



Health and dietetics in medieval preventive medicine: the health regimen of Peter of Spain (thirteenth century)*

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Abstract

This text is an analysis of a preventive medical work, *Liber de conservanda sanitate*, composed in the thirteenth century by the Portuguese physician and doctor, Peter of Spain (?1210-1277). His work enables us to look at the conceptions of health and hygiene and understand the social role of university physicians in medieval preventive medicine. The work constantly displays the notion of the balance in corporal health between internal elements, or natural things (complexion, for example), and external ones, or non-natural things (air, sleep, exercise, food, baths, passions of the soul).

Keywords: dietetics; health regimen; physician professors; preventive medicine; thirteenth century.

Among the various kinds of medieval medical texts in Latin the health regimens can be found, composed starting at the end of the twelfth century and the beginning of the thirteenth in the European context of the emergence of urban university medicine. They are orientation manuals on the margin of religious or magical ideas and denote concern with maintaining corporal health. The *Liber de conservanda sanitate* (*Compendium of the preservation of health*), attributed to the Portuguese physician Peter of Spain (?1210-1277), the subject analyzed by this article, constitutes a concrete example of this interest in the preservation of health and the fight to avoid diseases.

Peter of Spain, a man of science, or learning, was one of a minority of physicians, students and university professors who at that time sought to rationally approach on a theoretical plane the world of nature and natural phenomena, such as health and disease. One of the factors that contributed to this was the publication of a body of Greek and Arab texts translated into Latin in the twelfth century, especially in the city of Toledo. By authors of antiquity, such as Aristotle, Hippocrates, Galen and Dioscorides, and Arab doctors and natural philosophers, such as Avicenna, Averroes, Haly Abbas, among others, these texts comprised the so called *libri naturales*, taught in the course of the Faculty of Arts (*trivium* and *quadrivium*), a prerequisite for anyone who wished to study medicine in the medieval universities of Paris, Montpellier and Siena. At times, these works were banned by the Catholic Church, especially at the University of Paris, although they continued to be read and commented upon by professors and their students. In this manner, natural Hellenistic philosophy offered various models of thought that served as instruments in the preparation of rational explanations of human nature and its relationships with the world and the cosmos. A new model then arose of the relationship between religious knowledge acquired by faith (*fide*) and human reason (*ratione*), motivated by the introduction into the university curriculum of other lay disciplines originating from the Islamic world, such as astronomy, medicine, natural philosophy, metaphysics and ethics.

Health and dietetics constitute the basic concepts of preventive medicine constructed by medieval and Latin Galenism, i.e. the medical theories of Galen (second century) transmitted by Arab commentators (Avicenna, among others). Over time, the concept of health with respect to the human body changed according to specific socio-historic contexts. Thus, beginning with the appearance of universities in the middle of the twelfth century and during the thirteenth, a minority of intellectuals, among them Peter of Spain, transformed human health into an object of academic speculation and social concern (García Ballester, 2004, pp.533-534). The human body was considered the microcosm, in other words, the mirror of the universe, the macrocosm. It was made up of four liquid humors, related to the four material elements, according to the *Physics*, of Aristotle: blood (air), phlegm (water), yellow bile (fire) and black bile (earth). Health resulted from the harmony or ideal internal equilibrium of the four humors and their qualities (hot, cold, dry and wet) in the human body. Since, however, all bodies were subject to change and corruption, the internal imbalance of these humors (and the respective qualities) led to illness.

In the following section, Peter of Spain, on the one hand, reveals the interest in dietetics and the influence of medieval Galenism in his work and, on the other, seeks to make the conception of health precise, also explaining the social role of physicians (interpreters of

nature) as guides to its prevention and maintenance, and demonstrating the importance of the art of medicine:

Health is a disposition that conserves what is natural in man, following the course of nature. Then, since the human body is susceptible to corruption and is subject to a quadruple flux, physical rules are necessary to it, through which it defends itself against accidents. It is more useful to prevent diseases than, once contracted, look for help, which is probably impossible (Hispano, 1997, p.3).¹

Dietetics, pharmaceuticals and surgery comprise the three branches of the art of medieval practices and therapeutics in Greco-Roman and Hellenistic antiquity. The term diet (*diaeta*) was used, both in the scientific area as well as in literature or philosophy, to designate the life style or the set of corporal and mental habits of the individual. The health regimen, this genus of medical work we deal with here, goes back to the texts of the Hippocratic School on the island of Kos, to Hellenistic science and the synthesis of Galen.

