

THE ROLE OF FOODS AND NUTRITION IN DENTAL HEALTH

by 5791

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B. S., University of New Mexico  
Albuquerque, New Mexico, 1969

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A MASTER'S REPORT

submitted in partial fulfillment of the  
requirements for the degree

MASTER OF SCIENCE

Department of Foods and Nutrition

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1971

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R4  
1971  
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## INTRODUCTION

Oral diseases may be less critical and less to be dreaded than cardiovascular diseases or poliomyelitis, but they have the all important distinction of being universal. Every survey to date has shown that dental decay and periodontal disease, the two major causes of tooth loss, are the most prevalent of all diseases of mankind (1).

In the United States, dental caries has been described as the most frequent, chronic disease. Periodontal disease also is a widespread problem, particularly in the adult population, but to some extent among younger persons as well (2). According to the National Institute of Dental Research there are probably a billion unfilled carious teeth in the United States. There are over 100 million people who have lost teeth because of diseases of the gums and supporting structures (1).

In the National Nutrition Survey of 1969, numerous dental problems were apparent due to nutrient deficiencies of a combination of one or more nutrients such as protein, vitamins, and minerals (3). In addition, Ritchie (4) stated that malnutrition affects many of the developing countries; and among deficiency diseases, dental diseases are a growing problem.

While food and nutrition requirements to maintain general health are well understood by nutritionists, until recently, little was known about the effects of various foods and nutrients on specific tissues of the mouth. Scientists are now studying how foods and nutrition affect tooth development, dental caries, periodontal disease, oral malformations, and other diseases of the mouth (5).

The development of knowledge in oral biology has come about as a result of the application of some of the same research procedures used in

the accumulation of knowledge in the science of nutrition. Four nutritional investigation methods used to obtain information concerning the relationship of foods and nutrition to dental health are: animal experiments, clinical trials, epidemiological surveys, and microbiological assays (6, 7)..

Roth (1) stated

it is rare indeed when a patient cannot be aided by proper nutritional guidance, since nutrition is probably the most important environmental factor affecting dental health and disease. The fact is that the same wholesome nutritious foods that are essential for good systemic health are also essential for good oral health. Coupled with good oral hygiene and periodic professional care, a proper diet can help maintain healthy teeth for a lifetime, and avoid other oral problems as well.

The purpose of this paper was to review the literature regarding the effects of foods and nutrition on dental health. Consideration was given to the factors: structure, composition, and development of the teeth and periodontium; dental caries, definition and mechanism, factors which promote dental caries, factors which inhibit or retard dental caries, and the cariogenicity of different foodstuffs; and periodontal disease, definition and mechanism, local factors, and systemic factors as related to foods and nutrition. The diets and nutrition of various age groups were also discussed.

#### MORPHOLOGY AND FUNCTION OF THE TEETH AND THE PERIODONTIUM

Knowledge of the formation and development of the teeth and periodontium is essential for inadequate nutrient intake may adversely affect these structures and impair their functions.

Tooth formation begins before birth. The tooth buds begin to form in the gum at about the sixth week of prenatal life. Calcification of the