

Disease Diagnosis and Disease Patterns by Visual Inspection of the Tongue

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By

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and Siamak Pedrammehr

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CONTENTS

List of Figures.....	x
List of Tables.....	xiii
Introduction	1
Chapter 1	3
Tongue Structure	
1-1. Tongue Structure	3
1-2. Tongue Examining	5
1-3. Natural Tongue	5
1-4. Important Factors in Tongue Examining	7
1-4-1. Light	8
1-4-2. Conditions for Tongue Removal.....	8
1-4-3. Duration of Protruding Tongue out.....	9
1-4-4. Toxins and Drugs Effects on the Tongue	9
1-5. The Sequence of Examining the Various Tongue Regions	10
1-6. Various Aspects of Disease Diagnosis by Tongue	10
1-6-1. Tongue Color.....	11
1-6-2. The Root of the Tongue.....	11
1-6-3. Shape of the Tongue Body	11
1-6-4. The Tongue Coating	11
1-6-5. The Thickness and Distribution of the Tongue Coating	11
1-6-6. The Moisture of the Tongue	12
Chapter 2	13
Tongue Diagnosis in Traditional Iranian Medicine	
2-1. Traditional Iraninan Medicine	13
2-2. Temperament.....	14
2-3. Temperament Types in Traditional Iranian Medicine	15
2-3-1. Compound Temperaments	15
2-3-2. Individual Temperaments	22
2-3-3. Balanced Temperament	27
2-3-4. Mixed Temperament.....	27
2-4. Temperament of Organs	27

2-5. Tongue Coating	30
2-6. Tongue Coating Color	30
2-6-1. Pink Tongue.....	30
2-6-2. Pale Yellow Coating.....	30
2-6-3. Yellow Dry Coating.....	31
2-6-4. Brownish Yellow Coating	31
2-6-5. Gray Coating Tongue	32
2-6-6. White Coating Tongue.....	33
2-6-7. Yellow Tongue Coating.....	33
2-6-8. Dark Red Tongue.....	34
2-6-9. Whitish Pink Tongue	35
2-6-10. Yellow Root Tongue.....	35
2-7. Tongue Coating Types.....	36
2-8. Coating with Root.....	36
2-9. Coating without Root.....	37
2-10. Thin Coating.....	38
2-11. Thick Coating	38
2-12. Moist Coating Tongue	39
2-13. Slippery Coating Tongue.....	39
2-14. Dry Coating Tongue	40
2-15. Oily Coating Tongue	41
2-16. Yogurt- Like White Coating Tongue.....	41
2-17. Entire Surface Coating Tongue	42
2-18. Flaky Tongue Coating	42
2-19. Tongue Thrush Coating	42
2-20. Deep Lingual Veins	43
Chapter 3	44
Tongue Diagnosis in Traditional Chinese Medicine	
3-1. Traditional Chinese Medicine.....	44
3-1-1. Tao.....	44
3-1-2. Qi	44
3-1-3. Shen	45
3-1-4. Meridian Channels.....	45
3-1-5. Yin and Yang.....	45
3-2. The Chinese Five element	46
3-2-1. Wood	46
3-2-2. Fire.....	47
3-2-3. Metal.....	47
3-2-4. Earth	47
3-2-5. Water.....	47

3-3. Organs	47
3-3-1. Zang Organs	48
3-3-2. Fu Organs	50
3-4. Eight Principal Patterns	53
3-5. External Pathogenic Factors	53
3-5-1. Wind-Cold	53
3-5-2. Wind-Heat	54
3-6. Deficiency Signs.....	54
3-6-1. Qi Deficiency.....	54
3-6-2. Yang Deficiency.....	57
3-6-3. Blood Deficiency.....	59
3-6-4. Yin Deficiency.....	60
3-7. Excess signs.....	62
3-8. Six Internal Pathogenic Factors.....	62
3-8-1. Wind.....	62
3-8-2. Heat.....	63
3-8-3. Damp	63
3-8-4. Dryness.....	63
3-8-5. Cold.....	63
3-8-6. Summer Heat.....	64
3-9. Geographic Tongue	64
Chapter 4	65
Body Organs Reflection Zones on the Tongue	
4-1. Tongue Reflection Zones.....	65
4-2. Heart.....	66
4-3. Thyroid Gland	67
4-4. Lungs.....	67
4-5. Stomach	68
4-6. Liver	68
4-7. Gallbladder	69
4-8. Spleen	69
4-9. Pancreas.....	69
4-10. Kidneys.....	69
4-11. Bladder	70
4-12. Prostate Gland.....	70
4-13. Uterus	70
4-14. Breast.....	70
4-15. Ovarian	71
4-16. Testicle	71
4-17. Intestines.....	71
4-18. Spinal Cord.....	71