In the Upper Middle Ages, according to Isidore of Seville, in his work *Etimologiae* (seventh century) treating was, in the first place, restoring vital energy, considered the true agent of cure and health maintenance. Beginning with the twelfth century, the term diet was limited to the medical meaning, related, among others, to knowledge of foods, which could equally serve to cure disease or trigger them. Hygiene was another term whose meaning embraced, as well as the food regimen, the external factors in the surrounding environment. Throughout the Middle Ages, the health regimens of Arab medicine were added, and this set of influences produced variations in the formats and contents of those writings. Dietetics constantly had man as the center of its concerns, returning to natural philosophy to understand the interaction between health and sickness and deepen the understanding of man (Jacquart, 1995, p.178; Nicoud, 2007, p.339). However, it was not a question of pure theoretical speculation divorced from practical life, since, from the thirteenth century on, the concepts of health and dietetics formed a part of preventive medicine, thus interweaving with scholastic medical theory and therapeutical practice. The work of Peter of Spain, in the middle of the thirteenth century, therefore presents this diversity of influences. The final objective of the texts, however, was always the prevention of disease, in the sense of preserving health.

One of the most famous texts of this kind was *Regimen sanitatis salernitanum* (The Salernitan rule of health), dating to the eleventh century and of unknown authorship, originally comprised of 370 verses at the Salerno School of Medicine. This poetic work was designed to stimulate the memorization of health advice: eat and drink with moderation, don't become angry, be happy and rest. In the thirteenth century, edited by the savant, Arnau de Vilanova, a professor at the Montpellier Medical School in France, this text begins with the following general precepts:

The whole school of Salerno wrote for the English king:

If you want to be healthy, if you want to remain sound,
Take away your heavy cares, and refrain from anger,
Be sparing of undiluted wine, eat little, get up
After eating fine food, avoid afternoon naps,

Do not retain your urine nor tightly compress your anus.
Do these things well, and you shall live along time.
Should you need physicians, these three doctors will suffice:
A joyful mind, rest and a moderate diet (Regimen..., p.46).

This regimen, written in epistolary form and directed to the English monarch, constituted one of the several examples of texts often made on request for popes, kings and noblemen of Western Christianity.

Peter of Spain

The intellectual trajectory of Peter of Spain began with studies in the Lisbon Cathedral and, afterwards, at the University of Paris in the 1230s, where he received the designation of Hispanus, since the students organized themselves by nation, according to their region of origin – in the case of Petrus, the Iberian Peninsula. Afterwards he was present at the court of Frederick II – King of Sicily, Emperor of the Holy Roman German Empire and King of Jerusalem – in Palermo, where he came in contact with Theodorus, the emperor's physician (Schipperges, 1978, p.378; Thorndike, 1934, p.490). Next, he was a master at the Faculty of Medicine at the University of Siena (1245-1250) in Italy, probably in the dietetics discipline. In this period he produced some of his medical and scholastic work, including the *Liber de conservanda sanitate*, and a dedication to Frederick II appears in some of the manuscripts that remain. Beginning in 1260, his ecclesiastical and medical career took precedence over that of professor, being then present at the Pontifical Curia, where he was the physician of cardinals and popes from the time of Urban IV (1261-1264), followed by Gregory X (Tedaldo Visconti, Sept. 1, 1271 to Jan. 10, 1276), Innocence V (Pierre de Tarentaise, Jan. 21 to June 22, 1276) and Adriano V (Ottobono Fieschi, July 11 to Aug. 18, 1276), his predecessor. He also occupied the position of *arquiater*, head of the Curia medical corps. In the thirteenth century, medical science enjoyed great prestige in the pontifical court of Viterbo, one of the great cultural centers of the Latin West, where physicians, jurists, mathematicians and astronomers lived – 40% of the relatives of the popes of the period had the title of *magister*. Peter of Spain became cardinal of Tusculum (Italy) in 1273, being a member of the College of Cardinals, and two years afterwards he ascended the pontifical throne with coronation at the Cathedral of San Lorenzo of Viterbo, taking the name John XXI. His pontificate was short (from September 1276 to May 1277) due to his death in the collapse of one of the wings under construction at the Viterbo Papal Palace.

