

Professional Baseball Players' Knowledge and Attitudes about the Dental Screening Component of Spring Training Physicals

Research Article

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Abstract

Objectives: Professional athletes have a high prevalence of dental pathology, a low rate of routine dental visits, and a poor understanding of how these factors can affect athletic performance. The purpose of this study is to assess perceptions and behaviors of professional baseball players, specifically minor league professional baseball players (MLPB), in taking care of their oral health.

Methods: Spring Training physicals were performed for MLPB players; a dental screening examination component was included. Following the dental screening, each MLPB player was asked to complete a 9-question survey anonymously and voluntarily. These questions included: (1) demographics, (2) attitude/history regarding dental exams and cleanings, and (3) the player's perception of the dental screening program. An oral health prevention component was also incorporated, in which MLPB players were given plaque disclosing tablets, educated verbally and provided a written explanation on their purpose and usage. Data were analyzed using descriptive statistics and Chi-square tests.

Results: A total of 80 MLPB players received dental screening examinations and 42 completed the survey. Players completing the survey were equally represented between Hispanic and non-Hispanic. A significant relationship existed between whether the spring training physical was the main dentist visit and the length of time since last dental exam. Whether the spring training physical was the main dentist visit was also significantly associated with the length of time since last dental cleaning. A significant relationship existed between Hispanic players and Non-Hispanic players as to a belief that preventive education was a beneficial part of the pre-participation dental screening examination. Additionally, a significant relationship was found between Hispanic players and Non-Hispanic players as to having received dental disclosing tablets for take home use (a preventive measure) following a pre-participation dental screening examination.

Conclusion: The results of this study suggest that oral health professionals and professional baseball organizations should consider implementing practices whereby they can modify perceptions and activities that contribute to good oral health, especially among Hispanic minor league professional baseball players.

One sentence summary: Oral disease prevention education is important for professional athletes, especially among Hispanic minor league professional baseball players.

Introduction

A consistent theme throughout the sports dentistry literature is that the oral health of elite athletes is poor [1-5]. This is an unexpected finding since these athletes are considered to be at the peak of health and performance, and for the fact that oral diseases are largely preventable. However, some behaviors of athletes (such as using smokeless tobacco, consuming high quantities of sports drinks, energy bars, etc.) could contribute to poor oral health [6].

Additionally, Gallagher et al., found that fewer than half of 344 elite Olympic athletes studied had visited the dentist within the previous 6-month period and almost half of this cohort presented with dental caries [7]. To make matters worse, some elite athletes have been shown to demonstrate low awareness regarding their poor oral health [1].

For professional athletes, any lapse in training due to oral diseases, such as dental caries, that could arise would likely adversely affect their performance in their chosen sport. Evidence exists of the



prevalence of oral health diseases and associated performance impacts in elite athletes [7]. Beset by a high prevalence of dental pathology, a low rate of routine dental visits, and a poor understanding of how these factors can affect athletic performance, professional athletes are an at-risk population for poor oral health outcomes. Additionally, it is well established that in the United States racial and ethnic disparities in oral health exist [8,9]. Racial and ethnic differences also exist in an understanding of the nature and prevention of oral disease [10]. Since many professional baseball players are Hispanic [11], oral health problems are especially challenging for athletes belonging to this ethnic minority [12]. The purpose of this study is to assess perceptions and behaviors of minor league professional baseball (MLPB) players in taking care of their oral health.

Methods

The Minor League Medical Coordinator organized the pre-participation physicals which were conducted in the beginning of Spring Training and at the medical facility of this major league baseball organization. A team of health professional performed the physicals on MLPB players from one major league baseball franchise. Players received this physical via a "station-by-station" format. For example, "eyes," "ears, nose, throat," "upper extremities," "lower extremities," "blood tests," "urinalysis," "EKG," "dental screening examination," etc.

Normally, during the dental screening examination, only clinical dental findings are recorded and no time is allotted for prevention, intervention or oral health education programs. However, for this pre-participation physical, in addition to the standard dental screening, an oral health prevention component was added. MLPB players were given plaque disclosing tablets for at-home use, received verbal instructions and were provided a written explanation on their purpose and usage.

Following the dental screening, each MLPB player was asked to voluntarily and anonymously complete a 9-question survey regarding their dental health. These questions included:

1. What is your Race/Nationality?

Table 1: Chi-square analysis comparing those who reported that this dental exam is their primary visit to the dentist each year versus those who responded that it is not their primary visit.

