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Understanding the need of Nutrition and concept of *Tahallul* (Dissolution): A review

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Abstract
Background and Objectives: Greek Philosopher Empedocles proposed theory of four elements and wrote that compounds are perishable. His theory is adopted by Philosophers and Physicians from Greece Rome and Arab like Hippocrates, Galen and Razes etc. They considered human body a compound too and explained the process of dissolution occurring in the body along with necessity of replenishment or nutrition to this dissolution or wear and tear.
Methodology: This study is based absolutely on analysis of thought and doctrines of Unani physicians and philosophers regarding *Tahallul* (Dissolution) or wear and tear. Literature was surveyed from various classical Unani books and journals for better understanding and explanation of this concept. Collected material then analysed and systematized incomprehensive way.
Interpretation and conclusion: According to Unani system of medicine human body is composed of four *arkān* (elements/primary constituents) which tend to get apart from the body. Also, during living processes and tasks dis solution occurs in the body due to various reasons but mainly due to *ḥarāratgharīziyya* (innate heat). Replenishment to this dissolution is mandatory. This replenishment is provided by food consumed in order to sustain life for a certain period.

Keywords: *Tahallul*, dissolution, replenishment, *Ḥarāratgharīziyya*, innate heat

1. Introduction
Empedocles (492-430 BC) the great philosopher of Greece gave the theory of four *arkān* (elements or Primary constituents). These are *Nār* (Fire), *Hawā'*(Air), *Ma'* (Water) and *Arḍ* (Earth). According to him, Every compound that we find in this world is formed when these four Primary constituents are mixed in different proportion. In this world only Primary constituents are everlasting while compounds are temporary/perishable [1]. Compounds are even decomposed in these primary constituents, although the process of decomposition is not same as the process of formation. Procedural sequence for formation and for decomposition are different, not reversal [2]. These *arkān* have similar and contrary qualities to each other. i.e. *rukn nār* is hot and dry, *rukn hawā'* is hot and wet, *rukn ma'* is cold and wet and *rukn arḍ* is cold and dry [3, 4]. According to Unani system of medicine or *Tibb* a compound is formed when these four primary constituents come together to interact with each other and *mizāj* (Temperament) is obtained. *Mizāj* is a *kaifiyāt* (quality) produced by action and reaction of opposite qualities of primary constituents which are broken down in small particles to facilitate proper intermixing of all the particles. When these *arkān* interact by the virtue of their respective *kaifiyāt* qualities) a condition is achieved which is equal in whole compound called as *mizāj* (temperament) [4], this *mizāj* then imparts *ṣūrat* (specific form) to the compound for lodgement of *Ṭabi'at* (Physis/Nature) [5]. *Ṭabi'at*, a regulating/governing power of the compound, in turn sustain the compound for a period. On account of contrary qualities of *arkān,* the *tarkīb* (composition) of compound is *jabri* (forced) because these *arkān* have a natural tendency of moving towards their *ṭabī'ī maskān* (natural abode). It can be inferred that because of *jabri tarkīb* every compound is perishable as *taḥallul* (dissolution) is inevitable to every compound. It is the *tabi'at* which binds these comprising *arkān*(primary constituents) in the compound thus preventing the compound from being dispersed [6].
The term *Tahallul* (dissolution) and *Taḥlīl* and is often used interchangeably. *Taḥlīl* verbally means to make a substance thinner in consistency and technically *taḥlīl* means to make a substance capable of being vaporized [5]. This process of *taḥlīl* occurs under the influence of heat [4]. Actually, these are the *Latīf ajzā'* (light constituents) of the compound that undergo dissolution [7]. So *Taḥallul* (dissolution) could better be defined as the process in which the *latīf ajzā'* (light constituents) of the compound get dissipated under the effect of heat. The compounds we find in this world can be divided into three major categories or *Mawālīd thalātha* depending on their origin. These are *Jamadāt* (Minerals), *Nabatāt* (Plants) and *Haiwanāt* (Animals). Compounds related to *Jamadāt* either do not undergo dissolution or if they undergo dissolution then it is negligible because in their composition such primary constituents are included in a very small amount which get dissolute easily. Renowned scholar Zakaria Razi (854-925 AD) has stated that rate of dissolution varies from compound to compound and no or least dissolution occurs in the compounds which are extreme *yabis* (dry) e.g. Gold and Ruby [8]. While *nabatāt* and *haiwanāt* undergo dissolution because they are composed of such primary constituents chiefly which get dissolute easily, he further added that compounds which are *raṭab* (wet) in nature undergo continuous dissolution e.g. vegetables. Since continuous dissolution is occurring in the compound so replenishment of this dissolution must be provided to sustain the compound for a period. Zakaria Razi

has listed the causes of sustenance of a compound. He described that any compound is sustained for a definite period only in one of the two cases:

a) No dissolution in compound is occurring.
b) If dissolution in compound is occurring then continuous replenishment to this dissolution is being provided [8].

However, the first case is not possible because no compound in this world is everlasting [1].

