The tongue is a fascinating and often overlooked part of our body, but it can be a valuable indicator of our overall health. Its color, texture, and appearance can offer important clues about what's happening inside. In this educational handout, we'll explore the various colors and textures on your tongue and the potential causes behind these changes. We'll also discuss additional symptoms that may accompany each color and texture, helping you better understand your body's signals.

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### **Pink or Pale Pink Tongue**



#### Causes:

- A healthy tongue often appears pink or pale pink.
- If your tongue remains this color, it generally means there are no underlying health issues.

## **Red Tongue**



#### Causes:

A red tongue could be a sign of various conditions, including:

- Scarlet Fever: A streptococcal infection that leads to a red tongue, high fever, sore throat, and a distinctive rash.
- Kawasaki Disease: A rare childhood illness characterized by a red, swollen tongue along with high fever, red eyes, swollen lymph nodes, and skin rashes.
- Vitamin Deficiencies: Deficiencies in vitamin B12, folate and iron can cause a smooth, red tongue, often accompanied by a dry mouth, fatigue, weakness and other symptoms that are accompanied by anemia.
- Geographic Tongue: A geographical tongue is usually described as a 'harmless' condition with irregular smooth red patches on the tongue's surface. It may cause mild discomfort in some cases while most often related to eating spicy or acidic foods. It is caused by some form of inflammation.
- Oral Allergy Syndrome: Redness and swelling of the tongue can occur in response to certain foods, especially raw fruits and vegetables. Oral Allergy Syndrome can also cause a tingling or burning sensation inside the mouth and on the lips.



## White Tongue





(Oral Leukoplakie)

(Oral Lichen Planus)

#### Causes:

- Oral Thrush (Candidiasis): A yeast infection that can result in a white, creamy coating on the tongue, often accompanied by a cottony feeling, altered taste, and soreness. Other symptoms may include: white bumps on the tongue or tonsils, bleeding when the bumps in the mouth are scraped by the teeth or a toothbrush, pain at the location of the bumps in the mouth, trouble swallowing
- Oral Lichen Planus: White lines, patches, or sores may develop on the tongue's surface, along with
  discomfort or pain. These symptoms may appear not only on the tongue but also inside the cheeks
  (the most common location), gums, and inner tissues of the lips. Other symptoms that may present
  are a burning sensation or pain, sensitivity to hot, acidic or spicy foods and bleeding and irritation
  with tooth brushing.
- Oral Psoriasis: Psoriasis is an autoimmune condition that can cause flaky, scaly skin. Other symptoms you might experience are: The Gums' skin starts to peel, altered taste sensation, burning or tingling sensation around the lips, small furrows on the tongue surfaces
- Dehydration: A dry mouth can lead to white coating on the tongue, along with dry lips/mouth, increased thirst, and dark yellow urine.
- Oral Leukoplakia: White (sometimes grey), thickened patches on the tongue may be caused by chronic irritation by rough fillings or crowns, smoking or alcohol use and other causes of inflammation.
- Poor Oral Hygiene: Bacterial buildup can lead to a white tongue.



## **Yellow Tongue**



(Oral Psoriasis)

#### Causes:

### A yellow tongue can be related to:

- Jaundice: A yellow tongue, along with yellowing of the skin and eyes, dark urine, and fatigue, may suggest liver or gallbladder problems causing bilirubin to build up in the blood.
- Oral Hygiene: Poor oral hygiene can lead to a yellowish tongue due to bacterial buildup. This can cause a bad breath.
- Oral Psoriasis: See also the section of 'White Tongue'. In some cases, oral psoriasis may also get yellowish edges and red patches on the tongue.
- Smoking: Smoking can stain the tongue yellow.
- Consumption of Foods: Eating certain foods or beverages like turmeric or saffron may temporarily tint the tongue yellow.
- Dehydration: Dehydration can cause the tongue not only to appear white, but yellow as well.



# **Black or Brown Tongue**



A black hairy tongue typically results when papillae (little bumps on the top of your tongue) grow longer because they don't shed dead skin cells like normal. This makes the tongue look hairy.

#### Causes:

- Poor Oral Hygiene: Bacterial overgrowth can lead to a black or brown appearance. This can also cause a foul breath.
- Smoking or Tobacco Use: Tobacco products can stain the tongue.
- Certain Medications: Some medications may contribute to this condition (antibiotics and pepto bismol for example. Mouthwash containing peroxide or chlorhexidine as well.
- Fungal Overgrowth: Candida infections can cause different colors on the tongue and it can present like a black or brown hairy tongue as well. In some cases, the tongue may look hairy (see the section 'Hairy Tongue as well). Other symptoms that in this case might present is a burning sensation



# **Green Tongue**



(Trush)

Often, a green tongue starts off as a white tongue but changes to green with time after eating, drinking, or taking certain medications.

