

## TONGUE DIAGNOSIS

### Introduction

Tongue is generally known as the organ of taste. It also helps to articulate speech. The secondary functions of the tongue are to help swallowing and chewing the food. Tongue is made up of many muscles. The upper surface contains the taste buds that act as the primary organ of taste. The tongue's upper surface is also covered with numerous lingual papillae. Saliva keeps the tongue moist, which is necessary to keep it sensitive, and is abundantly supplied with nerves and blood vessels. The tongue also serves as a natural means of cleaning the teeth. The tongue is the only visible part of the digestive tract and therefore, considered as the mirror that reflects the conditions of the body's internal organs, particularly the organs of digestion and metabolism. The tongue also reflects the overall digestive, nutritive and metabolic conditions of the entire organism. It can prove to be a key factor in determining many conditions and the overall health of the body.

Healthy tongue is free of any discomfort such as pain, stinging, burning, swelling or numbness. It is moist, with a rough surface and has an evenly coloured pink surface overlaying pale red.

Greek physicians like Hippocrates and Galen considered different characteristics of the tongue to be an important indicator of health and diseases. Ayurveda, Unnai and Siddha systems have refined methods of tongue diagnosis. The Chinese medicine, considers tongue as a map that corresponds to different parts of the body. The tip is connected to the heart; the sides are connected to the liver; the centre to the spleen and the back to the kidney.

*Greco-Roman medicine* suggests that there are four fundamental personality types. These are **Sanguine** (optimistic leader-like), **choleric** (bad-tempered or irritable), **melancholic** (analytical and quiet), and **phlegmatic** (relaxed and peaceful). Most formulations include the possibility of mixtures of the types based on proto-psychological theory. The Greek physician Hippocrates (c. 460 ó c. 370 BC) incorporated the four temperaments into his medical theories as part of the ancient medical concept of **humorism**, that four bodily fluids affect human personality traits and behaviours. The bio medical theory reject the theory of the four temperaments, although some personality type systems of varying scientific acceptance continue to use four or more categories of a similar nature.

According to Greek medicine, taste, or the gustatory faculty, has an inherently sanguine temperament, being warm and moist. The sense of taste has a general quality; when we say that we have a taste for something that means we're attracted to it.

Through its sense of taste, the tongue signals to the body, particularly to the digestive organs, to secrete the digestive juices that help the digestion. For example, the taste of fried food signals to the liver and gall bladder to release bile in order to digest its fat.

There are various peculiar appearance of the tongue related to peculiar conditions. Inspection of the patients tongue is an important starting point in the clinical examination to understand the health and the underlying diseasesø state. This will also help to understand the diseases of the patient. A careful observation of the state of tongue, its color, shape often gives a physician an insight into the health condition of the patient.

### References

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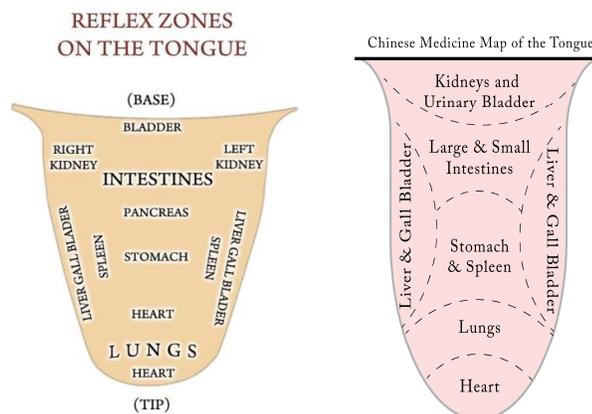
## Concept of Reflex Zones on the Tongue in Greek Medicine

Chinese medicine and Greek medicine consider a link with the tongue, through its sense of taste, connect various regions, or zones, with the different internal organs of the body.

The tongue is the external extension or projection of the body's interior, and its various internal organs. The general schema or layout of the various organ reflex zones on the tongue is quite simple. Through centuries of clinical practice and experience, the holistic physicians of Greek Medicine and other traditional healing systems have mapped out various reflex zones on the tongue.

