



Nutrition Counseling

Case Study

Case Study: Nutrition Counseling – an International Perspective

Nutrition counseling has an important place in the dental care setting given the clear relationship between dietary factors and dental caries and the association between obesity, diabetes and periodontitis.¹⁻³ Nutritional counseling can be defined as a cooperative mode of interaction between the patient and health care provider aimed to assist patients in adopting healthy dietary behaviors associated with improved health outcomes.⁴ Moreover, it is an important step in determining whether nutritional deficiencies/imbbalances exist and assessing the need for necessary referrals.⁵

The association between dietary factors and adverse oral health outcomes is multifactorial and complex with inter-related pathways between dietary intake (food consumptions), nutritional status (body composition, biomarker levels of micronutrients) and lifestyle behaviors. Patients should be informed that not only the types of carbohydrates but how the frequency, consistency, and position of their consumption in meals can increase risk of dental caries.⁶ For example, patients can decrease risk of caries through behavior modifications such as, minimizing the frequency of sugary foods, decreasing the consumption of those with sticky consistencies or fine particles and ending meals with low cariogenic foods. Additionally, edentulous patients have significantly lower intakes of dietary fiber, protein, vegetables, calcium, iron, and other essential vitamins than dentate individuals, hence dental care professionals should provide nutritional counseling based on the patients unique oral health needs.^{7, 8} Personalized and tailored nutritional counseling such as the guidance provided by dental



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care professionals should be altered based on age, socio-cultural background and health literacy.¹

Use:

Prior information regarding the patient's dietary exposures, including meals, snacks, frequency, structure of meals and intake of sugared beverages, is key to providing successful behavior modification.¹ Counseling components shown to increase dietary changes include a comprehensive dietary assessment, family involvement, social support, group counseling, food interaction (cooking, taste testing), goal setting, advice appropriate to patient groups, and anticipatory guidance.^{1, 9} Anticipatory guidance refers to "health promotion guidelines designed to promote health and prevent disease."¹ When dietary recommendations are provided individuals must replace poor dietary choices for healthy ones. Foods and beverages are not consumed in isolation but rather in patterns and should be considered together. Hence, the dental provider should offer recommendations with suggested strategies to achieve the proposed nutritional modifications.¹ The 5A's approach to nutritional counseling incorporates these key counseling components and can provide an effective and structured system easily implementable in the dental practice to increase compliance to nutritional recommendations.¹⁰ These steps outlined by Eaton et al.¹⁰ include 1) *Address the agenda*, "What you eat is very important for your health and to decrease your further risk of dental caries. I recommend we review your dietary intake."; 2) *Assess* the patient's current, past dietary history and sources of motivation; 3) *Advise* patients based on their current dietary intake and oral and systemic health risks to move forward with focused areas of recommended modification; 4) *Assist* in preparing reasonable goals using anticipatory guidance, identifying potential barriers, sources of support, refer to dietician



if needed; 5) *Arrange frequent follow-up* which can be conducted in a variety of ways either through phone, email or dental office visit.

Effectiveness and Efficacy:

There is a paucity of data exploring the effectiveness of nutritional counseling on oral health outcomes. Most studies evaluating nutritional counseling have been clinical trials utilizing various health professional and multiple contact sessions. The data provided herein are obtained from the few studies conducted within the primary care setting. Pignone et al.⁹ reported that interventions undertaken in the primary care setting were generally of low intensity, consisting of one patient counseling session ≤ 30 mins, and have been shown to produce small to medium changes in saturated fat, fruit and vegetable, and fiber intake. Reductions in saturated fat ranged up to 3.0 percentage points. Studies evaluating fruit and vegetable intakes reported observations ranging from no change to increases of up to 0.8 servings per day. Few studies have evaluated the effectiveness of primary care nutrition counseling on fiber intake, nevertheless, results are suggestive of small increases ranging from 0.3-1.6 g/day. Medium intensity interventions which increase the number of contacts and utilize interactive communications such as, telephone counseling, exhibited larger changes and could be implemented within the dental practice. The authors concluded that the intensity of the intervention, risk status of the patient and the number of counseling elements incorporated are key characteristics of increasing effectiveness of nutritional counseling. Furthermore, tailored recommendations with strategies including anticipatory guidance to support dietary recommendations and methods to increase patient engagement can improve compliance to nutritional recommendations.¹



