

Examining the effects of regular physical activity on children's dental health

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ABSTRACT

Everyone agrees that children's overall health, intellectual performance, and harmonious development are all improved by organized physical activity. The purpose of this study is to find out if young athletes' oral health differs from that of kids who don't participate in competitive sports. Using clinically determined indices, a total of children between the ages of, football players, hockey players,

and those in the control group were split into groups based on their activity, age, and biological sex. The children were then assessed for oral hygiene, dental health, and periodontal health. Statistical analysis revealed substantial differences between the groups, with athletes, independent of age, sex, or activity, having lower (better) scores.

Key Words: *Incisors; Canines; Symmetry; Complete cleft; Asymmetry; Dental aesthetics*

INTRODUCTION

Sports are a fundamental part of every child's life since they have a positive impact right away on children's health and development. Youthful people can keep their physical and mental balance with the aid of sports. The medical advantages of competitive sports participation include lowered risk of diabetes and cardiovascular disease, significant weight management contribution, increased physical condition, enhanced joint mobility, and improved sleep quality. Many young people who regularly partake in physically demanding activities do better in school. Sports that are competitive demand a lot of time and effort. Sports do, however, foster memory, repetition, and learning capacities that are pertinent to academic activities. Competitive sports require a lot of effort and commitment while boosting self-esteem. A child's self-confidence is boosted when they realise that their efforts are being noticed. Taking part in a competitive sport can help you manage stress and promote healthy psycho-somatic development. It is appropriate to look into how physical exercise affects children's oral health given the growing priority placed on it. Numerous studies have been conducted to address this issue, however the methodology used varies, leading to occasionally contradicting findings. Although it nearly entirely focuses on adults, sports dentistry has taken attempts to analyse the effects of competitive sporting activities on dental health. There are several research and systematic reviews on this subject, the bulk of which highlight the greater prevalence of periodontal, dental, and dental caries disorders in competitive adult athletes. Modified salivary

pH and flow rate, dehydration, wearing a mouthguard, or excessive sugar intake from sports supplements were identified as the key contributing variables to these findings. The major goal of this study is to find out if there are any changes in oral health between kids who participate in competitive sports and kids who don't. Two groups of kids who play competitive sports were subjected to an oral health analysis to look for any potential differences; the null hypothesis (H0) assumed that there is no variation between the groups. The evaluation of oral hygiene as the primary degrading element for oral health, as well as dental damage caused by carious processes and periodontal inflammation, were the main subjects of the analysis. Football and hockey were picked because they are both prevalent team sports for kids and have traits like the length of practice and games and the sort of physical exertion required (aerobic, not anaerobic). Utilising oral health indices, the level of oral cleanliness as well as dental and periodontal health were analysed. These results were compared to those obtained from a control group as well as between the two groups of young athletes. Another goal was to determine whether much younger participants shared the same findings about oral health as have been made in the literature about competitive adult athletes. The findings refuted the null hypothesis and demonstrated that children's dental health is significantly improved by regular physical activity, in contrast to the effects of sports training in adult competitive athletes. Additionally, the data on adults that were available did not support the findings of this study, which showed that children who participated in competitive sports

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had better oral health than their adult counterparts. No matter their prospective category, research groups, or control, any child who had received treatment with antibiotics, vitamins, or professional items containing fluoride (gels and varnishes) in the month before the assessment was excluded from this study. Further exclusion criteria from this study were the presence of ulcers, tumor lesions, herpes, canker sores, or any developing enamel deficiency. Children receiving orthodontic care were allowed to take part. Age between 6 years and 17 years, regular/consistent practice of a sport, and a minimum of one year since the start of the sports activity were the inclusion criteria for the athletes in this study. Age outside the range of 6-17 years, lack of membership in a recognised sports organization, and not being a student-athlete were the disqualification criteria. The young athletes that participate in competitive sports are drawn from two local football and hockey teams. Regular pediatric patients who received dental care at the facilities listed below and who met the eligibility requirements for age, dentition type, medical history, and overall health status made comprised the control group [1,2]. The Emergency Clinical Hospital for Children's specialized outpatient clinic served as the location for all examinations. Along with calculating the indices, information on age, sex, and the quantity of training sessions each week was gathered. Common demographic factors such color, income, employment status, living situation, homeownership, and level of education were collected from the parents or legal tutors but were left out of this study. After their school programmer, the patients had their exams around midday, and they were told to wait at least an hour before brushing their teeth, eating, or drinking anything other than water. Only two properly trained experts carried out all clinical evaluations due to the essentially subjective character of index determination.