The core organs of the **thoracic cavity**, are represented on the **anterior** section of the tongue, towards the tip. These organs are principally the **heart** and **lungs**, with the heart at the very tip and the lungs more posteriorly.

The core organs of the located in the **epigastric/ right hypogastric** region of the abdominal cavity are represented in the **middle** section of the tongue, about midway between the base or root of the tongue and its tip. These organs are principally the **liver** and **gall bladder** and the **stomach**, located in the very center of the tongue. The **spleen** areas lie lateral to the stomach zone, but inside or medial to the liver/gall bladder areas. The **pancreas** area lies on the tongue's midline, just slightly posterior to the stomach zone.



The **excretory organs** of the **pelvic cavity** are represented on the **posterior** section of the tongue, towards the root or base. The **kidney** zones are located on the right and left sides of the tongue's base. The **intestines** are represented on the central posterior region of the tongue, just behind the stomach and pancreas. The **bladder** zone is at the very base of the tongue, right on the midline.

Reflex zones are used in the art of tongue diagnosis, basically, in two ways: If an abnormality of the tongue coat appears in a certain reflex zone of the tongue, it indicates a build up of morbid disturbance of *digestive enzymes* going on in the corresponding organ or region of the body. If an abnormal lesion or discoloration of the tongue body occurs in a certain reflex zone of the tongue, it indicates a corresponding or analogous structural or nutritive change in the corresponding internal organ.

### References

[http://www.greekmedicine.net/diagnosis/Tongue\\_Diagnosis.html](http://www.greekmedicine.net/diagnosis/Tongue_Diagnosis.html)

## Examination of Tongue

It is easy to examine the tongue in a conscious patient, but difficult in unconscious patients, non cooperative patients and children. In small children tongue may be examined by gently pressing mental óprotuberance with index finger and gradually opening the mouth, the baby will protrude the tongue automatically, of course, it is knack that can be gained by experience.

Abnormalities of the tongue can provide a diagnostic and therapeutic hint for physicians. Recognition and diagnosis require a thorough history, including onset and duration, antecedent symptoms, and tobacco and alcohol use. Examination of tongue morphology and a careful assessment for lymph-adenopathy are also important.

The examination of the tongue is divided into two parts: examination of the tongue body; and examination of the tongue coat, which is also sometimes called the moss.

Examination of the tongue body yields information on the general nutritive and structural condition of the internal organs and their tissues. It also provides information on the condition of the blood and the bloodstream, which infuses and supplies the internal organs with the nutrients and vital principles they need.

Examination of the tongue coat yields information on imbalances prevailing in the body, particularly in the digestive tract. It also provides information on the overall state of the patient's digestion and metabolism, as well as the presence of toxins, or metabolic wastes, generated by faulty or deficient digestive enzymes. Generally, the tongue body portrays conditions that are more deep seated, systemic or chronic, whereas the tongue coat portrays conditions that are more acute, transient or superficial.

Tongue body texture, its shape, size, colour, moisture, coating, nature of papillae and the movements are the important components of the tongue examination.

### 1. Tongue Body Texture

Look for the general texture of the tongue body - is it smooth or rough, rumped or flat. In Greek medicine, the general texture of the tongue body indicates deep-seated, systemic conditions of dryness or wetness prevailing in the organism. Basically, roughness or dryness indicates a Dry temperament, whereas smoothness and wetness indicate a Wet temperament. If the tongue is also swollen or enlarged, this indicates that the body is retaining excess fluids, that body fluid metabolism has become sluggish or obstructed, and fluid excretion deficient. It can also be a sign of a cold, wet Phlegmatic temperament.

A dry tongue, especially when accompanied by severe thirst, indicates a condition of dryness in the organism.

