

Evaluation of the oral health conditions of athletes from a soccer team

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Abstract

Introduction: It is widely recognized the importance of the athlete to have a good general health condition to maintain his athletic performance. Oral health is an integral part of systemic health and plays an important role in an individual's vital functions and quality of life. **Objective:** Therefore, this article presents the results of the investigation of the oral health status of athletes in the grassroots category of a professional soccer team, and the relationship of the findings with possible negative consequences for the athletes' sports performance. **Methods:** 74 athletes from a professional soccer team in the state of São Paulo, aged between 15 and 31 years old, who have been working as athletes for at least one year, with training load, were

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*evaluated through clinical examination and anamnesis. approximately 20 hours a week. **Results:** The oral conditions of athletes were observed and 67% present occlusal stability, 62% use orthodontic braces, 50% dental erosion, 39% dental caries, 13% periodontal disease, 12% unsatisfactory restorations and 1% need for tooth extraction. **Conclusion:** From this study it can be concluded that many athletes are exposed to oral problems that can interfere with their health and sports performance. Dental erosion, caries, periodontal problems, unsatisfactory restorations, parafunctional habits, among others, can impact your career.*

Keywords: Athletes; Oral health; Performance; Quality of life; Sports.

INTRODUCTION

It is widely recognized the importance of an athlete having a good general health condition to maintain their sports performance (Rejaili et al., 2021). Oral health is an integral part of systemic health and plays an important role in an individual's vital functions and quality of life (Gallagher, 2018; Spanemberg et al., 2019).

Football is one of the most popular sports in the world. Attracts more and more athletes. As it is a contact sport, it has a high number of injuries involving the oral and maxillofacial complex. (Fernandes et al., 2019; Fronza et al., 2020; Polmann et al., 2020).

Dental support for athletes is essential. When an athlete has dental guidance and support from the base, the risks of injuries such as caries, tooth wear, periodontal diseases and even trauma, common among athletes, are significantly reduced (Kragt et al., 2019; Márquez-Hidalgo et al., 2020).

In this way, the dentist contributes to a better overall health of the athlete (Tuna, Ozel, 2014) and understands the risk factors inherent to sports activities such as overtraining, dehydration, a carbohydrate diet, the frequent use of isotonic and energy drinks, the risk of immunosuppression, the behavioral and emotional pressure for excellent performance, which, among others, are part of the sports lifestyle and have important consequences in the oral cavity (Needleman et al., 2015) .

Therefore, this article presents the results of the investigation of the oral health status of soccer athletes, and the relationship of the findings with possible negative consequences for the athletes' sports performance.

MATERIALS AND METHODS

We evaluated, through clinical examination and anamnesis, 74 athletes from a soccer team in the state of São Paulo, aged between 15 and 31 years, acting as athletes for at least one year, with a weekly training load of approximately 20 hours.

In the clinical examination, aspects related to occlusion, use of orthodontic appliances, dental erosion, dental caries, periodontal disease, unsatisfactory restorations and need for extraction were evaluated.

In the anamnesis, information was collected about the athletes' parafunctional habits. The clinical examination and anamnesis information were collected and stored in the athlete's physical record.

RESULTS

The data obtained were analyzed and are presented in a descriptive way (table 1).

Clinically, conditions related to occlusion, use of orthodontic appliances, dental erosion, dental caries, periodontal disease, unsatisfactory restorations and need for tooth extraction were observed.

The main data reported by the athletes during the anamnesis were related to parafunctional habits such as onychophagia (nail biting), dental clenching and biting the pen cap.

Table 1. Percentage of athletes with different dental conditions and situations.

Dental situation	Oral condition	Percentage of athletes
General	Dental erosion	50%
	Dental caries	39%
	Periodontal disease	13%
	Unsatisfactory restorations	12%
	Need for extraction	1%
Orthodontics	Orthodontic appliance use	62%
	Does not use orthodontic appliance	38%
Occlusion	Stable occlusion	67%
	Balanced occlusion	14%
	Premature contact	10%
	Posterior tooth contacts only	9%
	One-sided cross bite	13%
	Bilateral cross bite	5%
	Deep bite	2%
Molar relationship	Class I	72%
	Class II	16%
	Class III	10%

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Canine relationship	Class I	67%
	Class II	13%
	Class III	13%
Wisdom tooth	Wisdom erupted	30%
	Wisdom semi-included	13%
	Don't have wisdom	57%
Parafunctional habits	Onychophagia	29%
	Bite pen	9%
	Dental clenching	24%
	None	31%

