospects of prevention in Africa and the mere facts caution against attempting to create evidence in larger but less developed and organised communities. Switzerland has about 572,000 players, with a coach education curriculum regulated by the SFV. Facilities for clubs are at the highest levels, a much acclaimed public and private health system offers specialist sports medicine services and injury insurance covers recreational sports. Players are unlikely to start the game unless they have been fitted out with a full kit including shin guards and football boots.

Diametrically opposed, the reality of African football is summarised as poor to no equipment, no proper pitches, enthusiastic – yet often untrained – coaches, no specialist



care and no insurance. This reality renders prevention paramount – but is anything but conducive to replication of the Swiss results.

SEQUENCE OF PREVENTION MODEL

According to the classic 'Sequence of Prevention Model', prevention of sports injuries must follow a four-step approach. Firstly, the incidence and severity of injuries in the target population has to be established in a clearly defined and adequately selected sample, using standardised injury and exposure recording, uniform definitions of injury and severity and a study design reflecting the injury situation in the target population. Secondly, the risk factors and mechanisms leading to injury in this population must be identified, acknowledging that each of the approaches to describe inciting events and mechanisms has its limitations. Once these factors are known, tailored measures to reduce injuries are implemented in a third step. To evaluate

their effect, the fourth step repeats the first, ideally in a randomised trial. The model does not consider implementation issues.

Unperturbed by the task, enthusiastic yet inexperienced researchers set out to perform steps one and two in disadvantaged adolescent players at South African high schools to enable prevention in step three and four. Encouraged (and extensively warned) by a high-profile funder, we chose a prospective cohort study design following the consensus definitions published in 2006 - and failed to produce data of sufficient quality. I want to share the obstacles encountered in trying to adhere to this ambitious methodology to encourage others to do better.

STUDY DESIGN REFLECTING THE INJURY SITUATION IN THE TARGET POPULATION

Injury incidences in football vary depending on the definition of injury, the research design, player characteristics,

countries and geographical regions. Little is known about injuries in African players. The few older African studies lack the quality of design and methodology to provide a base for step one of the model, let alone for comparison with the literature. These publications, however, suggested a rather high injury incidence. Two studies following the consensus definitions and the F-MARC (FIFA Medical Assessment and Research Centre) approach to data collection were published more recently after the conclusion of our study. The overall injury incidence in 20 teams of the Congolese national football league over one season was about 1.5 times that of the highest rate reported in the literature and the incidence at the 2011 West Africa Football Union Nation's Cup about twice as high. While injury characteristics corresponded to what has been described elsewhere, the results of both studies raise numerous questions and the authors concluded on the need for



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further investigations to define the injury risk for African players.

CLEARLY DEFINED AND ADEQUATELY SELECTED SAMPLE MEETING INCLUSION CRITERIA

Of 20 high schools identified by the South African Schools Football Association, nine eventually participated, considerably reducing the final sample size. Different from what was expected from the grades, one third of players were over the maximum age at baseline. Finally, even though the schools' football curriculum met the inclusion criteria, the exposure eventually recorded was below the stipulated minimum in more than half of teams. Whenever illness, strike or other conditions affected lessons or if more learning time was needed, football was cancelled first.

STANDARDISED INJURY AND EXPOSURE RECORDING

While weekly individual and team exposure recording is generally recommended, the many challenges to achieve this outside controlled study settings have been described. In our study, the complete recording of exposure times for all but one player throughout therefore appeared highly unlikely. Coaches seemed to deliver what they thought was expected from them – complete recordings, with accuracy falling victim to best intentions.

UNIFORM DEFINITIONS OF INJURIES AND SEVERITY

Every week, trained injury recorders interviewed each player. Injury rates depend on the definition of injury which

simplistically falls in either of two categories:

- the broad, all-encompassing consensus statement injury definition of 'any musculoskeletal complaint caused by football' or
- a more narrow, time-loss-related definition.

In standardised research settings and at elite level, the broad definition covers the vast majority of injuries that is mild and transient. These would be missed with a time-loss definition, but have the ability to reduce performance unrelated to forcing the player from the pitch and may affect long-term health. This definition must be carefully explained as the concept might not easily reveal itself to players. Why would an adolescent report a minor contusion or abrasion that only caused brief pain while he kept on playing? Results therefore significantly depend on the recorders' motivation.