A rumped tongue, dimpled with numerous rises, dips, and depressions like a rocky road filled with potholes, generally indicates a sluggish, inefficient digestion and digestive enzymes. Such a tongue will often have a thick, greasy coat, indicating the presence of toxins due to deficient or defective *digestive enzymes*.

A rough, grainy tongue surface generally indicates a Dry temperament, and can show a constitutional deficiency of the Radical Moisture and the moist, flourishing Phlegmatic and Sanguine humors. Such tongue conditions are usually inherited or congenital, and are not acute, serious or critical. Such constitutional shortcomings can be offset or compensated for by one's lifestyle, hygiene and regimen.

A raw tongue, that looks like a slab of raw meat, and is dark red in color, is generally a sign of advanced consumption, deficiency heat, and a severe depletion of the vital fluids.

A cracked tongue is generally a sign of chronic nervous stress and tension. Most cracks are located on the midline of the tongue, which represents the spinal column.

## 2. Size

A normal, healthy tongue should be sufficiently fleshy and robust, and neither too fat nor too thin. A good feel and understanding for what exactly constitutes normal tongue size comes mainly from the accumulation of clinical experience and observing many different tongues.

Basically, diseases or conditions of repletion or excess will present with an enlarged or swollen tongue; the greater the swelling or enlargement, the greater the excess. Usually, this involves an excess of wetness, or moisture. Conversely, a thin, emaciated tongue indicates a disease or condition of depletion, or deficiency, and a generalized malnourishment of the organs and tissues.

One telltale sign of an enlarged, swollen tongue is the presence of an irregular shape, with rounded half-circle indentations around the edges called scalloped edges. This is caused by the enlarged tongue pressing against the inside edges of the teeth. Conversely, a deficient, emaciated tongue will often look thin and leathery, and can have an upper surface that's concave, or hollowed out; the emaciated tongue may also be thin laterally as well.

## 3. Color

The overall color of the body of tongue shows the general condition of the blood and the bloodstream, and basic balance of humors and nutrients. A discoloration of the tongue body localized in a particular reflex zone of the tongue indicates an imbalance occurring in its corresponding organ.

The normal color of a healthy tongue is a nice, robust, sanguine pink - a perfectly balanced blend of red and white. Any deviation from this denotes a deviation from this ideal state of health and balance; the greater the deviation, the more severe the imbalance. In order to get a true reading of tongue body color, it's important that inspection of the tongue body be done in a natural, full-spectrum light, free from any undue tinting or shading.

**White, Pale:** Generally indicates coldness and deficiency, as well as an excess of cold phlegmatic humors in the bloodstream. This may also indicate anaemia or blood deficiency, if supported by other signs and symptoms.

**Red:** Generally indicates an excess of heat in the body - systemic if the whole tongue body is affected, or localized in a particular organ or part if only certain reflex zones are affected. If the tongue is bright red, it indicates more acute or excessive heat. A dark red tongue is often a sign of chronic consumptive or deficiency heat, or a consumptive fever or dyscrasia of the blood. A red, sore, swollen tongue generally indicates an excess of blood.

**Purple:** Indicates either blood stagnation or cyanosis due to a deficiency of vital principles - Vital Force and/or Innate Heat - in the blood. Reddish purple tongue indicates stagnation of the blood and a light purple tongue indicates stagnation of the Vital Force. Purple spots on the tongue indicate a severe stagnation or cancellation of blood in the corresponding organ. Lighter or subtler shades of purple indicate a stagnation of the Vital Force that guides the blood; darker shades of purple indicate a stagnation of the blood itself.

**Yellow:** Generally indicates jaundice, or an excess of bilious, choleric residues backed up into the blood.

**Brown:** Indicates an excess of black bile or melancholic residues in the bloodstream.

Other characteristics

- a) Central cyanosis- bluish discoloration
- a) Jaundice- Yellowish discoloration
- b) Advanced uremia- Brown colour
- c) Ketosis- Brown discoloration
- d) Riboflavin deficiency- Magenta colour
- e) Niacin and some other B complex deficiency- Bright scarlet or beefy red tongue
- f) Severe anaemia- pallor

#### 4. Moistness

The moistness of the tongue gives some indication about the state of hydration of the body. Water volume depletion in a person can lead to peripheral circulatory failure characterized by weakness, increased thirst, restlessness, anorexia, nausea, and vomiting, dry and parched tongue.

