

Nutrition: Its Role in Dental Training and Practice

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For most animal species, including humans, teeth are essential for biting and chewing food and therefore contribute to physical growth and health. A good diet is not only necessary for development of the masticatory system, it also helps keep this system functioning properly. Since dentistry, or oral medicine, and eating are so closely linked, it is important for dentists to pay attention to their patients' nutritional status.

Nutrition and Health

At the start of the 20th century, the variety of foods available was limited, and so was the risk of choosing the wrong ones. Getting enough to eat was the primary concern. Poor hygiene led to the spread of the infectious diseases that were responsible for most deaths. Few people went to the dentist except when in considerable pain, and dental caries and gingivitis were widespread. Dentists did some fillings and many extractions, with the result that many of those born before the end of the Second World War lost all their teeth.¹

As we enter the 21st century, we have access to a virtually unlimited supply of foods from all over, processed to varying degrees. Although the availability of many different foods limits the incidence of deficiency diseases, it also increases the risks of choosing poorly and overeating. It is rare today to die of an infectious disease, but not at all unusual to die of a chronic disease that can be linked to the increased incidence of obesity among certain groups. Although more and more older people are keeping their teeth, some population groups show a high rate of dental caries, despite improvements in oral hygiene and increased use of fluoride.² As the population has aged, the prevalence of certain oral conditions (e.g. periodontal disease, malocclusion and cancer) whose incidence or treatment may be affected by diet has remained stable or even risen.³

Not only has the variety of foods increased, but our understanding of the effect diet has on health in general and dental health in particular has expanded considerably. We have wit-

nessed a virtual explosion of periodicals focusing on nutrition, and not a day passes without the major newspapers presenting articles or complete sections on diet and its impact on health, including the most recent discoveries in this area. The popularity of dietary supplements, miracle foods and "healthy" cookbooks attests to the public's growing interest in a balanced diet, the key not only to survival but to a long and vigorous life. As we are increasingly bombarded by information, it has become more important than ever to choose our foods with care.

How does the wary consumer decide which advice to follow? Whether in the course of a check-up or during treatment for an unrelated condition, the majority of people approach the professionals they see most regularly⁴ (doctors, nurses, dentists and various therapists) to answer any questions they have after reading, watching television shows or having discussions about nutrition. A study conducted in Mansfield, Pennsylvania,⁵ showed that patients are very interested in nutrition: 78% of dentists reported being asked about nutrition and 64% thought it was important that patients have access to nutritional counselling through their dentists. However, 81% of dentists did not offer such services, 57% did not feel they had adequate training to do so, and only 19% had ever consulted a dietitian to obtain nutritional advice for a patient.

Dr. Slavkin, Director of the National Institute of Dental and Craniofacial Research in the United States, recently urged dentists to become more active in promoting the overall health of their patients.⁶ He pointed out that in addition to their credibility within the community, dentists are strategically positioned to reach a large number of the general public, under less urgent conditions than physicians, simply through regular appointments with their clients: a situation conducive to consultation, education, discussion and motivation with respect to healthy living. In response to these statements, Dr. Gilbert⁷ also deplored the emphasis placed on restoration, which represents 20% of the dentist's training, to the detriment of all else,

which makes all the difference between a doctor and a skilled technician. In his view, dentists should be looking at their patients' nutritional status. Yet few dentists do so despite knowing that a well-nourished person heals better and is less likely to suffer a secondary infection. The dental board of New York State and many malpractice insurers share his opinion. In complete agreement with his colleague's remarks, Dr. Slavkin added that dentists, trained to assess their patients' diets and counsel them in this regard, would be able to diagnose a patient's general state of health by examining the mouth and tissues, as well as the results of laboratory tests.⁸

The Right Training to Provide Appropriate Care

To help patients improve their diet without taking on the role of a dietitian, dentists, like all other health professionals, must possess basic nutritional knowledge and be familiar with the physiological processes at play, as well as the effects of nutrition on the body.

The educational programs that are most comprehensive in this respect⁹⁻¹¹ offer, in the first year, a basic nutrition course preceded or accompanied by courses in biochemistry and physiology. Study of the basic concepts, namely the nutritional requirements at the various stages of life, are supplemented by 15 to 20 hours of specific training in the role of nutrients and foods in the prevention and treatment of dental pathologies. This theoretical training is followed by practical experience in nutritional counselling: the students evaluate one another's diets and occasionally those of schoolchildren in the community as well as clinical cases. Dietitians are usually called on to teach nutritional assessment, individualized dietary consultation and behaviour modification techniques. This training must be done before students begin their clinical training. For the whole time they are in direct contact with patients, these future dentists are asked to improve their counselling skills by completing nutritional evaluations of patients presenting various dental pathologies, under close supervision of a dentist and a dietitian. Indeed, in the case of nutritional counselling, like that of dentistry in general, the old adage applies: practice makes perfect. Inclusion of nutritional counselling in the routine examination¹⁰ is often the weak link in the training of dentists, however. The theory learned in the first year is soon forgotten if it is not applied regularly and the young dentist can then feel ill-equipped to integrate nutritional counselling into his or her daily practice. Since the mouth is the only organ in direct contact with food, and by which one can observe local effects on the tissues, it is unfortunate that so few dentists take the nutrition of their patients into account.