Chapter 5	73
Diagnosis of Diseases	
5-1. Heart Disorders.....	73
5-2. Lungs.....	76
5-3. Stomach.....	79
5-4. Liver	82
5-5. Gallbladder	85
5-6. Spleen	85
5-7. Pancreas.....	88
5-8. Kidneys.....	89
5-9. Bladder	91
5-10. Prostate	93
5-11. Thyroid	93
5-12. Breast Cyst.....	95
5-13. Ovarian Cyst.....	97
5-14. Uterine Cysts and Fibroma	98
5-15. Testicle Disorders.....	102
5-16. Long Intestine Disorders.....	102
5-17. Knees.....	104
5-18. Neck.....	106
5-19. Lumber Disc	107
5-20. Spinal Column.....	109
5-21. Tongue Tremor	111
5-22. Dysphagia (Stuck Food in Throat).....	111
5-22.1. Signs and Difficulties of Dysphagia.....	112
5-23. Surgery Signs.....	113
5-24. Fracture Signs.....	114
5-25. Emotional Problems Signs.....	114
5-26. Brain Disorder Signs	114
5-27. Depression	116
5-28. Intestinal Parasite.....	116
5-29. MS	117
5-30. Hepatitis.....	117
5-31. Ejaculation and Orgasm Problems.....	118
5-32. Urea Acid.....	119
5-33. Adrenal Glands	119
5-34. Sinusitis	120
5-35. Infertility.....	120
5-36. Blood Pressure.....	121
5-37. Cancer.....	122
5-38. Fatty Liver	122

5-39. Diabetes	123
5-40. Coronary Heart Disease	124
5-41. Chronic Obstructive Pulmonary Disease	124
5-42. Psychological Disorders	124
5-43. Neurodevelopmental Disorders	125
5-44. Psychotic Disorders	125
5-45. Aggression	125
5-46. Ischemia	125
5-47. Blood Concentration	126
5-48. Immune System	126
Chapter 6	128
Charts	
Chapter 7	132
Interpretation of Samples	
References	152

LIST OF FIGURES

(1.1) Papillae of tongue	4
(1.2) Natural tongue.....	6
(1.3) (a) V-shaped tongue (b) U-shaped tongue	6
(1.4) Tongues contracted at the tip	7
(1.5) A deflected up tongue	7
(1.6) A rolled tongue	8
(1-7) A deflected down tongue.....	8
(1.8) Drugs effects on the tongue	9
(2.1) Pale yellow coating tongue examples	31
(2.2) yellow dry coating tongue examples.....	31
(2.3) Brownish yellow coating tongue examples.....	32
(2.4) a. gray coating tongue b. Overcoming choleric temperament, tobacco and alcohol consumption (c) Overcoming melancholic temperament	33
(2.5) White coating tongue	33
(2.6) Yellow coating tongue	34
(2.7) Dark red color of tongue body examples	34
(2.8) Whitish pink color of tongue body examples.....	35
(2.9) Yellow root tongue examples	36
(2.10) Tongue coating types	36
(2.11) Coating with root on tongues	37
(2.12) Coating without root on tongues	37
(2.13) Thin coating tongues.....	38
(2.14) Moist coating tongues	39
(2.15) Slippery coating tongue	40
(2.16) Dry coating tongues	41
(2.17) Oily coating tongues	41
(2.18) Entire Surface Coating Tongue.....	42
(2.19) Deep lingual veins.....	43
(3.1) Taiji.....	46
(3.2) five element relationships	46
(3.3) San jiao (Triple burner) in body.....	52
(3.4) Lungs Qi Deficiency Examples	55
(3.5) Spleen Qi deficiency Examples	55

