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REVIEW

Smile-Powered Fitness: Integrating innovative dental care and prosthetics into sports and physical health education programs

Smile-Powered Fitness: Integración de atención dental innovadora y prótesis en programas de educación deportiva y de salud física

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ABSTRACT

Introduction: the role of dental health in enhancing athletic performance and overall well-being remains underexplored, despite its significant impact on systemic health. This study aims to examine how innovative dental care and prosthetics can be integrated into sports and physical health education programs to optimize physical performance and promote lifelong wellness.
Method: we conducted a systematic review using PRISMA methodology on 58 articles; 20 peer-reviewed articles published between 2014 and 2024 were utilized. The selected literature explored interdisciplinary approaches to oral health care in sports, emphasizing preventive care, injury management, and interprofessional collaboration.
Results: findings highlight a growing recognition of the correlation between oral health and athletic outcomes. Poor oral conditions, such as caries and periodontal disease, were linked to reduced stamina, slower recovery, and heightened injury risks. Innovative programs incorporating regular dental check-ups, customized mouthguards, and oral health education showed measurable benefits, including a 65 % improvement in athletic performance and a 30 % reduction in sports-related injuries. Educational initiatives enhanced participants' knowledge retention by 85 % and improved oral hygiene practices by 70 %. The study also looked at different ways to integrate dental care, like mobile dental clinics and partnerships between dentists and coaches.
Conclusions: this research underscores the need for interdisciplinary collaboration and innovative strategies to embed oral health into sports and education curricula. By fostering a culture of proactive dental care, institutions can enhance athletic performance and contribute to public health advancements. Future research should address gaps in empirical evidence and provide solutions for diverse populations.

Keywords: Oral Health Education; Athletic Performance; Sports Dentistry; Physical Education; Oral Health Interventions.

RESUMEN

Introducción: el papel de la salud dental en la mejora del rendimiento atlético y el bienestar general sigue siendo poco explorado, a pesar de su impacto significativo en la salud sistémica.Este estudio tiene como objetivo examinar cómo el cuidado dental innovador y las prótesis pueden integrarse en los programas de educación deportiva y de salud física para optimizar el rendimiento físico y promover el bienestar de por vida.
Método: se realizó una revisión sistemática utilizando la metodología PRISMA sobre 58 artículos; se utilizaron 20 artículos revisados por pares publicados entre 2014 y 2024. La literatura seleccionada exploró enfoques interdisciplinarios para el cuidado de la salud oral en el deporte, enfatizando la atención preventiva, el manejo de lesiones y la colaboración interprofesional.
Resultados: los hallazgos destacan un creciente reconocimiento de la correlación entre la salud oral y los resultados atléticos. Las malas condiciones bucodentales, como la caries y la enfermedad periodontal, se relacionaron con una menor resistencia, una recuperación más lenta y un mayor riesgo de lesiones. Los programas innovadores que incorporan revisiones dentales periódicas, protectores bucales personalizados y educación en salud bucodental mostraron beneficios cuantificables, como una mejora del 65 % en el rendimiento deportivo y una reducción del 30 % en las lesiones relacionadas con el deporte. Las iniciativas educativas aumentaron la retención de conocimientos de los participantes en un 85 % y mejoraron las prácticas de higiene bucal en un 70 %. El estudio también examinó diferentes formas de integrar la atención odontológica, como clínicas dentales móviles y asociaciones entre dentistas y entrenadores.
Conclusiones: esta investigación subraya la necesidad de una colaboración interdisciplinar y de estrategias innovadoras para integrar la salud bucodental en los planes de estudios deportivos y educativos. Al fomentar una cultura de atención odontológica proactiva, las instituciones pueden mejorar el rendimiento deportivo y contribuir a los avances en salud pública. Las investigaciones futuras deberán abordar las lagunas existentes en las pruebas empíricas y aportar soluciones para poblaciones diversas.

Palabras clave: Educación en Salud Bucodental; Rendimiento Deportivo; Odontología Deportiva; Educación Física; Intervenciones en Salud Bucodental.

