



Review Article

Volume 9 Issue 2

April – June 2020

TABIYAT AND ITS ROLE IN HOMEOSTASIS:

CONCEPT OF UNANI SYSTEM OF MEDICINE

¹Dr. Mohd Azfar, ²Dr. Yusuf Jamal

¹Department of Munafeul Aza, University of Delhi, New Delhi 110005, India

mohdazfar1552@gmail.com, +91-8218909662

²HOD, Department of Munafeul Aza, University of Delhi, New Delhi 110005, India

yousufjamal289@gmail.com, +91-8800523673

*Corresponding author's E-Mail:-mohdazfar1552@gmail.com.com (Dr. Mohd Azfar)

ABSTRACT

Unani system of medicine has very vital concept of Tabiyat as a natural faculty of the body accountable for proper functioning of the organs. Tabiyat is a nature gifted power in the body that brings health condition when it is strong enough and the physician only aid Tabiyat in order to get rid of ailments. Tabiyat plays a very crucial role in health promotion and prevention. Balance of temperament is mainly prevented by it and in case of dystemperament it is again restored by Tabiyat by aiding it through different methods and therapies. The purpose of this study is to describe Tabiyat in the light of modern concept of human physiology in order to focus the importance of Tabiyat, its function as homeostasis. The conclusion of this study is that homeostasis is accomplished with the help of Tabiyat so called Quwwat-e-Mudabbirah-e-Badan.

Keywords: Medicatrix naturae, Tabiyat, Quwwat-e-Mudabbirah-e-Badan, Homeostasis, Arkan

1. INTRODUCTION

The concept of Tabiyat (medicatrix naturae) is very vital in Unani system of medicine. Tabiyat is described by the father of medicine as “physis” or “phusis”. It is a natural administrative faculty that govern the basic functions of the body ^[1]. The Arabic philosophers and physicians coined the term Tabiyat for physis. According to Hippocrates; Tabiyat refers to an administrative faculty which works for the welfare of the human body involuntarily and unconsciously. Tabiyat is responsible for all the activities, rest and microscopic functions of the organs within the body. Since Tabiyat is governing faculty of human body which maintains the body’s internal environment in the state of equilibrium, the homeostasis. Homeostasis is defined by Claude Bernand as complex organisms are able to maintain their internal environment into a constant state with external world, and he said, “a free and independent existence is possible only because of the stability of the internal milieu” ^[2]. Term homeostasis is coined by Walter Bradford Canon as “maintenance of a constant internal environment of the body” ^[3]. According to Unani system of medicine, each and every organ of the body is composed of four basic elements called “Arkan” having different qualities with respect to function of the organ. The mixing and interaction of the arkan give rise to new compound and quality called temperament or Mizaj. In this way, the specific temperament of organ, organ systems and whole body is formed. Temperament of the healthy individuals represents the good profile of biological state which keeps perfect harmony between *milieu interieur* (the environment within the body) with neighboring environment. Tabiyat is responsible for the maintenance of the temperament and prevent dystemperament and reverse the state of dystemperament to the state of healthy temperament. According to Unani system of medicine any deviation in Mizaj leads to occurrence of disease and hampering the functions. Thus, Tabiyat is supreme governing body of human being that is responsible for health or disease condition.

2. Definitions of Tabiyat?

According to Aflatoon; Tabiyat is a God gifted power which is renowned for the betterment and equitability of the human body ^[4].

According to Galen; when word Tabiyat is spoken, it refers to the Quwwat-e-mudabbirah-e-Badan which means the supreme planner of the body ^[5].

According to Aristotle; Tabiyat is administrative faculty which governs the human body involuntarily and unconsciously [6].

According to Razi; Tabiyat is solely responsible for the performance of the all physiological functions of the body [7].

Ibn-e-Sina said in “AlQanoon-Fil- Tib” the Tabiyat-e- Insaniah (human physis) provides the capacity to resist the diseases and to make a defensive line against the Madda-e-Marz (pathogens) [8].

According to Majoosi; Tabiyat is an administrator of the body, when it is powerful enough to withstand the disease, it does not require the aid of physician [9].

According to Masihi; Tabiyat is a faculty which governs the body involuntarily, and takes the action suitable to the body [10].

Ibn Rushd defines; Tabiyat is sum total of structural, functional, and psychological characters of the human beings [11]

Unani Scholar Rabban Tabri has described in his treatise, ‘Firdausul Hikmat’ as administrative power of the body [12].

