

Healthy Mouth, Healthy Body, Healthy Practice

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I. Nutrition screening—why should we do it?

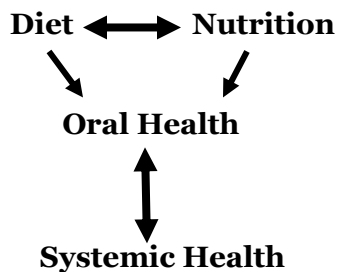
As the interrelationship between the mouth and the rest of the body becomes clearer, dental professionals, doctors, the allied professions and patients will need to rethink the term “oral health”

“The mouth is the gateway to the rest of the body, a mirror of our overall well-being.”

Harold C. Slavkin, D.D.S.

Former Director of the National Institute of Dental and Craniofacial Research, and
Dean of the University of Southern California School of Dentistry

II. Oral Manifestations of Nutritional Deficiencies

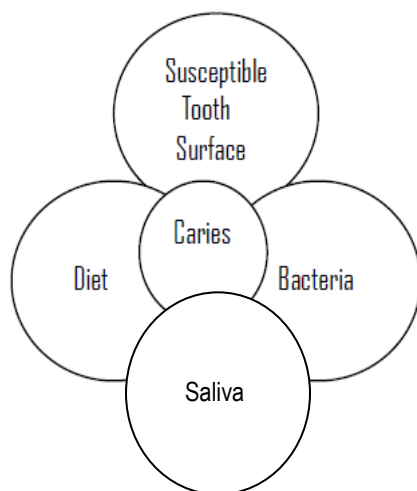


Oral Symptom	Possible Nutrient Deficiency
Glossitis	Niacin, folate, riboflavin, B6, B12
Glossodynia	Niacin, B12, B6
Angular cheilosis	Riboflavin, B6, B12, folate, niacin, iron
Inflamed, bleeding gingiva	Vitamin C, K, B12, niacin, folate
Stomatitis, mucositis	Niacin, folate, thiamin, B12
Xerostomia	Zinc, vitamin A, B12
Sore or burning tongue	Riboflavin, thiamin, niacin, B6, B12, iron
Altered taste	Thiamin, riboflavin, vitamin A, B12, zinc
Increased risk of candidiasis	Folate, vitamin A, K, iron, zinc
Decreased mineralization of teeth; alveolar integrity	Calcium, phosphorus, magnesium, vitamin D
Delayed wound healing	Vitamin A, C, riboflavin, zinc
Altered enamel development	Vitamin A, calcium, phosphorus

Adapted from Palmer, C.A.: Diet and Nutrition in Oral Health, 2003, 2017, pp. 96, 100-101, 117-118, 129-132.

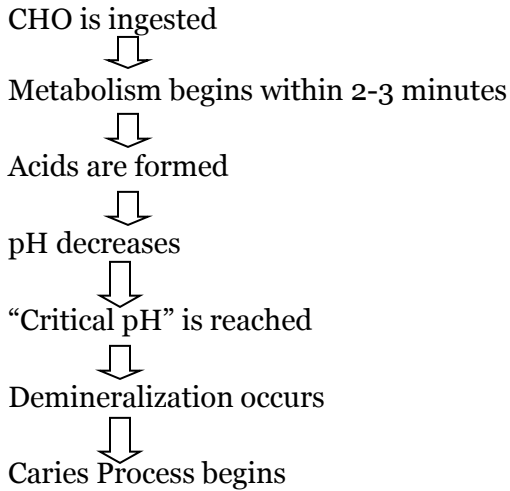
III. Diet and Dental Caries:

- **For caries to develop, four factors must occur at the same time:**
 - ✓ A susceptible tooth
 - ✓ Diet rich in fermentable carbohydrates
 - ✓ Specific bacteria—lactobacillus; streptococcus mutans
 - ✓ Saliva—quantity and composition



A. Back to the Basics:

Caries Process:



Physical Form of CHO: Liquid, solid/retentive OR slow dissolving

Timing and sequence in meal: During, between or at the end of a meal

Frequency of intake: How often; minutes of exposure (40 min solid, 20 min liquid)

