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Integrating unani principles in the management of multisystemic effects of Vitamin D deficiency

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Abstract

Vitamin D deficiency is a serious health issue that affects many different parts of the body such as the bones, immune system, nervous system, reproductive system, and endocrine system. This review talks about the various ways that a lack of vitamin D can affect the body and relates these effects to the ideas of Unani medicine about health, disease, and healing. In Unani medicine, the main goal is to keep people healthy by maintaining the balance of *Tabiat*, (which is like the body's natural wisdom or immunity). When *Tabiat* works properly, a person stays healthy. But if this balance gets disturbed, it leads to illness. This imbalance often happens because of problems with the *Asbab-e-Sitta Zarooriya*, which are six important factors: air, food and drink, sleep and wakefulness, activity and rest, mental state, and the process of holding in and letting go of things. Unani doctors believe in using natural treatments and lifestyle changes (*Ilaj bil Tadbeer*) to bring balance back to the body and improve health. Bridging Ancient Wisdom with Modern Science:

Combining the knowledge from Unani medicine with modern medical science offers a new way to prevent and treat vitamin D deficiency and its many health issues. Vitamin D is important for overall health^[1]. When levels are low, it can badly affect both physical and mental health^[2,3]. Traditional research on vitamin D mainly looked at its role in keeping the body healthy. But in recent years, as we found more vitamin D receptors all over the body, we have started to understand its role in preventing and treating long-term diseases. Lack of vitamin D is connected to many health problems, including brain decline, depression, weak bones, heart disease, high blood pressure, diabetes, some types of cancer, aging, and lower fertility in both men and women.

Keywords: Vitamin D, *Tabiat*, *Asbab-e-Sitta Zarooriya*, unani medicine, holistic healing

Introduction

In the past, people lived in a way that kept them in harmony with nature, getting enough sunlight, being physically active, and breathing fresh air. These habits helped people stay mentally sharp, full of energy, and with strong immunity. But today, modern cities have created a different lifestyle. Pollution, indoor living, poor food choices, and lack of movement all affect the balance of *Tabiat* and are linked to rising cases of vitamin D deficiency.

Source/pathophysiology: Vitamin D comes from food like fish and mushrooms, supplements, and sunlight. When the skin is exposed to sunlight, it turns cholesterol into vitamin D3. This vitamin is then activated in the liver and kidneys to form calcitriol, the active form that helps control gene activity and supports many bodily functions, such as managing calcium and phosphorus, bone health, insulin sensitivity, heart health, immune function, and brain health^[4].

Recommendations: For people over one-year-old up to 70 years of age, the recommended daily dose is 600 IU. For those older than 70, it's 800 IU per day^[4].

Mental health: Low vitamin D levels can affect brain development and mood^[2]. Vitamin D receptors have been found in parts of the brain, and a lack of vitamin D is linked to cognitive decline and depression^[6,7], especially in older people and women^[8].

Cognitive decline: Cognitive decline ranges from mild confusion to severe brain disorders like dementia. The risk of this increases with age, and about 25% of people over 65 in the US are affected. Studies show that people with lower vitamin D levels are more likely to experience cognitive decline^[11]. A study using data from 2,070 people aged 65 and over in the UK found that those with vitamin D levels below 10 ng/mL had more severe symptoms of depression^[9].

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Physical ageing

Osteoporosis: About 10 million adults over 50 suffer from osteoporosis, and 34 million have lower bone density (osteopenia) [12]. Vitamin D and calcium are important for keeping bones healthy [5]. Low vitamin D levels reduce calcium absorption, leading to higher levels of parathyroid hormone, more bone breakdown, and eventually osteopenia or osteoporosis [13]. Research suggests a link between low vitamin D and an increased risk of falls, fractures, muscle weakness, poor balance, and physical problems. However, the studies on this are not all consistent [5, 14].

Cardiovascular diseases: Cardiovascular disease is the main cause of death globally, with nearly 17 million people dying each year [15]. Currently, there are two major studies ongoing. RCTs that look at how vitamin D supplements affect cardiovascular disease include the ViDA study in New Zealand and the VITAL study in the US [4]. Unfortunately, the results from these studies are not available yet.

Hypertension: It is a major risk factor for cardiovascular disease, especially in older adults [17]. A review of 18 studies found that for every 40 nmol/L increase in vitamin D levels, the risk of hypertension goes down by 16% [18].

Type 2 diabetes: It is a big concern, as nearly 30% of adults over 65 had diabetes in 2010 [19]. One trial found that taking 2,000 IU of vitamin D per day improved how the body uses insulin and helped the pancreas work better [20]. Some studies show small benefits for people with pre-diabetes but not for those without diabetes, like a slight improvement in blood sugar levels and HbA1c [21].

Cancer: Higher levels of vitamin D may lower the risk of breast, prostate, and colon cancers. This is because vitamin D helps cells mature, makes cells die when they should, reduces harmful chemicals in the body, and controls how cells grow through genes [4].

