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ORIGINAL ARTICLE

Use of Mouth Guards in Teenage Players, with and without Motivational Reinforcements: An Observational Study

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ABSTRACT:
Background: Incidence of dental trauma is high among sports players. Most common form of injuries noticed is orofacial type. These injuries can be prevented by the use of mouth guards. **Aim:** This study aims to determine the capacity of 2 groups of teenage players to be faithful to the initial oral prevention project; the study group received motivational reminders by either researchers or technical staff members of the team during the observation period, while the control group did not receive any motivational reminders. **Material method:** A total of 100 teenage players, who played basketball were selected for the study. Out of 100, 50 were males and 50 females. Players had no experience of using mouth guard earlier. A custom made mouth guard was provided to the players. Players were observed for a period of 1 year. **Result:** After one year follow up it was found that 42 players from control group were not wearing mouthguards while those from study group i.e. with motivational reinforcement 12 players said they were not using mouthguards after a period of 1 year. **Conclusion:** Our results showed that with the help of motivational reinforcement players understood the importance of mouth guards. No injuries were noticed among mouth guard users.
Key words: Trauma, dental injuries, mouth guard, reinforcement.

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INTRODUCTION

Trauma during sports is very common, especially dental and facial injuries. Facial injuries lead to esthetic concern, psychological and economical problems.[1] whereas dental injuries can lead to functional problems, loss of teeth, enamel cracks and pain in periodontium etc.[2] Glendor reported an incidence between 25 and 30% in the teen population practicing sports activities.[3]At an age of 10 generally children begin outdoor games which exposes them to traumatic injuries. Traumatic injuries in growing stage can lead to various complications. According to the American Dental Association oral injuries may be prevented each year through the use of sports mouthguards.[4]

Mouth guard is also called as mouth protector. It is a custom made; flexible device which is wore over teeth during sports activities to prevent traumatic injuries. It also safeguard against serious injuries such as jaw fracture, cerebral hemorrhage, concussion and neck injuries by helping to avoid situations where the lower jaw jams into the upper jaw. It helps in preventing soft tissue injuries, cutting and bruising of the lips, tongue and cheeks, especially for athletes who wear orthodontic appliances.An ideal mouth guard does not interfere with speech and fits properly. Most of the players don't prefer to use mouth guards probably due to lack of knowledge or difficulty in wearing. However Scott el al reported that athletics wear mouth guards in games like boxing, ice hockey, football and martial arts.[5]

So we aimed to determine the capacity of 2 groups of teenage players to be faithful to the initial oral prevention project; the study group received motivational reminders by either researchers or technical staff members of the team during the observation period, while the control group did not receive any motivational reminders.

MATERIALS AND METHODS: A total of 100 athletes were selected for the study 50 males and 50 females. Sample selected were aged between 12 to 18 years who

played basketball. Inclusion criteria of the study includes all permanent teeth erupted and those players with orthodontic bracers were excluded from the study as wearing mouth guards could cause possible discomforts. Sample was divided in two groups:
Group 1: Study group
Group 2: Control group
Parents/ guardian and managers/spot trainers were explained about the study. Informed consents were obtained from parents. A custom made mouth guard was ordered for fabrication for the players after obtaining informed consent. All the players were asked to wear mouth guard during training session as well as during start of the game. Study group consisted of 50 players 25 males and 25 females. Motivational reinforcement was given to players in study group by coaches and our team to wear mouth guard. At the same time no motivational reinforcement was provided to the control group. Follow up was done at an interval of 3, 6 and 12 months. Regular check up was done for both the groups to check for the appliance fitting and reliability. No remainder to wear mouth guard was given to players for the control group.

STATISTICAL ANALYSIS: Data obtained were analyzed and A *p*-value <0.05 was considered statistically significant. Data was analyzed by specific statistical software (SPSS Inc., Chicago, Illinois, USA)

RESULTS: A total 100 players aged 12 to 18 years playing basketball were selected for the study, 50 males and 50 females (Table 1). The selected sample was regularly monitored for the use of mouth guard. At an interval of 3 months it was found that in Group 1 i.e. study group 48 out of 50 players were using mouth guard using training as well as game. Out of 48, 25 were males and 23 females (Table 2). Two girls who were not using it said they don't feel comfortable with the use of mouthguards and disturbance in speech.44 players in control group were found to be using mouth guard. Out of 44 23 were males and 21 females.
At an interval it was found that in spite of regular remainder by trainer only 42 players were using mouthguards and 23 were males whereas 19 females. 8 players were not using mouth guard at all the reason they gave was discomfort.However, only 35 players were using mouthguards in control group, 18 males and 13 females (Table 3).
After an interval of 12 months rapid decline in use of device was found in control group. 42 out of 50 athletes said they no longer use the device while playing. Only 7males still used it and only 1 female athlete (Graph 1). However, in study group 38 out of 50 players still used mouthguards i.e. 22 males and 19 females.