2. Dissolution in human body: In Unani system of medicine human body is considered as a compound. So, dissolution is inevitable to human body also like all other compounds of the world. According to Abbas Majoosi two types of dissolution occurs in human body:

1. *Khaffi* (concealed)
2. *Zahiri* (revealed)

2.1 *Khaffi taḥlīl* is that kind of *taḥlīl* which cannot be seen by naked eye and occur as a result of stimulation/excitation of *ḥarārat gharīziyya* e.g. in *riyāḍāt* etc [9].

2.2 *Zahiri taḥlīl* is that which can be perceived by the external senses for example, sputum, nasal mucus discharge, sweat, urine and faeces etc [9]. Since the process of dissolution occurs under the effect of heat [4, 7, 9]. There are three types of heat which causes dissolution in human body [9, 10].

A. External Heat i.e. atmospheric hot air
B. Heat yields during activities
C. *Harārat gharīziyya* (innate heat)

2.3 Atmospheric hot air: The environmental hot air is responsible for dissolution in such a way that it helps in thinning the viscosity of the *ruṭūbat* (fluids) and *arwāḥ* (pneuma) of the body and makes them capable of being easily dissipated from the body in the form of vapours. Hot environmental air makes the body *mutakhalkhal* (rarefied) and also opens up the skin pores which in turn facilitate the process of dissolution in the body [7, 9, 11].

2.4 Heat yields during activities: It is a fact that no human being can part himself from doing some activities because humans are naturally designed to be active [7]. Heat yields during activities, whether mental or physical, results in dissolution. However, heat yields during physical activity mainly results in dissolution of *fuḍlāt* (wastes) of *haḍm ‘udwi* (organ digestion) [6]. Foods after entering in the body is acted upon by *ḥarārat gharīziyya* (innate heat) then undergo an extensive processing to become the part of the body. This processing can be divided into four steps/levels of digestion [6, 9]. There is always some amount of waste is generated in every step of digestion that needs to be excreted [12]. Normally *Hararate ghariziya* helps in expulsion of these wastes by *quwwate dafia* (expulsive faculty). If *ḥarārat gharīziyya* is incapable of expulsion of these wastes due to some reasons, these wastes may get accumulated resulting in suffocation of the *ḥarārat gharīziyya* itself. So some heat is required for expulsion and dissolution of these wastes and also to enhance the *ḥarārat gharīziyya*. Heat yields during activities is that very heat which causes dissolution of wastes [7].

2.5 Dissolution due to *Ḥarārat gharīziyya*: Being hot and wet, human body is always undergoing dissolution and most of this dissolution occurs because of the *ḥarārat gharīziyya* (innate heat) of the body. Actually, this heat causes dissolution of *ruṭūbat* (moisture content) of the body continuously [11]. *Harārat gharīziyya* act as a common tool for all type of *quwā* (faculties) whether it is *quwwat ṭabī‘iyya* (natural faculty), *quwwat ḥaywāniyya* (vital faculty) or *quwwat nafsāniyya* (psychic faculty) [2]. These *quwā* (faculties) are the source of *afāl* (functions). Since no function can be accomplished until *ḥarārat gharīziyya* (Innate heat) remains at moderation that is why *ḥarārat gharīziyya* is said to be the tool of *quwā* [7]. However, dissolution is not same in every individual. Dissolution will be less in individual with less activities as compare to hyper active individuals irrespective of nature of activity whether physical or mental. Even some amount of dissolution occurs in the person who is least active only performing his most basic activities [9]. From above discussion it can be inferred that continuous dissolution of the body is occurring and *ḥarārat gharīziyya* plays an important role in dissolution.

3. *Ḥarārat gharīziyya*

Jalinus (Galen:130-210AD) defined *ḥarārat gharīziyya* as *ḥarārat nāriya* ‘*unsuriah* (elemental heat) that is produced while attaining *mizāj* (temperament) and is responsible for body’s consistency and remains in the body throughout the life [9, 10]. Ibn Sina (980-1037 AD) considered it a kind of heavenly heat which is gifted by God along with *nafs*(psych) [7]. According to Yusuf Harwi, it is the heat that is present in the body and is responsible for keeping the body live or maintaining the *ṣūrat*(form) of the body [10]. This *ḥarārat* (heat) helps in accomplishment of all those functions of the body which are responsible for sustenance of life e.g. absorption and assimilation of useful entity and excretion or expulsion of waste from the body etc. *Harārat gharīziyya* is present in the body since birth. With reference to Aristotle (384-322 BC), Rabban Tabri (810-895AD) stated that heart is the source of *ḥarārat gharīziyya*. It reaches from heart to various body organs through arteries [13], Being in moderation it sustains life [10]. *Ḥarārat gharīziyya* is associated with a fluid/moisture known as *ruṭūbat gharīziyya* (innate moisture) which every individual receives from parents at the time of conception [4[, It is an established fact that human body is formed from the union of seminal fluid of male and female. Gonadal fluid of male is considered as active while that of female is passive and both are moist. *Ajza’ arḍiya* (earth) and *ajza’ maiya* (water) are comparatively more in gonadal fluid of female while in seminal fluid of male *ajza’ nariya* (fire) and *ajza’ hawaiya* (air) are more. After interaction of male and female gonadal fluids zygote is formed which is hot and moist [4, 7] This *ruṭūbat gharīziyya* (innate moisture) which is actually *ruṭūbat aṣliyya* (intracellular fluid) is utilised by *ḥarārat gharīziyya* continuously. As a result gradual dissolution of this *ruṭūbat ghariziya* occurs because *ḥarārat gharīziyya* facilitates those functions which are necessary for continuation as well as sustenance of life [7]. If replenishment is not provided to *ruṭūbat gharīziyya* which is continuously undergoing the process of dissolution then it will come to an end. In other words it will get dissolute completely [4, 9, 10]. This process of dissolution of *ruṭūbat gharīziyya* can be understood by considering *ruṭūbat gharīziyya* as oil of a lamp and *ḥarārat gharīziyya* as lamp’s flame and flame is lit by consuming the oil which it