The immune system is the body's defense against germs, viruses, parasites, and cancer [22]. As people get older, their immune system weakens, making them more likely to get infections and less responsive to vaccines, which can lead to higher death rates in older adults [22]. Low vitamin D levels are linked to more respiratory infections. One big study found that people with less than 30 ng/mL of vitamin D were more likely to get infections [23]. Another study showed that taking vitamin D supplements reduced the chance of getting the flu by 42 % [24].

Influence of Vitamin D on fertility plays a key role in fertility because its receptors found in reproductive organs and tissues in both men and women. It is also present in parts of the brain and the pituitary gland, which help control hormones [26].

Polycystic Ovary Syndrome (PCOS) affects 5 to 20% of women of childbearing age [28]. PCOS is marked by high androgen levels, irregular periods, and issues with the ovaries, making it a common cause of infertility. Studies show that vitamin D can lower androgen and AMH levels in these women and help with their menstrual cycles and the development of eggs. It may also improve the chances of successful pregnancy [30]. Vitamin D can also improve the lining of the uterus, making it more receptive to a fertilized egg. Insulin resistance, which is common in PCOS, can lead to more miscarriages, but vitamin D helps with insulin levels and embryo quality, which increases the chance of a clinical pregnancy. During pregnancy, the need for vitamin D increases, and 70% of women are vitamin D deficient,

while 21% have a vitamin D shortage and only 7.3% have enough [34]. Vitamin D affects how the placenta works, including how it supports the growth of the baby, the release of important hormones, and the immune system of the placenta. Taking vitamin D during pregnancy helps increase birth weight and lowers the risk of low birth weight and small-for-gestational-age babies [36]. It also helps the baby's bones develop early in the pregnancy and has long-term effects on their growth and development after birth [37].

Unani medicine offers a natural and holistic way to prevent and treat vitamin D deficiency. It believes that the body has a natural healing power called *Tabiyat* that helps protect against harm and supports health. When something goes wrong, *Tabiyat* responds by trying to fix it. Sometimes, it takes time to build up strength before taking action. So, it's often better to support the body with healthy habits like good food and rest. If medication is needed, it should be gentle and not too strong. Helps and strengthens *Tabiyat* instead of fighting against it [38]. *Tabiyat*, also called the innate faculty or natural force, is the natural power present in every living being. It keeps the body healthy, manages the body's functions, and helps fight diseases. When someone gets sick, it is this *Tabiyat* that tries to restore health and balance. *Tabiyat* works to remove harmful substances from the body either by pushing them out or changing them into harmless forms. This process is called *Istifragh* (evacuation) and *Tahleel* (resolution) [38]. This process happens through things like breathing fresh air, being in sunlight, eating healthy food, exercising, and resting, sleeping, and eliminating waste.

1. Hawa (Air): Getting fresh air and sunlight (*Shams*) is important for the body to absorb and make Vitamin D naturally. Ibn Sina said clean, fresh air is important for keeping the body's humors in balance. *Al-Qanun* by Ibn Sina says that clean air is free from bad smells, bad vapors, and pollution. The best air is in the open sky away from buildings that might trap and make the air dirty. However, even open air can get dirty because of moist air from lakes, rivers, or dirty places. Air near water sources, fields with vegetables or trees like sycamore, almond, or fig can be bad. Ibn Sina also said that constant, clean air like the north wind keeps the air clean and healthy [39].

Effect of sunbath: The Hammam, or Turkish bath, is one of the oldest Unani treatments for some diseases. It is done in a special place set up for this purpose. The bathroom has several rooms connected to each other with special arrangements depending on the disease being treated. One benefit of the Hammam is that it helps the body build immunity against certain diseases [40, 41]. Hammam *Shamshi*, or sunbathing, is when the body is exposed to direct sunlight. Sunlight is a source of Vitamin D3, which helps the body absorb calcium and strengthens bones. It is generally recommended to spend 15 to 30 minutes in the morning under direct sunlight [42].

2. Makool-o-Mashroob (Food and Drink): A balanced diet with foods rich in Vitamin D like fish, eggs, and fortified foods along with Unani tonics supports health and maintains *Tabiyat*. According to Hakim Kabiruddin, food should be light, safe, and easy to digest to keep the body's humors and temperament in balance. The type and quality of food directly affects how well the body gets nourished and stays healthy. Types of Foods: *Latif Ghiza* (Easily digestible and

quickly converted into pure blood): Examples include chicken broth and ripe fruits. Ghair Latif Ghiza (Harder to digest and may cause waste): Examples include red meat and coarse grains.

Good water: Water that is clean, clear, odorless, and tasteless, and not too heavy or too light, is considered good. It should not be too hot or too cold. You should sit and drink water slowly and in moderation. In winter, it can be slightly warmed before drinking.

Signs of good water: If water quenches thirst, tastes good, and goes down easily without causing discomfort, it is considered good. If the stomach feels refreshed, the tongue feels clean, and there is no bitterness, this is a sign of good water. If the water helps with constipation, it is another sign of its quality^[45]. When the body consumes food, it gets digested and broken down into parts used to make blood and nourish all the tissues. Therefore, the food a person eats should be suitable for their temperament, season, and environment. The Unani physicians advised that a person should eat only when they are really hungry and drink only when they are thirsty. Eating or drinking at the wrong time or in large amounts weakens the digestion. Then the food rots in the stomach, making harmful gases that can lead to diseases like indigestion, acidity, or flatulence. A healthy digestive system makes good-quality blood, which helps the organs stay healthy. The quality of food also depends on physical activity, rest, and emotional balance. If a person is worried or anxious after eating, the food won't digest well. So staying moderate in everything- diet, drink, and lifestyle is key to good health^[46].