Nutritional Counselling in the Dental Practice

Since the systemic effects of diet are of the greatest importance when the teeth are forming, dentists may begin with women who are pregnant to ensure that their diet includes the proteins, vitamins, calcium and phosphorus needed for the development of healthy tooth buds. This will initiate or supplement the involvement of other health professionals following the pregnancy. The next step should be to encourage

breastfeeding as the ideal means of meeting the infant's nutritional requirements and developing the maxillae, while avoiding the risk of extensive premature decay.¹² If the mother should choose to bottle feed her baby, the dentist should provide advice on how to prevent the harmful effects of caries. Thus, from the age of six months, the child may begin using a training cup instead of a bottle, limiting the time that the teeth are in contact with liquids. Nutritional instruction should continue after the teeth appear in order to promote good eating habits and the health of the entire masticatory system. Helping parents to choose the best foods for their children and to share with them the knowledge they need to maintain dental health and avoid a build-up of plaque can have significant benefits. If they become accustomed to healthy eating right from the start, children will be less likely to lose their baby teeth prematurely and less susceptible to caries in adolescence.

Once past childhood, dentists are the professionals most often consulted by healthy individuals, thanks to the profession's success in convincing people to have regular check-ups once or twice a year. It is only natural then that dentists should continue to keep an eye on their patients' diets, particularly during certain life passages, such as moving up in school, adolescence, change of marital status or loss of a spouse. Moreover, a patient's diet should also be examined whenever his or her dental condition deteriorates. A nutritional analysis and questionnaire are the best way to obtain information about the types and quantities of foods consumed and to identify eating patterns that should be analysed and interpreted with a particular eye to dental health.

When a patient visits a dentist for the first time, a nutritional analysis will give a fuller picture of the patient's oral health and help in assessing the likelihood of successful treatment (e.g., the capacity of tissues to regenerate, support a prosthesis or fight an infection). Such an analysis may also reveal eating habits that do not appear to be damaging the masticatory system in the short term, but may be harmful to the patient's general health (e.g., undernourishment, too much fat or not enough fibre, a soft diet or an overconsumption of prepared foods with little nutritional value). Even if a dentist cannot provide full nutritional counselling, he or she should advise patients of any problems, give advice and refer them to the appropriate health professionals. When patients are already receiving professional treatment for nutritional or health problems, the dentist's contribution will further encourage them to persevere. Support from a respected source, such as a dentist, is significant when it comes to developing healthier lifelong habits.

Nutrition does not simply play a role in preventing the formation of plaque and the development of caries. A balanced diet and good eating habits facilitate remineralization and ossification, in addition to promoting healing and resistance to infection. Similar conditions will help in cases of dental caries, periodontal disease and surgical procedures that involve incision of the oral tissues (e.g., extraction, placement of crowns or implants and orthognathic surgery). In cases of chronic or

debilitating illnesses or malnutrition, often seen in older people, the poor, and people with HIV or addictions, it is even more crucial that dentists play their part, along with other health professionals, in adopting a nutritional approach to their patients.

Following the loss of the natural teeth, it is best if prostheses can be placed on healthy tissue. The patient's diet must continue to supply all the nutrients needed for good health. It may be worthwhile ensuring that the poor dietary habits reported by patients are not wrongly blamed on the wearing of prostheses. Indeed, these habits may have been pre-existing and were the cause, rather than the effect, of tooth loss. Finally, follow-up should be done to see that such patients, who are often older and taking many medications, do not become dehydrated. This will ensure that the prostheses fit comfortably and prevent sores that could interfere with eating.

Any dentist who feels his or her skills in this area are insufficient should not hesitate to refer the patient to a dietitian or other health professional to receive the proper treatment. For example, when a dentist detects anorexic tendencies in a young patient and must repair teeth affected by erosion, nobody would expect the dentist to treat the anorexia single-handedly. Early diagnosis of this disease is important; the dentist must inform the parents, the school nurse or the physician. Once he or she has instructed the patient in the importance of a balanced diet and the damage done to the teeth by acid regurgitation, the dentist's role, while still important, will be limited to supporting the therapy provided by other practitioners.

In conclusion, while a skillful technician may reconstruct the teeth very successfully in terms of esthetics, only an oral doctor can truly improve a patient's dental health. The esthetic care provided by the technician may have no impact on the patient's health, but dental care must. To this end, nutritional assessment — recognized by the profession as a non-invasive, risk-free and worthwhile procedure — must be integral to the practice of a dentist, the oral physician of the 21st century. The patients of tomorrow should expect no less. ♦

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