

**Food and Balance:
Nutrition from Theory to Practice, According to the Humoural system
In the Muslim-Arab Empire between the 9th and the 16th centuries**

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Abstract

The Humoural system is a medical and philosophical theory that had many theoretical offsprings and relatives around Europe and Asia. In the Arab Empire it evolved mainly on the basis of the Greek medical system, and transferred to Arabic through a process called the "Translation Movement". This process and the creation of an Arab medical science was a complex phenomenon with cultural motives and implications. While the translation process was taking place original Arab texts began to be written, based on these translations.

Greek philosophy and medical science were based on two central elements, both of which were adopted by Arab medicine and became part of its basis. The first is **Natural Philosophy**, which claims that the world is constructed of four Elements: fire, air, water and earth. The second basic element of Greek thought was the Theory of opposites, which claims that the world is made up of contradictions, opposing forces or characteristics. For example, sweet and sour, cold and hot, etc. A central principle of the Theory of Contradictions is the aspiration for balance - there is one perfectly balanced point between each two polarities.

The Basis of Medicine

Much like the Greek philosophy, the Arab Humoural system was also based on the assumption that the world is made up of four elements (In Arabic: *ʔarkān*): water, fire, air and earth. The theory's founders claimed that the actions of nature, like those of the human body, are determined by these four elements, which are the most basic elements of all physical bodies in the world. According to the texts, these elements are not real, but their presence and fusion create a physical

“quality”. The quality created by fusing the elements determines the temperament or temperaments (In Arabic: *mizāğ*).

Ibn Sīnā describes a situation where there is constant struggle between the elements’ opposing characteristics. This ongoing struggle aims at balancing the elements by opposing characteristics continuously overtaking each other. The results of the struggle create the right and proper temperament. There are nine basic temperaments which express the physical quality of the elements: heat (*ḥarāra*), cold (*barid*), dryness (*yabis*), wetness (*raṭīb*), cold and dry, cold and wet, hot and wet, hot and dry, and the balanced temperament (*mu’tadil*). A mixture of any two temperaments expresses the quality of the element. For example: the temperament of the fire element is hot and dry, the physical quality of the water element is cold and wet, etc. In addition, each physical body has a temperament suitable for its mixture of elements.

In addition to the elements making up the bodies, and parallel to the temperaments acting within the body, there are also Humours acting within the human body (In Arabic: *khalṭ*, *mirra*). The Humours are, by definition, the humidity created by the body’s fluids when we digest our food. This includes both Natural (good) Humours and Unnatural (bad) ones.

The Humour creation process begins with digestion: food entering the digestive system is turned by the natural heat created in the digestive system into different materials, i.e. it is digested. According to the Humoural System, the heat in the stomach and the heat it receives from other, close by, organs, turn the food into a thick substance, similar to barley water, called Chyme (*kaymūs*). The Chyme is absorbed into the body through the intestines and reaches the liver, where it is cooked and heated, turning into the different Humours. The white bile (phlegm, *balğam*), the yellow bile (choler, *ṣafrāʔ*), the red bile (blood, *dam*), and the black bile (melancholy, *sawdāʔ*)

The Humours, the elements and the temperaments are somewhat suited when they make up the physical bodies. Just like the four elements make up the world, so do the four Humours make up the living body. The Humours are the internal element providing the body with its temperament.

Thinking about the Implementation of Medicine

At the center of Arab medicine, and as a first step in medical care, were the "six natural forces". These six forces characterize the external factors that affect the body, which might be practically changed, thus affecting the body and its actions. The six forces are: the air surrounding us, food and drink, movement and rest, sleep and wakefulness, restraint and release, and emotional events. On the other hand, the unnatural forces (forces deviating from the natural way) are influencing elements which are not a part of everyday life, thus are not natural, e.g.: surgical procedures or medication.

Medical treatment which followed the rules of this theory included two elements: the first is treatment through use of the natural forces and the second treatment through unnatural forces. Preservation of health, the parallel term to the modern term 'preventative medicine', was the central framework constructing the understanding and usage of natural forces. The texts show that Preservation of health was the way in which ideas relating to every person's routine dealing with his own health were discussed, at the basis of which were the six natural forces. Preservation of health texts provide detailed information regarding the ways in which a people can, or should, preserve their own health, taking into account the different forces surrounding and influencing them.

Nutrition-based medicine is the process of matching one's diet to one's medical needs. This nutrition-based medicine was the most useful of all natural forces. Nutrition had a central place in theoretical medical literature, so that every medical book includes chapters on it. Long before suggesting drugs or cutting in with a knife the theoreticians of the system sought to provide both physicians and patients with different treatment options, including changes in diet and life style. The use of food within the framework of the Humoural System is the subject of the present study.

