

# A COMPREHENSIVE UNDERSTANDING OF AZA-E-HAIWANIYAH (VITAL ORGAN) WITH RESPECT TO ASBAB-E-TAMAMIYA (FORMAL FACTORS)

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**ABSTRACT:** Every organ in the human body is made for a purpose. It is necessary that the composition or development of an organ should be proper for its normal functioning. There are some factors /Asbab on which structure, composition, development and finally the functions of all the organs depends. In this paper these factors as well as their importance are discussed in brief with the help of an example of Aza and Af'al Haywaniya.

**Index terms:** Unani system of medicine, Aza-e-Haiwaniyah (organs related to cardiovascular system), Asbab, Qalb (Heart)

## INTRODUCTION:

The things which are perceived by our senses have some essential factors which are responsible for existence of all the things in the nature (*Mawalid salasa*). Medical sciences deal with the human body in health and decline in health; since knowledge of any thing is acquired and completed by learning its causes and origins. Aristotle (384-322 BC) who is also known for his logics and concepts, had given four different informative philosophies or factors (Asbab) in his physics first one deals with the *Material cause* are those substance on which health and disease depend, second one is *Efficient causes* which alter or maintain the states of human body and third is *Formal causes* which forms the specific structural pattern in conventionality with which the materials are set up; lastly the *Final cause*, it includes functions which is the end purpose of a thing which exists. It is obvious that knowledge of the functions necessitates the knowledge of faculties and pneumas which are the bearer of the faculties <sup>[1]</sup>. Aristotle believed that the four causes are essential in the existence and nature of all things. If we consider the Qalb (Heart) under the principles of Asbab i.e. Asbab-e-Qalb are Asbab-e-Qqalb Maddiyya, Asbab-e-Qalb Fa'ila, Asbab-e-Qalb Sauriya, Asbab-e-Qalb Tamamiya. These factors are responsible for normal function of heart, either the influence of these factors keep the heart in its normal and healthy state or deviation of these results in disharmony of heart.

**KINDS OF AF'AL:** There are three major divisions of Af'al in the body:

1. AF'AL-E- NAFSANIYAH (Psychic or Mental Faculties)
2. AF'AL-E- HAIWANIYAH (Vital Faculties)
3. AF'AL-E-TABIYAH (Natural Faculties)

## QUWA AND AF'AL-E- HAIWANIYAH:

There are different kind of Quwa in the body for performing different functions. The concept of Quwa is unique one in the *Tibb*. The Quwa is that property of the body, with which the phenomenon of life is manifested. The Quwa provides the basis for different bodily functions. <sup>[2]</sup>. The process of blood circulation where by the blood circulates all over the body with the pumping action of the heart, thus the Ruh is absorbed by the blood in the lungs and carried to the heart, which pumps the *Ruh* and *Akhlat-e-Latifah* to all cells and tissues of the body to be metabolised by *Quwat-e-Tabiyah* to produce energy to perform various activities of life. Various functions of heart are:

1. **Tarwih**-furnishing Ruh to the organs,
2. **Ta'adil**-Neutralization of heat,
3. **Tanqiyah**-excretion of waste products especially dukhan (CO<sub>2</sub>) from the body.

These functions are achieved by Quwat-e-Haiwaniyah (vital faculty) which maintains circulation of blood to maintain supply of materials and carry away the waste products. The main organ of Quwat-e-Haiwaniyah is said to be heart whose contraction and relaxation pumps the blood to the organs. The arteries are connected with the veins, veins with the capillaries, therefore the blood returns from the organs through the vein to the heart again. This process is repeated again and again, since the blood always remains circulating with the pumping action of the heart manned by Quwat-e-Haiwaniyah <sup>[1, 2]</sup>. Benumbed or a paralysed organ loses the faculty of sensation and movement for a time, because either a Temperament renders it capable of receiving sensation and the movement. <sup>[1]</sup>

## AL-QUWA AL-HAIWANIYAH: Ibne-Nafees :

says that Quwat-e-Haywaniyah maintains the vitality of all the organs through Ruh Haywaniyah. This faculty transfers the oxygenated blood via arteries which maintains the vitality of organs by furnishing the Ruh to them. Heart is the seat of Hararat-e- Ghariziyah (Innate heat). Quwat-e-Haywaniyah enables the organs to receive the Quwat-e-Nafsaniyah and helps in furnishing the life to the organs with the help of Ruh Haywani. Quwat-e-Haywaniyah of Heart pumps the oxygenated blood towards the arteries and thus becomes the source of life to all the organs. There are two types of Quwat-e-Haiwaniyah.