Liber de conservanda sanitate

This work is comprised of three opuscles (small, minor works) written in Latin, the university and scientific language of the period: *Summa de conservanda sanitate* (Essence of health preservation), *De his que conferunt et nocent* (Beneficial and harmful things) and *Qui vult custodire sanitatem* (Health preservation). In the first, Peter of Spain deals with health in general and the salutary habits during the four seasons of the year; in the second, he makes recommendations regarding the bodily organs, listing harmful and beneficial

substances for each of them; and in the third, he focuses on the cares to be taken with eating, indicating the medieval diet and other cares related to the 'six non-natural things' present in medieval Galenism.

The work is preceded by a brief prologue, a type of text common in medieval literary and scientific works, in which the writer introduces himself to the reader as a doctor, praises the art of medicine and points out the general objective of the text: the preservation of health, highlighted due to the difficulties of treating diseases:

I, Peter of Spain, considering that the various morbid sufferings originate in the human body through negligence, have found and reasonably proven useful and true observations to conserve the health of human life, which can only be found within the bosom of the art of medicine. Since it is better to preserve health than to fight the disease, such health must be considered (Hispano, 1997, p.3)

In the prologue, Peter of Spain states the conception of man as part of nature – *physis*, in Greek, which includes the internal and external nature common to human beings; as a result, the human body cannot be understood without it, the essence to which his constitution is bound. Thus, the author's conception of health bears the influence of ancient philosophy and medicine and medieval Galenism.

In his work *De sanitate tuenda (Hygiene)*, Galen conceived the constituent elements of physiology or the 'six natural things' that at the end of the Middle Ages received the name 'necessary things' for the good functioning of the human body, on which human action does not operate: (1) the four elements that comprise the universe: earth, water, air and fire; (2) the complexions; (3) the humors (blood, yellow bile, black bile and phlegm); (4) the solid parts of the human body (the brain, the heart, the liver, etc.); (5) the operations (functions of the solid parts of the human body); propagation of the species (genital organs); the maintenance of life (brain, heart and liver); and the quality of life (eyes, nose, ears and hands) and (6) the faculties (great biological functions) or *dynamis*, which contribute to the major biological functions (formation, growth, locomotion and nutrition).

In the ninth century, the Arab doctor Hunain ibn Ishaq, known as Johannitius, added, in his work *Ysagoge (Introduction)*, the seventh natural thing to this scheme, the *pneuma* or spirits: the animal spirit of the brain, the vital spirit of the heart and the natural spirit of the liver. These spirits transmit the three faculties and correspond to the tripartition of the soul of Platonic and Aristotelian origin. The animal or psychic spirit is subdivided, in turn, into the three parts of the brain: the rational, the sensory and the motor (Jacquart, 1995, p.178; Nicoud, 2007, pp.4-5).

The second natural thing, the complexion (in Latin, *complexio*; in Greek, *krasis*), constitute the key concept adopted by Peter of Spain and appear in the first opuscle, *Summa de conservanda sanitate*. The concept encompasses the physical constitution, the disposition of the spirit and the temperaments of individuals. The interplay of the four elements constituting the universe (earth, water, air and fire), the humors (blood, yellow bile, black bile and phlegm) and the mixture of the qualities (hot, cold, dry and wet) comprise the complexion or the individual temperament, also four in number; sanguine,

choleric, phlegmatic and melancholic. Thus, according to Galen, the physician must study the individual complexion to then create the necessary and proper dietetic prescriptions. In this respect, Peter of Spain states, referring to the empty stomach: “You must consequently carefully watch what your complexion asks for and requires” (Hispano, 1997, p.11). The complexion, nevertheless, would change throughout life; as a result, the age variable must be considered. The complexion is hot and humid in infancy (spring), hot and dry in youth (summer), cold and humid in maturity (autumn) and cold and dry in old age (winter) (Pena, Girón, 2006, p.23).