Dryness of the tongue is seen in diarrhoea, later stages of severe illnesses, advanced uraemia (with brownish discoloration), acute intestinal obstruction, hypovolumic shock and heat exhaustion.

#### 4. The Tongue Coat

The coating or moss on the tongue's surface indicates the current condition of the patient's digestion and metabolism, as well as the presence of toxins and/or morbid, superfluous humours in the body, especially in the digestive tract. Generally, the thicker and heavier the tongue coat, the more severe this build up will be.

Some say that the perfectly healthy tongue should show absolutely no coat. Others say that a very small, fine coat, or moss, located in the central stomach area of the tongue, is also permissible in a healthy tongue.

It's generally a good idea, as part of an oral hygiene regimen, to scrape off the tongue coating, with a spoon or tongue cleaner in the morning upon arising. If you're going to see a physician for a tongue diagnosis, however, don't scrape that coat off your tongue - leave it there for the doctor to examine.

The astute physician is fully aware that certain strongly colored foods will color the tongue and alter the natural color of its coat. These foods will tend to impart an unnaturally bright or vivid color to the tongue coat, which will usually prompt the physician to inquire about what the patient recently ate or drank.

Basically, tongue coats can vary in four different ways.

- 1) Thickness or heaviness
- 2) Color
- 3) Texture, moisture and consistency
- 4) Size, location and distribution.

The basic interpretation of these tongue coat variations are as follows:

## Thickness

A thick, heavy tongue coat, also called a greasy coat, is a sign of considerable build up or accumulation of toxins and/or morbid, superfluous humors.

A thin tongue coat, besides indicating a toxic build up that is only light to moderate, can also be indicative of catching a cold, or a superficial dystemper, also known as the grippe. A thin white tongue coat will indicate a cold due to catching a chilly draft, whereas a thin yellow coat indicates a cold due to catching a hot draft. These grippe-related tongue coats will be so thin as to be transparent.

## Color

White indicates that the build up of toxins and morbid humors is of a cold, damp Phlegmatic in nature. Yellow indicates that the build up of toxins and morbid humors is of a hot, Choleric in nature. Off-white, vanilla, or cream colored shades in between these two extremes indicate a balance or intermixture of hot and cold influences, and general toxicity and turbidity. A brown or black tongue coat indicates the presence of extreme metabolic heat charring the humors into ash-like residues of morbid black and yellow bile. Green is associated with certain morbid forms of yellow bile.

## Texture

The texture and consistency of the tongue coat generally tell about conditions of dryness or moisture prevailing in the organism, and the functioning of digestive enzymes. A moist creamy or greasy coat is, of course, indicative of moisture. A dry coat is often one that has been baked by excessive fever or metabolic heat; such a dry coat, if it is also thick, may crack or show fissures due to its being dried out. A frothy texture is usually due to the presence of wind. Careful clinical observation of tongue coat texture will reveal the relative toxicity or turbidity of the superfluous humors associated with it, as well as whether the coat is fresh and new, or old, changed, and/or eroded over time, indicating a more chronic condition.

## Distribution

The general distribution pattern of the tongue coat and the organ reflex zones it covers will show the distribution or localization areas of toxic or superfluous humoral build up in the organism. With the coat located in the very center of the tongue, for example, the toxic humoral build up will be cantered mainly in the stomach. If the tongue coat covers the entire tongue surface, the build up will be systemic.