Ibn Nafis said in other words “Tabiya found in a natural body itself becomes the first source for its motion and rest” [13].

3. Tabiyat and Homeostasis

According to Galen Tabiyat is Quwat-e-mudabbirah-e-Badan which is supreme planner of the human body and responsible for the Tadbeer of living things [14]. Tadbeer is referred to as a peculiar and attentive manoeuvre or intervention to perform any special task or work. Homeostasis is the balance that all livings have to maintain. Normally healthy living of large organisms include human being depends upon the constant maintenance of internal environment within the normal physiological limits. The body must recognize the deviation of normal physiological functions to introduce the homeostatic mechanism. Fortunately, body has sensors or detector, to recognize the deviation. Homeostasis is achieved by means of feedback signals. Feedback is the process in which some proportion of the output signal is fed (passed) back to the input. There are two types of feedback, one is more frequent called negative feedback and other less common is positive feedback [15].

Positive feedback is less frequent and acts to amplify the effect by its own influence on the processes that start it. Positive feedback is a mechanism in which output is enhanced in order to maintain homeostasis for instance aggregation of platelets, parturition, lactation etc. On the other hand negative feedback is commonest and works in the reverse direction to bring equilibrium such as thermoregulation, B.P. regulation, and hormonal regulation [16].

These faculties found in their systemic vital organs and functions are carried out with the help of Rooh that spread from vital organs to target organs. There are four main faculties under which many sub faculties work under the administration of Tabiyat. The main faculties are Quwate Nafsania, Quwate Haiwaniya, Quwate tabaiya and Quwate Noiya [1,7,12].

4. Role of Tabiyat in Systemic Homeostasis

Homeostasis plays important contribution to proper functioning of the body and regulated by different mechanisms such as osmoregulation, thermoregulation, and pH regulation by different organ systems in the body like respiratory system, gastrointestinal system, nervous system, urogenital system, cardiovascular system, etc [17].

The autonomic nervous system is a part of peripheral nervous system and contains motor neurons that control internal organs at the subconscious level and has two divisions, the sympathetic and parasympathetic system. The sympathetic system brings about those results associate with energy situations, often called fight or flight reactions, and the parasympathetic system is for daily normal routine work. Information from the sensory organs are fed to the CNS via sensory nerves, where it is processed and proper outputs sent to the effector organs, muscle (striated, smooth and cardiac) and glands to counteract the disturbance [18]. Tabiyat governs the functions of nervous system by its supplementing faculty called Quwate Nafsaniya situated in brain, spinal cord, nerves and other sensory organs [19]. Quwate nafsaniya has two types of faculties according to function, one is Quwate Muharrika for motor function and other is Quwate Mudrika for sensory functions.

The endocrine system regulates the metabolism and development of most body cell and body systems. Hormones regulate the production of RBCs which elevate and lower

blood pressure accordingly. Some hormones also have anti-inflammatory effects and stimulate the lymphatic system. Hormones are of great importance as it has great impact on every system of the body to regulate various systemic functions. Hormones are used on various target organs, where their influence cellular metabolism [20]. The body has many feedbacks to regulate the release of hormones under the administration of Tabiyat. Tabiyat regulates the secretion of hormones from endocrine glands for proper functions to achieve homeostasis.

Homeostasis by skin includes protection, regulation of body temperature and water, sensation, synthesis of vitamins and hormones, and absorption of materials [21]. Skin is responsible for sensation of external stimulus as it has sensory nerve endings. Majoosi describes that Tabiyat provides protection of various vital organs by enclosing inside membranes; the whole body is covered with skin to protect from external hazards. Skin has Quwate Lamisa which is responsible for perception of various sensory stimuli.

Bones work conjunction with the muscular system to aid in posture and locomotion. Protection is crucial function occupied by skeletal system as many vital organs are encased within cavities of skeleton. Bones serve as storage for 99 % of body Calcium and 85% of total body Phosphate needed for various physiological functions [22]. Quwate Muharrika with its different faculties, i.e. Quwate Shaoqiya and Quwate faila are responsible for different work performance and locomotion which is a part of Quwate Nafsania.

