

**Senescence and Exercise in Iranian Traditional Medicine: A Review**

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**Abstract:** Senescence is a normal stage of life during which physical, spiritual and mental capabilities diminish. Although these changes are similar in all individuals, the speed at which they occur may differ from one person to another. The physical changes in this period of life include reduced strength of the body, organs, and tissues, lowered efficacy of the digestive tract, diminished digestion and absorption, as well as mental disorders and imbalance, depression, desperation, feeling useless, etc. Neglecting physical and mental health in senescence will expedite the process of senility, leading to premature death. In traditional Iranian and Islamic medicine, special attention has been paid to senescence and physical, mental and spiritual health in this period. The scientists of old times have organized elaborate plans and recommendations for senescence. Among these scientists, the most notable include Rhazes, Hakim Meisari, Avicenna, and Jorjani, each of whom assigned certain chapters of their medical essays to the senile issues, particularly health and physical exercise of the senile. The traditional Iranian medicine is based on “maintaining health” through “regulation of lifestyle and the six basic rules based on each person’s intrinsic characteristics”. In this review article, we will attempt to explain and clarify the attitude of notable figures in traditional medicine towards senescence through historical research and review of classical medical texts and studies dealing with them.

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**1. Introduction**

Nowadays, senescence is no longer considered a disorder; rather it is believed to be the transition to a new stage of life. Senescence is a fact, and it is preferable to adopt certain measures in order to provide optimal joy and benefit for the senile rather than surrender to the downside of advanced age (Haaland et al., 2008; Koopman and van Loon, 2009; Rolland et al., 2010; Allen and Morelli, 2011; Ahlskog et al., 2011; Fleg, 2012; Goltzari and Ghabili, 2013). For this purpose, it is essential to use a realistic approach and benefit from the opinion of experts. Rhazes (865-925 CE) says, “Those with advanced age have drier bodies than others, as from birth to death, the human body tends to increase in dryness. Thus, late into senescence, we see nothing but the reign of dryness in human body”. Avicenna (980-1037 CE) says, “Senescence is but a normal phase in the process of life”. In addition, Jorjani (1042-1137 CE) says, “The senile humors are cold and dry; thus, all activities of the senile people must be inclined towards warmth and humidity”. Most countries of the world provide medical services in three branches of pediatrics, internal medicine, and geriatrics in order to provide the optimal care for each stage of life. In the present study, we reviewed the opinions of notable

traditional physicians (Rhazes, Hakim Meisari, Avicenna, and Jorjani) through a review of their experiences, attitudes and recommendations.

**2. Abubakr Muhammad ibn Zakariyya al-Razi, Rhazes (865-925 CE)**

His name was Mohammad, son of Zachariah, and commonly called Abu-Bakr. According to Abu-Reihan Biruni, he was born in 251 after Hegira (865 CE) in Rey, and spent his childhood and youth there. He played the Oud, and wrote poetry, as well. He began a career as a goldsmith and then shifted towards alchemy. He started his medical profession in an advanced age. Biruni mentions that he was an alchemist, but when his eyes were injured by harmful fumes, he became attracted to medicine to treat his eyes. Rhazes is the first physician to use alcohol frequently for disinfection. His comprehensive medical treatise is titled *Al-Hawi*. In this book, he mentions many clinical cases with numerous references on different diseases. His other essay “On Measles and Smallpox” had a great impact on European medicine (Meyerhof, 1935; Elgood, 1951; Ibn Abi-Usaybia, 1965; Tan, 2002; Tibi, 2006; Halabi, 2006; Modanlou, 2008; Zarshenas et al., 2012; Goltzari and Ghabili K, 2013).

### 3. Hakim Meisari

Our knowledge of Hakim Meisari, as reflected in biographies, is close to nil. Stylistic analysis of his encyclopedia puts it in the proximity of the fourth and fifth centuries after Hegira during the reign of the Samanid dynasty. The text of the encyclopedia itself provides certain clues to his life and period. *Danishanameh* (The Encyclopedia) of Meisari is an essential textbook in traditional medicine, not only for its scientific and medical content, but for literal and historical purposes, as well. It has been used to clarify many medical and scientific terminologies used on other works of his time. As the author himself hints, he finished the Encyclopedia in 370 after Hegira (980 CE), at the age of 46. Thus, he must have been born in 324 after Hegira, early in the fourth century. His language, style, vocabulary, and some other characteristics suggest that he must have been from Khorasan, which is plausible given the brilliance of civilization and politics in Khorasan at that period. In some sections of the encyclopedia, Meisari even mentions the psychological delicacies of approaching a patient, and he provides many of his medical recommendations and details in a poetic language. A mere review of the chapter headings of the Encyclopedia reveals that it is a comprehensive collection of medical knowledge at the time, except for surgical therapies. It encompasses diseases of the head, different body pains, disorders of the heart, intestines, and liver, sexual disorders, women's diseases, wounds, different fevers, animal bites, venoms, etc elaborately.