(3.6) Stomach Qi Deficiency Examples	56
(3.7) Heart Qi deficiency Examples	57
(3.8) Spleen yang deficiency Examples.....	58
(3.9) Kidney yang deficiency Examples.....	58
(3.10) Heart yang deficiency Examples.....	59
(3.11) Yin deficiency Examples	60
(3.12) Stomach yin deficiency Examples	61
(3.13) Geographic tongue examples	64
 (4.1) (a) Tongue Map for females, (b) Tongue Map for males.....	66
(4.2) Spinal Cord zone.....	72
 (5.1) Blockage of a coronary artery.....	75
(5.2) Blockage of a coronary artery sign in Iranian traditional medicine .	75
(5.3) Mitral valve regurgitation or heart heat	76
(5.4) Coronary Angiography	76
(5.5) (a) Pneumonia, (b) Bronchitis, (c) Lung inflammation, (d) Melancholy in the Lungs, (e) lung dryness, (f) Lung inflammation, (g) Lung Qi deficiency.....	78-79
(5.6) (a), (b), (c), (d) Stomach disorders (e) Yin deficiency	81
(5.7) Stomach cyst.....	82
(5.8) (a), (b) Liver yin deficiency, (c) Liver stagnation, (d)Liver Qi deficiency, (e) Liver yang deficiency, (f) Liver Cancer.....	84
(5.9) Gallbladder disorders Examples	85
(5.10) (a), (b) Spleen yang deficiency, (c) Spleen Qi deficiency, (d), (e), (f) Spleen disorders	87-88
(5.11) Pancreas disorders examples.....	89
(5.12) Kidneys disorders examples.....	91
(5.13) Bladder disorders example.....	92
(5.14) Hypothyroidism	94
(5.15) Hyperthyroidism	95
(5.16) Breast Cyst examples	97
(5.17) Ovarian Cyst examples	98
(5.18) Uterine Cyst examples	100
(5.19) Fibroma and uterine disorders examples.....	101
(5.20) Fibroma and uterine disorders examples.....	101
(5.21) Testicular disorders examples.....	102
(5.22) Hemorrhoids examples	104
(5.23) Knees disorders examples.....	106
(5.24) Neck disorders examples	107
(5.25) Lumbar disc	108

(5.26) Lumbar vertebrae disorders	108
(5.27) Thoracic vertebrae disorders.....	108
(5.28) Knee pain	110
(5.29) Lumbar vertebrae pain examples	111
(5.30) Tongue tremor	111
(5.31) Dysphagia signs on tongue	113
(5.32) Surgery signs on tongue.....	113
(5.33) Emotional problems signs on tongue	114
(5.34) Brain disorder signs on tongue.....	116
(5.35) depression signs on tongue	116
(5.36) depression signs on tongue	117
(5.37) MS signs on tongue.....	117
(5.38) Hepatitis signs on tongue.....	118
(5.39) Ejaculation and orgasm problems	118
(5.40) Adrenal glands problem.....	119
(6.1) Charts used in Western schools	129
(6.2) Combined charts utilized in this book.....	130
(6.3) Sensory problems along the spine (midline).....	131

LIST OF TABLES

Table (2-1) Four compound temperaments tongue quality..... 27

INTRODUCTION

Tongue diagnosis is one of the many methods used in medicine to diagnose diseases. Before you experience the symptoms of the disease, your doctor can diagnose the issue based on the condition of your tongue and take necessary steps to treat it. Experts in traditional medicine used tongues to diagnose and treat a wide range of illnesses. The condition of the body is revealed by the tongue. In traditional medicine, the tongue is given special consideration in diagnosing illnesses and physical conditions, beyond its typical functions. Without using ultrasound, MRI, or other technologies, tongue diagnosis can be made through precise observation and examination of the tongue to assess the functions of the body's internal organs. The tongue often reveals the true nature of the body, including its excesses, deficiencies, and potential health issues. By examining the tongue, we can easily discover information about the progression of a disease and the efficacy of a treatment. The tongue is an organ that represents the entire body. Without the use of specialized tools and by utilizing a light source such as the sun, tongue diagnosis can be used to assess an individual's organ function, illness, and overall health. The tongue serves a variety of vital purposes specific to the body and can provide unique insights into the overall functioning of the body. The tongue, which is influenced by the body's condition, rapidly reflects the patient's internal health. In tongue diagnosis, a change in the color of the tongue indicates a health issue. The color of a person's tongue changes when their body shifts towards an incompatible temperament. According to Iranian traditional medicine, it is recommended that individuals take any unusual changes in tongue color seriously and seek advice from a traditional medicine specialist if such changes occur. The first step in effectively treating a disease is making an accurate diagnosis, which is something the tongue easily accomplishes. Today, this type of science is highly esteemed and respected in conventional medicine worldwide. The tongue can serve as a diagnostic tool for identifying internal organ issues. Tongue diagnosis is the science of diagnosing the underlying cause of an illness rather than providing a cure; it offers treatment suggestions based on the diagnosis. Throughout human history, people have always attempted to diagnose illnesses by observing changes in the color and appearance of the tongue, as disease and tongue characteristics have been closely linked. The health of a person could be

