

**Oral Health and Nutrition: Addressing How Nutrition Affects The Oral Cavity**

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**Introduction**

Dental health and nutrition during adolescence are crucial to establish early on. From infancy to adolescence, children adopt habits influenced by their parents. If parents encourage their children to brush before bed, they are more likely to do so. Similarly, providing healthier food choices sets a foundation for good dietary habits which influence their oral health. While it may seem convenient to choose a McDonald's Happy Meal instead of supplementing it with fruits and vegetables, this doesn't instill a comprehensive understanding of healthy eating. If children aren't educated about their health from an early age, it raises the question: when will they be?

Visiting various schools demonstrates our commitment to helping dental hygiene students enhance caries risk reduction in adolescents and throughout their lives (*Beatty CF chapter 4*). Raising children's awareness about the importance of dental care marks a significant change. When properly educated on the topic, many children only learn about the necessity of brushing before bed. What better way is there to achieve this than by providing timely and accurate education? Additionally, adolescence is often the time when orthodontic treatments arise. However, these treatments and poor oral hygiene significantly increase the risk of caries. This critical stage involves permanent teeth; they will have these teeth all their life. Therefore, it's crucial that during this period, adolescents understand that proper nutrition and oral hygiene are vital for maintaining their overall health (*Beatty CF chapter 4*).

Apart from parental decisions, another significant factor influencing a child's willingness to visit a dental office is the fear associated with medical procedures, such as needles or extractions. Children often feel anxious about unfamiliar environments and the sounds they hear

at the dental office. For instance, the noise of an engine polisher may be mistaken for a drill, while the sight of a shepherd hook might be perceived as an injection. The clarity and understanding provided during dental treatments greatly impact the child's willingness to return for future visits. Although parents may stress the importance of oral health and schedule cleanings for their children, their feelings and perceptions influence parents' decisions. Dental visits should be brief yet informative, not only to the child but also to the parent. It's crucial to keep parents informed about all treatments being administered and provide guidance on improving their child's oral health and nutritional habits. Everything that enters the mouth affects every organ and system in the human body. As humans continue to age, they are prone to developing more health issues if they don't take care of themselves, making it essential to start caring for overall health from a young age through education and creating a comfortable environment for patients and children to listen and implement what they learn to their daily life.

### **Assessment**

In the service learning project we presented as a group, our target population was middle school students. During adolescence, there are many transitional stages, both physically and physiologically. Due to changes in adolescents' health, the project focused on oral health and nutrition. The goal of our presentation was for our target population to understand the importance of oral health. This way, they can form good oral hygiene habits that will follow them throughout their life. We also emphasized the importance of good nutrition habits to benefit not only their dental health but overall health as well. Many of the students in the class we presented to were undergoing orthodontic treatment, stated that they experienced bleeding gums, or were unsure

what the correct brushing and flossing techniques were. As a dental professional, educating the students on the significance of oral health and nutrition felt immensely important. These students are at the age where they begin to become independent and practice hygiene habits, and are able to make smart nutritional decisions.

At the beginning of our presentation, we conducted a general verbal assessment by asking the class basic oral hygiene and nutrition questions to gain an understanding of the student's overall knowledge. This helped us determine the educational needs that this particular group of students needed. We asked the students what their oral home care routine looked like; many students in this particular group stated that they were only brushing their teeth once a day, and many did not know how to floss or what flossing was. This made it clear that these students did not have a good oral health care status. We had to thoroughly explain and demonstrate proper brushing techniques, introduce flossing, and review good nutritional habits.

Published literature states that Adolescence is a critical time for adopting health behaviors that continue through adulthood (Zhang, 2023). This is why it is crucial for adolescents to develop good oral hygiene skills. According to a questionnaire-based study on adolescents' oral health conducted in 2022, flossing was rare, regardless of whether the adolescents wore orthodontic braces or not. In many cases, professional oral hygiene was not common during orthodontic treatment. Adolescents did not learn about oral hygiene from a dental specialist. (Sbricoli, 2022). The importance of oral hygiene and nutrition needs to be implemented in the developmental stages of adolescents to improve their overall lifestyle and health.

**Planning**

For children about to reach the age of adolescents, our Service Learning Project had to peak their interest and be relatable to meet our objective. Our visit's objective is to ensure that the children understand the effects of their oral health and nutrition. Given the age of our target audience, the project must be simple enough to understand. Encouraging proper oral hygiene in children begins with learning what the children are currently doing in their oral home care routine. Once we knew what their routine was, we could work with them to enhance their routines and ensure that they practice good oral hygiene. In order to do this, we had to ask the children what their normal routine currently was, then show the children what proper oral hygiene consists of and show them the possible consequences of when someone does not practice proper oral hygiene, such as gum disease and periodontal disease. Showing the children what can happen to them when they do not maintain proper oral hygiene can motivate them to keep a good oral homecare routine in order to avoid the consequences.

In order to ensure that the children could also maintain a healthy diet, we had to see if they could distinguish between meals that are healthy and those that are not. We asked the children what foods or drinks they thought were bad for their teeth. The majority of students responded correctly, saying candies, juices, and sodas were harmful to your teeth. After knowing that the children could identify what foods/drinks were harmful, we encouraged them to avoid them as much as possible and to limit their amounts to avoid cavities. We also told them about alternatives such as xylitol gum.