Description of the Study and the Method

The study deals with the place of diet according to the Humoural System in daily culture and medical practice in the Arab Empire between the 9th and the 14th centuries. The study examined the **practical** implementation of the dietary rules according to the Humoural system in the culture and daily life within the borders of the Arab domain in the east and the west, on a time axis beginning after the establishment of Arab medical science in the 9th century and ending in the 16th century, with the fall of the Mamluk rule, an event which symbolized the final disintegration of the Arab empire.

The study relates to the history of medical science in its practical context and within the cultural context it existed in. The practical contexts include the physician's daily work as well as the general public's daily medical activity, within the cultural framework, which is Arab society at the time. The study examined the means in which medical theory served as part of the nutrition-related decision making process.

The study is unique in that it focuses on the study of nutrition as a medical tool in that particular place and historical period, as well as on nutrition-based medicine as a component of medical culture and the ways in which this is expressed in both medical practice and people's daily lives.

In the first stage of the study, sources were selected with an emphasis on creating a representative sample of primary sources available from the relevant period, at the same time as presenting a variety of additional parameters, such as geographical areas and topics. Among the resources are theoretical medical texts as well as the different literary genres written at the time which are part of the culture. This wide range of sources allows us to create a wide cultural picture made up of a variety of cultural aspects.

In the second stage the concepts characterizing the Humoural system were defined, as well as the differentiations between relating to food and medicines in the text.

In the third stage the different sources were surveyed, and evidence tying the Humoural system to nutrition in daily life and medical treatment were located.

The purpose of evidence collection was to examine the manner in which medical knowledge was used and communicated both to physicians and the general public. Specifically, the texts were scanned for items relating to food and nutrition according to the Humoural system regarding their description, as well as the theoretical aspects related to the way this medical theory was presented.

The Evidence

The study is based on a database of evidence, including a wide variety of evidence from many sources. Collecting the evidence and interpreting them in the course of the study was a challenging process, as is any study undertaken in an attempt to study a particular culture from a historical point of view. Varied linguistic tools were used for the purpose of translation and interpretation. During the evidence collection process evidence were selected that were directly tied to key concepts of the Humoural system as presented in the study, as well as to food or nutrition as different from medical treatment or consultation.

The evidence were presented according to character, and divided into several types.

Medical case studies dealing with dietary medicine were mostly taken from a book written by the physician *ar-Rāzī*, *Kitābu tTağārib*, which is a book of case studies. In addition to these descriptions others which mentioned nutrition according to the Humoural system were collected from History books such as the one written by , *ʿIbn ʿAbī l-ʿUṣaybiʿa*, *ʿUyūnu l-ʿAnbāʿ*, as well as from different travel books and letters. Medical texts of a unique nature are texts characterized by much discussion of problems and issues which physicians dealt with during that period and discussions of these issues, among them nutrition according to the Humoural system. This section brings evidence from the book, *Kitāb Dafʿ Maḍarri l-ʿAbdān*, written in Egypt in the 11th century by *ʿIbn Riḍwān*, in response to the Tunisian physician *al-Ġazzār* claims; and from the text *Risāla li-Yaʿqūb ʿIbn ʿIṣḥāq l-ʿIsrāʿīliyy*, written by *Yaʿqūb ʿIbn ʿIṣḥāq* at the beginning of the 13th century in Damascus. In addition to these two texts, the study also uses the preservation of health texts, a general name for texts setting basic rules for preserving one's

health on a regular basis, among them dietary rules according to the Humoural system, for the general public. This section also includes the external branches of preservation of health, such as preservation of health texts written by intellectuals who were not physicians, as well as chapters dealing with preservation of health in different prose books. The prophet's medical books, *aṭ-Ṭibbu n-Nabawiyy*, "Medicine of the Prophet", are also included in this section. These were constructed in a similar manner to other medical books dealing with basic medical theory and preservation of health, but integrated with religious faith through stories tying medical theory to the traditions of the Prophet *Muḥammad*, the founder of Islam.

Descriptions and culinary information are taken from cook books. These books contain mainly recipes, but also additional information regarding eating habits, information about the importance of different ingredients, and different dietary rules. The three books selected for this section represent the three central areas the research deals with.

A unique literary genre is the *ʿAdab*, court literature which had a cultural, educational and ceremonial purpose in that developing society and culture. These books aimed at providing people with the knowledge necessary to understand their changing society. They are mostly of an encyclopedic nature, and include chapters dealing with food and nutrition. Some of these texts are of a more narrative nature, integrating social and cultural ideas regarding life style.

Poetry had an important role as a cultural tool. Researchers of the period agree that use of poetry as a tool for conveying cultural messages "codes" and cultural positions was extremely important. Among these codes were also the different foods and their roles, codes related to social classes, and codes dealing with nutrition according to the Humoural system. The study uses several poems which include references to nutrition according to the Humoural system.