B. Sucrose isn't the only 'bad guy'.

1. All monosaccharides and disaccharides can be cariogenic under certain circumstances.

- Fructose, glucose and maltose ALMOST as caries promoting as sucrose
- Lactose has low cariogenicity EXCEPT when used in a baby bottle at bedtime
- Honey is composed of fructose, glucose and sucrose and is as cariogenic as sucrose
- Refined cooked sugars such as doughnuts, cookies, potato chips and some ready to eat breakfast cereals produce a prolonged acidogenic response when retained in interproximal spaces
- Fat free foods—loaded with sugar

Sugar by any other name...is STILL sugar...

✦ Brown sugar	High-fructose corn syrup	Glucose
✦ Lactose	Corn sweetener	Honey
✦ Maltose	Corn syrup	“cane juice”
✦ Malt syrup	Dextrose	Agave nectar
✦ Sucrose	Fructose	
✦ Syrup	Fruit juice concentrate	

2. Sources of sugar in the diet:

- a. 33% come from soft drinks
- b. 1 tsp sugar= 4 grams carbohydrate
- c. Currently the average person consumes approximately **53 gallons** of carbonated soft drinks a year ---that doesn't include the noncarbonated beverages!
- d. AHA guidelines recommend 6 tsp of sugar for women and 9 tsp for men-- whereas typical American diet consumes 22 tsp/d.
- e. **EXCESSIVE INTAKE OF SODA:** Replaces nutrient dense foods with liquid sugar
- f. **Oral Health:** Dental caries and tooth erosion
- g. **Overall Health:** Contributes to conditions such as diabetes, osteoporosis, and increased rate of bone fractures in women and **OBESITY**.

3. What's in your CUP?

12 oz can of non-diet beverage (10 tsp. of sugar) ~140 calories; one a day=15 lbs

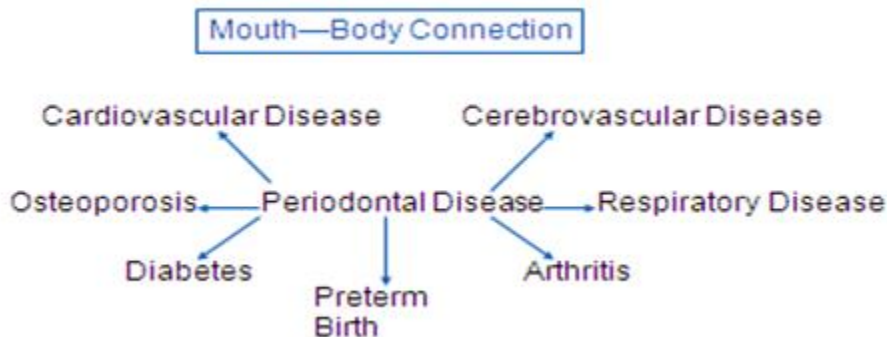
20 oz can of non-diet beverage (17 tsp. of sugar) ~250 calories; one a day= 24 lbs

64 oz "Big Gulp" of non-diet beverage (52 tsp of sugar) ~800 calories; one a day= 83 lbs

❖ Great link to use as a resource in your practice:

<http://www.sipallday.org/>

III. Diet, Nutrition and Oral Systemic Disease



Systemic effects of nutrition on oral health

- ❖ Role of diet and nutritional factors in the development of periodontal disease is unclear. HOWEVER it IS known that our general defense mechanisms can be affected by nutritional intake and nutritional status.
- ❖ Oral health affects our diet and our diet affects our oral health.
 - a. Weakened immune system can slow wound healing
 - b. Tooth Loss
 - c. Smoking
 - d. Heart disease
 - e. Diabetes Mellitus
 - f. Respiratory infection, COPD
 - g. Osteoporosis
 - h. Preterm birth
 - i. Stroke
 - j. Etc.
- ❖ Inflammation and Oral health

Periodontal Issues

Nutrient Needs and Kcals increase due to:

- Tissue catabolism
- Infection
- Blood loss
- Tissue repair and healing
- Immune response

Nutritional insults do NOT cause periodontal disease; however, they may increase the severity.