A certain peculiar, idiosyncratic tongue coat distribution pattern is that of the peeled or geographic tongue coat. The tongue coat is peeled off to create stark, wiggly lines similar to the lines on a map. This may indicate a deficiency of the stomach's Radical Moisture and/or injury to the stomach's protective mucous coat. In the stomach and/or intestinal area, a peeled coat can indicate the presence of parasites, with the location and distribution of the peeled areas indicating where the parasites are concentrated. If the basic tongue coat is thin or light, these peelings can be quite subtle, and deserve careful scrutiny.

## Other Characteristics

- a) Enteric fever- Thick white coating
- b) Candidiasis- Sloughing white lesions
- c) Diabetes mellitus and hypo-adrenalism- associated with white sloughing
- d) Secondary syphilis- mucous patches that are painless, smooth, white and glistening, opalescent plaques, that cannot be scrapped easily

- e) Leukoplakia- Keratotic white patches
- f) HIV infection-airy leukoplakia
- g) Peritonitis- Furring of the tongue
- h) Acute illness ó Whit furring

## 5. Nature of Papillae

- (a) Hairy tongue is due to elongation of the filiform papillae which is provoked by poor oral and general health.



Black hairy tongue is a temporary, harmless oral condition that gives the tongue a dark, furry appearance. The distinct look of black hairy tongue usually results from a build up of dead skin cells on the numerous tiny projections (papillae) on the surface of your tongue that contain taste buds. These papillae, which are longer than normal, can easily trap and be stained by tobacco, food or other substances, and bacteria or yeast.

Although black hairy tongue may look alarming, typically it doesn't cause any health problems and is usually painless. Black hairy tongue usually resolves without medical treatment.

Signs and symptoms of black hairy tongue include:

- Black discoloration of the tongue, although the colour may be brown, tan, green, yellow or white
- A hairy or furry appearance of the tongue
- Altered taste or metallic taste in mouth
- Bad breath (halitosis)
- Gagging or tickling sensation, if the overgrowth of the papillae is excessive.

(b) In geographic tongue, there is irregularly shaped red and white patches resembling a map on dorsal and lateral surfaces. Geographic tongue, also known as benign migratory glossitis or erythema migrans, and is of unknown etiology. Although previous research pointed to associations with diabetes, psoriasis, seborrheic dermatitis, and atopy, recent analysis of population data does not support these findings.



Sharply defined demarcation of inflammation is characteristic in geographic tongue. With geographic tongue, the dorsal tongue develops areas of papillary atrophy that appear smooth and are surrounded by raised serpiginous borders. These regions of atrophy spontaneously resolve and migrate, giving the tongue a variegated appearance. The condition is benign and localized, generally requiring no treatment except reassurance. Some patients may have sensitivity to hot or spicy foods.

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#### (c) Fissured Tongue

With fissured tongue, deep grooves can develop due to physiologic deepening of normal tongue fissures. These typically occur with aging and require no treatment, unless trapping of food and bacteria leads to inflammation of the fissures. Gentle brushing of the tongue is useful in persons with symptomatic inflammation. Fissured tongue has been associated with Down syndrome, acromegaly, psoriasis, and Sjögren syndrome. Melkersson-Rosenthal syndrome is a rare disorder of unclear etiology that is characterized by a triad of severe fissuring, relapsing orofacial edema, and facial nerve palsy.



(d) Median rhomboid glossitis (MRG) (**central papillary atrophy**) is a condition with smooth nodular red areas in the posterior mid line of the tongue. MRG is defined as the central papillary atrophy of the tongue and it affects 0.01% to 1.0% of the population.<sup>1</sup> MRG is typically located around the midline of the dorsum of the tongue. Despite the relative frequency of MRG, little is known about its etiology.<sup>3</sup> There are several predisposing factors associated with MRG such as smoking, denture wearing, diabetes mellitus, as well as candidal infection



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Other papillary characteristic associated with deficiency disorders are glossitis leading to papillary hypertrophy followed by atrophy seen in nutritional deficiency; hypertrophied filiform and fungiform papillae seen in thiamine and riboflavin deficiency, atrophic linguae papillae seen in niacin and iron deficiency, furrowed tongue in vitamin A deficiency, smooth tongue in iron deficiency and nutritional megaloblastic anaemia and bright red papillae standing out of a thick white fur, later the white coat disappears leaving enlarged papillae on the bright surface, which is called strawberry tongue in scarlet fever.