### 4. Abu Ali Husain ibn Abdullah ibn Sina, Avicenna (980-1037 CE)

Abu Ali Husain ibn Abdullah ibn Sina, Avicenna is the most renowned Iranian scientist and among the highest scientific figures of history. His works have contributed significantly to the development of science in the Orient and worldwide. Avicenna was born in 370 after Hegira and passed away in 428 after Hegira. His "*Canon of Medicine*" is his most famous medical treatise. Prior to the age of enlightenment, this book was the main medical textbook used in Europe. The Canon is a medical encyclopedia which deals with all major elements of the traditional medicine, including principles of anatomy, semiology, pharmacology and pharmacy, prescription, etc. Avicenna was deeply involved in Persian literature, as well (Browne, 1978; Gutas, 1987; Goodrich, 1997; Najmabadi, 2002; Gorji and Khaleghi Ghadiri, 2002; Linden, 2003; Afshar, 2011; Golzari et al., 2012; Golzari et al., 2012; Golzari et al., 2012; Chavoushi et al., 2012; Khodadoust et al., 2013; Khalili et al., 2013; Golzari et al., 2013).

### 5. Hakim Esmail Jorjani (1042-1137 CE)

Hakim Esmail Jorjani was a scientist involved with science, ecclesiastics, and philosophy. Due to his patriotic attachments to his homeland, he composed his major works (i.e. *Zakhire Kharazmshahi*, *Alaghraz oltebbiya*, *Khofi Alayi*, and *Yadegar*) in Persian. Jorjani was the most experienced and knowledgeable physician of his time, and he collected all medical knowledge from Hippocrates to Avicenna in his books alongside his own experiences gained over a lengthy lifetime. He was deeply religious and always remembered God whether visiting a patient or writing a book (Sirjani, 1976; Safa, 1999; Moharreri, 2005; Ashtiyani et al., 2009; Hosseini et al., 2011; Abbasnejad et al., 2013; Golzari et al., 2013; Yazdchi et al., 2013).

### 6. Senescence and exercise from the viewpoint of traditional Iranian physicians (Rhazes, Hakim Meisari, Avicenna, Jorjani)

On appreciation of health, Rhazes says, "Health is maintained through sufficient motion, calmness and joy, healthy food and drinks, repulsion of remnants, correct house selection, countering bad events before they grow large, attending to mental desires, and maintaining habits" (Al-Razi, 1955). These principles, dictated many centuries ago, have resulted in improved life expectancy and reduced mortality in the modern world, thus raising the population of the elderly worldwide.

According to Avicenna, senescence cannot be considered as either health or sickness; rather, it constitutes a transitional state similar to convalescence. When defining health, sickness, and transitional states, he mentions, "Health is the state when the humors in human body and their interaction are such that they yield correct results. Sickness is the opposite state. There are transitional states, such as the bodies of the elderly, the newly cured and the newly born, which cannot be considered either healthy or sick". In the same book, he says, "Although senescence is an integral process of human life, it cannot be said in one manner when a person is senile, as each individual grows old in his/her own manner" (Sharafkandi, 2008).

In his Encyclopedia, Hakim Meisari mentions, "Bleeding the middle-aged in small amounts is beneficial for treating ailments other than diarrhea. The elderly, however, must not be treated excessively or bled without good judgment. In addition, sexual intercourse and intense bodily activity is detrimental to their health". Moreover, Meisari recommends bathing, eating soft and light meals, sufficient sleep and smelling fragrant scents for the elderly.

On the senile, Jorjani recommends, “frequenting the bathing hall, rubbing warm and fragrant oils, like lily and jasmine oil, mild scents, rolling in a soft bed, little intense activity, mild physical activity, and seeking pleasure and joy” to the elderly (Jorjani, 1976).

Stopping physical activity and sedentary lifestyle cause many disorders in the elderly. Due to their limited activity, the elderly are more at risk of obesity, and weight loss is harder for them compared to the young and the middle aged. Performing physical exercise becomes more difficult for people as they grow old. Therefore, it is advisable for them to prevent this issue through increasing their physical activity. A short period of light exercise will allow the senile to feel rejuvenated. Regarding exercise and its intensity and duration, Rhazes says, “It is better to exercise prior to eating. Each individual must walk according to his habit and force so he may not feel overstrained. Exercise makes the body cheerful and agile”.

Regarding exercise in senescence, Avicenna recommends horseback riding, and if not feasible, walking. He also mentions that when recommending exercise to the elderly, their differences in physical conditions and their illnesses, as well as their exercise habits, must be considered. If their bodies are balanced, moderate exercise is suitable for them. If any of their organs functions below normal, it must be given extra care and special exercises.

## 7. Conclusion

It must be stated that senescence is a period that we will all have to face; thus, in order to benefit from this period maximally, it is essential to observe certain health recommendations particular to this stage of life. Our research shows that this issue has long been of interest for Iranian scientists, and the recommendations and health guidelines offered by them reflect their comprehensive view on this matter. Each individual must have a particular plan for his/her senescence. One highly recommended behavior for physical and mental health in senescence is to exercise (Daley and Spinks, 2000; Singh, 2004; Resnick, 2005; Rimmer, 2005; Courneya and Karvinen, 2007). As the modern medicine is based on the traditional medicine, it is useful to benefit from the knowledge of traditional Islamic physicians, especially their valuable experience in the field of geriatric medicine and exercise for the elderly. These physicians have recommended certain orders for each season of the year. Observing these recommendations will guarantee the health of individuals to a great extent and will improve life expectancy, as well.

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