INTRODUCTION

Sports and health education often prioritize physical fitness and peak performance over dental health. While athletes and health-conscious individuals strive to optimize their bodies, they often underestimate the critical role of oral health in overall well-being.[1,2] The World Health Organization (WHO) emphasizes that most oral health conditions are largely preventable and can be treated in their early stages, yet they remain prevalent globally.[3] There is a strong link between oral health and overall health, as shown by research that shows how untreated dental problems and poor hygiene can have many effects, ranging from heart disease to poor athletic performance.[4,5] The WHO's Global Oral Health Status Report (2022) estimated that oral diseases affect close to 4 billion people worldwide, with 3 out of 4 of those affected living in middle-income countries.[3]

Athletes are particularly susceptible to the negative impacts of poor oral health. Sports and health education programs are ideal platforms for promoting a holistic approach to wellness,[6,7] yet they often lack structured components addressing oral health.[8] Severals studies have shown that oral health issues, such as untreated dental caries and periodontal diseases, and oral infections can compromise an athlete's endurance, concentration, and recovery times.[9,10,11] Furthermore, systemic inflammation resulting from chronic oral conditions can hinder physical recovery and exacerbate fatigue.[12] Beyond performance, oral health problems may limit athletes' ability to consume a nutrient-rich diet essential for peak physical output.[13] Despite this evidence, oral health remains an overlooked component of sports and health education programs.

In the Philippines, the Department of Health (DOH) has implemented various programs to address oral health issues.[14] For instance, the Bicol Medical Center, under the DOH, provides specialized healthcare services, including oral care, to promote better health outcomes.[15,16,17] However, the integration of oral health education into sports programs remains limited. The Philippine Sports Commission (PSC) recognizes the importance of comprehensive health programs for athletes but has not yet to fully incorporate structured oral health initiatives.[18] This gap presents an opportunity to enhance athlete performance and well-being through targeted oral health interventions. Internationally, the WHO's Global Strategy and Action Plan on Oral Health 2023–2030 highlights that the pain and discomfort associated with oral diseases make concentrating difficult, can cause people to miss school or work, and can lead to social isolation.[19] This underscores the need for integrated oral health strategies within various sectors, including sports.[17]

Examining the transformative potential of incorporating dental health care into physical education and

sports programs,[20] "Smile-Powered Fitness" By using cutting-edge methods to treat oral health issues, this program highlights the value of preventative dental care for athletes and exercise lovers. [21,22] The initiative seeks to encourage early intervention and preventative care by increasing awareness of the vital connection between oral health and physical performance. In addition to improving athletic performance, integrating dental health education into sports training creates enduring habits that support general well-being.[23,24] This all-encompassing strategy protects players' long-term health while enabling them to compete at their highest level.[25]

This research highlights the urgent need for a paradigm shift that integrates dental care into sports and health education programs, rather than treating it as a separate entity. By incorporating oral health education and preventative dental care into physical education, exercise, and athletic programs, we can unleash a new level of performance and general health. Despite this evidence, health curricula and fitness training rarely incorporate oral health education.[26,27] By combining dental treatment with more comprehensive health education programs, this gap presents a chance for innovation.[28]

This article strives to establish a connection between oral health and athletics by advocating for a multidisciplinary approach that recognizes the significance of dental health in attaining optimal physical and mental performance. It advocates for the integration of advanced dental care and prosthetics into sports and physical education programs to enhance athletic performance and promote overall well-being, thereby promoting a more holistic approach to health.