Recommendations for oral post-surgical clients/patients:

- Full liquid→Mechanical Soft→Regular diet
- Bland diet
- Adequate kcal and nutrient intake
- Cooler temperatures and soothing foods
- Frequent and smaller meals and snacks
- Supplementation beyond the DRIs does not prevent periodontal disease
- Encourage nutrient-dense, fortified, or enriched foods
- Monitor CHO intake
- Liquid supplements and/or a multivitamin, as needed, through recovery

Other Dental Issues that have an Impact on Dietary Intake

Enamel erosion

- Excessive regurgitation
- Excessive consumption of acidic foods and beverages
- GERD

Xerostomia

Xerostomia

Influence on Nutrient Intake

- Inability to keep mouth moist
- Difficulty in chewing and swallowing
- Burning or sensitive oral mucosa
- Dry, crusty, smooth, or shiny mucosa
- Low tolerance to spicy and acidic foods
- ↑ in ulcerations
- Food sticks to hard palate, tongue, or removable prosthesis
- Altered or lack of taste
- Difficulty with use of removable prosthesis
- Dry nose—impairing sense of smell

Recommendations for patients with xerostomia:

- Use of products designed to relieve xerostomia
- Lip balm
- Fluids with meals
- Moist foods
- Use of gravies and sauces
- Suck on ice chips between meals
- Tart, sour, and citrus foods and beverages
- Avoid
 - dry, crumbly, sticky, and spicy foods
 - alcohol and commercial rinses containing alcohol
 - tobacco products
 - caffeine
- Frequent sips of fluids with meals
- Use of a humidifier
- Monitor CHO intake
- Products containing sugar alcohol have the potential to be cariogenic

Recommendations for patients with a removable prosthesis and/or missing teeth:

- Nutrient-dense, fortified, or enriched foods
- Cut food into small pieces
- Cooked fruits and vegetables
- Evenly distribute food on both sides of the mouth
- Avoid biting with anterior teeth
- Avoid sticky foods, berries with seeds, and nuts
- Ask about the fit and comfort of the prosthesis
- As the missing teeth ↑ and/or tooth mobility ↑, the ability to chew ↓

IV. Dietary Supplementation and the dental patient

A. Common Herbals and supplements

1. Ginkgo biloba
2. St. Johns Wort
3. Echinacea
4. Ginseng
5. Saw palmetto
6. Kava
7. Vitamin C

B. Who takes supplements?

C. Recommendations Before Having Dental Surgery, if you use any of these herbal medications stop taking them:

- **Ephedra** at least 24 hours before surgery
- **Garlic** 7 days before surgery
- **Ginkgo** 36 hours before
- **Ginseng** 7 days before surgery
- **Kava** 24 hours before
- **St. John's Wort** 5 days before surgery

V. Treat or Refer---- What's the role of the dental professional?

VI. Partnering with Registered Dietitians in Practice

A. Locate a dietitian on the Academy of Nutrition and Dietetics website:

<http://eatright.org>

B. Academy of Nutrition and Dietetics Position Paper on Oral Health and Nutrition. Available at:

<http://download.journals.elsevierhealth.com/pdfs/journals/2212-2672/PIIS2212267213002360.pdf> (accessed April 17, 2017)

C. Include nutrition and oral health in your study club topics; find an RD to jointly present with dentist or dental hygienist

Practical Nutrition Tips for the Dental Professional

- Limit between meal snacks
- Eat cariogenic foods *during* meals
- Include whole grains, veggies, fruits & lowfat dairy as snacks.
- Encourage nutrient-dense, fortified, or enriched foods
- Monitor timing and frequency of simple & retentive CHOs, such as:
 - Crackers, breads, cereals
 - Pretzels and chips
 - Peanut butter (processed not natural)
 - Diet and regular sodas; sports drinks, energy drinks, flavored water
 - Dried fruit
 - 100% fruit juice, juice bars and frequent juicing with fruits/vegetables
 - Fruit smoothies
- Limit sodas to one 8 or 12-oz can per day
- Select cans over re-sealable bottles.
- Recommend the use of a straw positioned toward the back of the mouth.
- Recommendations following snacks w/CHOs
 - Chew gum with xylitol
 - Rinse with water
 - Brush teeth
- Firm, fibrous foods stimulate salivary flow
- Suggest appropriate use of fluorides & meticulous daily plaque removal
- Encourage regular dental check-up appointments.