At the end of this section there are several evidence from *al-Muqaddima*, *ʿIbn Khaldūn* book, due to its uniqueness as a historical book dealing with history and philosophy rather than medicine. The Humoural System is mentioned several times in the book in general and in nutrition-related contexts. It is also mentioned in the

long text as part of the explanations of historical developments in different areas, and also as part of the description of peoples and professions.

In addition to the general evidence regarding nutrition according to the Humoural System, another section of the study includes specific evidence focusing on the theoretical and therapeutic aspects of dealing with bread and meat. The purpose of this section was to collect in one place all the material related to the food item's components and their connection to the Humoural System. The main, although not the only, source of this section were the separate food and medicine books. These evidences allow us to take another point of view regarding the implementation of nutrition according to the Humoural System by finding different ways of looking at the ways in which the Humoural System was used to determine people's diet.

Conclusions

The attempt to create an exact image of the temperaments of the different bread types from the knowledge collected regarding the temperament of bread led us to the study's first conclusion – the ancient medical science examined relates to man's temperament or the temperament of anything else as made up of **a combination of different inclinations or characteristics**. In order to determine the temperament we need to relate to each characteristic's direction on the graph, and even then the suggested temperamental tendency is not an absolute measure, but only a basic inclination subject to change and movement at any given moment. The projection of this to a man's temperament is that the man's diagnosis and the determining of a suitable diet for him depend on a combination of many parameters creating his inclination. Only after relating to these parameters it is possible to examine the diet suitable to him in order to reach the point of balance one aims for. This conclusion affects the way in which the concept of 'temperament' is defined and the way it is treated within medical activity.

The evidence also allowed us to understand the context within which physicians acted and the perception which directed the patients:

The physicians, it seems from the case studies and medical texts, directed their patients how to balance their temperaments and Humour with the help of food. In addition, they dealt with arguments and discussions which constructed the manner

of using nutrition according to the Humoural System. At the same time they sometimes provided active medical care in extreme cases when a physician was needed. In these cases the main tool used was the forces deviating from the natural way (medicine, surgery).

For **the patients** there were several cultural models which guided them in how to deal with their diets within medical theory. One model was to ask a physician's advice. However, there was another model, which the present study shows was the central one, according to which the public's routine medical behavior was based on the education and guidance it received from the Humoural System.

An additional conclusion of the study is that nutrition according to the Humoural System was at that time and place **public domain**. Dietary rules according to the Humoural System were part of the cultural code common in the domain of health and nutrition. Every man knew the basic rules one must live by in order to remain healthy and prevent disease. Indeed, the physicians dealt with this topic as professionals and their understanding of it was deeper, but the general population used the language of medical science as a basic part of their everyday lives.

The medical dietary knowledge presented by the Humoural System is flexible, that is – it can change to match every society anywhere in the world, after making changes based on local geographical, religious and dietary conditions. While it is true that in different cases the writers create a connection between Islam (as in the Prophet's medical books) or Judaism (as done by maimonides) and medical theory, thus using religion to establish the medical dietary code, this code remains suitable for all religions throughout. Different evidence show us the geographic flexibility of the repertoire and the medical dietary code, while preserving a common basis and a local interpretation.

Preservation of health was emphasized not only in the acceptable manner of preservation of health tests, but also, as seen in the evidence, through other ways, such as poetry, the Prophet Muhammad's medical books, prose, and the *ʿAdab* literature, usually in the chapter on food.

Knowledge regarding nutrition according to the Humoural System was available enough for the general population to make use of. The presence of preservation of health in the culture, as shown in the study through the evidence detailed above,

shows that knowledge regarding nutrition according to the Humoural System was part of cultural discourse. Thus, we may assume that it was deeply rooted in the culture as well as being part of daily discourse.

The daily language which turned the Humoural System into an available, useful theory has not disappeared; it is still in use today in some of the areas it was common in during the researched period. A follow-up study may examine the remains of this cultural repertoire, as expressed in the different places it was active in, in the modern spoken language. For example, in Hebrew some terms originating in the Humoural System have been preserved, amongst them 'Black Bile' used today to describe depression and 'Hot temperament' used to describe an irritable man, characteristics suitable to knowledge from the researched period.

One of the main things we can learn from the present study is that this medical-dietary theory was not limited to the education and use of physicians only, instead serving as acceptable general social knowledge which did, indeed, practically determine people's life style and nutrition.

In the appendix to the study an attempt was made to explain medical nutrition as a cultural phenomenon through the polysystem theory, and dealing with nutrition according to the Humoural System as cultural repertoire. By examining the theory according to this scientific model we were able to assess how dietary medicine worked as part of everyday culture in the Arab domain in the Middle Ages. Implementation of new research methods regarding the history of medicine may also teach us about the distribution of present day medical theories.