

Lect 17 Dietary counseling in dental practice

There are two ways in which the diet may act upon the oral tissue and play its role in the prevention of the diseases:

⇒ *First through the oral environment.*

⇒ *Second through general nutrition.*

The relationship between dental caries and frequent consumption of carbohydrate fermentable by oral microorganism is well known. However, caries development only becomes severe when intake is excessive or the resistance is lowered (disease, medication or poor nutritional status). Therefore, assessment of nutritional status including dietary habits is crucial for an understanding of the actual caries situation and for predicting the caries risk in the individual, but also for designing treatment plans and prophylactic programs.

Nutritional status assessment using Body Mass Index (BMI)

What is BMI?

Body Mass Index (BMI) is a number calculated from a child's weight and height. For children BMI is used to screen for overweight, at risk of overweight, or under weight. It's easy to perform method screening for weight categories that may lead to health problems. For Children and teens, BMI is age- and gender- specific and is often referred to as *BMI-for-age*.

What is a BMI percentile?

After BMI is calculated for children and teens, the BMI number is plotted on the CDC BMI-for-age growth charts (for either girls or boys) to obtain a percentile ranking. Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children. The percentile indicates the relative position of the child's BMI number among children of the same sex and age. The growth charts show the weight status categories used with children and teens (underweight, healthy weight, at risk of overweight, and overweight).

How is BMI calculated and interpreted for children and teens?

Calculating and interpreting BMI using the BMI Percentile Calculator involves the following steps:

- 1. Before calculating BMI, obtain accurate height and weight measurements
- 2. Calculate the BMI and percentile using the Child and Teen BMI Calculator. The BMI number is calculated using standard formulas. $\left\{ \text{weight (kg)} / \text{height}^2 \right\}$
- 3. Review the calculated BMI-for-age percentile and results. The BMI-for-age percentile is used to interpret the BMI number because BMI is both age- and gender-specific for children and teens. These criteria are different from those used to interpret BMI for adults — which do not take into account age or gender.

Age and gender are considered for children and teens for two reasons:

- The amount of body fat changes with age. (BMI for children and teens is often referred to as *BMI-for-age*.)
- The amount of body fat differs between girls and boys.

The CDC BMI-for-age growth charts for girls and boys take into account these differences and allow translation of a BMI number into a percentile for a child's or teen's gender and age.

4. Find the weight status category for the calculated BMI-for-age percentile as shown in the following table.

Weight Status Category	Percentile Range
Underweight	Less than the 5 th percentile
Healthy weight	5 th percentile to less than the 85 th percentile
At risk of overweight	85 th to less than the 95 th percentile
Overweight	Equal to or greater than the 95 th percentile

Two children have the same BMI values, but one is considered overweight and the other is not. Why is that?

The interpretation of BMI-for-age varies by age and gender so if the children are not exactly the same age and of the same gender, the BMI numbers have different meanings. Calculating BMI-for-age for children of different ages and gender may yield the same numeric result, but that number will fall at a different percentile for each child for one or both of the following reasons:

- The normal BMI-related changes that take place as children age and as growth occurs.
- The normal BMI-related differences between gender.

Assessment of dietary intake

The modern dental practitioner is not only concerned with educating patients for the prevention of caries and periodontal disease, but also plays an important role in screening patients for other health risks. The role of the dental team should be to *screen patients* for nutritional risk, provide *dietary guidance* related to oral health, and *refer patients* to nutrition professionals for treatment of other nutrition-related systemic conditions.

In dentistry, dietary assessment and counseling is important for success in treatment and prevention in some oral disease. The practical problems of diet analysis and advice in the caries-prone patient should be tackled systematically

Objectives of dietary assessment

- To provide an opportunity for a patient to study personal dietary habit objectively
- To obtain an overall picture of the types of food in the patients diet food preferences and quantity of food eaten
- To study food habit and snacking pattern
- To record the frequency of use and when the cariogenic food is consumed to determine the over all consistency of the diet and the fibrous food that are regularly included
- To identify the nutritional status of an individual with regard to overall requirements
- To provide a basis for making individual recommendation for changes in the diet that is important to the health of the oral mucosa and the periodontium and to the prevention of dental caries

There are several methods available. The methods commonly used to assess dietary intake are: *24-hour recall, dietary record, and food frequency questionnaires*

➔ **24-hour recall**: This is widely used method to assess dietary intake. A trained person from the dental team *interview* the patient on the intake of food and beverages during the latest 24-h period. Consistency in the technique and skill of the interviewer are important, since these influence the communication and cooperation of the patient and thereby the result.

- Food models and life- size illustrations are recommended by most research as a support to estimate eaten quantities. The portion size can also be given in household measures, such as glass, cup, tablespoon, deciliters and grams.
- To reduce bias, the 24-h recall is requested without giving the patient prior notice.
- For nutrient with large day-to-day variations, the number of days increased. The day should select to represent ordinary day.

➔ **Dietary record**: In dietary record, also called food diaries, the patient records type and amount of every thing consumed during the prescribed period, usually 3-7 days.