To ensure that children enjoyed our presentation, we included visuals, activities, goodie bags, and prizes. Our measurable objective was to see if the children understood and retained the

information we presented through a Kahoot game! Where the top three students would win prizes. Our kahoot game consisted of twenty questions about the concepts discussed in our presentation. A majority of students were able to answer most of the questions correctly and explain why; therefore, our objective of ensuring that the children understand the effects of their oral health and nutrition was accomplished.

### **Implementation**

During our assessments of the middle school children we discovered the children had unhealthy eating habits. When we asked what the students ate for lunch, a lot of them responded by saying they had chips or chocolate milk. Therefore, we definitely wanted to teach the students healthy foods they should be eating and provide nutritional counseling. We also discovered some children had orthodontic appliances, as previously stated, that could put them at a high risk for caries as well. I think after asking these questions during our assessment phase we determined that our goal would be to prevent the children from developing cavities and educate them on proper homecare. The way we decided to meet our goals would be to provide the students with an educational PowerPoint that consisted of videos and pictures that would break the concepts down in an easy way they could understand. Our PowerPoint consisted of teaching the students oral diseases that the children could develop if they are not brushing well, such as gingivitis, periodontitis, caries, and calculus buildup. For instance, when we were describing what cavities looked like, we provided a picture so the students could know the different ways that caries could present themselves in the mouth. Then we shifted our focus to educating the students on proper home care. We displayed a tooth brushing video to teach the students how to brush their teeth

properly. In the video, the lady taught the modified bass technique on a typodont, and we also passed around our typodonts so the children could have a real-life model to practice. We also provided a video on flossing and emphasized the C-shaped technique to the students. Passing around the typodonts also gave the children a hands-on learning experience, and we were able to teach the children homecare with a real-life visual. Lastly, as a fun way of ensuring the students were educated after the PowerPoint, we created a Kahoot game to test their knowledge. After the Kahoot game, most of the children got a lot of the answers correct. Therefore, the students learned a lot throughout the session and will apply the techniques they learned to their home care.

## **Evaluation**

Results have shown that after educating children on the use of proper oral hygiene and good nutritional habits, they are much more confident and aware of the importance of maintaining good oral hygiene. We observed and collected data from the students by conducting a quiz/ Kahoot Game where the children were tested based on the information that was previously taught to them. We were able to acquire the children's full attention and engagement during the quiz. An estimated 70%-75% of the children could correctly answer certain questions about adequate recare dates, foods to avoid, and other risk factors that play a role in oral diseases.

It was indicated that the children seemed more engaged and alarmed when we showed images of what could possibly happen to their oral cavity without proper brushing and flossing. The children seemed shocked by the images that we presented to them that showed advanced



periodontitis and heavy bridges of calculus. Visual presentations and videos were the most efficient educational tools used to teach the children. 3D teeth and typodont models were also handed out during the presentation. By the end of the presentation, the children were able to indicate whether the tooth was a posterior or anterior tooth. After our presentation the children were given small goodie bags that contained toothbrushes, floss and oral hygiene instructional brochures.

As a group, we were successful at educating 6th grade students on the purpose of maintaining good oral hygiene to avoid the development of caries and gingivitis. Targeting children ages 10-12 years old was highly impactful because they are at the age where they most likely brush and floss without the supervision of a parent. This is a critical part of their life where they are becoming more independent and may skip a day of brushing based on not being supervised or reminded to do so. For this age group it is beneficial to reach out to them at a school setting now that they are performing these tasks independently, possibly before school starts. This population is also concerned about ways to avoid halitosis and yellowing of the teeth as they begin interacting with their fellow classmates.

A study conducted on children of different age groups' performance and attitudes towards performing an effective hygiene routine states, "Of participants aged > 10 years, 62% cleaned their teeth completely, and 53% brushed systematically. Participants in this age group also brushed their teeth less systematically than did the 6–10-year-olds. The poorer performance observed in >10-year-olds relative to 6–10-year-olds may be explained by different rates of parental checking, which were 28% and just over 50%, respectively." (Gund, 2022) This study

demonstrates that a lack of parental involvement can decrease a child's motivation and willingness to brush effectively.

As health professionals, it is vital that we reach out to this population to help improve their behaviors and motivate them to maintain good oral health. In addition, the study revealed that poor brushing techniques have also increased the amount of caries in children over the age of 10 years old. To improve our studies, it would have been best to send out a post-survey a few days after to see what percentage of children have implemented the flossing and brushing techniques that were demonstrated in their hygiene routine. Therefore as a group, this is the data that we collected during this experience.

## **Conclusion**

As future dental hygienists, it is important that we get comfortable educating patients of all ages on oral health and disease prevention. Most of us have primarily educated patients from the adult population. Therefore, having the experience of educating adolescents has provided us with an opportunity to practice modifying our language and teaching methods for a younger population. Oral health education is paramount at a young age to build healthy habits that last into adulthood. Through thorough assessment, planning, implementation, and evaluation, we were able to tailor our approach to educate the students effectively. They were engaged with the presentation, and most participated by asking and answering questions, particularly when they were presented photos of periodontal disease and white spot lesions. They seemed motivated and enthusiastic about taking care of their oral health. Many students knew a fair amount about proper oral hygiene habits and nutrition, and we believe that we effectively reinforced and added

to their understanding and knowledge. Through this invaluable experience, we were able to develop our education skills further, which will serve us all well as we enter our careers as registered dental hygienists.

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