Table 1: Patient's demographic value

Mean age	12 to 36 months
Males	50
Females	50
TOTAL	n = 100

Table 2: Use of mouth guards at 3 months

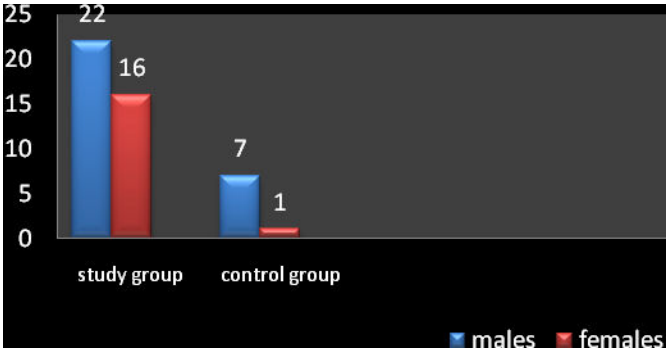
Groups	No of students using mouth guard	No of males	No of females	P value
Study group n=50	48	25	23	0.453
Control group n= 50	44	23	21	0.411

p> 0.05; Not significant

Table 3: Use of mouth guard at 6 month

Groups	No of students using mouth guard	No of males	No of females	P value
Study group n=50	42	23	19	0.351
Control group n= 50	35	18	13	0.324

Graph 1: Use of mouth guard at 12 months



p> 0.001; significant decline in use of mouth guard

DISCUSSION:

Scott et al in their study reported that Mouth guards protect the teeth, absorb energy, and minimize the prevalence and severity of dental trauma.[1] Many athletes avoid wearing it due the discomfort caused during speech, breathing.[6] In our study two different results were noticed among study and control group. There was a regular decline in use of device in both the groups, but was significantly high in control group.

In current study less use of mouth guard was noticed in control group. In three months interval only 44 athletes were using mouthguards. However, only 35 players used mouthguards after 6 month interval and only 8 players after 12 months. Only 16% players in control group were using mouthguards after an interval of 1 year. In our study female athletes completely avoided using the device at the end of 1 year only 1 female athlete was found using the device. Zadik and Levin concluded that difficulty with regard to speech, phonetics, and retention, makes the athlete not likely to use the mouthguard.[6] we are very much in agreement with the author.

In current study 48 out 50 players were found using the device at an interval of 3 months. At 6 month in spite of motivational reinforcement there was decline in use i.e. 42 players said they were using mouthguards. However at an interval of 12 months 38 players i.e. 76% were using mouth guard. Only 5 cases in our study reported minor injuries using the study period, 3 out of players were using mouthguards and 2 didn't. Enamel crack was found in one mouth while the other has soft tissue injuries. Scott el al in his study reported that mouth guards protect the teeth, absorb energy, and minimize the severity of dental trauma.[1]

Westerman B et al reported mouth guards prevent dislocation, fracture, and tooth loss, by reducing the impact force in the jaw.[7] we used custom made mouth guards for both the groups, according to the literature they are most comfortable and less interference with speech is found.[8,1] Minor discomfort was mentioned by the players who used it regularly in our study. E. Spinas et al in their study reported that 90% athletes in control group were not using mouthguards where as 76% in study group were using mouth guard.[9]Kenyon and Loos compared custom and boil-and-bite mouthguardsand they found significant differences in 14 of the 17 characteristics, with the custom mouthguard showing better results.[10]

With the result of our study it is very clear that motivational reinforcement and regular remainder by trainers or parents helps in regular use of mouthguards in athletes. Most of the player's lack the knowledge regarding mouthguards and dental injuries, motivational reinforcements helps to increase awareness among players.Gardiner DMand other authors in their study suggested that coaches play a very important role in motivational reinforcement for the use of mouthguards.[11, 12]in current study female players didn't use the device much due to discomfort caused however Queiròz et al in her study found that female teenagers are very interested in prevention.[13]

CONCLUSION:

The difference in two groups clearly implies on the need of motivational reinforcement for the use of mouthguards. Within the limits of our study we conclude that regular decline in use of mouthguards are the result of lack of motivational reinforcement and lack of knowledge. Thus we suggest regular training and encouragement by coaches on use of mouthguards can help the players to understand the advantages of mouthguards. A small step can prevent the injuries caused during sports.

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