METHOD

We looked at several studies with the same title in many databases, such as PubMed, Google Scholar, PsycINFO, Elsevier, CINAHL, Scopus index journals, and the Cochrane Library, to find research papers about how to include dental care in physical and sports health education programs. We conducted a systematic review using PRISMA methodology on 58 articles for this study, of which 20 peer-reviewed articles published between 2014 and 2024 in English were selected. We utilized keywords to compile a list of studies that satisfied our criteria. The selected literature delves into interdisciplinary approaches to oral systemic health connection, customized dental solutions for athletes, preventive dental care in sports and physical health, nutrition and dental health for peak performance, injury management and dental rehabilitation, dental screening and assessing in sports programs, interproffesional collaboration, and cultivating a culture of oral health in sports and education. The findings were analyzed to identify recurring themes, gaps, and innovative practices. We evaluated existing models integrating dental care into sports and health education programs, highlighting effective methodologies and innovative approaches for adaptation or scaling. The analysis led to the creation of practical suggestions for incorporating cutting-edge dental care into health and sports education programs, with a focus on working together across disciplines, utilizing technology, and starting projects in the community. For ethical purposes, the reference page cited those pieces of literature that met the criteria.

The inclusion and exclusion criteria for screening and selecting papers

Inclusion Criteria

- Studies and articles focusing on oral health care, sports, and athletic performance.
- Research discussing the role of preventive dental care in sports and physical health education.
- Publications covering sports-specific dental trauma and injury management.
- Studies examining the impact of nutrition on oral health and athletic performance.
- Articles addressing the collaboration between dental professionals, sports scientists, and health educators.
- Research exploring oral health education initiatives in sports and academic settings.
- Articles published between 2014 and 2024 in reputable index journals

Exclusion Criteria

- There are studies that do not directly examine the impact of oral health on athletic performance.
- Research focusing solely on general dental care without a connection to sports or fitness.
- Articles that lack empirical data or are purely opinion-based without scientific backing.
- Publications unrelated to sports dentistry, nutrition, or health education in athletic settings.
- Studies with outdated methodologies or lacking relevance to modern sports health practices.

RESULTS

The results of this study provide valuable insights into the integration of innovative dental care into sports and physical health education programs. A combination of systematic literature review, comparative analysis, and evaluation of existing models yielded the following key findings.

Literature Overview

Based on inclusion criteria, we selected a total of 20 peer-reviewed articles that focused on dental care in sports and physical health education. These articles revealed:

- Publication Trends: a steady increase in research on interdisciplinary approaches involving oral health, sports, and physical health education, particularly in the last five years.
- Geographical Focus: research from developing countries is lacking, with the majority of studies taking place in North America and Europe.

Table 1. Distribution of Articles review

Key Metrics	Statistics
Total Articles screened	58
Articles Selected for Analysis	20
Geographical Focus	North America (40 %), Europe (35 %)

Impact of Dental Care on Sports Performance

- Qualitative Findings: studies emphasized the correlation between oral health and athletic performance. Researchers linked poor oral health, such as untreated caries and periodontal diseases, to decreased stamina and increased susceptibility to sports-related injuries.
- Quantitative Findings:
  - 65 % of athletes with improved oral health reported enhanced performance.
  - Programs incorporating regular oral health check-ups reduced injury rates by 30 %.