- A) Quwat-e-Faila-which causes contraction and relaxation of heart.
- B) Quwat-e-Munfaela- Plato (born 429 B.C.) realized that the heart was the seat of emotions. <sup>[3]</sup> These emotions are Happiness, Anger, Fear, Grief, Sadness, Sorrow and Guilt

## VITAL ORGAN FOR AF'AL-E- HAIWANIYAH: THE HEART:

The heart is the key organ in the circulatory system. As a hollow, muscular pump, its main function is to propel blood throughout the body. The heart gets messages from the body that tell it when to pump more or less blood depending on a person's need, which is called Hajit -e-Tarwih.

## ANATOMY OF THE HEART:

The heart has four chambers that are enclosed by thick, muscular walls. It lies between the lungs and just to the left of the middle of the chest cavity. The bottom part of the heart is divided into two chambers called the **right** and **left ventricles**, which pump blood out of the heart. A wall called the **interventricular septum** divides the ventricles. The upper part of the heart is made up of the other two chambers of the heart, called the **right** and **left atria**. The right and left atria receive the blood entering the heart. A wall called the **interatrial septum** divides the atria, and they're separated from the ventricles by the **atrioventricular valves**. The **tricuspid valve** separates the right atrium from the right ventricle, and the **mitral valve** separates the left atrium and the left ventricle.<sup>[8]</sup> Two other heart valves separate the ventricles and the large blood vessels that carry blood leaving the heart. These valves are called the **pulmonary valve**, which separates the right ventricle from the **pulmonary artery** leading to the lungs, and the **aortic valve**, which separates the left ventricle from the **aorta**, the body's largest blood vessel.

## ASBAB (causes/factors):

Unani system of medicine deals with health and deterioration of health, so it is necessary to understand the factors or causes responsible for health and disease.

## TYPES OF CAUSES

1. Asbab-e-Maddiya
2. Asbab-e- Faila
3. Asbab-e-Sauriya
4. Asbab-e-Tamamiya

## ASBAB-E-QALB MADDI :

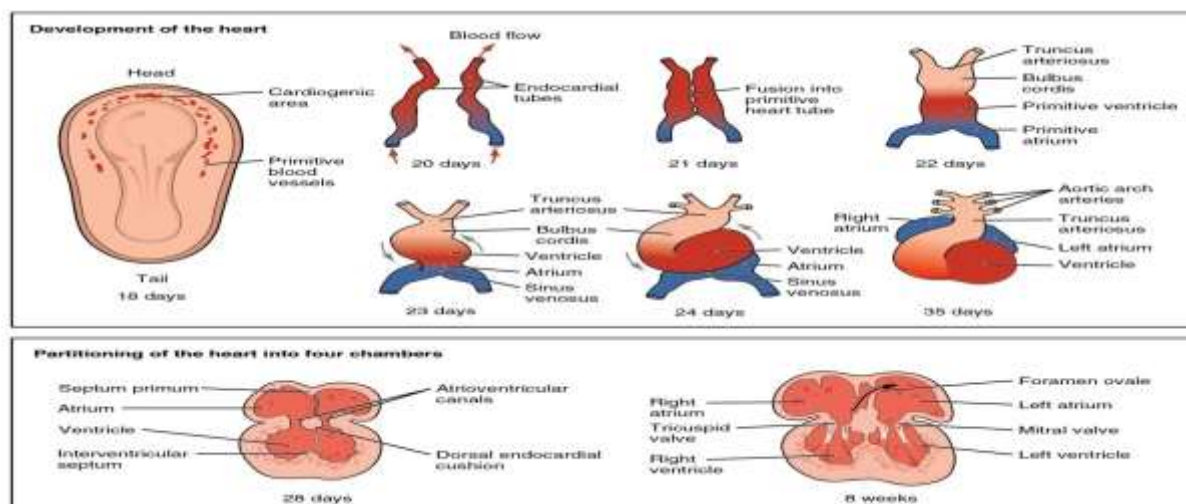
These are those entities in which either health or disease exist. They are of different types: Arkan, Akhlat ,Aaza , Arwah. Human body composed of many different types of cells that together create tissues and subsequently organ systems. Human body composed of elements including hydrogen, oxygen, carbon, calcium and phosphorous and trace elements 0.1%.According to Unani literature the organ size is decided by the amount of Maddah-e-Manwiya. If the developing organ receives greater amount then it get enlarged, and if it get less amount then it gets small in size.<sup>[9]</sup> Heart is the first organ to form during development of the body. Throughout our lives heart continues carrying out the vital job of pumping blood in the body. The heart has played an important role in understanding the body since antiquity. Aristotle identified the heart as the most important organ of the body, first to form according to his observations in chick embryo. It was the seat of motion and sensation.<sup>[9]</sup>