Each patient underwent a clinical examination, and the OHIS (Oral Hygiene Index-Simplified), PMA gingival index, and DMF-T indexes were calculated in order to identify and quantify problematic elements pertaining to the oral cavity. to determine the presence of plaque and dental calculus, two etiological variables. The Simplified Calculus Index (CI-S) and the Simplified Debris Index (DI-S) are added to create this index, while the two scores can also be utilized alone. The WHO offers the most recent version, which includes examples of calculations as well as the standards for dividing calculus and debris. allows for the distinct evaluation of soft and hard deposits that are present on the buccal and lingual surfaces of the six teeth that make up an arch, one tooth per sextant. Visual inspection, staining solutions (Schiller-Pisarev, magenta, erythrosine), scraping the coronal surfaces examined with the dental probe, extending the examination to the contact points of the approximate coronal surfaces, and sub gingival examination can all be used to quantify dental deposits. By dividing the values of each of its components by the number of surfaces evaluated and then adding the results, it is possible to calculate the value of the simplified oral hygiene index, or OHIS. These indices stand for the traditional approach to calculating the extent of dental integrity loss brought on by the presence of carious processes in a population [3-5]. The three factors that represent how many teeth/dental surfaces have carious lesions (incipient caries is excluded), how many teeth/dental surfaces are missing due to extractions brought on by the carious process, and how many teeth/dental surfaces have restorations are added together for both permanent teeth (excluding wisdom teeth) and deciduous

teeth. Each component already in place has a numerical value, and the sum of all those values is what makes up the index value. A DMF-T index for the permanent dentition and a DMF-T index for the deciduous dentition are calculated for kids with mixed dentition.

Only the carious process is taken into account if a tooth or surface has both a filling and a carious lesion.

Precise criteria were necessary because it can be challenging to identify the exact kinds of dental caries. The DMF-T/DMFS index's Decaying tooth (D) component ignores the possibility of reversing early carious lesions. Early lesions that were categorized as being ICDAS codes (first or distinct visual changes in enamel seen as a carious opacity or visible discoloration, such as a white spot lesion and/or brown carious discoloration, not consistent with the clinical appearance of sound enamel and which show no evidence of surface breakdown or underlying dentin shadowing) were assessed as a result [6]. The OHIS, PMA, and DMF-T values for each kid were calculated, yielding fifteen sets of data that underwent statistical analysis with the aid of the MedCalc programmer, version, created by MedCalc, Ostend, Belgium. To examine the distribution's normality, a chi-squared test was performed on the series. To determine the statistical significance of the collected data, t-tests were run. Male athletes had higher index values than female athletes in terms of oral health and oral hygiene, regardless of the type of sport they participated in, indicating that there is a biological sex difference.

Contrary to studies on adult players, the results of this study appear to show that competitive sports have a positive impact on children's oral hygiene, periodontal health, and dental integrity. There are no pertinent studies that examine these effects on young competitive athletes [7,8]. The most common complaint among adult athletes is periodontal disease, with dental caries coming in second. The results of this study contradict these conclusions, showing that children who participate in competitive sports have greater periodontal health and dental integrity.

DISCUSSION

The primary goal of this study was to use oral status assessment indices to determine whether there are any differences in oral health and oral hygiene between children who participate in competitive sports and those who do not routinely compete in sporting events. The findings of the clinically conducted tests disproved the null hypothesis by statistical analysis.

For those in the performing sports groups, all three indices showed lower (better) values than for those in the control group.

CONCLUSION

Nevertheless, significant restrictions should be kept in mind when interpreting these data. Due to the cross-sectional nature of the study, it is impossible to pinpoint the exact timing of the relationship between the exposure and the outcome. Different dietary or dental hygiene practices among the study participants could be the cause of the group discrepancies. Potential sources of prejudice include the relatively small number of participants, the regional hiring standards, and the decision to participate in competitive activities (team sports). The approach used in this study has to be repeated with larger populations, at the local, regional, and even national levels, and with more varied sporting events than only team sports.

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