determined by ancient medical practitioners based on the appearance of their tongue. Traditional medical practitioners used the color, shape, size, and thickness of the tongue to identify the type and cause of illnesses. Tongue diagnosis has been very helpful in diagnosing diseases. In the medical field, this diagnostic technique has been established for a significant period and is given special attention.

The coating, texture, stiffness, color, and moisture level of the tongue are all factors used in tongue diagnosis to identify diseases. For example, phlegm accumulation, food retention, and excess moisture inside the body can all contribute to the greasy coating on the tongue, indicating a person's deficiency in warmth and energy. If the moisture is removed and the cleaning is completed, the oily layer will disappear. One method to identify human nature is through tongue diagnosis. The tongue is a special body part that serves a variety of vital purposes and can reveal fascinating details about how the body functions as a whole. Tongue patterns can provide information about a patient's nutrition, lifestyle, internal and systemic ailments, and how aging is affecting their limbs. These details are all recognized by physicians in this field. Ibn Sina and other traditional medicine specialists have often explained the implementation of this strategy. All early human civilizations, including Iran and China, possessed knowledge of diagnosis and treatment techniques. Our generation has developed a specific approach to tongue diagnosis that has been compiled and refined.

CHAPTER 1

TONGUE STRUCTURE

1-1. Tongue Structure

The tongue is one of the strongest muscles in the human body. The nose is a unique part of the body that is connected to the skull by bones and muscles and is enclosed in mucous membranes. The term “papillae” refers to the tiny, spherical bumps that cover the surface of the tongue. Thousands of taste buds cover the surfaces of the papillae. Taste buds are the peripheral sensory organs for gustation. Taste buds consist of collections of taste cells that respond to sweet, bitter, sour, salty, and umami tastes and transmit this information to higher centers in the brain. There are four different types of papillae: filiform, fungiform, circumvallate, and foliated. Filiform papillae are seen on the surface of the tongue. They are hair-like or thread-like in appearance, protruding from the dorsal surface of the tongue, and are visible on the anterior two-thirds of the tongue. Filiform papillae do not contain taste buds. Fungiform papillae, as their name implies, are papillae that resemble fungi and have dome-shaped features that protrude over the surface of the tongue. The fungiform papillae are situated between the filiform papillae but are primarily found on the tip and sides of the tongue. These, as opposed to the filiform papillae, have taste buds on top of them. Foliated papillae are short vertical folds found on each side of the tongue. They are situated on the posterior sides of the tongue, just in front of the palatoglossal arch of the fauces, and vary in size and shape. The foliated papillae appear as a series of red-colored, leaf-like ridges of mucosa. The circumvallate papillae (or vallate papillae) are dome-shaped structures on the human tongue. They are situated on the surface of the tongue immediately in front of the sulcus terminalis, forming a row on either side. The two rows run backward and medially, meeting in the midline. They are the least in number but the largest in size compared to the other three types of papillae found.