## ORIGIN OF HEART:

The heart derives from embryonic mesodermal germ-layer cells that differentiate after gastrulation into mesothelium ,endothelium, and myocardium. Mesothelial pericardium forms the outer lining of the heart. The inner lining of the heart, lymphatic and blood vessels, develop from endothelium.<sup>[6]</sup>

## HEART DEVELOPMENT:

The prenatal development of the human heart. This begins with the formation of two endocardial tubes which merge to form the tubular heart, also called the *primitive heart tube*, that loops and separates into the four chambers and paired arterial trunks that form the adult heart. The heart is the first functional organ in vertebrate embryos, and in the human, beats spontaneously by week 4 of development.<sup>[6]</sup> The tubular heart quickly differentiates into the truncus arteriosus, bulbus cordis, primitive ventricle, primitive atrium, and the sinus venosus. The truncus arteriosus splits into the ascending aorta and pulmonary artery. The bulbus cordis forms part of the ventricles. The sinus venosus connects to the fetal circulation. The heart tube elongates on the right side, looping and becoming the first visual sign of left-right asymmetry of the body. Septa form within the atria and ventricles to separate the left and right sides of the heart.<sup>[4, 5]</sup>



All organs pass through various stages of development and finally reach a point where they attain a definite shape, size, mass, etc. The helping power in the body to do these changes is Quwwate Namiya. The material is provided by Quwwate Ghazia for Asbabe Maddi of Qalb, If any of the factors responsible for deviation in Quwwate Namiya and Quwwate Ghazia then there will be definitely some kind of anomaly in the organ and finally the function will be affected. <sup>[1, 2, 13]</sup>

### CARDIAC ANOMALIES AND THEIR CORREALATION WITH ASBAB:

Heart and circulatory problems are grouped into two categories: congenital, which means the problems were present at birth, and acquired, which means that the problems developed some time after birth.

1. **CONGENITAL HEART DEFECTS:** Congenital heart defects are heart problems that babies have at birth. Congenital heart defects occur while a baby is developing in the mother's uterus.
2. **SIZE OF HEART:** Small size of the baby at birth is a newly described risk factor for coronary heart disease. Its pathogenesis is influenced by events in utero. The association with low maternal body weight is further evidence that the disease originates through foetal under nutrition.
3. Aneuploidy among fetuses with the congenital heart disease diagnosed in utero .
4. Development of heart failure and congenital septal defects due to lack of endothelial nitric oxide synthase. Endothelial NO synthase plays an important role in the regulation of cell growth, apoptosis, and tissue perfusion. Deficiency in eNOS results in heart failure and congenital septal defects during cardiac development, which is associated with increases in cardiomyocyte apoptosis. eNOS plays an important role in normal heart development.
5. Abnormal genes are present at birth which cause persistent left superior vena cava.
6. **CARDIAC MURMURS:** Neonatal examination detects only 44% of cardiac malformations which present in infancy. If a murmur is heard there is a 54% chance of being an underlying cardiac malformation. <sup>[11]</sup>

### ASBAB-E-QALB FAILIYA:

Asbab that maintains the state of health and disease by acting on the body. These asbab are also responsible for causing dysfunctioning of any organ due to any diseased condition. It consists of Asbab-e Qalb Failiya Zarooriya and Asbab-e-Qalb Failiya Ghair Zarooriya. A balanced relationship between the six essential and unlimited non essential factors maintains the harmony between humours and temperament thus balancing the internal environment of the human body. <sup>[12, 15]</sup>

### ASBAB-E-QALB FAILIYA ZAROORIYA:

It has six essential factors which are air, water, food, harkat-wa-sukun badani, harkat-wa-sukun nafsani, naum-wa- yaqza , ehtibaas-wa- istafragh. Unani-Tibb strongly believes that lifestyle diseases can be avoidable by some changes in Asbab-e-Sitta Zarooriyah. This embraces changing a person's diet where and when necessary encouraging more physical exercise, better breathing methods, improving sleep quality and more effective detoxification.