Recommendations for community-based protocol:

Limited resources, lack of financial incentive, inadequate skills in nutrition counseling and time constraints may restrict many dental care professionals from providing nutritional counseling as part of their routine preventive oral disease strategy.^{1, 10} In a survey of pediatric dentists in North Carolina, < 25% reported offering nutritional counseling to patients.¹¹ Sharing the responsibilities among the dental personnel can provide a way to incorporate nutritional counseling into the dental visit. Moreover, offering nutritional counseling to patients at high risk for dental caries is just one of the responsibilities of a dental hygienist.¹² Among a sample of dental hygienist from North Carolina, 95% reported they should play “a role in helping patients improve nutrition.”¹² Hence, nutritional counseling can be implemented by the dentist and/or dental hygienist.

Tavares et al.¹³ evaluated motivational healthy weight interviewing among 139 children aged 6 to 13 years from two community dental clinics over 18 months. Participants were interviewed 2 to 3 times at each preventive dental visit and data on obesity risk factors were collected including food consumption, meal habits, and physical activity. Dental care providers were able to accommodate the nutritional and behavioral counseling into their office visit schedules with only minor adjustments. All parties involved (dental care providers, care-givers and children) were receptive to the recommendations provided by the intervention. Ninety-five percent of care-givers reported improved food selection and 68% reported their child ate breakfast more often due to the nutritional counseling. This data provides evidence to suggest that nutritional counseling can be well received by patients and their families; and they can induce meaningful changes.



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In Europe, regional variations exist in the use of nutritional counseling for prevention education in high risk caries patients.¹⁴ Among a survey of Danish, Norwegian, Swedish and Icelandic dental care personnel, the Swedish were the only providers to include nutritional counseling as part of their preventive strategies for high risk patient education.¹⁴ Sarmadi et al.¹⁴ evaluated the preventive strategies prescribed by dental providers among 432 high risk caries residing in Uppsala County, Sweden. The authors reported nearly 50% of patients received general dietary information, whereas only 20% received dietary counseling based on their own diet history. The authors further concluded that factors which were included in the caries risk assessment such as dietary habits and a diet diary were significantly associated (p-value <0.01) with the preventive strategy employed. Hence, use of a structured dental caries risk assessment protocol which incorporates dietary risk factors may increase nutritional counseling awareness among dental health care providers.

Cost:

Cost analysis of intervention studies have shown that dietary interventions can be cost-effective when expressed as Quality Adjusted Life Years gained (QALY).¹⁵ Intensive interventions provided the most certain and cost-effective outcomes while mass media campaigns were cost-effective but less certain.¹⁵ Web based interventions providing tailored messages have shown to be both cost-effective and lead to observable increases in fruits and vegetable consumption.¹⁶ Cost may be further reduced by use of allied health professionals to deliver tailored nutritional counseling.



Safety:

Nutritional counseling includes few if any safety risks when education is the primary intervention. However, counseling or interventions that make drastic changes in diet will vary in the safety concerns specific to the intervention and population in which they are employed. Providers should be careful to expand healthy options in lieu of unhealthy behaviors and re-evaluate the patient at regular intervals which can be incorporated with dental examinations and recorded in the patients dental records.

Summary and Recommendations:

Nutritional counseling can be incorporated into each dental visit and has been shown to be acceptable by dental personnel. Nutritional counseling must incorporate structured elements to increase effectiveness and improve compliance. Specific nutritional recommendations can lead to improvements in patient nutritional status but require follow-up to provide support and reassess goals. Recommendations to improve oral health should be consistent with messages regarding systemic health and emphasize positive messages rather than restrictive messages.



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