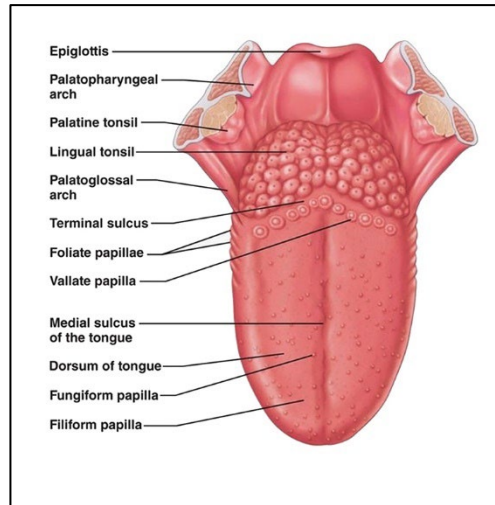


Fig (1.1) Papillae of tongue

The size of the tongue doubles from birth to adulthood in terms of length, width, and thickness. Under normal conditions, its size is directly proportional to the size of the head. The tongue is composed of water, electrolytes, mucous membrane, and enzymes. Being a very sensitive part of the body, every small change in the body has a significant impact on its appearance. Practitioners of traditional medicine use the tongue as a map to identify issues with all of the body's internal organs. Similar to how the iris in iridology and the ear in auriculotherapy (ear acupuncture) are divided into different regions that correspond to the interior parts of the body, the tongue is also divided into different regions. Traditional Chinese medicine posits that the tongue is linked to internal organs via meridians. Therefore, the state of the organs, energy, blood, and body fluids, as well as the severity and progression of the disease, are all manifested on the tongue. According to Traditional Chinese Medicine, the fire element's zone is represented by the tip of the tongue. The metal element's zone starts right after the tip of the tongue. The zone of the water element is also located at the bottom of the tongue. The sides of the tongue are associated with the wood element, while the middle part is related to the earth element.

1-2. Tongue Examining

Tongue disease diagnosis is one of the most common techniques available because it does not require any special equipment and can be done using simple methods. The first step in examining the tongue is to consider its proper shape during the examination. Additionally, it is important to pay attention to the color, texture, and coating of the tongue, as well as the amount of saliva present when examining it. During the examination, it is important for the patient to be in a fully relaxed state. They should have had adequate rest the night before the examination and should avoid engaging in heavy activities such as intense exercise, sexual activity, consuming heavy and fatty meals, and alcohol consumption leading up to the examination. It is better to fast during examinations. Additionally, it is recommended to regularly use specialized tongue scrapers to clean the surface of the tongue, especially the night before the exam. There are several advantages to cleaning your tongue, such as eliminating bacteria and toxins from the surface, aiding in the removal of deposits that cause bad breath, clearing away undigested food particles, gently stimulating your internal organs, and increasing your awareness of your health. It is more beneficial to avoid cleaning the surface of the tongue on the day of the examination; instead, the cleaned surface should be examined to determine the body color of the tongue after the initial examination.

1-3. Natural Tongue

Natural and healthy tongues can be found in infants. As people age, they may develop dyspepsia due to unhealthy eating habits, which can manifest as changes on their tongue. Furthermore, the tongue is influenced by the changing seasons' characteristics. During the summer, the tongue may develop a thick yellow coating due to the high heat. Sometimes, a person's tongue may have a different shape and form due to genetic inheritance, unaffected by external or environmental factors. A natural gemstone can be identified by its vibrant, bright color. Bright red, fresh, and flexible like a piece of meat, the tongue should be free of tooth damage. It should also be fresh and juicy. In the center of the tongue, there should always be a thin layer of salivary substance. A healthy tongue suggests that the body's internal organs are functioning normally, that there is plenty of vital energy present in the blood and other body fluids, and that the stomach and body are receiving an adequate and regular supply of energy.



Fig (1.2) Natural tongue

In Iranian traditional medicine, the tongue is sometimes referred to as the "bud of the heart" and is occasionally likened to an arrow shot from the heart. The texture of a natural tongue should not be excessively loose or stiff, and it should be free of any cracks or injuries. When the tongue is taken out of the mouth, it shouldn't be swollen, thin, deflected to one side, bulleted, cramped, or trembling. A natural tongue has a thin white coating that originates from the stomach's Qi and spreads to the surface of the tongue. A healthy digestive system is indicated by the presence of a thin coating on the tongue. Another indicator of a healthy digestive system and natural tongue appearance is the thicker portion of the tongue's base. We can determine someone's temperament by observing their tongue. For instance, if someone sticks out their tongue in a U-shape, it suggests a moderate temperament; if it protrudes in a V-shape, it indicates warmth; and if it takes on a round shape, it indicates a cold temperament.



(a)



(b)

Fig (1.3) (a) V-shaped tongue (b) U-shaped tongue

1-4. Important Factors in Tongue Examining

The shape, color, coating, and moisture of the tongue can change due to a variety of factors, giving it an abnormal appearance. Among these are poor lighting, patient anxiety during the examination, excessive tongue pressure, protruding tongue for an extended period of time, poor sitting posture, and the use of specific medications. These factors can present the tongue in an improper form, which may mistakenly be interpreted as symptoms of a disease. Therefore, before providing a final diagnosis, it is important to be familiar with improper tongue shapes and consider non-disease-related factors that can alter the characteristics of the tongue. This knowledge aids in providing patients with an accurate diagnosis based on the disease's actual signs and symptoms.