3. Harkat-o-Sukoon Badani (Physical activity & rest): Moderate exercise improves digestion and metabolism, aiding in nutrient assimilation. Overexertion, however, may weaken tabiat. In youth, motion is more dominant. In such people, movement tends to be intense, while stillness is less. This imbalance produces an excess of heat. The movement that lacks stillness and is abnormally intense produces excessive internal heat and increases the rate of decomposition of bodily substances. If the temperament is already inclined toward heat, this accelerates the breakdown of bodily tissues. Hence, intense motion in a body already heated creates a pathological condition. If such a person performs both voluntary and involuntary movements during winter, it can lead to dryness. If motion becomes too strong, it causes the body to expel essential substances prematurely and may lead to harmful effects just like a pot that loses steam too quickly. Stillness helps to preserve moisture, whereas motion, especially in dry or cold weather, leads to dryness and exhaustion. Thus, balance between motion and stillness is essential for maintaining bodily health and functions.^[46]

Duration of exercise according to galen, the appropriate duration of exercise is until the body becomes pink or slightly red, and a little sweat appears, but one does not feel breathless.

Correct perspective on exercise: One should not start exercise immediately after eating food. After the food is digested and begins to move from the stomach to the intestines, then the body's motion should begin gradually. At that moment, the person feels light, and then exercise is more beneficial. Exercise should become a habit so that the body remains fit and active. After a long break, one should start gradually. From a Unani perspective, if movement is

done until sweat appears and the breath becomes slightly heavy, that is considered ideal. Otherwise, harmful effects may occur such as black bile disorders, flatulence, and various other diseases.

Benefits of exercise: Exercise strengthens the body's faculties. It also improves digestion and elimination of waste, increases internal heat, and enhances resistance to disease. It helps the natural temperament work more effectively and powerfully. Ibn Sina said that exercise brings the body closer to its natural temperament. By engaging in exercise and movement, digestion improves and the nutrients are better absorbed. Thus, the body's growth and strength improve. Food is better digested and nutrients are evenly distributed to the body's organs. This improves temperament and wards off diseases.^[47]

4. Harkat-o-Sukoon Nafsanī (Mental activity & emotional balance): Stress and anxiety disrupt homeostasis. Mental peace enhances immune and endocrine function. In Unani medicine, emotional states such as sorrow, anger, fear, and joy profoundly influence physical health. When these emotions are temporary, their effects are reversible. However, if prolonged, they can lead to lasting changes in temperament (mizaj) and organ function. Fear produces a cold and dry temperament, causing physical weakness. Anger increases heat and dryness, especially affecting the liver. Grief and depression induce a cold and moist temperament, resulting in lethargy and cognitive dullness. Unani physicians emphasized both medicinal and non-medicinal therapies to restore mental balance (Quwa-e-Nafsanīyah). Non-pharmacological approaches included exposure to pleasant environments, walking in gardens, storytelling, and cheerful conversations each aiming to harmonize the temperament and promote holistic well-being^[48].

5. Naum-o-Yaqza (Sleep and wakefulness): Adequate sleep strengthens the body's repair mechanisms, enhancing Tabi'at's ability to restore balance. A good sleep maintain equilibrium of afaal e nafsanī, tabai, haiwani. (Vital faculties) relieves stress, regulate mood, enhance emotional stability, enhance cognitive function and memory coordination. Alleviate fatigue and restore energy. According to Raazi A good sleep promote relaxation, and strengthen the body, and produces dam e Mahmood. Abu sahl masihi. A good sleep encourages production of healthy humours.

Characteristics of good sleep: Deep, regular, continuous - should not be easily disturbed, consistent without interruption, with duration neither too long nor too short, and should be after digestion of food.

Lack of sleep causes: Excessive wakefulness causes dryness in the brain, an emotional state where dimagi rooh overuses vital forces association causing dry humours and diseases such as depression, cognitive impairment, etc.^[49]

6. Ehtebaas WO Istifragh (Evacuation of Waste): Excretion (Istifragh) is also among the primary functions of nature. The body is constantly producing waste materials, and if these are not excreted regularly, they accumulate and cause disease. Excretion is the natural way of cleansing the body. It includes actions like urination, defecation, sweating, and exhalation. These processes must be balanced according to need. If excretion becomes excessive or insufficient, both states can harm the body. The body system must maintain the

right balance^[50]. Through digestion, waste materials and impurities are burned and eliminated from the body. Menstrual blood and other secretions are also discharged in this way. Headaches and nasal blockages are relieved, and the waste that causes discomfort is expelled^[50]. Proper elimination of waste products through natural means - sweat, urine, and stool - is essential. Practices like Hammam (steam bath) and Sunbathing help detoxify and enhance Vitamin D activation.

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