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The Role Of Diet *(Ghidhā')* In Lifestyle Disorders: An Integrative Analysis From Modern And Unani Perspectives

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Abstract

Lifestyle disorders, including obesity, diabetes, hypertension, and cardiovascular disease, are major global health concerns closely linked to diet. Modern biomedical science attributes these conditions to chronic inflammation, oxidative stress, and hormonal dysregulation, whereas Unani medicine explains them through disturbances in *Mizāj* (temperament) and the production of abnormal *Akhlāṭ* (humours). This paper undertakes a comparative analysis of diet in the causation and management of lifestyle disorders from both perspectives. Classical Unani texts such as *Al-Qānūn fī al-Ṭibb* (Ibn Sīnā) and *Kitāb al-Ḥāwī* (*al-Rāzī*) were examined alongside contemporary biomedical literature. Despite theoretical differences, both systems converge on the principles of moderation, balanced nutrition, proper meal timing, and personalization of diet. Unani concepts like *Ilāj bi'l-Ghidhā* (dietotherapy), temperament-based food selection, and avoidance of harmful combinations resonate with modern preventive nutrition and chrono-nutrition. The integration of these approaches offers a holistic, sustainable model for preventing and managing lifestyle disorders, reaffirming the timeless view of diet as both a cause of disease and a cornerstone of therapy.

Keywords: Lifestyle disorders; Unani medicine; Diet *(Ghidhā')*; *Mizāj*; Integrative nutrition.

Methodology

This study is predicated on a comprehensive literature review and comparative analysis of modern and Unani medical texts. Foundational literature from both systems was critically examined to elucidate the impact of diet on lifestyle disorders such as obesity, diabetes, hypertension, and heart disease. From the domain of modern medicine, key texts including *Park's Preventive and Social Medicine*, *Guyton and Hall's Textbook of Medical Physiology*, and *Krause's Food & the Nutrition Care Process* were consulted. Relevant Unani and contemporary studies were retrieved from PubMed, Google Scholar, and other indexed journals using search terms such as Lifestyle disorders, Unani medicine, Dietetics, Mizāj, Integrative nutrition

From the corpus of Unani medicine, classical texts such as *Al-Qānūn fī al-Ṭibb* by Ibn Sīnā, *Al-Ḥāwī fī al-Ṭibb* by Al-Rāzī, and *Kitāb al-Kulliyāt* by *Ibn Rushd* & *Zakhīrah Khwārazm Shāhī* by *Jurjānī* were reviewed.

The synthesized information was compared under the following thematic areas:

- Etiology of diseases
- The role of food and nutrition
- Dietary therapeutic modalities
- The significance of meal timing
- Personalization of dietary regimens

This research focuses on the theoretical comparison and integration of these two systems to propose enhanced strategies for the dietary management of lifestyle disorders.

Results:

Modern science identifies poor nutrition as a driver of chronic inflammation, oxidative stress, and hormonal imbalance, leading to metabolic and cardiovascular disorders. Unani medicine attributes these conditions to disturbances in *Mizāj* and the production of abnormal *Akhlāṭ* due to inappropriate diet. Both systems emphasize moderation, balance, and personalization of dietary practices. The Unani principle of *Ilāj bi'l-Ghidhā* (dietotherapy) resonates with modern preventive nutrition, particularly in recognizing food as a therapeutic agent.

Discussion:

Despite differing theoretical underpinnings, both traditions converge on the centrality of diet in health maintenance. An integrative approach that combines Unani constitutional principles with modern nutritional science offers a more holistic and personalized framework for managing lifestyle disorders.

Conclusion:

Strategically planned diets, tailored to individual constitution, needs, and meal timing, can play a transformative role in preventing and managing lifestyle disorders. Integrating Unani wisdom with modern scientific evidence provides a promising model for sustainable health promotion.

1. Introduction

Unani medicine places profound emphasis on the critical role of diet in the maintenance of health and the prevention of disease. Historically, ancient civilizations recognized the direct correlation between inadequate nutrition and the onset of illness. In the contemporary era, an imbalanced diet is a principal etiological factor in chronic conditions such as hypertension, obesity, diabetes, and gastrointestinal disorders.[1]

Unani principles situate dietary recommendations within the framework of the *Asbāb Sitta Ḍarūriyya* (Six Essential Factors): *Hawā'* (environmental air), *Ma'kūlāt-o-Mashrūbāt* (food and drink), *Ḥarakat wa Sukūn-i-Badanī* (bodily movement and repose), *Ḥarakat wa Sukūn-i-Nafsānī* (psychic movement and repose), *Nawm wa Yaqẓa* (sleep and wakefulness), and *Iḥtibās wa Istifrāgh* (retention and evacuation).[2] These factors are deemed fundamental to human life and well-being. Optimal health, specifically the production of *Ṣāliḥ Akhlāṭ* (healthy humours) and *Ṣāliḥ Dam* (healthy blood), is directly contingent upon quality nutrition and a salubrious environment.[3]Modern research corroborates this, demonstrating that various nutrient deficiencies can cause diseases that are often reversible through dietary adjustments.[4]

