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'What does not kill us can make us stronger': can we use injury experience as an opportunity to help athletes and their teams engage in injury risk reduction?

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Professor Pascal Edouard; pascal.edouard@univ-stetienne.fr Despite our efforts to prevent injuries, experiencing an injury seems inevitable for any athlete. For instance, about two-thirds of track and field athletes sustain at least one injury during a season,¹ and almost all athletes have encountered an injury during their years of practice.² To any athlete, it is safe to say: 'An injury will occur'.

We are all doing our diligence to manage and treat an injury episode appropriately, and we also are investing in efforts to reduce the risk of the injury.^{1 3} These should, of course, be continued and improved. However, since injuries appear inevitable, are we missing something by focusing on prevention and rehabilitation alone? Why, as health professionals, could we not take the opportunity of an injury experience to educate athletes and their supporting teams to help them engage in a healthy and sustainable sports practice with, among others, an injury risk reduction approach?

INJURY EXPERIENCE AS AN OPPORTUNITY PERIOD TO LEARN

Injuries, while considered negative experiences, can also be regarded as a lesson in both senses of the Cambridge Dictionary's definitions: 'an experience that teaches you how to behave better in a similar situation in the future' and 'a period of time in which a person is taught about a subject or how to do something'.⁴

An injury has direct consequences on an athlete's sports practice, leading to reduced availability for training and competition and a reduced ability to perform optimally.^{5 6} Such consequences will highlight for athletes and their supporting teams the

value of staying healthy to allow sustainable sports practice.⁷ Sustaining an injury has been reported as the main motivating factor to engage in injury risk reduction approach.^{7 8} Injury risk reduction behaviour has been reported as a learning process influenced by athletes' experience and learnings from previous injuries.^{7 8} Thus, it seems that after an injury, athletes may better understand the relevance of risk reduction approaches and programmes, become easier motivated to follow those and be more attentive to health professionals.⁷⁸ An injury experience could thus represent a fertile ground to learn about injury and optimal athletic health.

HOW TO HELP ATHLETES AND THEIR TEAMS ENGAGE IN INJURY RISK REDUCTION?

In figure 1, we present actions that health professionals can take during the management of an injury to help engage in an injury risk reduction approach.

Education of health professionals through athletes' and teams' experiences

An injury could be an opportunity to learn from athletes' and teams' experiences. Each athlete has a story and presents a unique case study.9 This provides health professionals new knowledge on all aspects of health, that is, physical, mental and societal. Athletes' injuries push health professionals to learn more for further understanding the psychosocial nuances of individualised care, improving their practice and skills in all domains. During injury management, health professionals are usually invited to listen to their athletes and enhance their knowledge of the current problem by reading books or articles or asking colleagues. Health



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Figure 1 A concept map of the role that health professionals can play in the context of injury to help athletes and their teams to engage in an injury risk reduction approach.

professionals can learn from athletes' and teams' experiences through facilitating open discussion.

Education of athletes

During the rehabilitation and return to sports process, there can be potential for health professionals with the help of training staff to help athletes to understand better how their bodies work,⁸ improve their ability to listen to their bodies (eg, pain and fatigue),⁷ know their capabilities and limits⁷ and learn warning signals to improve self-efficacy in their daily practice. This guidance can be done by providing feedback during medical examination or rehabilitation exercises, taking time to listen to the athletes and reply to their questions primarily related to body's signs, or adapting training and rehabilitation to athletes' signs. Since the body changes with training and time, such understanding is a continuous learning process throughout their athletics career.⁷ In addition, this period seems appropriate to educate athletes to have an active voice and express their feelings and opinions to their teams.^{7 8 10}

Education of the team: together with a common goal

An injury could be an opportunity to (re)engage athletes and their teams in a common project/goal. A project toward performance should consequently include health and injury risk reduction approaches, as injuries hamper performance.⁵⁶

The injury is also an opportunity to improve communication and cooperation between athletes, their team and team members. Communication is essential for success, taking into account the medical secret respect and the active voice of the athlete.^{7 8 10} The athlete's team needs to give voice and listen to the athletes as they are the ones that can inform about the first signs of injury risk.

An injury experience could also be an opportunity to educate all stakeholders, informally through discussions or formally through specific educational sessions, about injury risk reduction approaches (eg, explain how the body works, what an injury is and how to manage an injury). It could also be a chance to set up, in addition to rehabilitation procedures, injury risk reduction habits as a routine for long-term sustainable behavioural changes.

CALL TO ACTION!

Sports injuries will occur, but they are more than just an unfortunate experience. We, as health professionals, must extend our thinking about injury management. This editorial is a call to take this negative experience as a lesson and to help athletes and their teams engage in injury risk reduction toward long-term sustainable sports practice.

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REFERENCES

- 1 Edouard P, Alonso JM, Jacobsson J. Injury prevention in athletics: the race has started and we are on track! *New Stud Athl* 2015;30:69–78.
- 2 Sorg M, Ruffault A, Martin S, et al. Étude sur La perception des blessures PAR les athlètes et LeuRS influences sur La réalisation de mesures de Prévention des blessures en athlétisme. *Journal de Traumatologie du Sport* 2020;37:193–200.
- 3 Edouard P, Steffen K, Peuriere M, et al. Effect of an unsupervised Exercises-Based athletics injury prevention programme on injury

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complaints leading to participation restriction in athletics: a cluster-randomised controlled trial. *Int J Environ Res Public Health* 2021;18:11334.

- 4 Cambridge University Press. Cambridge dictionary, 2022. Available: https://dictionary.cambridge.org [Accessed 7 Mar 2022].
- 5 Raysmith BP, Drew MK. Performance success or failure is influenced by weeks lost to injury and illness in elite Australian track and field athletes: a 5-year prospective study. *J Sci Med Sport* 2016;19:778–83.
- 6 Edouard P, Navarro L, Pruvost J, et al. In-competition injuries and performance success in combined events during major international athletics championships. J Sci Med Sport 2021;24:152–8.
- 7 Bonell Monsonís O, Verhagen E, Kaux J-F, et al. 'I always considered I needed injury prevention to become an elite athlete': the road to the Olympics from the athlete and staff perspective. BMJ Open Sport Exerc Med 2021;7:e001217.
- Bolling C, Delfino Barboza S, van Mechelen W, *et al.* Letting the cat out of the bag: athletes, coaches and physiotherapists share their perspectives on injury prevention in elite sports. *Br J Sports Med* 2020;54:871–7.
- 9 Chapon J. How my Achilles tendon rupture drives my academic career. *Br J Sports Med* 2022;56:1–2.
- 10 King J, Roberts C, Hard S, *et al.* Want to improve return to sport outcomes following injury? empower, engage, provide feedback and be transparent: 4 habits! *Br J Sports Med* 2019;53:526–7.