Contraction and relaxation of cardiac muscle brings systole and diastole of heart for proper circulation of blood throughout the body. Muscles contract around vital organs, breaking down ATP and thereby expanding heat, which is then distributed to the rest of the body. The musculature of digestive system is responsible for mechanical breakdown of food stuffs to make the food absorbable by gastrointestinal tract and propulsion of remained parts by peristalsis. Detrusor muscles help in voiding of urine by contraction of urinary bladder. Muscle homeostasis is the result of a delicate balance between anabolic and catabolic processes, which is altered, can lead to debilitating conditions. Thus, modulation of the anabolic and catabolic pathways represents an attractive therapeutic intervention to counteract muscle wasting and to guarantee the quality control of cellular components [23]. The route of Quwate Nafsania is central nervous system that leads to muscles through motor nerves. Quwate Faila leads to contraction

and relaxation of muscles through four faculties, i.e. Quwate Khayaliya (faculty of thoughts), Quwate shaakiya (faculty of desire), Quwate Aazima (faculty of determination) and Quwate Amliya (faculty of performance).

Cardiovascular system has crucial role in maintaining homeostasis depends on the continuous and controlled transportation of blood through the capillaries that bath every tissue and reach every cell ^[24]. Skin, bones, muscles, lungs, alimentary canal, nervous, endocrine, lymphatic, urinary, and genital system use the circulatory system as its “road” or “highway” as distributor of nutrients, oxygen, hormones, drugs, etc. Heart is the centre of Quwate Haiwaniya responsible for maintaining life as heart transport this Quwwat to the different parts of the body. Ibn Sina said that Quwate haiwaniya is responsible for vitality of organs by transporting pneuma towards organs and make it alive.

Respiratory homeostasis is concerned with the regulation of a blood gas composition that is compatible with maintaining cellular homeostasis ^[25]. The respiratory system works in combination with the cardiovascular system to provide oxygen for cellular metabolism and to remove carbon dioxide from cells. The respiratory system also removes carbon dioxide. Since CO₂ is mainly transport in the plasma as bicarbonate ions, which act as a chemical buffer, the respiratory system also helps maintain proper blood pH level. The metabolic wastes are eliminated in the form of gas through respiratory system. During inspiration oxygen is inhaled necessary for existence of life. Respiratory system is controlled by Quwate Haiwaniya as it provides pneuma to the body. Blood gets oxygenated in the lungs with the help of Quwate Haiwaniya. Allama Ghilani writes in his book that production of pneuma occurs in the lungs. Abu Sahl Masihi describes that pneuma is achieved by inhaled air inside the lungs. The whole inhaled air is not pneuma but a part is so called oxygen later. Ibne Sina describes three functions of the respiration i.e. Tarwih, Ta'dil, and Tanqiyah finally regulated by administrative faculty of the body i.e. Tabiyat.

The lymphatic system is formed by a complex network of vessels (i.e, the “lymphatic vessels” or “lymphatics”), the essential function of which is to carry fluid called “lymph” from the peripheral tissues to the heart. Basically, the lymphatics can be divided into a peripheral compartment (i.e, from the interstitial space to and within the nearest lymph node) and a central compartment ^[26]. The lymphatic system has three principal roles.

First is the maintenance the blood and tissue volume. Secondly, the lymphatic system absorbs fatty acid and triglycerides from fat digestion do not enter directly blood stream. Third, the lymphatic is involved in defending the body against invading microbes, and the immune response. This system assists in maintenance, such as bones and muscle repair after injuries. The lymphatic system has main role in the primary defense of the body from pathogens as it contains lymph nodes that engulf various harmful bodies and protect the body. Tabiyat of human body helps the lymphatic system to provide immunity of the body as Quwwat-e-Mudabbare Badan.

The gastrointestinal tract has a crucial role in the control of energy homeostasis through its role in the digestion, absorption, and assimilation of ingested nutrients [27]. Nutritional homeostasis is a basic biological process that involves adjusting feeding behavior and post-digestive physiology to balance food intake with the energy expenditure [28]. The digestive system absorbs the organic substances, vitamins, ions, and water that are needed all over bodies. Note that food undergoes three types process in the body: digestion, absorption and elimination. Digestive system is regulated by Quwate Ghaziya which is based on three faculties i.e. Quwate Muhassilah (absorption of nutrients by the organs), Quwate Mulassiqah (adhere the nutrients to the organs) and Quwate Mushabbah (makes nutrients similar to organ units). According to Abu Sahal Masihi that food stuffs never roast like in tandoor but it gets converted by its constituent that can be absorbed and become a part of the body. Hunain bin Ishaac describes the gastric juice as gastric acid. Allama Gilani describes the movement of intestine as (Harkat-e-Dudiya) peristaltic movement.