Fig (1.4) Tongues contracted at the tip

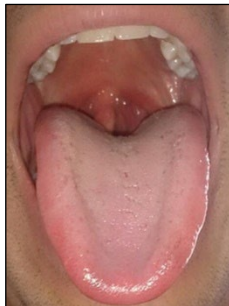


Fig (1.5) A deflected up tongue



Fig (1.6) A rolled tongue



Fig (1-7) A deflected down tongue

1-4-1. Light

One of the most crucial elements of the examination is light, which is essential for diagnosing the disease. Sunlight is the most reliable light for detection. Use incandescent or fluorescent lighting if sunlight is not available. One of the best lights for accurate detection is a halogen lamp with a tungsten filament.

1-4-2. Conditions for Tongue Removal

The tongue must be extracted from the mouth to be visible at the very end. Additionally, avoid applying excessive pressure to the tongue in an attempt to change its appearance.

1-4-3. Duration of Protruding Tongue out

The tongue should only be taken out of the mouth for a few seconds—no more than 15-20. If you need to conduct a more thorough examination, ask the patient to insert and remove their tongue several times.

1-4-4. Toxins and Drugs Effects on the Tongue

When taking medication, the appearance of the tongue changes. To avoid difficulties in making a diagnosis, it is important to be aware of how the medication affects your tongue.



Fig (1.8) Drugs effects on the tongue

The effects of some drugs on the tongue are listed below.

1-4-4-1. Antibiotic Medications

Antibiotics damage the yin of the stomach, which can quickly alter the appearance of the tongue by stripping away its surface. Tetracycline has the most significant impact on the tongue compared to other antibiotics; other antibiotics do not have a similar effect. After 2 days to 2 weeks of stopping the medication, the effects on the tongue become noticeable.

1-4-4-2. Corticosteroid Medications

Oral steroids can cause redness and swelling of the tongue for up to a month after use. Inhaled steroids, such as corticosteroids, have the same effect as oral steroids but must be taken for longer periods of time to achieve the same effect.

1-4-4-3. Bronchodilators

After prolonged use, stimulants such as terbutaline and salbutamol may cause redness at the tip of the tongue. Other bronchodilators, such as theophylline, also quickly produce a similar effect on the surface of the tongue.

1-4-4-4. Diuretics

Diuretics significantly reduce tongue moisture, leading to a yin deficiency. But for these drugs to have an impact on the tongue, prolonged use is required. These medications can cause the tongue to become numb or deficient in yin over time.

1-4-4-5. Anti-inflammatory Drugs

Anti-inflammatory drugs such as oxyphenbutazone and phenylbutazone can cause red spots on the tongue and reduce its size. The tongue becomes coated with prolonged use of drugs such as ibuprofen, ketoprofen, mefenamic acid, indomethacin, and diclofenac.

1-4-4-6. Antineoplastic Drugs

Most cytotoxic drugs used for malignant diseases can cause a brown coating on the tongue.

1-5. The Sequence of Examining the Various Tongue Regions

The heart is reflected in the tip of the tongue, which is the first thing we observe. Next, we examine the middle of the tongue, which corresponds to the stomach, pancreas, liver, spleen, breast, ovary, testicles, and neck. Finally, we consider the root of the tongue, which represents the large and small intestines.

1-6. Various Aspects of Disease Diagnosis by Tongue

As previously stated, the shape, color, coating, and moisture of the tongue can be used to assess a person's health. If the tongue is a bright color, it is a good sign and is an indicator of the person's health; however, if the tongue is dark, it may indicate a disorder in the body.

1-6-1. Tongue Color

A key factor in diagnosing the disease is the color of the tongue's body. The doctor should examine the natural color of the body to make a proper diagnosis if the tongue's coating is thick. The clinical significance of tongue color lies in its ability to indicate the condition of the organ's energy (yin, yang, qi, cold, warmth, dampness, and dryness) as well as their temperaments (choleric, sanguine, phlegmatic, and melancholic). The color of the tongue's body serves as a full-length mirror for the human body, reflecting the patient's health condition.