#### Causes:

- Oral Bacterial Infections: Bacterial overgrowth or infections can occasionally lead to a greenish appearance.
- Oral Thrush: Oral Thrush usually starts as a white color but can turn green. See also the section 'White Tongue'.
- Lichen planus: is a rash-like condition that can cause tongue discoloration. Usually, lichen planus on the tongue occurs as a white color. It can change green when bacteria or yeast begins to grow on it. For more information see White Tongue.
- Consumption of Green Foods or Drinks: Eating foods with green food coloring or high chlorophyll content can temporarily turn the tongue green.



### **Blue or Purple Tongue**





Reynaud's disease - poor circulation

#### Causes:

- Cyanosis: A blue or purple tongue can result from a lack of oxygen in the blood, indicating potentially serious medical conditions. Cyanosis is often accompanied by blue lips. Other symptoms that accompany Cyanosis are cold or clammy skin, shortness of breath, fatigue, and blue discoloration of the skin. Seek help from a doctor as soon as possible.
- Cold Exposure: Exposure to extreme cold can temporarily cause discoloration.
- Methemoglobinemia: A rare condition where the blood contains an abnormal amount of methemoglobin (oxidized hemoglobin) leading to bluish discoloration.
- Underlying Health Conditions: Some cardiovascular or respiratory issues may lead to blue or purple discoloration. Additional symptoms like chest pain, dizziness and fainting may present. Seek help from a doctor as soon as possible.

# **Hairy Tongue**



A hairy tongue occurs when a certain type of cell on the tongue doesn't shed as it should. This gives the tongue a rough or "hairy" appearance. This rough surface creates a place for bacteria and yeast to thrive. This can discolor your tongue to black, brown or green.

### Sensations that might be present:

- A gagging or tickling sensation caused by the lengthened cells on the tongue
- Metallic taste / a change in taste in your mouth
- Bad Breath



## **Fissured Tongue**



Fissured tongue is typically asymptomatic, meaning it doesn't cause noticeable discomfort or pain in most cases. However, individuals with a fissured tongue may have an increased risk of getting other colorations on the tongue, cause the tongue is harder to clean.

What causes a fissured tongue? Well, it isn't exactly known. It is believed that there is a genetic component to it, but here are also other conditions associated with a fissured tongue. Keep in mind that association and causation are two different things.

#### Causes

- Autoimmune: Most associated conditions are autoimmune in nature (like psoriasis, Sjörgen's syndrome, Melkersson-Rosenthal syndrome and Crohn's disease). If your tongue during your life changes to a fissured tongue, there might be more at play than genetics.
- Nutrient deficiencies: a deficiency in iron, biotin, or vitamin B12 can cause fissures as these nutrients are required to mature the tongue's papillae.
- Removable dentures: A fissured tongue is also associated with removable dentures. These lesions may arise as a result of physical, allergic or microbial factors associated with the dentures. (according to <a href="this journal">this journal</a>)
- Deep Grooves: The primary characteristic of a fissured tongue is the presence of deep grooves or furrows on the tongue's surface. These furrows can vary in number, depth, and length.
- Food Trapping: Food particles may get trapped in the fissures, leading to bad breath or an increased risk of oral hygiene issues. Proper oral hygiene, including tongue cleaning, can help mitigate this.
- Taste Changes: Some people with a fissured tongue may report changes in taste perception or an altered sense of taste. This can be due to the accumulation of debris in the fissures.



## **Geographical Tongue**





People with geographic tongue have patches on the tongue that have fewer papillae than normal. Papillae are the little bumps on the top of your tongue that help grip food while your teeth are chewing. The patches may come and go. Because some parts of the tongue are thinner a Geographical Tongue can cause a stinging, tingling or burning sensation on the tongue.

#### **Causes**

- Health conditions: It is believed that people with certain health conditions are more likely to develop a geographical tongue. Those diseases include autoimmune diseases like eczema, psoriasis diabetes type 1 and reactive arthritis.
- Vitamin deficiencies: including zinc, iron, folic acid and vitamins B6 and B12.
- Genetics: A Geographical Tongue can run in the family and have a genetic component as well.