NOTES:

<i>Circle the number in the "Yes" column for all positive answers</i>	YES
1. Do you have any illness or condition (i.e. food allergy) that has made you change the kind and/or amount of food you eat? (Referral to MD or RD)	2
2. Are you on a special diet?	2
3. Do you avoid eating one or more food groups (meat, dairy, fruit, veggies, bread/ cereal)?	2
4. Do you have 2 or more drinks of beer, liquor or wine daily?	2
5. Do you use tobacco products daily?	1
6. Do you have tooth pain or mouth sores that make it hard to eat or make you avoid certain foods?	2
7. Do you drink sugar sweetened beverages (coffee, tea, soda, flavored juice) OR diet sodas 2 or more times a day between meals?	2
8. Do you snack in between meals (on foods other than fresh fruits and vegetables)?	2
9. Did you have 3 or more new cavities at your last dental checkup OR at your present checkup?	2
10. Do you have a dry mouth which causes you to drink something other than water OR use gum, hard candy, cough drops, or mints to moisten your mouth 2 or more times per day?	2
11. Do you take 3 or more different prescription, over the counter meds OR vitamins, minerals, herbals, dietary supplements daily?	1
12. Without wanting to, have you lost or gained 10 pounds in the last 6 months? (Referral to MD or RD)	2
TOTAL	

Total Points	Nutritional Risk Level	Intervention
0-2	Low	Recheck nutritional score in 6 months
3-5	Moderate	Continue with nutrition assessment (24 hr recall/5day food record)
6 or more	High	Continue with nutrition assessment; consider need for referral to physician and/or a registered dietitian.

Circle appropriate answer

- | | | |
|---------------------------------------------------------------------------------------------------------------------------------|-------|----|
| 1. Does patient have moderate to severe periodontitis? | YES* | NO |
| 2. Would this patient benefit from a 24 hour recall and/or 5 day food record to determine an inadequate and/or cariogenic diet? | YES* | NO |
| 3. Does the patient have complicated medical and nutrition needs? | YES** | NO |

* IF the answer is YES to question #1 or #2, general nutrition education for a healthy, low cariogenic diet is recommended.

** IF the answer is YES to question #3, patient should be referred to a physician or registered dietitian for further assessment.

The RDH and/or DDS have informed me of my risk factors for oral diseases and the preventive services that are available to reduce the risk.

Patient signature: _____ Date: _____

Adapted from The Nutrition Screening Initiative, a project of the AAFP, ADA & NCOA, Washington, D.C. 1992.



Food Journal

week of _____

	Breakfast	Lunch	Dinner	Snacks	Fruits & Veggies <small>Aim to eat 3-7 daily</small>	Water <small>Aim to drink 64 oz.</small>																
Sunday					<p>Check off each one as you eat</p> <table border="1"><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>									<p>Check off each glass as you drink</p> <table border="1"><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>								
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Diet and Your Teeth

Frequent eating or drinking of sugar containing food is a major risk factor for developing dental caries (tooth decay).

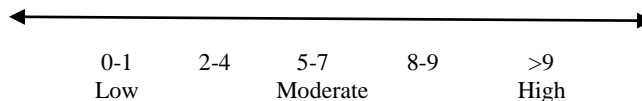
Do you have a dry mouth?	Yes	No
Do you chew gum? If yes what type?	Yes	No
Do you suck on hard candy, cough drops, etc.?	Yes	No

A
Circle foods eaten regularly?
(> 1 time/week)

B
How many of the circled foods do you eat each day?