### AIR (HEALTHY AIR HEALTHY HEART):

To avoid CVD and other respiratory diseases, we should live in clean atmosphere. People who breathe polluted air over a long time have a higher risk of heart problems than people who aren't exposed to air pollution. But even short-term exposure can raise the risk of heart attack, stroke, and irregular heartbeat in people who are already at risk for those conditions. Breathing in the tiny particles that float in polluted air, called "particulates," can raise your risk of heart attack and stroke by: Raising your risk of blood clots, this can cause stroke, Raising your blood pressure, Causing inflammation (swelling) in your blood vessels, Hardening your arteries (atherosclerosis), Causing an irregular heartbeat. These health effects can keep oxygen and other nutrients in blood from reaching heart and brain.

### FOOD:

According to Hippocrate overeating should be avoided because excess of food causes superfluous and causes illness with its burudat (moistness). <sup>[21]</sup> Diet affects the health of blood vessels. Some of the foods we eat cause cholesterol plaques to build up in arteries, which are the vessels that carry blood away from the heart and toward the body cells. If these vessels become clogged by plaques, it can't deliver blood as efficiently. Similarly, if vessels harden, they're susceptible to tearing, which can lead to clot formation and clogging of the vessels.

### HEALTHY FOODS:

Some foods benefit the circulatory system. For instance, unsaturated fats - these occur mostly as plant-based oils - are heart healthy and improve your cholesterol levels, preventing build up of plaques in the arteries. Eating plenty of dietary fibre also helps - particularly soluble fibre, which absorbs cholesterol in the digestive tract and helps in prevention of blood cholesterol levels from rising as high. Fruits, vegetables, whole grains and beans are all good sources of fibre.

### UNHEALTHY FOODS AND HEART HEALTH:

Specifically, the foods that negatively impact vascular health are those with large quantities of saturated and trans fats. Saturated fat is most common in animal products, while trans fats occur in processed foods. Body makes cholesterol from saturated and trans fats, Eating large quantities of saturated and trans fat-containing foods increases risk of vascular disease. If vessels become clogged, heart health is also affected. The heart is a muscle, and like other body muscles, it depends upon a steady supply of blood. Clogging of the arteries that feed the heart leads to heart attack, The American Heart Association recommends limiting unhealthy fats to maintain heart health and minimize risk of heart attack.

### HARKAT-WA-SUKOON BADNI:

Moderate activity and rest are very essential to prevent CVD. Subsequent research showed that boosting oxygen uptake through repetitive, vigorous exercise could increase aerobic fitness. Higher aerobic fitness translates into better athletic performance and a lower risk of cardiovascular disease. In a recent article in *The American Journal of Medicine*, Dr. Simon reviewed current research on the health effects on both ends of the exercise spectrum, from minimum to maximum. Moderate activity—even as little as one hour of walking or gardening



per week—was linked to lower rates of heart attack, stroke, and death from all causes, according to an analysis of 22 studies that included more than 320,000 adults. One found that people who did moderate exercise just 15 minutes a day tended to live an average of three years longer than their inactive peers.<sup>[12]</sup>

#### HARKAT -WA- SUKUN NAFSANI:

It has been proved that mental stress plays a significant role in the development of CVD. Therefore to avoid CVD, moderation in harkat wa sukoon nafsani is necessary.<sup>[14]</sup>

#### NAUM WA YAQZA-

It should be moderate with respect to age and ones Temperament.

#### EHTIBAS WA ISTAFRAGH-

Excess of LDL and triglycerides are harmful to body and cardiovascular system. They should be removed from the body, and minerals vitamins and HDL which help to protect the body and cardiovascular system should be retained in the body.