The organs require energy which is supplied by metabolic system in order to perform vital functions necessary for life. There is compelling evidence that total body fat itself is regulated in the sense that when it is decreased, homeostatic reflexes are activated to restore fat to normal, and that when it is increased, reflexes with opposite actions are activated to elicit weight loss. These processes account for the relatively stable maintenance of bodyweight over long intervals [29]. After digestion and absorption of food stuffs by intestine into systemic circulation, metabolic changes occur in food under the control of Quwat e Tabiya to produce energy which is a complex system itself. Similarly, cell also has Quwat e Tabiya to perform these changes to produce energy for the maintenance of its function and viability. Abu Sahl Masihi has described about the

Istehala-e-Haqeeqi as the food stuffs get harmonized inside the stomach called Kailoos (chyme). According to Majoosi, the digested chyme get absorb to liver via hepatic vein where further metabolic activity occurs that produces humours to the body.

The kidneys have the predominant role in regulating the systemic bicarbonate concentration and hence, the acid-base homeostasis. This function of the kidneys has two components: reabsorption of virtually all the filtered HCO_3^- and production of new bicarbonate to replace that is consumed by normal, or pathologic acids. This production or generation of new HCO_3^- is done by net acid excretion [30]. Main function of the kidneys is to eliminate urea, mineral salts, toxins, and other waste products from the blood to provide a stable internal environment (homeostasis) for optimal cell and tissue metabolism. Action of excretion of waste material is govern by Quwate Dafia as Fudlat-e-Raddiya or metabolic waste products in the form of urine. Metabolic wastes are unable to become the part of the body so excreted accordingly.

Homeostasis is conventionally thought of merely as a synchronic (same time) servo-mechanism that maintains the established order for physiology of an organism. The integral connection made by cell to cell signalling for embryonic development, physiology and repair provide the needed insight to the scale-free universality of the homeostatic principle [31]. The cycle of birth and death is continuous to maintain the population of every species, and there should be equilibrium between birth and death for survival of self and others also. Reproduction of offspring is governed by Quwwat-e-Tanasuliya/Noiya with its two sub faculties called Quwwat-e- Muwallada and Quwwat-e-Musawwira which is a part of Quwwat-e-Tabiya [1, 13]. So preservation of race by reproduction is an essential function of Tabiyat.

5. CONCLUSION

Based on the review of literatures, it can be concluded that Tabiyat is administrative faculty of the body responsible for balance and regulation of homeostasis. Homeostasis plays an important key role in the optimum functioning of the body. Homeostasis works by negative and positive feedback mechanism on different system of the body such as respiratory system, digestive system, nervous system, urinary system, cardiovascular system, musculoskeletal system, Integumentary system and lymphatic system. There are different faculties for particular works under the administration of Tabiyat to achieve homeostasis and maintain the life form. All the faculties perform their

respective functions in combination for the welfare of the body. All these faculties are subordinate of Tabiyat that govern their function in order to achieve homeostasis in the body. It proves the statement of Hippocrates; Tabiyat refers to an administrative faculty which works for the welfare of the human body involuntarily and unconsciously.

6. ACKNOWLEDGMENT

We are very thankful to our colleagues and library staff for their useful support.