C
Multiply the column "B" by column "C".
Record the total at the bottom.

Caries Risk Score



LIQUID

Soft drinks, fruit drinks, cocoa, sugar or honey in beverages, non-dairy creamers, ice cream, sherbert, jello, flavored yogurt, pudding, custards, popsicles

SOLID/STICKY

Cake, cupcakes, donuts, sweet rolls, pastry, canned fruit in syrup, bananas, cookies, chocolate candy, caramel, toffee, jelly beans, other chewy candy, gum, dried fruit, jelly, jam, marshmallows.

DISSOLVING

Hard candies, breath mints, antacid tablets, cough drops

TOTAL

x1=

Points to keep in mind to lower your risk for caries:

Cut down on the frequency of between meal sweets

Don't sip constantly on sweetened beverages.

Avoid using slowly dissolving items like hard candy, cough drops, or breath mints.

x2=

Eat more non-decay promoting foods such as low-fat cheese, raw vegetables, crunchy fruits, popcorn, nuts, artificially sweetened beverages and natural spring waters.

x3=

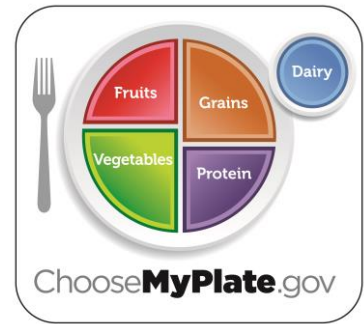
Promote good oral health and overall health; eat adequate amounts from each of the groups on ChooseMyPlate.

What do you eat in a typical day?

List all the foods including snacks and beverages that you eat in a typical day. Give your best estimate of amounts and times consumed.

Time of Day Foods eaten Amount

How does your plate rate?



Grains: 0 1 2 3 4 5 6 7 8 9 10 11

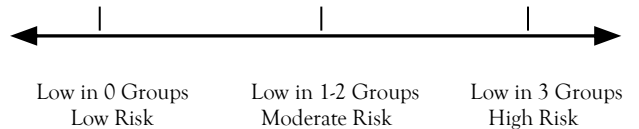
Vegetables: 0 1 2 3 4 5

Fruits: 0 1 2 3 4 5

Dairy: 0 1 2 3

Meat & Beans: 0 1 2 3 4 5 6

Refer to Food Guide Pyramid Choosemyplate.gov to determine individual requirements. Consumption below the lowest recommended servings in any of the food groups may indicate essential nutrients are missing in the diet. Plot risk below:



Resources for Practice:

Stegeman C and Davis J. *The Dental Hygienists Guide to Nutrition Care*, 4th Ed. St. Louis: Saunders Elsevier. 2015

Primary Health Care in the Dental Office. *Dental Clinics of North America*. 2012. 56 (4): 699-884.

Palmer CA, Boyd LD. *Diet and Nutrition in Oral Health*, 3rd Ed. New Jersey: Prentice Hall. 2017

Harper Mallonee LF. Nutrition Counseling. In: Darby, M. *Dental Hygiene: Theory and Practice*. 3rd Ed. St Louis: Saunders Elsevier; pp. 607-626, 2015.

Touger Decker R, Mobley C. From the Academy: Position of the Academy of Nutrition and Dietetics: (AND): Oral health and Nutrition. *J Acad Nutr Diet*. 2013; 113(5): 693-701.

HarperMallonee L, Boyd L, Stegeman C. From the Academy: Practice Paper of the Academy of Nutrition and Dietetics: (AND) Oral Health and Nutrition *J Acad Nutr Diet*. 2014; 114: 958. Available at: <http://www.eatrightpro.org/resource/practice/position-and-practice-papers/practice-papers/practice-paper-oral-health-and-nutrition> (Accessed April 17, 2017)

Harper-Mallonee LF. The Scope of Nutritional Counseling in the Dental Practice Setting. *Contemporary Oral Hygiene*. 2006; 6(8): 20-27.

NOTES: