Change in Taste/Flavor and Nutrition

Joel B. Epstein DMD, MSD, Riva Touger-Decker, PhD & Heidi Ganzer, RD

What is it?
Taste sensation is comprised of multiple taste functions, affected by reduced saliva, oral health and oral hygiene. Taste is affected by the presence and function of taste receptors on the cell surface. The taste signal is then transmitted by nerve function to the brain. Flavor is a complex sensation that involves taste, smell, texture, temperature, as well as visual and memory functions.

How common is it among head and neck cancer patients?
Taste is affected in all patients with head and neck cancers that are treated with radiation with/without chemotherapy. Taste can be reduced, altered or lost in cancer care. Taste may be altered due to the primary tumor or treatment of the cancer. Secondary mouth infection can occur and also affect taste. Mouth care, dental health, and habits such as tobacco use, alcohol, oral hygiene and diet affect taste. Taste change can persist for months and continue indefinitely following treatment.

What are the signs/symptoms?
Taste loss, lack of good taste, bad taste, altered tastes in the mouth and in the taste of food may occur. Taste change may be associated with bad breath. Post treatment taste and flavor alterations may impact food choices, appetite, intake and nausea and result in weight loss and nutritional deficiencies. This often results in loss of interest in and pleasure from food and may affect quality of life.

Sweet taste and fatty taste change may affect energy intake. Salty taste may be related to electrolyte intake. Umami (good or pleasant taste) and fatty taste may impact quality and quantity of food eaten.

How is it diagnosed?
Taste, smell and flavor changes are most commonly reported verbally. Specific questions can be asked to assess the nature of the change, the severity and impact. There are standard questionnaires that assess these functions. Taste and smell can also be tested by applying specific tastes and smell, but this is not commonly done. An oral exam and saliva measure can be completed.

It is important to report any changes including flavor, saliva and appetite change to your health care providers.

How is it treated?
If you have taste/flavor changes, treatable underlying causes should be identified. For example, oral problems such as gum disease, dental infection, mouth infection and dry mouth can be managed.
Cancer Survivorship
Patient Education on Post-Treatment Care

Changes in your diet and food choices may be recommended. It is important to identify those foods that are pleasurable and to avoid foods that have a “bad taste” and those that lead to mouth sensitivity. Working with a registered dietitian nutritionist (RDN). S/he will help you plan a diet that highlights pleasurable tastes and flavors and avoids those that cause nausea or vomiting. Avoid medications that worsen taste alterations, if possible. If you have dry mouth, avoid medications that make the dry mouth worse. Prescription saliva stimulating medicines may be given. People with continuing taste change may be managed with some medications that may be provided by specialists with interest in taste function and oral/dental care providers when the mouth condition is affecting diet.

When should I call my doctor?
Inform you doctor of ongoing or new symptoms. If you do not report these symptoms, they will not be identified.

Where can I learn more?
Web resources:
Multinational Association of Supportive Care in Cancer - MASCC.org
Oral Cancer Foundation (OCF) – https://oralcancerfoundation.org/
Support of People with Oral Head & Neck Cancer (SPOHNC) - https://www.spohnc.org/

Table 1: Prevention and Management of Taste Change
Dietary/nutrition counseling (see Table 2 for more detailed information)
Food preparation: seasoning, spices, acidic foods, umami
Dietary supplements as needed
Management of oral disease and dry mouth
Medical Interventions for taste function
## Table 2: Symptoms Impacting Taste and Nutrition Tips to Manage\(^1\)\(^-\)\(^4\)