The complexion became the principal organizer of each human organism considered as a whole. In addition to a general theory of the functioning of human bodies integrated into the natural and cosmic world, one based on the authorities, there is also, in the proposition of preventive measures, a concern for the corporal specificity of each individual, i.e. the particularity of experience. As a result, a certain acceptance of the data of individual experience, of social behaviors and habits, was observed (Siraisi, 1990, p.85; Vigarello, 2001, p.20).

Another Galenic concept, which is related to the balance of the humors and therefore to corporal health, is that of *humedo radicalis*, i.e., the innate or natural heat of the human body. The element was considered fundamental for the maintenance of life and health (Silva, 1999). Peter of Spain refers to it in various passages of the regimen and makes physical (cold baths) and moral (honesty, wisdom and character) recommendations for its reestablishment:

In June and July, I’ve found that a bath in cold water after eating is worth trying for cramps, because natural heat once again flows to the interior of the organs, and thus the absence of natural heat in the spirits and humors is reestablished by exudation (Hispano, 1997, p.15).

Therefore, natural heat should be carefully conserved ... Since wisdom, character and honesty in life correct the natural inclination and strengthen the heat vital for excellent fitness (p.19).

The second part of *Summa*, entitled Divisions of the Year, deals with advice for the four seasons in their natural order, beginning with spring. The medieval physicians believed that the seasons had qualities similar to those of the humors: spring was hot and humid; summer, hot and dry; autumn, cold and dry; and winter, cold and humid. The cares to be taken were different for the seasons of the year, because in each of them there was a predisposition toward certain diseases. This scheme of specific cares for each season originated from the “A letter on preserving health,” by Diocles of Carystus in the fourth century A.D., which proposed an ethics of the body. The advice was based on its food diets, baths and bloodlettings. The food diets for the prevention of diseases made use of similar elements. For a cure, according to Galen, opposites were employed (Sotres, 1995, p.256; Pena, Girón, 2006, p.25) that repelled each other, for example hot/dry repels cold/humid “Galen says as a result: in the summer cholera is multiplied, in the winter, phlegm, and, therefore, one opposite repels the other. And so forth” (Hispano, 1997, p.85).

The second opuscle, *De his que conferunt et nocent*, enunciates recommendations for organs and parts of the body: the brain, eyes, ears, teeth, lungs, heart, stomach, liver,

spleen and the hands. It adopts a binary and antithetical scheme of good/evil, one of the principles of intelligibility in Western culture, present in Roman rhetoric, in Persian Manicheanism and in dialectics: “experience is, as the Philosopher [Aristotle] would have it, the knowledge of particular things. From which follows, having knowledge of the opposite, each one becomes clearer in and of itself ” (Hispano, 1997, p.25).

Peter of Spain presents a list of beneficial and harmful substances and foods for each organ of the human body. Beginning each time with the definition of the organ, he blends the medical conception with the religious, an indication of its dual basis. The three main organs, for example, are described as follows: the brain is “a spongy organ, white in color, made up of three parts, the basis of the whole body and said to be the ‘seat of the soul’ by the prophets” (Hispano, 1997, p.21); the heart is “a concave organ, cavernous below, ample above and is the terminus of all of the operations of the soul, according to the testimony of Galen. The operations of the spirit begin in the brain and are complemented in the heart” (p.41); the liver is “the main functional organ, hidden by veins and arteries, placed at the disposal of nature and replete with the four natural humors” (p.53). In the first two definitions, the author reveals his religious and medical formation when he mixes Galen with references to the Biblical prophets.

In counterpart to the schema of the ‘seven natural things’ referred to, the physicians adopted a Galenic list of the ‘six non-natural things,’ external to the nature of the human body, but essential for its functioning and the preservation of health. They are present (whether in opposite pairs or not) in the medieval health regimens, as well as that of Peter of Spain, but not in such a systematic form: (1) air and the environment; (2) food and drink; (3) exercise and rest; (4) sleeping and waking; (5) retention and excretion; and (6) the passions of the soul.