1-6-2. The Root of the Tongue

It should be closely inspected when determining the color of the tongue root. A healthy sign is when the root of the tongue displays the correct characteristics. However, if it appears black, dry, or deformed, it indicates the patient's weakness.

1-6-3. Shape of the Tongue Body

Just as significant as tongue color is the shape of the tongue body. The following considerations are taken into account when assessing tongue shape. Total thickness or the thickness of a certain part of the tongue Examination of the tongue's surface for cracks and injuries Inspect the texture of the tongue, noting any stiffness or looseness, tightness, or softness. The tongue's movements include shaking, vibrating, and moving from side to side. Tongue tilt or deviation to one side

1-6-4. The Tongue Coating

The coating from the tip to the root of the tongue should be considered in each of the four categories: color, thickness, dispersion, and presence or absence of the tongue cover, for a comprehensive and precise diagnosis. The color of the tongue coat reflects the body's temperature. If the coating is white, it is cold, and if it is yellow, it is warm.

1-6-5. The Thickness and Distribution of the Tongue Coating

It reveals the power of pathogens and the locations of diseases in the body. The rootless coating is easy to separate from the surface of the tongue, whereas the actual tongue cover, which is necessary for identification, is challenging to remove and resembles a plant's root that has burrowed into the ground. The presence or absence of a coating on the tongue can help in

differential diagnosis by aiding in the identification of excesses or deficiencies in the body.

1-6-6. The Moisture of the Tongue

The condition of the body fluids indicated shown by moisture level moisture of the tongue. The relative state of yin, yang, cold, and body heat is indicated by the tongue's moisture and dryness, which reflect excess and deficiency of body fluids.

CHAPTER 2

TONGUE DIAGNOSIS IN TRADITIONAL IRANIAN MEDICINE

2-1. Traditional Iranian Medicine

Traditional medicine is a term used to refer to the old, historical, and cultural medicine of a country. Traditional Iranian Medicine (TIM) is one of the most ancient forms of traditional medicine. Ancient Iranian Medicine, which is based on the concept of humors as a healing system, was developed by Hakim Ibn Sina in his medical encyclopedia, The Canon of Medicine. Traditional Iranian Medicine is a holistic approach based on individual differences, emphasizing the concept of temperament.

There are four digestion processes in Iranian Traditional Medicine. After entering the human body, food is transformed into a mixture of nutrients and useful substances that are utilized by cells, tissues, and various organs. Each stage of digestion produces waste along with useful substances, which are eliminated through various methods by different organs. If digestion and elimination are not performed correctly, any defects created in each stage can lead to malfunctions in the subsequent parts. The digestion process starts in the mouth, and the food then enters the stomach. The organ digests food through the action of enzymes and muscles, as well as the heat it receives from neighboring organs (above the heart, to the right from the liver, and to the left from the splenic arteries). The material from this digestion is exported. Intestines complete digestion through chemical and biological processes and excrete waste. If this digestion does not take place well, it puts pressure on the second digestion. This digestion must demonstrate greater strength and ability to compensate for the initial incomplete digestion. Liver digestion wastes are excreted from the body through the kidneys in the form of urine. If the kidneys do not function properly for any reason, toxins are not adequately removed, leading to their accumulation in the blood and vessels, which is crucial for the third stage of digestion. Vascular digestive toxins are eliminated through the skin in the form of sweat and hair. If there are no suitable skin openings or if the

openings are closed, the waste materials in the blood are not removed from the body, and they proceed to the next stage for purification. The final digestion takes place in the organ digestion stage, and the waste products of this process are removed from the organs and lungs. Therefore, special attention should be paid to strengthening and cleansing the lungs. During the fourth stage of digestion, certain organs like the ears, eyes, and nose can eliminate the waste produced. Care and cleaning at this stage will help improve digestion.