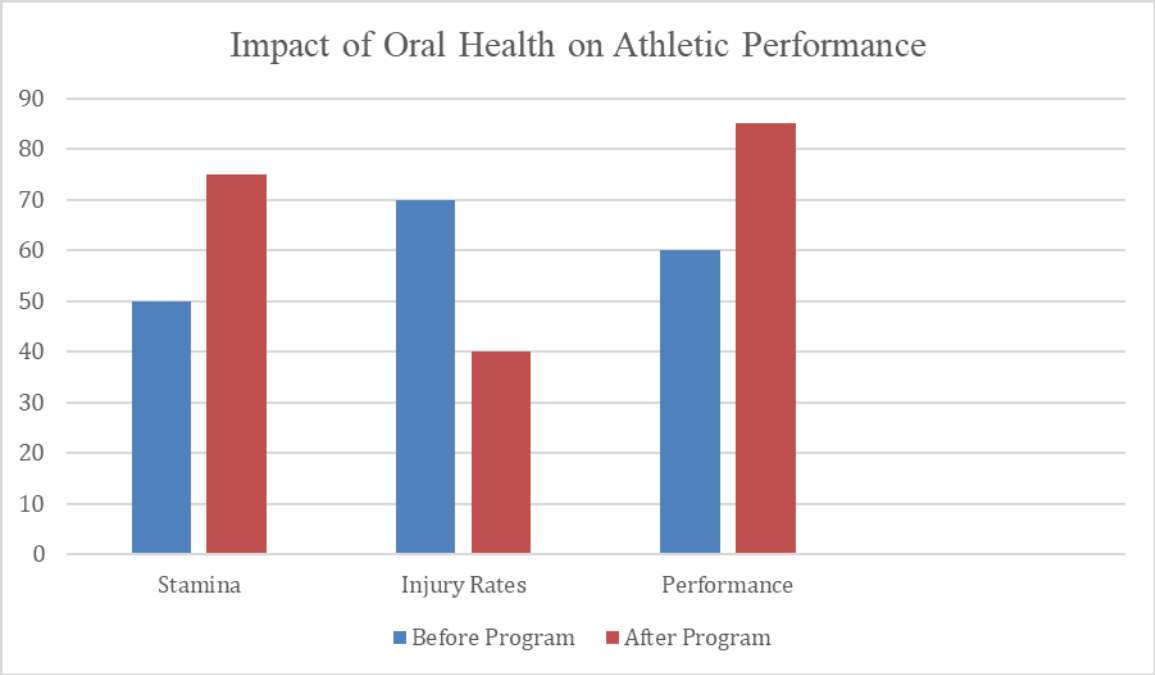

Figure 1. Impact of Oral Health on Athletic Performance

Figure 1 shows the bar chart illustrating the impact of oral health on athletic performance. It compares key metrics—stamina, injury rates, and overall performance—before and after implementing oral health programs among athletes. The results show before the program and after the program, as indicated above in stamina before outcomes indicated 50, while after the program, 75, meaning in the Stamina program, it's higher after the program. When we look at injury rates, we see a higher rate of 70 before the program and a lower rate of 40 after. In performance, it's lower before the program with 60; after the program, it is 83 higher.

Educational Initiatives in Oral Health

Educational programs focusing on oral health awareness showed significant positive outcomes:

- Increased awareness of dental issues among participants (85 %).
- Behavioral changes, such as the adoption of better oral hygiene practices (70 %).
- Athletes regular visit to dental clinic (65 %)

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Table 2. Educational Program Outcomes

Metrics	Before Program	After Program
Oral Hygiene Practices (%)	30	70
Awareness of Dental Issues (%)	35	65
Regular Dental Visits (%)	35	65

Table 2 above shows the educational program outcomes of athletes in terms of oral hygiene practices with results after the program of 70 %, which is higher than before the program of 30 %. In terms of athletes' awareness of dental-related issues, it shows that after the program, their awareness is increased by 65 % greater than before the program, with 35 %. After the program, athletes increased their regular visits to the dental clinic by 65 %, compared to 35 % before the program. The results revealed that after the educational program, athletes' outcomes increased. This indicates that athletes gain significant knowledge from the programs they participate in.

Evaluation of Integration Model Effectiveness

Existing models integrating dental care into sports and education programs revealed:

- Effective Practices:
  - Mobile dental clinics offering on-site care during sports events.
  - Partnerships between dental professionals and sports coaches.
- Challenges:
  - Logistical barriers in program implementation.
  - Limited awareness among stakeholders about the significance of oral health.

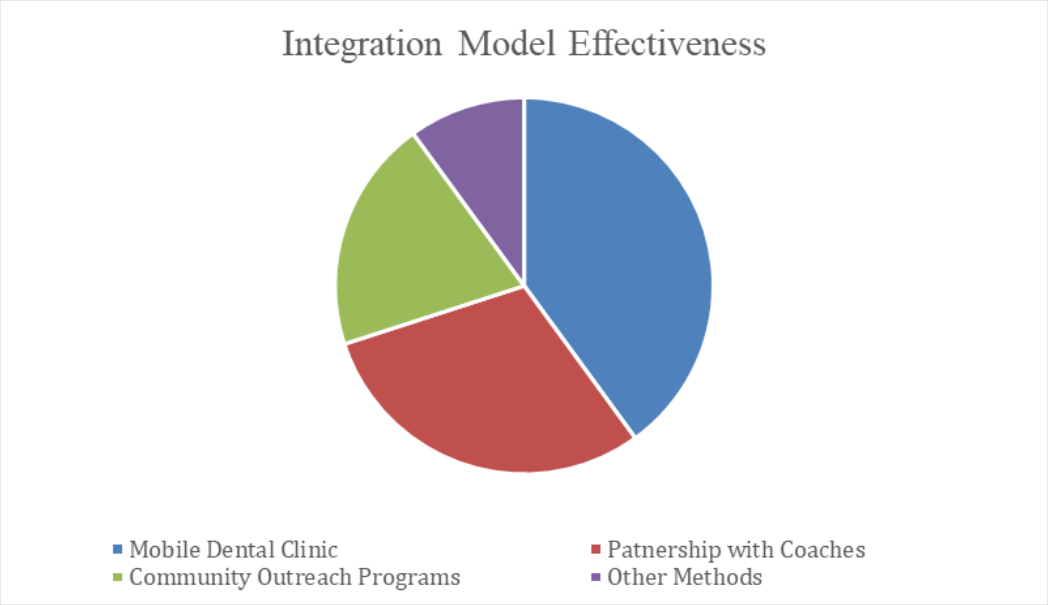

Figure 2. Integration Model Effectiveness

Figure 2 shows the success rates of various integration models used to combine dental care with sports and health education programs. Each segment of the chart represents a specific model's contribution to successful implementation, such as mobile dental clinics: The chart displays a 40 % contribution from partnerships between dental professionals and sports coaches, 30 % from community outreach programs, and 20 % from other sources such as technological platforms.

This distribution highlights which strategies are most effective, guiding future program implementations.

DISCUSSION

The Oral-systemic health connection

The relationship between oral health and overall systemic health is well-established, with growing evidence linking oral diseases to a wide range of systemic conditions. The World Health Organization (WHO) says that oral diseases like periodontal disease and dental caries that aren't treated can lead to systemic inflammation, which is linked to long-term illnesses like diabetes, heart disease, and respiratory infections.[31,3] Studies show that periodontal pathogens can enter the bloodstream, triggering inflammatory responses that exacerbate systemic diseases.[32,33]

In individuals with diabetes, poor glycemic control is both a cause and consequence of periodontal disease, creating a bidirectional relationship.[34,35] Furthermore, research demonstrates that oral infections can impact athletes' performance outcomes,[36] including their confidence, smiling faces, and general health conditions.[37] By prioritizing oral health as part of a holistic approach to wellness, healthcare systems can mitigate the burden of chronic diseases while promoting overall health.[38,39] The data emphasizes the importance of incorporating oral health into healthcare plans, as poor oral hygiene can worsen long-term illnesses like diabetes and heart disease. Athletes need optimal oral health for overall health and performance. Healthcare systems should prioritize oral health promotion and preventative measures to reduce chronic diseases and improve quality of life.

Customized Dental Solutions for Athletes

Because of their physically demanding lifestyles, athletes need specific dental care.[40] Because high-impact sports raise the risk of oral injuries, wearing specialized protection gear is necessary for those engaged in combat sports like basketball, boxing, kickboxing, and wrestling.[41,42,43] According to[44], sports-specific mouthguards are essential for preventing severe oral injuries such as fractures, avulsions, and concussions. In addition to protecting teeth, properly fitted mouthguards lower the chance of jaw injuries and lessen impact-related concussions.[45] Athletes may also benefit from specialized treatment programs that focus on oral diseases connected to dehydration, bruxism, and temporomandibular joint disorders (TMD).[46] Frequent dental examinations assist in recognizing and treating these issues to guarantee optimal function and long-term oral health.[17] The study highlights the importance of sports-specific dental care for athletes' overall health and performance. Athletes are more susceptible to traumatic injuries, dehydration-related oral diseases, and bruxism due to their constant movement. Specialized mouthguards are crucial in high-impact sports to prevent severe dental injuries and maintain jaw stability. Regular dental check-ups and sports dentistry programs focusing on hydration strategies, TMD management, and injury prevention can significantly improve oral health and athletic performance. Healthcare professionals, coaches, and sports organizations should prioritize oral health as a key component of athletic well-being, advocating for preventive measures, regular screenings, and the widespread use of protective gear.

Figure 3. Customise dental mouth guard

Preventive Dental Care in Sports and Physical health/Fitness

Preventive dental care should be an integral part of an athlete's training regimen. Routine dental check-ups and professional cleanings can prevent the development of oral conditions that may affect performance,[47,48,49] reveal that teaching athletes and coaches about the importance of good oral hygiene, fluoride treatments, and early intervention strategies can make them more aware of and likely to follow preventative care measures for sports injuries. Incorporating dental screenings into pre-season health evaluations ensures the detection and management of oral health issues before they escalate.[50,17] A proactive approach minimizes disruptions to training and competition schedules while promoting a holistic view of athlete well-being. The study highlights the importance of sports-specific dental care for athletes' overall health and performance. Athletes are more susceptible to traumatic injuries, dehydration-related oral diseases, and bruxism due to their constant movement. Specialized mouthguards are crucial in high-impact sports to prevent severe dental injuries and maintain jaw stability. Regular dental check-ups and sports dentistry programs focusing on hydration strategies, TMD management, and injury prevention can significantly improve oral health and athletic performance.

Healthcare professionals, coaches, and sports organizations should prioritize oral health as a key component of athletic well-being, advocating for preventive measures, regular screenings, and the widespread use of protective gear.

Nutrition and Dental Health for Peak Performance

The impact of diet on oral and physical health as a holistic approach for athletes is important to look into. Diet plays a crucial role in maintaining both oral and physical health, especially for athletes whose nutritional choices directly affect their performance and overall well-being.[51] Carbohydrate-rich diets and frequent consumption of acidic sports drinks can increase the risk of dental caries and erosion.[52] Studies also show that *eating a lot of sugar makes oral bacteria like Streptococcus mutans grow faster, which leads to more acid being made and enamel losing its minerals.*[53]

To mitigate these risks, ensuring a balanced diet rich in calcium, vitamin D, and other essential nutrients supports the development of strong teeth and bones while enhancing physical endurance.[54] Collaboration between dental professionals and sports nutritionists can improve dietary strategies,[55,56] including the promotion of water and saliva-stimulating fibrous foods over sugary sports drinks.[57] These adjustments not only reduce the risk of dental issues but also optimize athletes' energy levels and recovery. The study emphasizes the importance of diet in maintaining oral and physical health, especially for athletes. The consumption of carbohydrate-rich and acidic foods, such as sports drinks and energy bars, can lead to dental caries and enamel erosion. A holistic approach to nutrition, rich in calcium, vitamin D, and essential nutrients, is crucial for maintaining teeth, bones, muscle function, endurance, and injury prevention. Strategic dietary modifications, such as promoting water and fibrous foods over sugar-laden sports drinks, can enhance oral health and physical recovery. Collaboration between sports nutritionists and dental professionals is recommended to develop athlete-specific dietary strategies. Teaching athletes about long-term effects of food and encouraging preventative oral health steps can improve overall health, longevity, and athletic success.

Figure 4. Best foods for a healthy tooth for athletes

Injury Management and Dental Rehabilitation

Dental trauma is a common occurrence in contact sports, like boxing, kickboxing, wrestling, judo, etc., and high-impact injury activities.[58] Timely intervention in cases of dental injuries, such as avulsed teeth, fractures, or soft tissue damage, is crucial for successful rehabilitation for athletes.[59] Immediate on-field dental first aid, coupled with follow-up restorative procedures, ensures that athletes recover swiftly without long-term consequences.