## 6. Movements

A deviated tongue that doesn't stick out straight, but veers unduly to the right or left, generally indicates internal wind and a dystonia of the autonomic nervous system. A deviated tongue is often associated with facial palsy or paralysis, and may presage apoplexy, convulsion or stroke. In hemiplegia, the tongue shall be deviated towards the paralyzed side. Tremors are noted in nervousness, thyrotoxicosis, delirium tremens and Parkinsonism. Wasting and paralysis of the tongue with fibrillation, eventually gets shrivelled and lies functionless on the floor of the mouth in progressive bulbar paralysis.

## 7. Tongue Ulcers

Tongue Ulcers are open sores or cuts on the tongue. Tongue ulcers can be painful and raw and can be irritated by eating and drinking. One of the most common type of tongue ulcers is the canker sore, which may arise for an unknown reason or may be linked with a number of different irritants.

Tongue ulcers arise from a variety of conditions including viral infection, injury to the tongue or even oral cancer. Treating the underlying cause of the tongue may help to resolve the sore. In mild cases improving oral hygiene will help to resolve the tongue ulcer.

Syphilitic ulcers are longitudinal in direction. Tubercular ulcers are often multiple and greyish yellow with slightly undermining margin. Carcinoma ulcers are with everted edges and hard base.

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<http://www.healthgrades.com/symptoms/tongue-ulcers>

In homeopathy tongue and taste form physical generals and helps us in constructing the patient portrait and individualizing the patient as a person. Other than representing the signs of underlying disease in body sometimes it also helps in selecting medicines wherein tongue symptoms are characteristic. The character of tongue also helps in diagnosing the underlying temperament of the case which further helps in deciding the course of treatment. From Homoeopathic point of view a close observation of tongue helps in disease diagnosis, understanding the temperament of the patient, and in selection of the medicine.

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#### Peculiar appearance of tongue in some important remedies

1. Aconite : Tongue is swollen and white coated
2. Anti crud : Tongue coated thick white as if white washed. White furred appearance. Cracks in the corners of the mouth.
3. Anti tart: Tongue coated, pasty, thick white, with red edges. Tongue red and dry, especially in the center.
4. Apis mel : Tongue is fiery red, swollen, sore, raw, and with vesicles.
5. Arsenic alb Tongue is dry, clean and red. Vesicles with stinging and burning pain
6. Baptisia tinct : Indicated in typhoid tongue. Furred appearance with yellow dirty white coating. Tongue feels scalded. Red and shining edges. Cracked and sore surface.
7. Bryonia alb : Marked dryness of tongue. Coated dark white, yellow or dark brown.
8. Chelidonium Yellowish tongue with imprint of teeth. White furred with red edges. Large and flabby tongue.
9. Crotalus horridus : Tongue red and small but feels swollen. Fiery red appearance. Dryness in the center. Smooth and polished appearance.
10. Hydrastis can : White swollen and flabby. Shows imprint of teeth. Fissures in the edges. White furred tongue with bitter taste.
11. Hyoscyamus nig : Tongue is red, dry and cracked. It is stiff and immovable. Protruded with difficulty.
12. Lachesis : Tongue is swollen, red and dry. Cracked at tip.
13. Mercurius sol :Furrow in the upper surface length wise. Heavy, thick with moist coating.
14. Natrum mur: Frothy coating with bubbles on sides. Sense of dryness and numbness with tingling.
15. Nux vomica: First half clean and posterior half covered with deep fur. White and cracked edges.
16. Pyrogen: Dry, red, clean, cracked. Smooth as if varnished.
17. Rhustox : Red and cracked. Coated except red triangular space at the tip. Dry and red at edges.

