

Do Third Molar Issues Exist Among Athletes? – A Scoping Review

Review Article

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Abstract

Objective: Oral health can impact systemic health and alter quality of life. Third molars are commonly overlooked in dental screenings and exhibit an extremely high rate of odontogenic infection. Within various levels of athletics, for example, dental screenings are not included within pre-participation physicals due to lack of dental access, timing and /or lack of education. Thus, third molar assessments are non-existent. This comprehensive search of the literature aims to identify issues concerning third molars in athletes, regarding pain, performance, time lost, and infection.

Experimental Method: A comprehensive search of literature was initially conducted using three databases (PubMed, SCOPUS, Web of Science) to identify peer-reviewed studies related to third molar issues in athletes. This initial search yielded zero relevant results. A second search was then conducted using Nexis Uni into the archives of several prominent newspaper publications. Articles collected in this search were then screened using predefined eligibility criteria. A Prisma Flowchart was completed. Chi-squared analysis was used.

Results: The sample size was 57 documents. Results paired associations between issues of pain, performance, time lost, and infection with the six categories of ethnicity, gender, age ranges, sport, sport division, and sport grade. 24 pairings were analyzed using chi-squared statistics. No significance between pairings were established, however, third molar tooth problems were identified and noted in all established pairings.

Conclusion: Attention to detail must be paid when treating and managing athletes because any athlete, in any sport, at any time can have the potential to experience third molar issues which may include Pain, Performance, Time Lost, and Infection. These six pairings underscore the importance of incorporating dental screening examinations into athletic pre-participation physicals to address potential issues with third molars and their impact on an athletes' overall well-being.

Keywords: Third Molar, Athlete, Pain, Performance, Time Lost, Infection, Dental Sports Medicine, Sports Dentistry

Introduction

The World Health Organization (WHO) constitution defines systemic health to include one's physical, social, and mental well-being¹. The WHO also identifies that these health entities are necessary to extend to everyone in order to have the fullest attainment of health [1]. The oral cavity is connected to systemic health and can have severe implications to daily life should neglect happen. Pain, caries odontogenic infections, swelling, periodontal bone loss, and muscle trismus, are some of the resulting issues that can happen with poor oral hygiene². Sometimes, life threatening complications can arise as well

with airway and circulatory collapse [2]. Routine dental appointments and patient education can help prevent severe complications.

Odontogenic infections can cause debilitating pain. Although it can start from a small periapical infection, as an infection spreads, it can infiltrate into various fascial spaces. Infections originating in the third molar region are the most common type [3]. It has also been identified that many dental abscesses and infections occur when healthy oral microflora enter normally sterile tissues. This is a common issue with the development of pericoronitis where bacteria and food can get trapped around partially erupted third molars and gingiva. As pre-



viously noted, swelling can infiltrate various fascial spaces and cause mediastinitis, pericarditis, meningitis, septic shock, airway compromise, jugular vein thrombosis and arterial erosion [4]. These life-threatening conditions commonly occur due to the location of mandibular third molars near the retropharyngeal space that extends to the heart. When odontogenic infection distends tissues, secondary to infection from a pulpal or periodontal origin occurs, thus allowing discharge to proliferate [4].

Due to the lack of parental education, many children, who are enrolled in school, have missed school due to various dental related issues that are most related with dental caries⁵. However, third molar issues emerge as the most common dental problem during college and later in life⁵. Paula et al. identified that many parents, teachers and self-reporting students have stated that students have suffered academically, socially and even economically from missing school due to dental related issues⁵. Since third molars erupt around ages 17–25, grade school children are not commonly seen with third molar impaction issues and more commonly seen with caries as the primary dental issue [5].

Halasa-Rappel et al. identified that poor oral health can be associated with lower employment rates and having difficulty in obtaining a job [6]. Contributing to the employment and oral health issue, Kelekar and Naavaal identified that annually 328.8 million school or work hours were missed for individuals over 18 years of age due to dental treatment [7]. Within this group, disparities were identified. Hispanic patients did not seek out dental care as much as their White counterparts. Due to inflexibility in work schedule, financial, and planning issues [7], Hispanic patients did not seek as much dental care as White patients. It can be reasonably deduced that in addition to its effect on physical well-being, proper oral hygiene has an emotional, financial, and mental impact. Therefore, evaluating third molar related issues during routine checkups can also impact overall health, performance, and stability.

However, many pre-participation physicals for college and professional athletes do not include dental screenings [8]. Unfortunately, athletes often view pre-participation physicals as their yearly physical examination [8]. Furthermore, reasons for this lack of inclusion of a dental screening examination as part of the pre-participation physicals can be the lack of preventive dental education and athletes lack of availability.