2-2. Temperament

The principle of Traditional Iranian Medicine is based on understanding one's temperament through various methods, examining physical properties, pulse, digestion function, etc. It is a set of physical and mental characteristics defined by specific symptoms in the body and mind. Air (hot & wet), fire (hot & dry), water (cold & wet), and earth (cold & dry) are the four elements that make up all physical objects in the world; however, the quantity of each element varies in different objects. The quality that arises from the combination of four elements is known as temperament. Therefore, it is a relative feature that influences the extent of benefits derived from various elements, leading to differences in appearance, behavior, and spirit among individuals. According to Traditional Iranian Medicine, everybody has a specific temperament. Temperament generally represents the excess or lack of warmth and humidity in one's body. No two individuals have exactly the same temperament, but they can resemble each other to some extent. It is believed that temperament is determined in the embryo. Consistently, the parents' temperament can also be a determining factor in the child's temperament. There are no absolute good or bad temperaments, and as long as they are within their normal ranges—reflected in physical and mental health—they are in a balanced or normal state. As each person's temperament differs from others, people's lifestyles will be different; this is the main essence of Traditional Iranian Medicine in maintaining health and treating illnesses. By adopting a lifestyle that suits their temperament, individuals should strive to maintain the natural warmth and humidity of their body within a specific range based on their primary temperament, while avoiding potential imbalances. Temperament is not just confined to human beings. Every object, situation, and state in the world has a unique and defined temperament.

2-3. Temperament Types in Traditional Iranian Medicine

Every element possesses a unique quality, which is why there is a wide variety of objects with different characteristics in the world. This regulation applies to everyone, including humans. Thus, depending on the degree of combination and interaction of the elements, the human body is composed of various temperaments.

The following four categories, each of which includes a range of temperamental spectrums, represent how we now classify temperaments.

Compound temperaments: Sanguine, Choleric, Phlegmatic, Melancholic

Balanced Temperament

Singular temperaments: Cold, Hot, Moist, Dry, Mixed Temperament

2-3-1. Compound Temperaments

These people lack the balance of four qualities in their bodies, resulting in two temperamental characteristics that can be categorized into four groups: compound warm and moist temperament (sanguine), compound warm and dry temperament (choleric), compound cold and moist temperament (phlegmatic), and compound cold and dry temperament (melancholic).

2-3-1-1. Sanguine Temperament

This temperament is warm and moist. The element is air. Its season is spring, and its color is red. People with this temperament have strong lungs. In sanguine individuals, this temperament is dominant. Ages between 15 and 25 years have been assigned to this feature. Red blood cells are abundant in this temperament. It plays a crucial role in heating and providing energy, serving as essential nourishment for the body and cells. Furthermore, it generates moisture within the body.

- **Physical Characteristics**

They have a large and fleshy body, with muscular obesity (a higher proportion of meat to fat), and their hips are larger compared to their belly. They are tall and big-boned with large faces, fingers, body parts, and wide chests. They have strong vessels and muscles, plump lips, large nostrils, rough and coarse hair with hair loss from the front of the head in males, and

thick hair in females with no hair loss. Their hair color is black and dark brown. They are hairy on the chest, rump, and sacral area. They have redness of the tongue and lips, big eyes with reddish-white color, and swelling under the eyes. Their lungs are strong. The tongue has a red body with a thin yellow coating (medium yellow). The tongue is large and thick with sticky and sweet saliva. The gums are red and bleed easily with slight irritation, while the veins under the tongue are thick, strong, and dark red.

Skin Characteristics: They have soft skin with pores, facial acne, bumps, excessive sweating, and red complexions. These individuals have larger, prominent veins that are visible through the skin. They need skin detoxification.

- Digestive Characteristics

They have red and bloody gums and tongue, sweet and sticky saliva; they have a good appetite, are more inclined to sweet tastes, and do not show any particular preference for salty or sour flavors. They have large stomachs and intestines, their digestion is efficient, and they do not have any particular issues with digesting and excreting waste products. They don't experience constipation; issues like intestinal bloating and stomach sounds are not observed. Their liver is hot.

- Mental and Psychological Characteristics

Sanguine individuals are social, risk-taking, brave, commanding, energetic, talkative, and extroverted. They love sleeping a lot, but not in a deep or satisfying way. They dream in red, find it difficult to calm down when feeling nervous, and have high intelligence. They are interested in music and have spiritual and mystical tendencies. They have a high sexual drive. In a group, they create vitality and cheerfulness in others; they have the ability to manage a group. They are witty and warm-hearted. They are not afraid of doing hard work. They tend to explore and invent. They have quick reactions.

- Other Characteristics

They have large internal organs and a strong heart with high pumping capacity. Internal organs are coordinated. Their pulse is pendulous. They have a loud voice. Their spleen is small. The size of the genital organ is large.