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## Tongue care

Tongue is an important part of your mouth, and you should always include it in your hygiene routine. The surface of the tongue can harbour a lot of bacteria. Trapped germs on the tongue can lead to bad breath and affect your sense of taste, and the bacteria can travel to other parts of your mouth. Overgrowth of bacteria can turn your tongue yellow, white or even black and hairy-looking.

Make it a habit to thoroughly clean your tongue every time you brush your teeth. You can use a tongue cleaner, a small tool designed to scrape the tongue; it comes in various shapes and sizes. Your regular toothbrush will also do the job. Try to reach right to the back. If this triggers your gag reflex, keep trying. Eventually, your reflex will ease up. You might also find that a tongue cleaner doesn't trigger the reflex as easily as a toothbrush does. Dry mouth may be more likely to have a coated tongue. If your tongue is too dry and crusty when you scrape it, you risk damaging the tissue. Try brushing it after cleaning your teeth, while the mouth is still moist. You can also cover your tongue with a mouth-moisturizing spray or gel and wait 10 to 15 minutes, then brushing it.

A regular tongue inspection can help to screen for oral cancer. Stick your tongue out in the mirror and look around. Check the top, bottom and sides. Look for any skin changes, cuts or white or red patches that aren't healing after a week or two. In that case consult your dentist or dental hygienist. Oral health is about more than your teeth and gums. Your tongue also needs daily care and checkups

Any body piercing carries a risk of infection. The metal in tongue jewellery can badly damage your teeth and gums, wearing away enamel, loosening gums and cracking teeth. Even the tongue-piercing procedure itself has been known to damage nerves, cause permanent drooling or alter the sense of taste. Dentists generally do not encourage tongue piercings. But if you're keen to go ahead, make sure you use an experienced artist and that you're well informed about possible complications and how to manage them.

Experts say the tongue's condition speaks volumes about one's hygiene consciousness and also reveals one's health status. Here are a few tips from experts that will help you to keep the tongue clean:

1. Clean the tongue on a regular basis to prevent bacteria from growing. You can use toothbrushes designed for cleaning the tongue or the ones which have an attachment on the reverse side of it. Don't use the front part (the one you use for brushing teeth) to clean the tongue.
2. Another way is to scrape your tongue with a thoroughly washed tongue-cleaner or scraper. While scraping, don't apply too much pressure. Scrape it in a downward motion at least two to three times. If the pressure is too much you may hurt your tongue. Brushing teeth also should be done in a particular way. Here's what you should know about brushing your teeth.
3. You can use toothpaste to coat your tongue before scraping. Toothpaste neutralizes bacteria on tongue and helps to remove them easily.
4. Rinse your mouth with water thoroughly after scraping.
5. Occasionally, you can use a mouth wash after scraping. Mouth wash helps to remove the bad odour caused by deposition of bacteria on the tongue. But don't use it daily as it may cause over drying of mouth. Read more about how mouth wash can fight germs in your mouth.

6. You can also rinse your mouth with saline water. Take a half glass of lukewarm water and pour a half teaspoon of salt in it. Rinse your mouth five to six times a day with it.
7. Drink green tea. It helps to eliminate oral bacteria. Read more about health benefits of green tea.
8. Avoid eating foods such as black grapes and berries. These foods can also be the culprits for unwanted colour on your tongue.
9. When you have high fever, a white layer gets formed on the top of the tongue. It can be removed by regular cleanup, but if that can't be done, it's a fungal infection. There are ointments for such cases to keep the tongue clean.
10. Drink lot of water. Sometimes dehydration can cause change in colour of the tongue

In unconscious patients, the tongue may fall back and obstruct the air passages. This can be prevented by lying the patients on one side with head down or by keeping the tongue pulled out mechanically.

In carcinoma of tongue, the affected site of the tongue is removed surgically. All deep cervical nodes are also removed surgically. Carcinoma of the posterior 1/3<sup>rd</sup> of the tongue is more dangerous due to bi lateral lymphatic spread.

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