Athlete's use of energy drinks and tobacco can cause an increased risk of developing issues like oral dysfunction, caries, periodontal disorders, and psychological trauma [9]. A study conducted by Wisniewski et al. identified that 68% of baseball players were not aware of their dental problems [8]. Another study by Wisniewski et al. identified a correlation between caries of an extensive nature and the potential loss of playing time [10]. High risk behavior of baseball players has historically included the use of tobacco [10,11]. Now, there is an emergence of e-cigarette usage in baseball [12]. Notably, these two oral habits can lead to an increase of caries, gingival recession, and periodontal problems. Preventive measures can be implemented to protect athletes before pain occurs or playing time is lost [10].

When athletes present with an infection, it makes it very difficult to compete successfully during practice sessions and in games [12]. Many athletes chose to postpone treatment in an attempt to not miss games, but this scenario allows the potential for an infection to develop and spread [7]. Other athletes can be in such unbearable pain that they are forced to withdraw from the sport and end up missing crucial playing time due to the time required for the procedure itself and then for the recovery period [7]. It is imperative that every athlete receive a pre-participation dental screening examination of their oral health so they can be informed and educated about the risks and benefits of certain procedures and how they can optimize their health and playing time.

An initial review on literature shows the lack of focus on the third

molar issues amongst athletes. As the first study of its kind, the purpose of this scoping review is to conduct a comprehensive search of literature to identify issues concerning third molars in athletes, regarding pain, performance, time lost, and infection.

Methods

Search Strategy

This scoping review was conducted in accordance with the PRISMA Extension for Scoping Reviews [11]. The inclusion and exclusion criteria for the study included only articles published after the year 2000, articles which were available in English, and articles that focused on third molar issues in athletes.

An initial comprehensive search of the literature was conducted using three databases (PubMed, SCOPUS, Web of Science) to identify peer-reviewed studies that related to third molar issues in athletes. The search strategy combined keywords and MeSH terms related to third molars and/or Wisdom teeth. For example, the search string included: ("Wisdom Teeth" OR "Wisdom Tooth" OR "Third Molar" OR "Oral Health") AND ("Recovery Time" OR "Time Off" OR "Time-off" OR "Absence") AND ("Athletes" OR "Professional Athletes"). This initial search yielded no results that matched the studies inclusion criteria.

Due to not yielding any results from the initial comprehensive search, a second search had to be conducted. This second search was conducted using Nexis Uni and the archives of several prominent newspapers (New York Times, Los Angeles Times, Salt Lake Tribune). The articles collected in this search were then screened using pre-defined eligibility criteria. Two reviewers independently screened the titles and abstracts of all identified records. Full-text articles were retrieved for those that met the inclusion criteria. References identified had "pain" and "infected" mentioned in the article. The athlete's performance being impacted by third molar problems was self-reported in the secondary article search references. References identified "time loss" referred to the athlete missing games and/or practices due to wisdom tooth problems. Discrepancies between reviewers were resolved through discussion or consultation with a third reviewer.

Data was extracted using a standardized data extraction form. The following information was collected: author(s) and year of publication, country of publication, and key terms related to wisdom teeth issues in athletes. The extracted data was then further expanded to include information about the athletes such as ethnicity, gender, age ranges, sport, sport division, sport grade, and sport type. Only three ethnic groups were observed in the scope of the study. Gender was based on the athlete's identity reported through publications. Sports with three occurrences or greater were in their own category, while "others" included sports variations with single occurrences. High school and college athletes played sports through their institutions, whereas professional athletes were classified by receiving payment for competing. Contact sports is defined as allowing physical contact between players, while non-contact sports do not. Team sports are classified by individuals playing as a group together to win a game or match, whereas individual sports are classified by participants competing on their own.

Statistical Analysis

Statistical analysis was performed using SPSS v29. The chi-square test examined the association between athletes and wisdom teeth issues, with the data being categorical and observations independent. A significance level of $\alpha = 0.05$ was used and associations with p-values < 0.05 were considered statistically significant.

Results

The first search was conducted and yielded zero relevant results. Thus, a second follow-up search was conducted which yielded five hundred and forty results. A final screening of the articles resulted in fifty-seven subjects which were utilized in this study. The most occurrences of third molars issues in groups observed are indicated in Table

1. Among the three ethnic groups compared, Caucasian athletes had the most wisdom tooth issues, accounting for 60% of the studies. 72% of the athletes were males at an age of 26 or older. When comparing key terms selected in this study, “performance affected” had the most occurrences (Table 1), accounting for 96% of the studies included.

This cross-sectional study assessed the relationship between athletes (categorized by ethnicity, gender, age range, sport, division, and grade) and wisdom teeth issues (pain, performance impact, time loss, and infection). A chi-square test was conducted to evaluate associations.

Table 1: Athlete’s demographics and key characteristics occurrences.

Ethnicity	
Caucasian	34 (60%)
African American	21 (37%)
Hispanic	2 (13%)
Gender	
Male	41 (72%)
Female	16 (28%)
Athlete age	
16-21	20 (35%)
22-26	16 (28%)
26+	21 (37%)
Key characteristics	
Pain	32 (56%)
Performance Affected	55 (96%)
Time Loss	46 (81%)
Infection	23 (40%)

Table 2: Demographics in relation to key terms.

		Pain	Performance	Time Loss	Infection
Ethnicity	Caucasian	17 (50%)	33 (97%)	26 (76%)	13 (38%)
	African American	13 (62%)	20 (95%)	18 (86%)	10 (48%)
	Hispanic	2 (100%)	2 (100%)	0 (0%)	1 (50%)
	P-value*	0.306	0.904	0.547	0.638
Gender	Females	9 (56%)	16 (100%)	11 (69%)	6 (38%)
	Males	23 (56%)	39 (95%)	35 (85%)	17 (41%)
	P-value*	0.992	0.368	0.153	0.784
Age Ranges	16-21	11 (55%)	20 (100%)	15 (75%)	8 (40%)
	22-26	10 (63%)	16 (100%)	14 (88%)	3 (19%)
	26+	11 (52%)	19 (90%)	17 (81%)	12 (57%)
	P-value*	0.821	0.169	0.64	0.062

Table 3: Sport, sport division, sport grade, and sport type in relation to key terms.

		Pain	Performance	Time Loss	Infection
Sport	Track & Field	4 (40%)	9 (90%)	7 (70%)	5 (50%)
	Swim	5 (50%)	10 (100%)	8 (80%)	4 (40%)
	Baseball	3 (60%)	5 (100%)	4 (80%)	1 (20%)
	Basketball	10 (63%)	15 (94%)	13 (81%)	7 (43%)
	Other	10 (63%)	16 (100%)	14 (88%)	6 (38%)
	P-value*	0.8	0.842	0.963	0.533
Sport Division	High school	1 (50%)	2 (100%)	1 (50%)	0 (0%)
	College	5 (71%)	7 (100%)	4 (57%)	1 (14%)
	Professional	22 (52%)	40 (95%)	36 (86%)	20 (48%)
	P-value*	0.752	0.864	0.221	0.224
Sport Grade	Contact	18 (64%)	27 (96%)	24 (86%)	11 (39%)
	Non-Contact	14 (48%)	1 (3%)	22 (76%)	12 (41%)
	P-value*	0.223	0.98	0.346	0.872
Sport Type	Team	14 (61%)	22 (96%)	19 (83%)	13 (79%)
	Individual	18 (53%)	33 (97%)	27 (43%)	21 (38%)
	P-value*	0.223	0.98	0.346	0.872

Table 4: Key findings from the review of included article.

Author	Year	Study Location	Athlete's wisdom tooth related to pain, performance, time loss and/or infection
The Sunday Post	2023	England	Scotland Rugby players often suffer from poor oral health, which can harm performance. Dental issues like abscesses, gum disease, and infections lower immunity. Integrating sports dentistry improves health, strength, and overall athletic performance.
CE Noticias Financieras English	2024	Mexico	Olympic sprinter Marcell Jacobs had a wisdom tooth removed after his trainer noticed a leg imbalance. The extraction improved stride symmetry by correcting jaw misalignment affecting his whole body.
PR Newswire Europe	2019	Europe	Sports stress, sugary diets, and lack of protection raise athletes' risk for dental issues. Poor oral health causes pain, infections, and inflammation, severely impacting performance, well-being, and even competition readiness.
States News Service	2019	USA	Dental emergencies like abscesses, infections, or wisdom tooth eruptions before competitions can hinder performance or sideline athletes entirely, highlighting the critical role of oral health in athletic success.
ETX Daily Up	2015	France	Wisdom tooth infections can severely affect athletes, even sidelining them. Despite this, few clubs employ staff dentists. Studies show nearly 40% of UK footballers have dental issues impacting performance.
The Hamilton Spectator	2023	Canada	While recovering from gum surgery and a broken arm, he noticed persistent leg pain weeks after his last fight. Despite walking on it, the increasing discomfort suggested a deeper injury.
China Daily	2015	China	Despite high earnings, many soccer players have worse oral health than peers. Deep decay, infections, and wisdom tooth issues are common, with some reporting pain, reduced quality of life, and impaired performance.

The Times	2013	UK	Sprinter Jim Hines faced a painful wisdom tooth removal before the 1968 Olympics, delaying his trip..
The Daily Telegraph	2005	Australia	Matt Murphy, recovering from wisdom teeth removal, lost strength but sees Mexico as a stepping stone to peak fitness for the World Triathlon Championships in Japan.
Bild Bundesausgabe	2022	Germany	Wellbrock's wisdom tooth extraction forced a 10-day training halt, negatively impacting his preparation before the world championship.
The Elkhart Truth	2018	USA	Buckley had four wisdom teeth removed and was sidelined from sports for a week, causing her to struggle with the unexpected break from athletic activities this summer.
The Australian	2000	Australia	Despite top ranking, Carroll's Olympic team selection is doubtful due to poor recent marathon results, illness, and an infected wisdom tooth affecting performance and participation in key qualifying races.
The Daily Telegraph	2003	Australia	Giaan Rooney, 20, no longer has her wisdom teeth and is laid up in bed citing fatigue and illness, and looks like missing the Barcelona world championships in August. All smiles, but things just aren't going swimmingly
The Times	2017	UK	Chiropractor Meersseman claims removing Seedorf's wisdom teeth instantly cured his chronic groin pain, enabling the footballer to recover and revive his career after 18 months of suffering.
Herald Sun	2000	Australia	World champion Grant Hackett will have four wisdom teeth removed, pausing swimming for three days to prevent issues before the Sydney Games, despite anticipating some post-surgery discomfort.
Breaking News	2020	Ireland	Wisdom teeth removal recovery varies from two days to two weeks, potentially sidelining players mid-season; thus, teams prefer addressing such issues during the offseason to avoid performance disruption.
Ottawa Citizen	2000	Canada	Arsenal captain Tony Adams and player Colin Cameron had persistent groin and pelvic injuries linked to defective wisdom teeth; removal reportedly improved posture and resolved their chronic issues.
National Post	2014	Canada	An abscessed wisdom tooth severely impacted British rower Alan Campbell's 2008 Olympic preparation, causing infection and surgery, illustrating common dental risks for young athletes with demanding travel and training schedules.
The Valley News-Dispatch	2007	USA	Williams missed most of last season due to wisdom teeth removal, affecting performance; he believes he could have achieved more if he had competed the previous year.
The Canadian Press	2017	Canada	Correa had four wisdom teeth removed, causing swelling and pain, forcing him to avoid baseball activities for 3–5 days, delaying spring training preparation but preventing mid-season complications.
The Australian	2007	Australia	Due to drug restrictions, Monk experienced significant pain during wisdom tooth extraction, followed by a 10-day soft diet; recent minor surgeries among top athletes aim to remove obstacles before the Olympic year.

USA Today	2001	USA	Misses: Physical problems. First brittle hands were a concern and now four pulled wisdom teeth have delayed the October fight with solid challenger Jesus Chavez.
BBC News	2013	UK	An athlete withdrew due to worsening symptoms affecting performance and others, expressing regret but recognizing the necessity of the decision to prioritize health and recovery.
AAP Newsfeed	2011	Canada	Madison Browne withdrew from the Melbourne Vixens due to wisdom teeth issues, impacting team dynamics as they prepare for tough competition against rising athletes like Romelda Aitken and Jhaniele Fowler.
Belfast Telegraph	2014	Ireland	McIlroy withdrew from a tournament due to severe wisdom tooth pain, initially citing mental distress but later clarifying the physical cause behind his early exit.
The Courier Mail	2000	Australia	Nickey Carroll was recovering at home in Brisbane after having three wisdom teeth removed, experiencing soreness during the recovery period.
The Vancouver Province	2013	Canada	After emergency wisdom teeth surgery, Lawrie promptly led youth clinics, demonstrating exceptional dedication by continuing her coaching duties despite recent surgery recovery.
The Associated Press State	2008	USA	Laura Roesler resumed normal teenage activities, including a part-time job and wisdom teeth removal, after returning home from her Olympic bid.
The Courier Mail	2000	Australia	With her system poisoned by an infected wisdom tooth, she failed to make the final of the 800m in which she had been expected to strongly challenge for the gold medal. Outback spirit welcomes the flame
Bangor Daily News	2013	USA	McIlroy abruptly withdrew mid-round, initially citing mental distress but later attributing it to wisdom tooth pain, highlighting golf's unpredictability and the physical and psychological pressures players face.
The Associated Press State	2006	USA	Denver missed three key players, including Carmelo Anthony, sidelined for his second consecutive game following wisdom tooth extraction.
Toronto Star	2009	Canada	Seemann endured a challenging season, struggling with swine flu, bronchitis, and complications from wisdom teeth.
The Australian	2013	Australia	After the Olympics, she had tonsils and wisdom teeth removed, took a three-month break, then moved to Melbourne to train under coach Rohan Taylor, leaving her parents and the AIS.
The Australian	2007	Australia	Despite pain from an infected wisdom tooth and antibiotics, McLellan remains determined to compete against the world's fastest sprint hurdler, demonstrating resilience and commitment.
LNP	2010	USA	Diffenderfer, hindered by wisdom teeth removal and pneumonia, had limited practice yet qualified for state events, surprising herself despite ongoing health challenges affecting her performance.

National Post	2007	Canada	After wisdom teeth extraction and a fall causing concussion and injuries, Dickens endured a 10-week recovery, narrowly missing key teams but ultimately regaining confidence and proving his competitive ability.
Herald Sun	2008	Australia	She took 10 weeks off for wisdom teeth recovery and childbirth, confident that dedication and hard work will lead to future success.
Chicago Daily Herald	2018	USA	After wisdom teeth removal and a week's rest, Jack Fredian quickly returned to running, later earning a Division I walk-on spot at Villanova by outperforming recruited athletes.
The Sunday Herald	2013	Scotland	The athlete broke her arm in a training accident, followed by wisdom teeth removal, resulting in a largely lost year of training and competition.
The Associated Press State	2007	USA	The Cavs missed guard Daniel Gibson, sidelined after cyst and wisdom tooth removal on Monday.
The Charleston Gazette-Mail	2003	USA	Howard returned from a two-week break for wisdom teeth removal and quickly advanced to the semifinals, viewing the heavyweight class as the toughest for a state title.
The New York Times	2000	France	His spring was disrupted by a stomach virus, flu, and wisdom tooth issues, causing him to miss numerous races essential for achieving peak Tour performance.
The Canadian Press	2010	Canada	Stephens withdrew from a January fight due to a cut and was previously sidelined following wisdom teeth removal.
Anchorage Daily News	2006	USA	Three weeks before basketball practice, Hearn had wisdom teeth removed, missed open gyms due to illness, and compensated by doing extra running to stay in shape.
Lancaster Newspapers	2005	USA	The athlete was a week behind training due to infection after wisdom teeth removal, though her performance Monday showed no visible signs of the setback.
The Deseret News	2020	USA	LeBlanc faced complications from wisdom teeth removal, including limited mouth opening and dietary restrictions, leading to malnourishment and poor conditioning upon arrival for training.
MediaNet Press Release Wire	2019	Australia	Oral health challenges in athletes extend beyond injuries to include stress-induced dry mouth and teeth grinding, dietary impacts from sugary and acidic supplements, and dental emergencies like abscesses or wisdom tooth issues that may hinder performance or participation.
The Philadelphia Inquirer	2006	USA	Iverson missed the Wachovia Center game due to wisdom tooth surgery.
The Deseret News	2002	USA	Point guard Jamaal Tinsley was sent home from practice due to lingering pain following wisdom tooth extraction the previous day.
Edmonton Journal	2006	Canada	After four wisdom teeth removals disrupted the athlete's spring training with 10 days of pureed food, she acknowledges not yet regaining her pre-surgery skiing performance entering the new World Cup season.

Salt lake Tribune	2016	Australia	Djokovic lost early at the 2007 Paris Masters, citing reduced fitness due to medication following wisdom teeth removal after the Madrid Masters.
Deseret News	2012	USA	Backup point guard Tinsley missed practice and a game due to severe mouth inflammation causing pain and speech difficulty, preventing him from playing.
Deseret News	2007	USA	Williams avoided practice, having not eaten for four days and lacking energy, likely due to complications from wisdom teeth removal.
Deseret News	2012	USA	Tinsley endured three weeks of swelling and pain from a wisdom tooth issue before seeking dental care, managing inflammation while avoiding air drying his tooth socket.
Deseret News	2007	USA	After complications, Williams attended practice in pain but improved by Thursday night, completing a full two-hour session despite initial eating difficulties.
Deseret News	2007	USA	After missing five sessions due to wisdom tooth complications, Williams impressed Jazz coach Sloan in his first practice, showing no signs of absence.
New York Times	2000	France	Last year, illness, wisdom tooth issues, and injuries disrupted Ullrich's training, causing missed races and preventing his participation in the Tour of Germany and the Tour.
United Press International	2013	USA	He regretted withdrawing due to a sore wisdom tooth that impaired concentration, describing it as a "red card" moment, symbolizing a forced exit from competition.
United Press International	2017	USA	Baltimore shortstop Tim Beckham missed his second consecutive game due to removal of an abscessed wisdom tooth.
USA Today	2013	USA	Point guard Brandon Jennings will be sidelined for at least three weeks due to an impacted wisdom tooth and a hairline jawbone fracture.
The Cincinnati Enquirer	2017	USA	Billy Hamilton experienced severe wisdom tooth pain that caused sleeplessness during his team's recent series against the Rays.
LA Times	2006	USA	Miami Heat guard Dwyane Wade missed a game after having two wisdom teeth removed due to persistent pain, following multiple dental visits.
LA Times	2015	USA	A&M coach praised Garrett's toughness, noting he struggled with wisdom teeth removal but managed to practice and contribute as a "game-changer."
LA Times	2017	USA	A Cal State Fullerton pitcher discovered his wisdom teeth removal was linked to elbow tightness, connecting dental issues to his physical condition.
LA Times	2001	USA	Mayweather postponed his Chavez fight by three years due to wisdom teeth removal.
LA Time	2012	USA	Young delayed wisdom tooth extraction to continue playing in playoffs, becoming a key scoring contributor for the Clippers after joining in March.
LA Times	2013	USA	Aldridge was questionable before the game due to pain from wisdom tooth extraction on Sunday.

LA Times	2006	USA	Allen Iverson missed the trip due to an abscessed wisdom tooth, while Chris Webber and Mo Williams were sidelined by a sore back and elbow bruise, respectively.
LA Times	2015	USA	Tomic withdrew from competition due to a bad back and painful wisdom tooth, both negatively impacting his performance.

Discussion

No statistically significant relationships were found between the occurrence of third molar issues and athlete demographics with the key characteristics of the presence of pain, performance impact, time lost, and infections. However, paradoxically, the statement is extremely noteworthy because third molar issues are a common occurrence in all demographics and affect all key characteristics. These findings underscore the importance of incorporating dental screening examinations in pre-participation physicals among athletes to address potential issues with third molars and their impact on athletes' overall well-being.

Overall Effort to Implement Dental Screenings

The importance of dental screenings cannot be underestimated. Implementation of this activity helps establish a “baseline” assessment for an individual that allows for the creation of a treatment plan which will address the issues identified during dental screening examinations and / or the concerns expressed by the athlete during a dental screening examination. Accomplishing these goals will keep the athlete on the field free of distraction in order to optimize performance [8]. Needleman et al examined athletes in the London 2012 Olympics to assess their oral health. Among the 302 athletes, 46.5% were identified to consistently miss periodic check-ups within the past 12 months and 8.7% of the sample size reported that they have never received a dental check-up [9]. In another study, Stamos et al. identified the importance of identifying risk factors for head and neck injuries during athlete evaluation [14]. These factors can be different depending on which sport the athlete participates [12]. Certain contact sports like mixed martial arts and football would have greater risk for head injury and third molar-related issues than a sport like golf [15]. Athletes playing full contact sports may exhibit temporomandibular disorders or may be at risk for condylar fractures [15]. It is noteworthy that these authors identified that the mandible is more prone to fracture when the third molar is in the mesioangular class II position [15].

Stamos et al. have developed a screening tool that can be used by the medical team in conjunction with a dentist to assess an athlete about their dental history, current oral health findings, and musculoskeletal evaluation [14]. It is important to identify that Stamos includes third molars in the evaluation which includes tests like palpation, percussion and pulp vitality [14]. This type of assessment combined with a clinical exam establishes a baseline for an athlete and can assess risk for various procedures like third molar extraction [14]. The evaluation does not do a comprehensive third molar evaluation which may be more imperative for athletes aged [17-] and those who are participating in full contact sports [12]. The evaluation can take into consideration the angulation and impaction of the third molar [14].

Recently the “Wisniewski Pre-Participation Dental Screening and Triaging Form” has been developed [16], in which carious lesions are classified according to the International Caries Detection and Assessment System (ICDAS) [17] and then triaged for treatment in one of the following time-frames: (1) ICDAS-6 = Pre-Season (2) ICDAS-5 = Beginning of the Season (3) ICDAS-4 = Middle of the Season (4) ICDAS-3 = End of the Season or (5) ICDAS-2,1,0 = follow-up but no treatment. Utilization of this form allows for specific types of caries identification and triaging. This pairing will help to minimize loss of

performance and playing time by the athlete as well as decrease the severity and cost of treatment [12].

Lack of Education

Needleman et al reports that about 4% of the total medical cases in the 1992 Barcelona Olympics were due to dental related pain and 18% of the total medical cases of the 2012 Olympics were due to dental pain as well [9]. The authors hypothesize that there could be an educational component that can contribute to this oral health disparity.

Gould et al. created an educational guide for athletic trainers to understand orofacial and dental injuries much more comprehensively (as reference to fractures, avulsions, intrusions, subluxations, and proper mouth guard evaluations [15]). The authors in this study also integrated the athletic trainer as a consultant-like individual since athletic training personnel have primary contact with the athlete in order to establish an emergency action plan, and a comprehensive treatment plan including having knowledge for specialist referrals [18,19].

Performance Affected

During the Rio 2016 Olympics, Kragt et al, have identified that 21.6% of athletes had their third molars removed through a screening assessment prior to the Olympic Games [19]. During the 2016 Olympics, Gould et al, identified that among 4.5% of the total athletes had extensive third molar decay and gingivitis that necessitated multiple extractions. He additionally identified that 27% of athletes stated that oral health problems impacted their quality of life [18].

Assessing athlete's third molars would be more valuable for their overall oral health. In an article that investigated the oral health of the Wales Rugby squad [20], the authors identified a need to evaluate third molars as odontogenic infections can flare up mid-season. Participation in evaluations, such as, would be beneficial for the athlete and allow him or her to be proactive about their health.

The Agence France-Presse in Paris identifies that French athletes avoid seeing a dentist on their own time due to fear and a busy athletic schedule [21]. The athletes lived with a deteriorated quality of life, and were sensitive to various foods and beverages. Therefore, it is imperative that third molar screenings should be conducted prior to the beginning of the sports season in order to identify potential oral health issues. This would allow for timely healthcare to be delivered in order to allow for athletes to have a proper recovery time [21,22]. Bild Bundesausgabe [23] identifies that an athlete needed to have 10 days of rest and could have potentially jeopardized a national championship while Danvers [22] identifies an athlete who stated that “they lost a bit of strength” and it was difficult for them to recuperate and be back to their baseline performance level. The process of tooth extraction and recovery, which can be unpredictable in complex third molar extractions, can incapacitate athletes especially since there are restrictions on athletes taking pain medications due to governing sports bodies [24].

Limitations

The authors initially sought out to identify third molars and their impact on athletes by searching for articles in referred journals containing high-quality search engines (databases) such as Pubmed, Cochrane, and Scopus but did not find any references. As an alternative and second option, this research team utilized Nexus Uni data-

bases. This literature search revealed that there was an extensive correlation between poor oral health (due to caries, periodontal issues, economic and social issues) and problems in daily life, school, athletics, and employment. Additionally, it was noted that third molars and their resulting infections, as well as their caries and systemic issues can also affect athletes.

Wisniewski et al. have identified that a dental screening examination during spring training physicals for professional baseball players was important in identifying restorative needs and active caries [8,12]. Furthermore, Wisniewski et al. developed a “Pre-Participation Dental Screening and Triaging Form” to identify any health risk factors for an athlete to maximize their playing time, optimize their health, and reduce the potential cost of treatment through early detection and treatment of caries [16]. If pre-participation dental screening examinations for restorative treatment are beneficial, then performing a similar type of screening examination and assessment of third molars would be of a benefit for athletes to prevent the occurrence of untimely third molar issues and maximize their playing time.

Future Research

Managing third molars issues can present complex clinical challenges. In athletes, during the season, third molar problems can present an untimely variety of infections and systemic conditions. Assessing and identifying third molars for potential problems during pre-season dental screening examinations allows dental health care professionals to better manage the oral health of the athlete. Thus, athletes can have uninterrupted playing during the season, which ideally leads to a productive career.

This research team proposes using a screening tool for the clinical evaluation of third molars in a similar manner in which Wisniewski et al. developed a dental caries triaging form [16]. The development of a third molar screening tool can provide for an in-depth examination of an athlete's medical and dental histories, as well as a clinical evaluation for the third molars. These aspects should include positioning, caries identification, and condition of the surrounding gingival tissue. The evaluation form should be designed for simple use in a non-dental setting, such as, an athletic training room or medical office.

Conclusion

This scoping review identified that athletes present with dental caries and periodontal disease, in addition to third molars issues. Literature advocates that athletes need to be educated and be made aware of their oral health conditions [18].

Implementing a pre-participation dental screening program establishes a holistic evaluation of each athlete. An efficient method for assessing and triaging third molars for extraction needs to be developed. Notably, there is primary importance to evaluate third molars among athletes, especially those participating in sports that have a high risk for orofacial trauma [14,16].

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References

1. World Health Organization (n.d.). Constitution of the World Health Organization. World Health Organization.
2. Neal TW, Schlieve T (2022) Complications of Severe Odontogenic Infections: A Review. *Biology* 11(12): 1784.

3. Bahl R, Sandhu S, Singh K, Sahai N, Gupta M (2014) Odontogenic infections: Microbiology and management. *Contemporary Clinical Dentistry* 5(3): 307-311.
4. Gaddipati R (2021) Fascial Space Infections. In: Bonanthaya, K., Panneerselvam E, Manuel S, Kumar VV, Rai A (Eds) *Oral and Maxillofacial Surgery for the Clinician*. Springer, Singapore.
5. Paula JS, Mialhe FL (2013) Impact of oral health conditions on school performance and Lost School Days by children and adolescents: What are the actual pieces of evidence? *Brazilian Journal of Oral Sciences* 12(3): 189-198.
6. Halasa-Rappel YA, Tschampl CA, Foley M, Dellapenna M, Shepard DS (2019) Broken smiles: The impact of untreated dental caries and missing anterior teeth on employment. *Journal of Public Health Dentistry* 79(3): 231–237.
7. Kelekar U, Naavaal S (2018) Hours lost to planned and unplanned dental visits among us adults. *Preventing Chronic Disease*, 15.
8. Wisniewski JF, Kinney R, Stewart B (2022) Pre-participation Dental Screening Examinations: Athletes' Misconceptions concerning Restorative Needs. *International Journal on Oral Health* 2(2).
9. Needleman I, Ashley P, Petrie A, Fortune F, Turner W, et al. (2013) Oral Health and impact on performance of athletes participating in the London 2012 Olympic Games: A cross-sectional study. *British Journal of Sports Medicine* 47(16): 1054-1058.
10. Wisniewski JF (2008) Personal report and communication to Tampa Bay Ray's baseball organization.
11. Ayouty N, Curcio BF, Bartlett D, Nguyen V, Awan KH, Hegde R, Wisniewski JF (2018) E-cigarette use among professional baseball players. *Public Health. Abstract #49*. In: 4th Annual Research Symposium – Roseman University of Health Sciences Abstract Book; South Jordan, UT.
12. Wisniewski JF, Norooz S, Cheever VJ, Moffat RC (2022) Dental Screening Examinations for Professional Baseball Players: Preventing Potential Loss of Athlete Playing Time. *Journal of Dental Reports* 3(1): 1-11.
13. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, et al. (2018) Prisma extension for scoping reviews (PRISMA-SCR): Checklist and explanation. *Annals of Internal Medicine* 169(7): 467-473.
14. Stamos A, Engels-Deutsch M, Cantamessa S, Darteville J, Crouzette T, et al. (2023) A suggested Universal Protocol for Dental Examination in sports. *Dental Traumatology* 39(6): 521-530.
15. Cota RE, Goto A (2019) Mandibular angle fracture with presence of third molar included: Muay Thai professional fighter. *International Journal of Oral and Maxillofacial Surgery* 48: 196.
16. Wisniewski JF, Stewart B, Kinney R (2025) Development of A “Pre-Participation Dental Screening and Triaging Form” For Athletes. *International Journal on Oral Health* 5(1).
17. Young DA, Nový BB, Zeller GG, Hale R, Hart TC, et al. (2015) The American Dental Association Caries Classification System for clinical practice: a report of the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc* Feb 146(2): 79-86.
18. Gould TE, Piland SG, Caswell SV, Ranalli D, Mills S, et al. (2016) National Athletic Trainers' Association position statement: Preventing and managing sport-related dental and oral injuries. *Journal of Athletic Training* 51(10): 821-839.
19. Kragt L, Moen MH, Van Den Hoogenband CR, Wolvius EB (2018) Oral health among Dutch elite athletes prior to Rio 2016. *The Physician and Sportsmedicine* 47(2): 182-188.
20. Laura Smith (2023) Tooth of the matter: Good dental health helps athletes stay at the top of their game; Dentist reveals key work with Scotland rugby squad. *The Sunday Post*.
21. Agence France-Presse in Paris (2015) Big toothache on British pitches. *China Daily*.
22. Greg Danvers (2005) National honours beckon for Matt. *The Daily Telegraph* (Sydney, Australia) (Sydney, Australia).



23. (2022) BLACK RED PRIDE. Bild Bundesausgabe translated into English.
24. Nicole Jeffery (2007) Manaudou revival true test for Barratt. The Australian (Australia).