7. REFERENCES

1. Ahmed SI. Introduction to Al-Umoor Al-Tabiyah. 1st ed. Hkm Nuzhat Ishtiyag: Aligarh; 1980, p 33, 162, 209, 210.
2. Modell H, Cliff W, Michael J, et al. A physiologist's view of homeostasis. *Adv Physiol Educ.* 2015;39(4):259–266.
3. Canon WB. The Wisdom the Body: 1st ed. W.W. Norton & Company: New York; 1932, p 177-201.
4. Arzani A. Ikseerul Quloob, Central Council for Research in Unani Medicine: New Delhi; 2010, p 2.
5. Jalinus. Kitab fil firaq-al-Tib (Urdu Translation by Rahman HSZ), Ibn Sina Academy: Aligarh; 2008, p 69, 73.
6. Jilani HG. Makhzanul Jawahar, Ejaz Publication House: New Delhi; 1998, p 528, 530-531.
7. Razi AMBZ. Kitabul Murshid (Urdu Translation by Mohd Raziul Islam Nadvi).1st ed., Taraqui Urdu Bureau: New Delhi; 2000, p 100, 101.
8. Kabiruddin HM. Kuliyat-i-Qanoon, Ejaz Publication House: New Delhi, 2006; p 81-83.
9. Majusi AIA. Kamil Al-Sana'a Al-Tibbiyya (Urdu Translation by Ghulam Hasnain Kinturi), Vol. 1. Idara Kitabul Shifa, New Delhi: 2010; p 172, 173.
10. Masihi AS. Kitab Al-Mi'a (Urdu Translation by CCRUM), Ministry of Health and Family Welfare, New Delhi: 2008; p 127, 128.
11. Rushd I. Kitabul Kuliyat, Delhi: Urdu Translation by CCRUM: 1987: p 346 – 7
12. Tabri R. Firdaws Al-Hikmat Fi'l Tibb (Urdu Translation by Hkm Awwal Shah Sambahli), Idara Kitab-us-Shifa; New Delhi: 2002, p 26.
13. Kabeeruddin M. Kuliyat Nafisi, Idara Kitab-u-Shifa; New Delhi: 1954, p 404-415.

14. Jurjani I. Zakhira Khawarazm Shahi, Idara Kitabus Shifa: New Delhi: 2010, p 9,118,120.
15. Simbhulingum K, Simbhulingam P. Essentials of Medical Physiology, 6th ed. Jaypee Publication New Delhi; 2012; p 38-41.
16. Guyton C, Hall JE. Textbook of medical physiology, 11th ed. Elsevier Saunders Philadelphia; 2006: p 4-9.
17. Palaparthi S. Role of Homeostasis in Human Physiology: A Review. J Med Physiol Ther. 2017; 1:101.
18. Brown AG. The Nervous System and Homeostasis. Interactions with the Internal and External Environments. In: Nerve Cells and Nervous Systems. Springer, London; 1991: 213-227.
19. Ansari MA. Qadeer A. Pivotal Concept of Tabiyat and Its Dynamism. 2017; 10.13140/RG.2.2.30654.74566.
20. [https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Book%3A_Introductory_Biology_\(CK12\)/13%3A_Human_Biology/13.6%3A_Human_Skeletal_System](https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Book%3A_Introductory_Biology_(CK12)/13%3A_Human_Biology/13.6%3A_Human_Skeletal_System).
21. <https://www.ck12.org/section/integumentary-system::of::skeletal-muscular-and-integumentary-systems::of::ck-12-biology-i-honors-ca-dti3/>.
22. Biologydictionary.net Editors. "How Does the Skeletal System Maintain Homeostasis." *Biology Dictionary*, Biologydictionary.net, 21 Apr. 2018, <https://biologydictionary.net/how-does-the-skeletal-system-maintain-homeostasis/>.
23. Scicchitano BM, Dobrowolny G, Sica G, & Musaro A. Molecular Insights into Muscle Homeostasis, Atrophy and Wasting. *Current genomics*, 2018; 19(5): 356–369.
24. SEER Training Modules, *Module Name*. U. S. National Institutes of Health, National Cancer Institute. <https://training.seer.cancer.gov>. 10 February. 2020.
25. Clancy J, McVicar A. The respiratory system and homeostasis. *The British journal of theatre nursing, NATNews*, The official journal of the National Association of Theatre Nurses, 1996; 6(8): 16–22.
26. Olszewski WL. The lymphatic system in body homeostasis. physiological conditions. *Lymphat Res Biol*. 2003; 1(1): 11–24.

27. Drucker DJ. The role of gut hormones in glucose homeostasis. *The Journal of clinical investigation*, 2007; 117(1): 24–32.
28. Prasad N, Hens K. Sugar Promotes Feeding in Flies via the Serine Protease Homolog Scarface. *Cell Rep*. 2018; 24(12): 3194–3206.
29. Woods SC, Ramsay DS. Food intake, metabolism and homeostasis. *Physiology & behavior*, 2011; 104(1): 4–7.
30. Hamm LL, Nakhoul N, Hering - Smith, KS. Acid - Base Homeostasis. *Clinical journal of the American Society of Nephrology: CJASN*, 2015; 10(12): 2232–2242.
31. Torday JS. Homeostasis as the Mechanism of Evolution. *Biology*, 2015; 4(3): 573–590.