The first reference to a ‘non-natural thing,’ the air and environment, appears in the second opusculum, especially in the part beneficial to the organs of the human body, as for example, in diseases of the cold brain, apoplexy (cold and dry) and epilepsy, and in feminine disease related to the uterus, the so-called suffocation of the womb: “In epilepsy, greater and lesser apoplexy, and, in women, the suffocation of the womb, choose in the first place good air, a place where there are no swamps or infected rivers and with a view of the mountains” (Hispano, 1997, p.23).

In the case of the eyes, the “windows of the soul” (Hispano, 1997, p.28-29), it is beneficial “to look at the mountains and greenery” (p.29) and, in the case of the heart, “every delightful smell found in the orchards and meadows in springtime is good for melancholics and cardiacs” (p.43). Spring was considered the season of the year in which temperate air was favorable to health. He thought of the benefits in pleasing the senses of sight and smell. In the case of the first sense, the rural landscape praised was that of the mountains and the green of the fields and, in the case of smell, the good air (without infected rivers and swamps) of the orchards and meadows in springtime.

In the final opusculum, *Qui vult custodire sanitatem*, the initial warning concerned the food diet and drink, followed by the second non-natural thing, moderate exercise, which should be done before eating to avoid hindering natural heat. This exercise would consume humidities and excesses, the origin of many diseases. The author adheres to the *Pantegni*,

by Constantine the African, who attributed to exercise three precise functions: increasing innate heat, facilitating the excretion of what is superfluous through dilation of the pores and strengthening muscles. “And in this way, the human body sometimes does without purgatives, provided it duly exercises” (Hispano, 1997, p.71).

Peter of Spain then discloses the ordering of the diet, the third non-natural thing, drawing on the food groups consumed in medieval Europe, because, despite following the model of the ancient regimens, it did not begin with the cereal group, but with meats, followed by fish, vegetables, dairy products, fruits (highlighting nuts), and, finally, wine (because of problems with water, wine became concomitantly a food and an integral element of remedies for different illnesses). The author points out the adequate diet for winter and summer. The food regimen proposed would allow balancing the vital dynamics of individuals according to their particular temperament (phlegmatic, sanguine, choleric or melancholic), as a function of the seasons of the year, by the specific qualities of natural substances and by the qualities acquired through the forms of culinary preparation.

In the Middle Ages, the passions were considered affective psychosomatic movements directly related to the body and indirectly to the soul – the corresponding term today perhaps being emotion. The passions unfolded within the plane of the spirit or the imagination, with immediate effects on the body, in which they would produce a series of vital reactions. The central organ of this process is the heart. The emotive dynamic would be released by the entrance or release of heat and spirits in the heart, followed by a change in the blood and characteristic somatic manifestations: invigoration of skin color and accelerated respiration and heartbeat, for example. From the viewpoint of prevention, happiness, for example, was classified among the positive passions and, among the negative, sadness and anxiety, two states contrary to vital dynamism, since they chilled and dried the body and heart. Also bad for the body would be fear and cholera, the latter dividing the opinion of medieval physicians, since some of them considered it good in certain circumstances and pernicious in others. To pacify it, they recommended music, reading, and especially a restoring sleep (Sotres, 1995, pp.276-277). In the second opuscle of the *Liber de conservanda sanitate*, Peter of Spain enumerates a series of elements that are bad for the heart, including the passions of the soul: sadness and worries: “Fish without scales, tobacco ... sadness, worries and whatever causes syncope are bad for the heart. An excess of study and meditation, frequent coitus and everything that is bad for the spleen is bad for the heart ... and whenever makes the soul sad, because the heart is the beginning of life and terminates with death (Hispano, 1997, p.45).

In the final part of *Summa*, as well as in other health regimens (Regimen..., 1963, pp.84-89), concern with therapeutics can be observed. For Peter of Spain, leeches are more efficient than phlebotomy (bloodletting) to cleanse the blood. Then he comments upon various poisons due to spider, scorpion and snake bites and their antidotes, triacle and others, based on the theory of similars that attract each other. Next, he discusses repellants, remedies to facilitate cicatrixation and relieve the pain of abscesses, and maturatives, whose function is to bring pus to a head and expel it. Finally, he writes considerations regarding the excess of heat, cholera, and fevers and presents prescriptions for remedies to treat such infirmities.

On one hand, a moralizing tone is found in some passages of the text and a number of biblical references that indicate the voice of an ecclesiastic; on the other hand, the voice of a physician, a man of knowledge, imposes itself, since the text never establishes a relationship between health, disease and sin, excepting a reference to gluttony, but one based on the reading of Galen: "As a result, says Galen: gluttony is one of the causes of death, since it has killed more people than the sword or the cutlass. That's why modern people are the sons of gluttony" (Hispano, 1997, p.89). Thus, Peter of Spain demonstrates a profound understanding of the medical authorities (*auctoritates*) of the ancient and medieval periods: Galen, John of Damascus, Avicenna and Isaac. A didactic tone can also be perceived, especially in the therapeutic section, which enables hypothesizing that the work was also used in medical scholasticism (Sotres, 1995, p.265).

The concept of Galenic health also deserves mention, based on the balance of the humors of the human body, one which evidences a concern for the conditions of life and habits considered healthy. One also sees the search for maintaining health in dietetics, based on the polarity of the beneficial and harmful in the non-natural things. The food diet, sleeping, waking, exercising, resting and bathing all have positive and negative characteristics, depending on the circumstances, i.e. the complexion, the environment etc.

In reading certain parts of the text, the modernity of the advice for preserving health is so contemporary that it seems like a nutritionist, physical therapist or doctor of the twentieth century speaking. However, other sections are quite alien to the present day reader, because they evoke ancient therapeutic practices that (happily) have fallen into disuse, such as phlebotomy or bloodletting and leeches, explained in the third opuscle.

Rereading and analyzing medieval medical works discloses other human experiences, with perennial anxieties regarding the concern with preventing diseases and maintaining bodily health through salutary practices and habits.

NOTES

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¹ All quotations in this article have been freely translated from the original Portuguese.

REFERENCES

GARCÍA BALLESTER, Luis.
Un reto para el galenismo: mejorar la salud. In: García Ballester, Luis. *Artifex factivus sanitatis*. Granada: Editorial Universidad de Granada. pp.533-553. 2004.

JACQUART, Danielle.
La scolastique médicale. In: Grmek, Mirko; Fantini, B. (Org.). *Histoire de la pensée médicale en Occident*. Paris: Le Seuil. pp.175-210. (Antiquité et Moyen Age, vol.1). 1995.

HISPANO, Pedro.
Livro sobre a conservação da saúde. Rome: Carlo Delfino. 1997.

NICOUD, Marilyn.
Les régimes de santé au Moyen Âge: naissance et diffusion d'une écriture médicale en Italie et en France (XIIIe-Xve siècle). Rome: École Française de Rome. 2007.

PENA, Carmen, GIRÓN, Fernando.
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medieval. Granada: Editorial Universidad de Granada. 2006.

REGIMEN...

Regimen sanitatis salernitanum (Regimento de saúde de Salerno). Porto: Centro de Estudos Humanísticos. 1963.

SCHIPPERGES, Heinrich.

Petrus Hispanus. In: Fassmann, Kurt (Ed.). *Die grossen der Weltgeschichte*. Zurich: Kindler. pp.679-691. 1976.

SILVA, Andréia Cristina L. F.

'Livro sobre a conservação da saúde': uma contribuição portuguesa à medicina. *Boletim Centro de Estudos Portugueses Jorge Sena*, São Paulo, year 8, no.15, pp.45-60. Available at: <http://www.abrem.he.com.br/livrosobre.htm> Accessed on: July 14, 2003. 1999.

SIRAISSI, Nancy G.

Medieval & early renaissance medicine. Chicago: The University of Chicago Press. 1990.

SOTRES, Gil.

Les regimes de santé. In Grmek, Mirko D.; Fantini, B. (Ed.). *Histoire de la pensée médicale en Occident*. Paris: Le Seuil. pp.257-281. (Antiquité et Moyen Age, vol.1). 1995.

THORNDIKE, Lynn.

Petrus Hispanus. In: Thorndike, Lynn. *A history of magic and experimental science: during the first thirteen centuries of our era*. New York: Columbia University Press. pp.488-516. 1934.

VIGARELLO, Georges.

História das práticas de saúde: a saúde e a doença desde a Idade Média. Lisboa: Editorial Notícias. 2001.