Source: Authors

DISCUSSION

Of the 74 athletes analyzed, 50% showed signs of dental erosion, a condition that can harm the athlete's health, due to the weakening of the hydroxyapatite crystals in the dental enamel, as shown by Da Silva Telles et al. (2020), exposing teeth to trauma and fractures, a fact proven by epidemiological studies (Zimmer et al. 2015; Black et al., 2017; Yamamoto et al., 2018). Dental erosion is a multifactorial condition, whose chemical interactions, biological and behavioral help to explain the manifestations of this pathology (Lussi, Jaeggi, 2008). Among the etiological chemical factors, the chelating potential of an acid beverage and its pH (hydrogenonic potential) stand out; among the biological factors, saliva viscosity, saliva buffering capacity and acquired salivary pellicle stand out; while behavioral factors refer to the mode and frequency of ingestion of acidic beverages (Souza et al., 2017). In a study of triathlon athletes, 84% reported drinking energy drinks (Bryant, 2011). In another, the prevalence of dental erosion was observed ranging between 36% and 85% in professional athletes (Ashley et al., 2015). The acidic pH of sports drinks can contribute to dental erosion and consequent dentin hypersensitivity (Berard et al., 2020).

The present study showed that soccer athletes have some oral conditions that can lead to compromised oral health and sports performance, such as caries, periodontal disease and deficient restorations; corroborating the findings of Suzuki, Toyoda, 2015, according to which athletes have a higher rate of oral disease than the non-athlete population, and may have a higher rate of periodontal disease, dental caries, dental erosion and dental trauma. According to Ashley et al., 2015 and MCGovern et al., 2015, among the various mechanisms responsible for the decrease in sports performance, pain, changes in diet, psychological impact and increased systemic inflammatory load can be included. Oral diseases can compromise general health, negatively interfering with quality of life, affecting the activities or even the performance of the athlete patient (Souza, 2017; Souza et al., 2021; Teixeira et al., 2021).

Functional aspects such as chewing, swallowing and speech can be compromised, directly involving the athlete's performance and routine (Needleman et al., 2013), since reports of pain at the time of competitions (16% to 46.9%) may be related to the caries disease progression process (Rojas et al., 2016). In addition, physiological changes such as reduced salivary flow, which is expected in sport practice, may increase risk factors for oral diseases such as dental erosion and dental caries (Bryant, 2011).

Of the athletes evaluated, 62% use fixed orthodontic appliances, with a higher risk of lip and tongue lacerations and dental avulsions when athletes do not use a mouthguard for sports (Coto et al., 2012; Gialain et al., 2016; Ferreira et al., 2019; Padilha et al., 2021). In addition, some studies have shown that dental occlusion and body posture can be mutually dependent (Ohlendorf et al., 2014; Scharnweber et al., 2017; Álvarez Solano et al., 2020). Therefore, it is important to establish a balanced dental occlusion, which promotes a positive influence at the muscular level (Julià-Sánchez et al., 2016).

According to the study in question, 43% of athletes have a third molar, semi-impeded or erupted, a condition that must be observed and monitored, since the extraction of third molars decreases the chance of mandibular fracture in contact sports, as well as the risk of the athlete having pericoronitis, which would lead to cases of local infections that can interfere with their performance due to systemic impairment, whether at the muscle or joint level (de Souza et al., 2020).

According to Baeshen (2021), parafunctional habits, such as onychophagia and bruxism, cause an increase in muscle overload of the stomatognathic system, generating muscle contractures and spasms, and a consequent imbalance of anatomical structures, which can trigger headaches and stress. Soccer players are conditioned to high levels of stress and need to maintain optimal health conditions in order not to impair their performance. A considerable percentage of the evaluated athletes have parafunctional habits. The etiology for teeth grinding/clenching is multifactorial and contributing factors can be genetic, environmental and/or psychological (Almutairi et al., 2021).

Actions aimed at attention and care for oral health should be part of the comprehensive assistance to the athlete, who has several oral conditions unfavorable to sports performance. The dentist who is dedicated to Sports Dentistry must act in the prevention and treatment of diseases of the oral cavity, to ensure the maintenance of systemic health and the maximum performance of the athlete patient. In addition, the data collected should be used to raise the awareness of the health team that is in the surroundings of

the sportsman, as well as to draw the attention of the athletes themselves regarding the importance of oral health in their sports performance.

CONCLUSION

From this study, it can be concluded that many athletes are exposed to oral problems that can interfere with their health and sports performance. Dental erosion, caries, periodontal problems, unsatisfactory restorations, parafunctional habits, among others, can impact your career.

Potential conflict of interest

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

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