<table>
<thead>
<tr>
<th>Nutrition Impact Symptom Affecting Taste</th>
<th>Nutrition Tips</th>
<th>Cooking or Food Preparation Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry Mouth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep fluid or a portable water container with you at all times; goal consuming 64-80 ounces of fluid daily.</td>
<td>Choose foods high in fluid (i.e. watermelon, peaches, hot cereal, soups, etc.).</td>
<td>Make smoothies/milk shakes; this can help increase fruit/vegetable intake.</td>
</tr>
<tr>
<td>Suck (do not chew) on ice chips; chewing on ice could damage teeth.</td>
<td>Make your own ice with flavored waters or liquids to enhance taste (i.e. use mint, fruit juice, etc.).</td>
<td>Use Italian salad dressing or other prepared marinade, balsamic vinegars, apple cider vinegar, cooking wines, etc. for marinades.</td>
</tr>
<tr>
<td>Use sugar-free gum or sugar-free hard candy to moisten the mouth.</td>
<td>Make smoothies/milk shakes; this can help increase fruit/vegetable intake.</td>
<td>Soften foods like bread, toast or potatoes with milk or broth. This will moisten food and add protein and/or flavor.</td>
</tr>
<tr>
<td>If the mouth is not sensitive use tart foods, seasoning to help stimulate saliva.</td>
<td>Use sauces, butters, cream or milk, or gravies to moisten food.</td>
<td>Use olive, canola, avocado, almond or coconut oil to make foods more slippery.</td>
</tr>
<tr>
<td>Avoid alcohol or mouth rinses with alcohol, caffeinated beverages and tobacco that contribute to dry mouth.</td>
<td>Use a blender to mash or blend foods.</td>
<td>Prepare softer cooked meats (i.e. chicken or fish).</td>
</tr>
<tr>
<td>When eating alternate between liquids and solids.</td>
<td>Use yogurt, juice or jelly to moisten foods.</td>
<td>Soups, broth and casseroles are moist and easy to eat.</td>
</tr>
<tr>
<td>A cool mist humidifier can help moisten the mouth</td>
<td>Use olive, canola, avocado, almond or coconut oil to make foods more slippery.</td>
<td>Soft cooked eggs, cottage cheese, ricotta cheese are all moist, high protein food choices.</td>
</tr>
<tr>
<td>If your doctor has recommended medication for dry mouth, use as prescribed.</td>
<td>Prepare softer cooked meats (i.e. chicken or fish).</td>
<td><strong>Cooking or Food Preparation Tips</strong></td>
</tr>
<tr>
<td>Over the counter saliva substitutes can give temporary relief of dry mouth and taste changes.</td>
<td>Soups, broth and casseroles are moist and easy to eat.</td>
<td>Soft cooked eggs, cottage cheese, ricotta cheese are all moist, high protein food choices.</td>
</tr>
<tr>
<td>Keep mouth clean by rinsing after each meal/snack; brush teeth according to directions provided by doctor.</td>
<td></td>
<td><strong>Cooking or Food Preparation Tips</strong></td>
</tr>
</tbody>
</table>
# Cancer Survivorship
## Patient Education on Post-Treatment Care

| Taste Changes | Provide specific information to your dietitian or doctor about your taste challenges (i.e. no taste, foods too sweet or salty, metallic taste, etc.). This will help your health care provider give specific information to counter your taste challenge. Use mindful eating to determine what foods/fluids are most appealing to you and what food/fluids to avoid or have an aversion to. This will help the dietitian help you with your nutrition plan. If your doctor has recommended medication or a specific oral care regime follow as recommended. Rinse mouth with a sodium bicarbonate and salt rinse (1/2 tsp. baking soda, ½ tsp. salt, 1 cup warm water). | Minor additions to your food preparation may make a significant impact on the way foods tastes. Keep practicing what you are doing to find what works best for you. Use fresh herbs or seasoning such as rosemary, dill, parsley, basil. If mouth is not sensitive, marinate foods in balsamic vinegar, wine, prepared marinades. Try the FASS™ method by Rebecca Katz for flavoring food (i.e. fat, acid, salt and sweet). If things have a metallic taste use plastic silverware, chopsticks or finger foods to avoid heightening the metallic taste. Cooking with glassware can also decrease metallic taste. If metallic taste add a sweetener such as maple syrup, honey, agave nectar. Also adding a source of fat such as olive oil, butter or a nut butter can help. If food tastes too salty add a small amount of lemon juice (drops) and to reach the desired taste. If food tastes too bitter add a sweetener (i.e. honey, maple syrup, agave nectar or fruit-based marinade). If food tastes too sweet add lemon or lime juice. Aromatic bitters and a small amount of freeze-dried coffee can also decrease a heightened sense of sweetness. If yogurt is too sweet try plain yogurt and add a little honey until desired taste is achieved. If food tastes “like nothing” add sea salt until the flavor can be identified. Adding an acid may also help (i.e. lemon or lime juice). Use protein foods meat; eggs, milk or yogurt, tofu, beans or legumes, etc. Experiment with seasonings cinnamon, ginger, nutmeg cumin, curry, all spice, etc. If food tastes bitter use a fruit based marinate. |

*Created by the AHNS Survivorship, Supportive Care & Rehabilitation Service*
Cancer Survivorship
Patient Education on Post-Treatment Care

| Thick Saliva | Keep a portable water container with you with a goal of consuming 64-80 ounces of fluid daily. If your doctor has recommended medication to help with dry mouth use as prescribed. Rinse mouth with a sodium bicarbonate and salt rinse (1/2 tsp. baking soda, 1/2 tsp. salt, 1 cup warm water). A cool mist humidifier can help moisten the mouth. | If mouth is not sensitive use papaya juice or pineapple juice to help thin secretions. If mouth is not sensitive use diet club soda or diet carbonated beverages to thin secretions (sugar may increase damage of teeth). Puree or use a blender to make foods easier to consume. |

References:


References:

Cancer Survivorship
Patient Education on Post-Treatment Care