Do You Consider this Dental Exam during your Spring Training Physical as your "Main" Visit to the Dentist Each Year?"				
	Yes	No	p-value	Correlation Coefficient
	n (Percent)	n (Percent)		
When was the Last Time that you had a Dental Examination?				
More than 1 year	10 (71.4%)	6 (21.4%)	0.002	-0.485**
Less than 1 year	4 (28.6%)	22 (78.6%)		
When was the Last Time that you had a Dental Cleaning?				
More than 1 year	10 (71.4%)	8 (28.6%)	0.008	-0.408**
Less than 1 year	4 (28.6%)	20 (71.4%)		
Before Today's Dental Exam, had you Ever Heard of "Dental Disclosing Tablets" and How to use them?				
Yes	2 (14.3%)	7 (25%)	0.425	-0.123
No	12 (85.7%)	21 (75%)		
Do you Think that using the "Dental Disclosing Tablets" will Help you Brush your Teeth Better?				
Yes	12 (85.7%)	20 (71.4%)	0.306	0.158
No	2 (14.3%)	8 (28.6%)		
Were you Ever given "Dental Disclosing Tablets" to take Home with you during a Sport's Pre-Season Physical Exam?				
Yes	4 (28.6%)	7 (25%)	0.804	0.038
No	10 (71.4%)	21 (75%)		
Do you Feel that Incorporating "Prevention Aspects" into the Spring Training Dental Screening Examination is Beneficial/ Helpful to you?				
Yes	12 (85.7%)	22 (78.6%)	0.578	0.086
No	2 (14.3%)	6 (21.4%)		

**Correlation is significant at the 0.01 level.



2. What is your age?
3. Do you consider this dental exam during your Spring Training physical as your "main" visit to the dentist each year?
4. When was the last time that you had a dental examination?
5. When was the last time that you had a dental cleaning – "had your teeth cleaned?"
6. Before today's dental exam, had you ever heard of "dental disclosing tablets" and how to use them?
7. Do you think that using the "dental disclosing tablets" will help you brush your teeth better?
8. Were you ever given "dental disclosing tablets" to take home with you during a sport's pre-season physical exam?
9. Typically, a Spring Training Dental Screening Examination detects problems that a player has or potential problems. You were given "dental disclosing tablets" to take home. This is a "Prevention Aspect". Do you feel that incorporating "Prevention Aspects", such as this, into the Spring Training Dental Screening Examination is beneficial/helpful to you?

Data collected from the survey was analyzed using descriptive statistics and Chi-square tests. This research project was granted approval by the IRB within Roseman University of Health Sciences.

Results

A total of 80 MLPB players received Dental Screening Examinations; 42 MLPB players (52%) completed the survey. Participants who completed the survey were evenly represented between Hispanic and non-Hispanic. There was a significant relationship between whether the spring training physical was the main dentist visit and the length of time since last dental exam ($p < 0.05$). Whether the spring training physical was the main dentist visit was also significantly associated with the length of time since last dental cleaning ($p < 0.05$) (Table 1).

A significant relationship existed between Hispanic players and Non-Hispanic players as to a belief that preventive education was a beneficial part of the pre-participation dental screening examination ($p < 0.05$). Additionally, a significant relationship was found between

Hispanic players and Non-Hispanic players as to having received dental disclosing tablets for take home use (a preventive measure) following a pre-participation dental screening examination ($p < 0.05$) (Table 2).

Table 2: Chi-square analysis of responses according to Hispanic versus Non-Hispanic.

	Hispanic n (Percent)	Non-Hispanic n (Percent)	p-value	Correlation Coefficient
Do you Consider this Dental Exam during your Spring Training Physical as your "Main" Visit to the Dentist Each Year?				
Yes	10 (47.6%)	4 (19%)	0.051	0.303
No	11 (52.4%)	17 (81%)		
When was the Last Time that you had a Dental Examination?				
More than 1 year	9 (42.9%)	7 (33.3%)	0.525	-0.098
Less than 1 year	12 (57.1%)	14 (66.7%)		
When was the Last Time that you had a Dental Cleaning?				
More than 1 year	10 (47.6%)	8 (38.1%)	0.533	-0.096
Less than 1 year	11 (52.4%)	13 (61.9%)		
Before Today's Dental Exam, had you Ever Heard of "Dental Disclosing Tablets" and how to use Them?				
Yes	3 (14.3%)	6 (28.6%)	0.259	-0.174
No	18 (85.7%)	15 (71.4%)		
Do you Think that using the "Dental Disclosing Tablets" will Help you Brush your Teeth Better?				
Yes	15 (71.4%)	17 (81%)	0.469	-0.112
No	6 (28.6%)	4 (19%)		
Were you ever given "Dental Disclosing tablets" to Take Home with you during a Sport's Pre-Season Physical Exam?				
Yes	0 (0%)	11 (52.4%)	0	-0.596**
No	21 (100%)	10 (47.6%)		
Do you feel that Incorporating "Prevention Aspects" into the Spring Training Dental Screening Examination is Beneficial/Helpful to you?				
Yes	14 (66.7%)	20 (95.2%)	0.018	-0.364*
No	7 (33.3%)	1 (4.8%)		

**Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level

Discussion

The purpose of this study is to assess perceptions and behaviors of MLPB players' in taking care of their oral health. Professional athletes suffer from the effects of poor oral health, the result of poor understanding and behaviors. The incorporation of a dental screening examination into a sports pre-season physical exam is an effort to address this problem. Although the purpose of these dental screenings is primarily to detect disease and need for treatment, an important secondary effort is to take advantage of this opportunity to educate for prevention of oral disease. An important aspect of educating for prevention is to encourage comprehensive dental examinations in a professional setting outside of the Spring Training Physical. This study found that both those participants who reported that their last dental examination was more than one year and those who reported that their last dental cleaning had been more than one year ago, considered this dental exam during Spring Training Physical as their main visit to a dental professional. This finding correlates with existing literature that most athletes consider the pre-participation physical to be their primary physical examination for the year [13].

However, few medical professionals would argue that these examinations provide a source of comprehensive health care and that they can be used as a substitute for a yearly comprehensive examination [14]. It is possible that latent health concerns are

missed as a result of athletes being seen only for a sport-focused physical. A comprehensive annual physical as well as a comprehensive dental/oral health examination is necessary in order to properly identify and treat disease. The results of this study suggest that oral health professionals and professional baseball organizations should consider implementing practices whereby they can modify this perception in order to encourage athletes to receive yearly comprehensive oral health assessments.

This study confirmed that ethnic differences exist in understanding and behaviors among professional athletes. Although the consensus of all MLPB players (Hispanic and Non-Hispanic) polled is that a prevention aspect of their spring training dental screening is important, Hispanic athletes are less likely to report having received dental disclosing tablets during a sports pre-season dental screening and are less likely to find incorporating prevention aspects into the pre-season dental screening examination as beneficial. The reasons for disparate knowledge about the importance of dental prevention in Hispanic athletes is beyond the scope of this study. Due to morbidity and decreased playing time because of oral disease and infection, education about the importance of prevention is important and needs to be conveyed to this subgroup of players. Hispanic players might not understand the benefit of oral health prevention since 100% reported never having been given disclosing tablets during Spring Training Dental Screening Examinations. Professional baseball teams and players alike would benefit by a strong emphasis on oral health prevention



education during scheduled dental screenings, in addition to their traditional purpose of identifying oral health problems.

Limitations

The results from this study should be considered in the context of its limitations. A total of 80 MLPB players from one major league baseball franchise received the Spring Training dental screening examination. However, fifty-three percent of the players (N=42) completed the survey.

The relatively small sample size of the MLPB players examined is due to the considerable difficulty of an individual researcher attaining the permission to work with more than one franchise. Typically, there will only be one dentist allowed to work with each franchise. Writing an IRB proposal collaborating 30 dentists, one from each major league baseball organization (MLBO), to have each dentist attain CITI certification and participate in such a project would be extremely difficult. However, in this particular study, the principal investigator and his team were privileged to be invited by the MBLO in order to perform the dental screening examinations as part of the Spring Training Physicals.

Additionally, conducting research within the category of the elite athlete or professional athlete, no matter how large or small the sample size, is extremely challenging. It is very difficult to “gain access” to professional athletes. Not many health care researchers are allowed the privilege of working with professional baseball players. Medical directors receive numerous requests to do research with professional baseball players in spring training. The principal investigator has been told by medical directors that this number approximates 100. Among these requests, only two to three researchers are granted the opportunity. Encountering these facts severely limits the ability to conduct a research project involving numerous Major League Baseball Franchises in order to increase the sample size. Essentially, the principal investigator “can get only what he can get”. This observation is especially significant for the medical directors of each franchise given that the fact that the numbers of Latino baseball players within their organizations are only projected to increase.

However, even with a limited number of participants, information derived from this study is valuable in increasing awareness of this previously under investigated topic. Additionally, this study is limited to elite baseball athletes which makes the results not entirely generalizable to all participants in pre-season sports physicals. Furthermore, not all pre-season sports physicals contain a dental screening examination component.

Conclusion

Traditionally, dental screening examinations associated with pre-participation physicals primarily identify oral pathology and the need for treatment. This study highlights the need for these examinations also to include a consistent focus upon the beneficial aspects of oral health prevention and education. This study found this effort to

be particularly important among Hispanic minor league professional baseball players.

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