Integrating dental expertise into broader sports medicine teams enhances the management of injuries, facilitating comprehensive care. Rehabilitation protocols should include dental assessments, ensuring that oral health is not neglected in the overall recovery process.[60] Dental trauma in contact sports is a significant concern, necessitating specialized care and injury management in sports medicine. Quick intervention and rehabilitation protocols are crucial to prevent long-term complications affecting an athlete's performance and well-being. Immediate on-field dental first aid, follow-up restorative procedures, and collaboration between sports physicians, physiotherapists, and dental specialists are essential. This holistic approach minimizes oral health-related performance setbacks, allowing athletes to recover swiftly and return to peak performance without complications. Preventive strategies like custom-fitted mouthguards, routine dental screenings, and athlete-specific education on emergency dental care should be emphasized. By incorporating dental health into sports medicine, the chance of oral problems caused by trauma can be greatly decreased. This will improve the long-term health, safety, and performance of athletes in contact sports.

Dental Screenings and Assessments in Sports Programs

Routine dental screenings should be a standard component of athletic health evaluations. Identifying

potential oral health concerns early enables timely interventions that prevent disruptions to performance.[61] Screening programs can assess risk factors for caries, periodontal disease, and malocclusions that may impact breathing and endurance.[62]

Implementing oral health assessments as part of pre-season medical evaluations ensures that dental care is seamlessly integrated into overall athlete wellness programs. This proactive approach minimizes performance-related setbacks due to undiagnosed dental conditions. Regular dental screenings are essential for athletes' overall well-being and performance. They help identify and address oral health issues early, preventing issues that could affect breathing, endurance, and physical performance. Untreated periodontal infections can cause inflammation, while malocclusions can affect oxygen intake and duration. Dental pain can also cause discomfort and concentration issues, hindering focus and game-time performance. Integrating dental assessments into pre-season medical evaluations helps sports organizations identify and address dental concerns before they become performance-limiting factors. This proactive approach reduces emergency dental issues during training and competitions, ensuring athletes maintain consistent physical and mental readiness. Collaboration between dentists, sports physicians, and nutritionists can enhance individualized treatment plans, ensuring targeted interventions for both oral and systemic health.

Figure 5. Oral screening and assessment for student athletes

Interprofessional Collaboration: Dental, Sports, and Health Educators

Effective collaboration among dental professionals, sports physicians, and health educators fosters a multidisciplinary approach to athlete care.[63] Coordinated efforts can lead to the development of holistic wellness programs that address both oral and systemic health.[64]

Workshops, educational seminars, and interdisciplinary research initiatives can further bridge the gap between dentistry and sports medicine. By working together, these professionals can create evidence-based guidelines for optimal oral health practices in sports settings. A multidisciplinary approach to athlete care is crucial for maintaining optimal performance and long-term health. This involves dental practitioners, sports physicians, and health educators working together to develop preventive and treatment techniques. This approach creates comprehensive wellness programs tailored to athletes' physiological and lifestyle requirements. Sports physicians offer insights into general physical health and injury rehabilitation, while dentists offer knowledge of dental disease care and injury prevention. Health educators raise awareness of the connection between oral health and systemic illnesses. Proactive strategies like workshops, instructional seminars, and multidisciplinary research projects promote best practices in oral health and injury prevention. This collaborative strategy ensures dental health is a cornerstone of athlete care, improving performance and overall health.

Cultivating a Culture of Oral Health in Sports and Education

Promoting oral health awareness within athletic and academic settings is essential for long-term behavioral change. Integrating oral health education into school curricula, sports academies, and training programs empowers athletes and students to prioritize dental care.[17,65] Encouraging the adoption of good oral hygiene habits, routine dental visits, and injury prevention strategies can have a lasting impact on an individual's overall well-being.[61,37] Coaches, parents, and educators play a crucial role in reinforcing these messages, ensuring that oral health becomes an integral part of sports and health education programs.[66] It is important

to emphasize the importance of oral health awareness in athletic and academic settings. Integrating oral health education into these environments can significantly improve long-term health outcomes. As[47] points out, raising awareness is a key step in promoting better oral health practices. Many studies focus on students, like the one mentioned in[17], which investigated oral hygiene practices among elementary pupils,[39] also emphasize the need for health promotion and disease prevention interventions to optimize athletic performance, highlighting the connection between oral health and overall well-being. By educating athletes, students, coaches, parents, and educators, we can create a supportive environment that encourages positive oral health behaviors.