Opposed to that, a narrow, time-loss-related definition is believed to increase the reliability and accuracy of data in a real-world setting. For players, the concept of time-loss appears more comprehensible. Self-recall of injuries further depends on their severity, with minor injuries being less well remembered – suggesting these might be missed anyway. A weekly recording interval limits recall bias, but is exceeded when players are absent or do not report for interview – which may happen frequently at community level.

Orchard et al claim that a missed-match definition is the most functional and accurate. However, in a community setting, matches are frequently cancelled, time between matches varies and many

further factors influence the participation of players.

Injury severity in the consensus is based on the team physician's estimate of the absence from play. If return to play is solely based on players' self-assessment without medical advice, many factors contribute to this decision, such as the importance of a game or practice, pain tolerance and multiple individual personality factors. All this affects the precision of equating time loss with severity, respectively of return to play with recovery. In another community-level study, players continued to train and play while injured, while others did not return to participation once recovered.

For disadvantaged players, time loss therefore appears as a rather relative consideration in defining injury and severity. It appears to hold as many shortcomings as advantages, rendering it even more difficult to identify the ideal injury definition in these circumstances.

FURTHER CONSIDERATIONS

In general, 'significant methodological limitations' have been described with self-reporting: the ability of the player to comprehend and recall what took place and when, changes of recollection with time etc. In disadvantaged players, the level of education and intellectual abilities of players will influence results.

The correctness of diagnoses and previous occurrence of the same injury needs to be questioned without qualified medical assessment, albeit less with well-trained injury recorders. Having such recorders present at all team sessions might improve results, yet is illusive in any community-based setting. The delegation of both exposure and injury recording to coaches is therefore a common approach as they are usually present at both training and matches. African community-level coaches come from a comparably low educational background, though.

Finally, to control for extrinsic factors in African community settings is impossible. Little do we know what playing barefoot, on improvised grounds, without any protective equipment, hungry, malnourished or with makeshift balls means for injury epidemiology. Studies isolating these

factors to establish their influence represent an obstacle to even the most determined researcher.

PRAGMATIC REAL-WORLD PREVENTION

It is therefore not surprising that systematic injury surveillance has rarely been attempted at community level anywhere so far. The ideal conditions required for high-quality injury surveillance (e.g. randomised controlled trials), critical to develop the evidence base for effective injury prevention, simply do not translate into real-world settings – not only in Africa. The Translating Research into Injury Prevention Practice (TRIPP) framework therefore introduces two more steps to the classic model, considering the individual population and the resulting implications for prevention.

Acknowledging that using the TRIPP approach, more experience, resources and commitment would undoubtedly have improved results in our study, compromises affecting comparability and extrapolation of

results are inevitable for these populations. The question then is: do we actually need systematic injury surveillance at all levels and geographics of play? Football is known to have a high injury risk and indications are of it being even higher in African players. Should we not concentrate **all** resources on effective injury prevention?

For Africa's disadvantaged youth, that alone is challenge enough, requiring another letter to discuss. Because – what will be effective? A recent study regretted the deficient knowledge of Nigerian youth players on FIFA's '11+' and called for implementation of effective interventions. But can an exercise-based programme requiring:

- understanding of the concept,
 - high compliance from coaches and players in performing it regularly,
 - coaches' knowledge of the accurate performance of exercises and
 - ability of players to actually do so,
- be effectively implemented in Africa's football reality?

Acknowledging the evidence for effectiveness of the programme in other parts of the world, trying to grasp the context for its implementation in Africa must at least caution us. Acknowledging the complexity of intervention research, wanting to prevent football injuries in Africa must make us opt for a pragmatic, resource-conscious and tailored approach – if not to specifics of the injury profile, then to those of the setting. Alternative approaches combining implementation with data collection are attempted for violence and unintentional injury in the *Ukuphepha Initiative - Demonstrating African Safety*.

Four years after Africa's first FIFA World Cup, its players are still in need for what Ukuphepha calls "critical African-centred knowledge and knowledge systems that will influence the philosophy, theory and methodology of injury prevention ... on the continent". This applies just as much for sports medicine and exercise science in general. Ke nako – finally, it should be Africa's time.



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