

# Training For Dental Professionals: Nutrition And Disease In The Elderly

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## Abstract

The geriatric population is the most rapidly growing segment of the general population and will have dramatic implications for systemic and oral health in future. Poor hygiene in elderly led to the spread of infectious diseases that were responsible for most deaths. Nutritional deficiency states in old people may lead to diseases. So a good diet is not only necessary for development of the masticatory system, it also keep this system functioning properly. To help patients improve their diet without taking on the role of a dentists, a dietitian like all other health professionals, must posses basic nutritional knowledge and be familiar with the physiologic processes at play, as well as the effects of nutrition on the body. The educational programmes that are most comprehensive in this respect offer, in the first year, a basic nutrition course preceded or accompanied by courses in biochemistry and physiology. The dentist trained to assess their patients diet and counsel the 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.

## INTRODUCTION

The geriatric population is the most rapidly growing segment of the general population and will have dramatic implications for systemic and oral health in the future. As more people live longer and become elderly, there will be an increase in chronic conditions and illness that will influence both oral and systemic health.<sup>1,2</sup>

At the start of the 20<sup>th</sup> century, the variety of foods available was limited, and so was the risk of choosing the wrong ones. Poor hygiene in elderly led to the spread of the infectious diseases that were responsible for most deaths. So a good diet is not only necessary for development of the masticatory system, it also keep this system functioning properly. Since dentistry, or oral health provider, & eating are so closely linked, it is important for dentists to pay attention to their patient's nutritional status.

## DIETARY LINKS TO ORAL DISEASE IN ELDERLY PEOPLE

Oral mucosa : Nutritional deficiency states in older people may result in alterations in oral mucosal integrity exacerbating age associated changes in the structure of this tissue. The micro nutrients most commonly associated with mucosal pathology include iron, vitamin B12 and folate. In addition to their effects on oral mucosa, such deficiency is also associated with candida albicans infection both

intraorally and at the angles of the mouth (angular chilitis). Such deficiency states are more prevalent in older population groups.<sup>3</sup>

Oral candidiasis: Candidasis an infection occurs in unhealthy and reflects changes in host defense and susceptibility rather than increased pathogenicity of the organism. Oral candidiasis has been associated with variety of predisposing factors and that include high carbohydrate diets and iron or folate deficiencies. Angular chilitis presents as an inflammatory fissuring and maceration at the commissures of the lips due to bacterial and fungal colonization. The usual constellation of factors that contribute to the condition involves loss of vertical dimension xerostomia, and riboflavin deficiency. Denture stomatitis is also associated with the presence of candidiasis and impaired with the presence of candidiasis and impaired host resissance in denture wearers. The condition may take on a worthy appearance like a touch of grapes or it may take on a fiery red appearance with associated ulceration and burning pain.<sup>4</sup>

Atrophic glossitis : Painful burning tongue is characterized by inflammation and defoliation. The loss of filiform papillae produces a painful erythematous and granular appearance of tongue and eventual complete atrophy of papillae produces a smooth or blad tongue. The condition has been associated with vitamin B1, B2, B6, B12 or folic

acid deficiency.<sup>3,4</sup>

Recurrent aphthous ulcer: Characterized by large size, long duration and recurrence. Etiologies include altered immune response, allergic response and nutritional<sup>3,4</sup> (Fe, B6, B12).

### IMPACT OF ORAL HEALTH ON SYSTEMIC HEALTH

Recently, there have been a number of studies relating oral health to systemic health, notably to atherosclerotic disease (both stroke and myocardial infarction) and to pneumonias in debilitated subjects. These studies suggest role of periododontal pathogens and their associated circulating inflammatory markers in the initiation and progression of the formation of atherosclerotic plaques & subsequent disease. Also, evidence relate dietary imbalance with a variety of systemic illnesses.<sup>4,5</sup> Thus, poor oral health may indirectly impact on systemic health through disturbances in nutritional intake.

### IMPACT OF ORAL HEALTH STATUS IN NUTRITION

The number and distribution of teeth influence the ease of chewing, as does the functional capacity of complete or partial dentures. Chewing with conventionally retained dentures can be likened to an oral juggling act where the prosthesis are controlled by actions of oral musculature and the forces of adhesion and cohesion holding them in place against the edentulous mucosa. Obviously the food itself will act as a profound destabilizing influence in this process of forces are applied eccentrically to the dentures unless the bolus can be manipulated such that chewing occurs simultaneously on the right and left sides. These effects are only made worse in someone with impaired output in whom denture stability and tolerance will also be reduced. Ill fitting dentures and the potential for associated lesions and pain are of particular concern for those individuals suffering from dementia or other conditions that may prevent them from articulating the cause for difficulty chewing food. It is common to notice rapid weight loss in institutionalized elderly patients after placement of new dentures that are not monitored for comfort and functional efficiency. Most often, ill fitting dentures can be confirmed through the presence of lesions at the borders of the prosthesis.<sup>5,6</sup>

### NUTRITION AND HEALTH

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, dental caries or

widespread gingivitis. Dentist did some fillings and may extractions, with the result that many of those born before the end of the second world war lost all their teeth.<sup>7</sup> As the population has aged, the prevalence of certain oral condition whose incidence or treatment may be affected by diet has remained stable or even risen.<sup>8</sup> 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. A study conducted in Mansfield Pennsylvania showed that patients are very interested in nutrition: 78% of dentists reported being asked about nutrition and 64% though it was important that patients have access to nutritional counseling 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 patients.

The dentists trained to assess their patients diets & 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.<sup>10</sup>

### TRAINING FOR STUDENTS AND DENTIST'S

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

The educational programs that are most comprehensive in this respect offer<sup>11,12</sup>, 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 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 counseling: the students evaluate one another's diets and occasionally those of school-children in the community as well as clinical cases.

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 counseling skills by completing nutritional evaluations of patients presenting various dental pathologies, under close supervision of a dentist and a dietitian.

## **NUTRITIONAL COUNSELING IN THE DENTAL PRACTICE**

Since the systemic effects of diet are of the greatest importance when 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 supplement the involvement of other health professionals following the pregnancy. The next step should be to encourage breast feeding as the ideal means of meeting the infant's nutritional requirements and developing the maxillae; while avoiding the risk of extensive premature decay.<sup>13</sup> If the mother should choose to bottle feed her baby, the dentist should provide on how to prevent the harmful effects of caries. 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 when a patient visits a dentist for the first time, a nutritional analysis will give a fuller picture of the patients oral health and help in assessing the likelihood of successful treatment. 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. Even if a dentist cannot provide full nutritional counseling, he or she should advise patients of any problems, give advice and refer then to the appropriate health professionals.

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