

Dentist in the multiprofessional athlete monitoring team: essential to mitigate the severity of head concussions?

Dentista na equipe multiprofissional de monitoramento de atletas: essencial para atenuar a gravidade das concussões da cabeça?

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During the 4th International Conference on Concussion in Sport, held in 2012, in the city of Zurich, Switzerland, a consensus statement on concussion in sport was built, based on the principles described in previous documents [1]. The statement brings an additional understanding concerning the risks, diagnosis, and prevention of sports concussion in the amateur or professional athlete. Due to the importance of this topic for the health of sports players, the document is addressed not only to doctors but to all health professionals involved in preventive care and rehabilitation for this population [1].

It is well known that concussions could occur in any sport, with a higher prevalence in contact sports [1]. Due to the potential risk of neurodegenerative effects by recurrent exposure to concussion or chronic exposure to head impacts, it is of great importance that this problem is addressed with a multi-professional approach [2]. In dentistry, personalized mouth guards (PBP) can be an interesting tool to reduce the neurodegenerative effects resulting from concussions. This is because PBPs have biomechanical properties to absorb and dissipate forces resulting from impact [3].

Concussions result from the acceleration-deceleration process that occurs after the action of biomechanical forces that are transmitted to the brain tissue. The use of PBP can help to control cervical muscle activity, which is increased with trauma, contributing to reduce the severity of concussions after impact. In addition, PBP can distance the condyle of the mandible from direct contact with the mandibular fossa of the temporal bone, preventing this region from absorbing the full force of traumatic impact [3].

Although it is impossible to eliminate all chances of concussion occurrences during sports practice, it is very important to create strategies aimed to reduce the number and severity of this situation. Pre-participation assessment and post-trauma follow-up should follow stricter criteria, with the participation of dentists in the multi-professional team that accompanies the athletes. This multi-professional interaction offers additional benefits in the preventive and rehabilitation spheres, as suggested by Sacramento *et al.* [4].

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Another strategy that could help prevent concussions is expanding current research, with more robust cross-sectional and longitudinal observational studies, assessing the etiological and epidemiological profile of sports trauma. Especially in youth sports, there is still insufficient research that explores this topic, since most research is directed at professional adult athletes, where the surveillance of these injuries is best performed [5].

Finally, we believe that educational and clarification measures for athletes and coaches, about the importance of including the dentist in the multi-professional team, can help prevent concussions from being more harmful, as well as helping athletes to have better outcomes, improving recovery strategies following injury [4]. This could also decrease the athletes' recovery time and ensure a safer return to sports practice.

Conflict of interests

No conflicts of interest with potential potential for this article have been reported.

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Authors' contribution

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References

1. McCrory P, Meeuwisse WH, Aubry M, Cantu RC, Dvořák J, Echemendia RJ, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport, Zurich, November 2012. *J Athl Train* 2013;48(4):554-75. <https://doi.org/10.4085/1062-6050-48.4.05>
2. Rowson S, Bland ML, Campoletano ET, Press JN, Rowson B, Smith JA et al. Biomechanical perspectives on concussion in sport. *Sports Med Arthrosc Rev* 2016;24(3):100-7. <https://doi.org/10.1097/JSA.000000000000121>
3. Narimatsu K, Takeda T, Nakajima K, Konno M, Ozawa T, Ishigami K. Effect of clenching with a mouthguard on head acceleration during heading of a soccer ball. *Gen Dent* 2015;63(6):41-6.
4. Sacramento MS, Santos VB, Petto J. Importância da multidisciplinaridade na prescrição do exercício físico. *Rev Bras Fisiol Exerc* 2020;19(2):80-1. <https://doi.org/10.33233/rbfe.v19i2.4063>
5. Emery CA, Black AM, Kolstad A, Martinez G, Nettel-Aguirre A, Engebretsen L et al. What strategies can be used to effectively reduce the risk of concussion in sport? A systematic review. *Br J Sports Med* 2017;51(12):978-84. <https://doi.org/10.1136/bjsports-2016-097452>