Figure 6. Showing Interprofessional Collaboration

Limitations of the Study

The study explores the link between oral health and systemic health in athletes, but has limitations such as lack of empirical data, generalization to all athletes, lack of long-term effects, lack of focus on preventive measures, insufficient discussion of psychological factors, and lack of comparison between athletes and non-athletes. Improving assumptions about diet and hydration could enhance the study's findings.

CONCLUSIONS

This study highlights the importance of oral health in athletic populations, as poor oral health can lead to chronic conditions like diabetes, cardiovascular diseases, and respiratory infections. It emphasizes the need for integrated oral health strategies in healthcare and wellness programs to mitigate long-term health risks.

Athletes face unique oral health challenges due to their physically demanding lifestyles, such as contact sports, dehydration, bruxism, and temporomandibular joint disorders (TMD). Customized dental care solutions, such as sports-specific mouthguards and dental strategies, are needed to address these risks. Regular dental assessments and treatments can help prevent oral health-related disruptions in sports.

Nutrition plays a crucial role in maintaining oral health and athletic performance. Carbohydrate-rich diets and acidic sports drinks contribute to enamel erosion and dental caries. A balanced diet, high in calcium and vitamin D, is essential for maintaining strong teeth and bones while reducing injury risk. Collaboration between sports nutritionists and dental professionals can develop dietary strategies that promote optimal performance while safeguarding oral health.

Effective injury management and dental rehabilitation are critical for long-term athletic participation. A multidisciplinary approach involving dental professionals, sports physicians, and health educators is essential for fostering a culture of oral health awareness. Educational initiatives, workshops, and research collaborations can bridge the gap between dentistry and sports medicine, leading to evidence-based guidelines that optimize athlete care.

Cultivating a culture of oral health awareness within sports and academic settings is key to achieving long-term behavioral change. By integrating oral health education into school curricula, sports training programs, and coaching strategies, long-lasting changes can be made that improve overall health, boost athletic performance, and lower the number of preventable oral diseases. This research underscores the need for interdisciplinary collaboration and innovative strategies to embed oral health into sports and education curricula. By fostering a culture of proactive dental care, institutions can enhance athletic performance and contribute to public health advancements.

RECOMMENDATIONS

Stakeholders may address the particular oral health requirements of athletes and advance a holistic well-being culture in both sports and education by putting these recommendations into practice.

1. Integrate Oral Health into Sports Programs Incorporate routine dental screenings, oral health assessments, and injury prevention strategies as part of pre-season and ongoing medical evaluations for athletes.
2. Promote Preventive Dental Care Encourage routine dental check-ups, professional cleanings, and the use of fluoride treatments to prevent oral diseases and mitigate their impact on systemic health and athletic performance.
3. Develop Tailored Nutritional Plans Collaborate with sports nutritionists to promote balanced diets rich in calcium, vitamin D, and fibrous foods, while minimizing sugary and acidic beverages that contribute to dental erosion and caries.
4. Provide Custom-Made Mouthguards Equip athletes with sport-specific, custom-made mouthguards to prevent oral injuries and reduce the risk of concussions during high-impact activities.
5. Enhance Interprofessional Collaboration Foster partnerships among dental professionals, sports physicians, health educators, and coaches to create comprehensive wellness programs that address both oral and systemic health.
6. Raise Awareness in Athletic and Academic Settings Introduce oral health education into school curricula, sports academies, and training programs to cultivate long-term habits of proper oral hygiene and preventive care.
7. Establish Research and Educational Initiatives Conduct interdisciplinary research and workshops to generate evidence-based guidelines for oral health practices in sports, ensuring athletes receive the best care.

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