#### DISEASE-

Hypercholesterolemia (high cholesterol), Coronary artery disease (Atherosclerosis)

#### ASBAB-E-QALB SAURIYA-

When *asbab-e-faila* works on *asbab-e-maddiya* as a result a specific structure is formed are known as *asbab -e -sauriya*. Or when a *asbab- e -faila* works on *asbab- e- sauriya* than either health or disease occur. *Mizaj, Quwa, Tarqeeb*. The normal mizaj of heart is *Haar yabis*, any deviation from this may cause sue mizaj of the heart, tarqeeb or structural complexity of heart muscles was prepared by nature to perform variety of functions.<sup>[12]</sup>

#### DISEASES-

cardiomyopathy (Quwat of muscles gets weakens), sue mizaj.

Cardiomyopathy: A cardiomyopathy is defined as a disorder in which the heart muscle is structurally and functionally abnormal. Cardiomyopathies can be familial/genetic. Types of cardiomyopathy include hypertrophic cardiomyopathy, dilated cardiomyopathy, arrhythmogenic right ventricular cardiomyopathy, restrictive cardiomyopathy and unclassified cardiomyopathies.<sup>[11]</sup>

#### ASBAB-E-QALB TAMAMIYA-

After the action of *asbab-e- maddiya, faila, and sauriya* either health or disease is obtained and after that functions of any organ is decided either they are functioning proper or not.

#### THE CIRCULATORY SYSTEM :

Circulatory system is very mechanical in nature. In many ways, it works just like a pump circulating fluid through a series of pipes. In the same way that such a pump system would fail if there were something wrong with the pump - or if the pipes became clogged - failure of the heart or clogging of the arteries leads to a failure of the circulatory system.<sup>[4, 5, 6]</sup>

#### WHAT THE HEART & CIRCULATORY SYSTEM DO:

The circulatory system works closely with other systems in our bodies. It supplies oxygen and nutrients to our bodies by working with the respiratory system. At the same time, the circulatory system helps carry waste and carbon dioxide out of the body. Hormones — produced by the endocrine system — are also transported through the blood in our circulatory system. As the body's chemical messengers, hormones transfer information and instructions from one set of cells to another.

Process behind beating of heart? A healthy heart makes a "lub-dub" sound with each beat. Here's what happens to make that sound: One complete heartbeat makes up a **cardiac cycle**, which consists of two phases. In the first phase, the ventricles contract this is called **systole**, sending blood into the pulmonary and systemic circulation. To prevent the flow of blood backwards into the atria during systole, the atrioventricular valves close, creating the first ("lub") sound. When the ventricles finish contracting, the aortic and pulmonic valves close to prevent blood from flowing back into the ventricles. This is what creates the second sound (the "dub"). Then the ventricles relax this is called **diastole**, and fill with blood from the atria, which makes up the second phase of the cardiac cycle. A unique electrical system in the heart causes it to beat in its regular rhythm. The **sinoatrial** or **SA node**, a small area of tissue in the wall of the right atrium, sends out an electrical signal to start the contracting of the heart muscle. These electrical impulses cause the atria to contract first; they then travel down to the **atrio-ventricular** or **AV node**, which acts as a kind of relay station. From here the electrical signal travels through the right and left ventricles, causing them to contract and force blood out into the major arteries.<sup>[4, 5]</sup> **Diseases-** Arrhythmia.

#### CONCLUSION :

Mawaleed-e-Salasa are made by four Asbab which are responsible for the things for their existence. If we take human body as an object it also has its Asbab-e Muqawwima or Umoor-e-Muqawwim i.e Asbabe/Umoor-e- Maddiya (Arkan, Akhlat, Aza, Arwah), Asbabe/Umoor-e-Failiya (asbae zarooriya, and gair zarooriya), Asbabe/umoor-e-Sauriya (Mizaj, Quwa, Tarkeeb), Asbabe/Umoor-e-Tamamiya (afal). Just like this way if we look for Asbabe Qalb, then formation and existence of Qalb also be kept under these four factors, Asbabe/Umoor-e- Maddiya for its material, Asbabe/Umoor-e-Failiya for its required or effective function, asbabe/umoor-e-sauriya, to make relation between mizaj, quwa and Tarkeeb, Asbabe/Umoor-e-Tamamiya —to keep in its normal functioning.

Every organ in the human body is made for a purpose. The things sensed by human sense are result of four asbab ( asbab-e-maddiya, asbab-e-failiya, asbab-e-suriya, asbab-e-tamamiya) which are given by Aristotles. Either single or compound. It will have Umoor-e-Muqawwima by which its existence is seen.

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