eventually consumes [9]. If *ruṭūbat gharīziyya* vanishes, *ḥarārat gharīziyya* extinguishes and death occurs [4, 9]. Although the amount of *ruṭūbat gharīziyya* alone is not sufficient to sustain life for more than few weeks [7]. Therefore, to sustain life for a definite period *ruṭūbat gharīziyya* gets support/aid from the consumed food [4]. However, *rutūbat* or *akhlat* (humours) produced from the consumed food cannot replenish *ruṭūbat gharīziyya* because both are not same. For the reason, process of maturation of *ruṭūbat gharīziyya* is different from that of *akhlat* (humours) produced after the digestion and metabolism of food [7]. Actually, this dissolution of *ruṭūbat gharīziyya* can only be minimized by providing support through food. Food replenishes only those fluids and moisture which are continuously getting dissolute along with *ruṭūbat gharīziyya.* These fluids are humours. Moreover, this support through food can only be provided up to a certain age till *quwā* (faculties) operating in provision of replenishment are strong. Since with advancing age, *quwā* become weak hence they cannot provide replenishment equal to dissolution [4]. As small amount of *ruṭūbat gharīziyya*is getting dissolute daily along with other *ruṭūbat* of the body so there comes a time when whole of *ruṭūbat gharīziyya* dissolute resulting in extinguishing of *ḥarārat gharīziyya*. This very process of complete dissolution of *ruṭūbat gharīziyya* causing extinguishing of *ḥarārat gharīziyya* (innate heat) is referred as natural death [4, 5, 7, 10z]. *Ruṭūbat gharība* (morbid moisture) is one of the causes that facilitates diminishing and extinguishing of *ḥarārat gharīziyya* [4, 7, 14]. *Ruṭūbat gharība* (morbid moisture) is produced as result of abnormal digestion. *Ruṭūbat gharība* extinguishes *ḥarārat gharīziyya* by two ways

1. It suffocates the *ḥarārat gharīziyya*.
2. This *ruṭūbat* is opposite to *ḥarārat gharīziyya* as it is cold and *balghami* (phlegmatic) in nature [7, 10].

4. Discussion

It is a fact that dissolution or wear and tear is a continuous and inevitable process occurring in the body. Most of this dissolution is because of *ḥarārat gharīziyya* that actually acts as a tool of *Ṭabi'at* (Physis/Nature) for execution of functions through *quwā* (faculties).However, this *ḥarārat gharīziyya* would act as a tool until it remains in moderation.

Through eatables, drinks and respiration, in form of nutriment and air, the *'unsuri mawād* (basic constituents) enter the body and within these *'unsuri mawad*, various metabolic processes and interactions occur which result in formation of different products and bi-products. These metabolic processes and stages are referred by various names like *haḍm*(digestion), *nuḍj* (concoction) etc [7]. These processes not only occur in the digestive system but also inside each and every organ [7]. Therefore, within each organ various complex mechanisms of *istiḥāla* (metabolism) operate [15]. Besides, this is a fact that this *istiḥāla* is invariably accompanied by production of heat [7, 15]. This means that in each and every organ of the body these above-mentioned process which occur continuously result in continuous production of heat. Until the production of this heat occurs in moderation and until the organs remain temperamentally balanced, this heat is conducive to bodily functions and it is this very heat which is known as *ḥarārat gharīziyya*. With reference to Zakaria Razi, Mahmood Amli has written that when it remains at moderation known as *ḥarārat gharīziyya* but when it elevates/exceeds from its normal limits then it is known as *ḥarārat gharība* (morbid heat) [7]. This morbid heat is not conducive to body functions [4, 14]. Therefore, *ḥarārat gharīziyya* should be maintained within its normal limits in order to sustain life for a certain period. This replenishment is provided by food.

5. Conclusion

Dissolution or wear and tear is a continuous and inevitable process occurring in the body. Therefore, for the sustenance of life as well maintenance of health replenishment to this dissolution is mandatory. This replenishment is provided by food.

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