- Estimates of portion size and selection of days are done in the same way as for the 24-h recall method.
- The patient is thoroughly instructed and motivated to fill in the record and to keep to normal dietary habits during the record period.
- The dietary record and 24 h method are both reported to underestimate the intake.

➔ **Food frequency questionnaires**: A food frequency questionnaires contains a list of food items usually 50-150 items. They are selected to illustrate the whole diet or a specific nutrient (sucrose).The patient mark his / her consumption on a scale ranging from never to several time per day. It can be used to estimate nutrient intake.

- It is uncomplicated and cheap to perform and may be useful as a screening instrument or to collect dietary data on a group level.

Semi quantitative food frequency questionnaire

- Is used to indicate a general food frequency questionnaire that allows for quantification of serving size
- There are many food frequency instrument with a long list of food that tend to yield a estimates of nutrient intake, these were developed for different population and different purposes

Evaluation of dietary assessment

After a completion of the dietary registration, the intake is evaluated

Evaluation of cariogenic potential.

The frequency of intake and the consistency of refined carbohydrate are key factor in the initiation and continuation of the caries process, to identify type of carcinogenic food we should look at this form a public health view point not a purely biochemical view point even bread contain sugar but overall bread is not threat to teeth. Therefore evaluation of cariogenic potential includes an estimation of factors such as number of intakes containing fermentable carbohydrate, taking snacks during the night, and retentiveness of the cariogenic products (length of time food might remain on the tooth surface).

Sugar that are added to provide sweetness are classified into

- **Solid and sticky** cakes, sweet roll, pastry, canned fruit candy, toffee, sugared chewing gum
- **Liquid** soft drink sugar and honey in beverage, ice cream, custard
- **Slowly dissolved** canned

Other properties of the food, known to modify the caries process, should be regarded. An example of this chewing stimulation provide by the food. The periods with lowered pH in plaque are reduced by a diet, which increase saliva secretion.

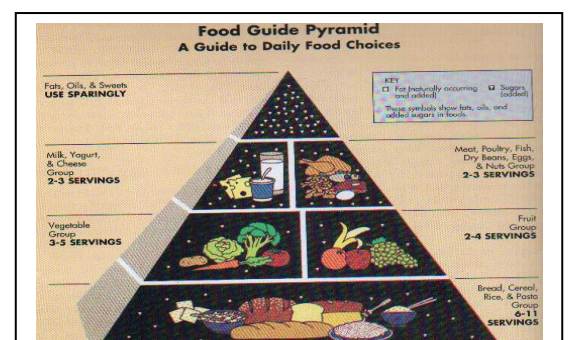
Evaluation of nutritive value

Several, inexpensive software for evaluation of energy and nutrients in the diet are available, and computer- based analysis of diet registrations are common also in dental practice, this is a convenient way to evaluate the nutritive value of the intake. Computing the nutritive of each food eaten by each person in to its different nutrient was following food composition table, this table convert food that are most commonly prepared and eaten in to their major nutrient component such as protein, vitamins and minerals.

Compare the result with Recommended Dietary Allowance (RDAs) Which is a standard dietary adequacy, was prepared by National Academy of Science for certain nutrients . RDAs reflects adequate intake for healthy individual to prevent deficiency state, the value are adjusted for age and gender.

Another way to estimate nutritive value of the diet is to estimate the number of intakes representing specific food groups. In an attempt to translate scientific knowledge of nutrient need into clear guideline to help people select an adequate diet therefore five food group were required for health these are:

Bread and cereal group	6-11 serving/day
Vegetable group	3-5 serving /day
Fruit group	2-4 serving /day
Milk group	2- 3 serving /day
Meat, poultry, fish, egg	2-3 serving /day



Dietary counseling

After assessment of the dietary registration, the advised plan for the individual is formulated

Approach to counseling

- **Non-directive:** counselor role is merely to aid the patient in clarifying and understanding his or her own situation and provide guidance so that the patient can make his or her own final decision
- **Directive** the role of the patient is passive and the decision are made by the counselor for the patient

In some patients, a single habit may explain the caries activity, e.g., frequent eating of sugar containing lozenges or taking snacks at night, and this may easily be corrected. In others, a complex eating situation is found. The eating pattern may be characterized by snacks when virtually no ordinary meals give satiety or a proper nutrient intake. In cases like these, a change in basic behavior is required.

Change in behavior is a process affected by the established fact that human is neophobic. This means we have a fear of new things. Therefore, forced dietary changes cannot be successful unless the benefit accrues rapidly and is of demonstrable advantage . This can be seen for some weight- reducing program. Otherwise, a successful change in diet behavior relies on a program with repeated, small steps. This is shown to be true for introduction of a new food items and habits to small children as well as adults. Of further importance is that such counsel takes account of the social situation of the patients

Motivation

To modify a patients diet the clinician can only seek and encourage the patient's own motivation. The basic factors that motivate people

- * **self-preservation**
- * **recognition**
- * **religion**
- * **money**

All factors influence the desire of each person. If clinician can help patients understand that healthy mouth and teeth and a nice looking smile can help them to achieve one or more of these four goals, the patient will be inclined to adopt diet that will promote better oral health