The historical origins of dietary therapy are extensive, with parallels evident in ancient Chinese, Ayurvedic, Egyptian, and Roman medical traditions. Hippocrates, Aristotle, and Galen were pioneers in advocating the use of diet for health preservation and disease prevention.[5] The Prophetic era also underscored dietary guidelines, with numerous beneficial foods mentioned in the Qur'an.[6,7]Subsequently, Arab physicians, including *Al-Rāzī* and *Ibn Sīnā*, provided detailed descriptions of dietary interventions. *Al-Rāzī* famously stated, "When you can achieve healing through food, there is no need to prescribe any other treatment."[8]

In the Unani system of medicine, food is central to both maintaining health and treating disease. Prominent scholars such as '*Alī ibn Rabban al-Ṭabarī*, *Abū Sahl al-Masīḥī*, and *Ibn Sīnā* established detailed definitions and principles concerning food and dietary habits. *Al-Ṭabarī,* citing Aristotle, explained that every living creature survives due to three essential components which are *Quwwat-i-Ghādhiya* (nutritive faculty), *Ḥarārat-i-Gharīziyya* (innate heat), and food. He emphasized that food serves to replace bodily tissues that undergo wear and contributes to the formation of blood, flesh, and other organs.[9] *Ibn Sīnā* defined food as any substance that, upon interaction with the body's innate heat and metabolic processes, undergoes transformation and becomes an integral part of the body.[2] This definition implies that for a substance to be considered food, it must be both suitable and digestible.

Unani scholars prescribed meticulous guidelines regarding how, when, and what to eat. They held that consuming food in the correct quantity, in the proper sequence, and with appropriate combinations is essential for optimal digestion and overall health. They advised that lighter foods should be consumed before heavier foods, as the former digest more rapidly and are not obstructed by the latter in the stomach.[2] *Al-Rāzī* recommended consuming only one type of food per meal, and in small quantities, to facilitate digestion.[8] *Ibn Sīnā* cautioned against mixing different food types within a single meal, as their varying digestion times could disrupt gastric function and lead to the production of harmful byproducts.[2]

Meal timing was another critical consideration. Physicians advised eating only upon experiencing true hunger, ideally 30 minutes to one hour after the sensation first arises.[3] Consuming a meal while the previous one remains undigested was considered particularly hazardous. This practice could lead to indigestion, bloating, and the generation of *Khilṭ Fāsid* (abnormal humour), a precursor to illness[2]

Certain postprandial activities were also to be avoided. Unani physicians advised against sleeping immediately after meals, engaging in strenuous exercise, or drinking excessive water following food intake. This was especially pertinent for individuals with a *Bārid al-Mizāj* (cold temperament), as excessive water could impair their digestive capacity.[2] They also warned against overeating and noted the specific effects of certain foods. Dry foods could induce constipation and anorexia, while fatty or oily foods could cause feelings of lethargy and heaviness.[8] Excessive consumption of sour, spicy, and salty foods was believed to be detrimental to the stomach and eyes.[2]

Food combinations were a further area of concern, with certain mixtures believed to cause serious diseases. For instance, consuming milk with sour items or fish, or combining radish with cheese, yogurt, or poultry, was strictly discouraged. Such combinations were thought to cause conditions like *Juzām* (leprosy) or *Baras* (leukoderma).[8] Unani scholars deemed these combinations harmful because they produced morbid humours and disturbed the body's natural equilibrium.[2] Unani scholars provided a detailed and practical guide to dietetics that focused not only on the type of food but also on its timing, order, quantity, and combinations. These guidelines, based on centuries of empirical observation and a sophisticated understanding of the body’s physiological processes, remain highly relevant for promoting health today.

The term “lifestyle disorder” denotes diseases arising from maladaptive lifestyle practices, particularly those related to diet, physical inactivity, stress, and substance abuse.[58] These non-communicable diseases now account for the majority of global mortality. According to K. Park , lifestyle disorders are the leading cause of death in India, responsible for over 60% of all mortality.[1]

Diet as one of the *Asbāb Sitta Ḍarūriyya* in Unani medicine is considered a foundational determinant of health and disease. Unani physicians from antiquity, including *Hippocrates, Galen, Rāzī, Ibn Sīnā*, and *Jurjānī,* consistently emphasized the preservation and restoration of health through dietary regulation before resorting to pharmacotherapy. In *Al-Qānūn fī al-Ṭibb*, *Ibn Sīnā* wrote, “Food is the origin of the humours and, therefore, the cause of both health and disease.”[2]Similarly, modern medicine posits that nutrients are the molecular building blocks of health, and imbalances in dietary components can dysregulate metabolism, leading to chronic illness.[4] Both systems ultimately converge on the principle that food is medicine, but its therapeutic potential is realized only when consumed correctly.

1.1 Issues of Concern

Between August 2021 and August 2023, approximately 47.7% of adults in the United States had hypertension. The prevalence was higher in men (50.8%) compared to women (44.6%). The incidence of hypertension increases with age: 23.4% among adults aged 18–39, 52.5% in those aged 40–59, and 71.6% in individuals aged 60 and older. Among all individuals with hypertension, only 59.2% were aware of

their condition, 51.2% were receiving treatment, and merely 20.7% had their blood pressure adequately controlled (below 130/80 mmHg). This information was reported by the CDC in the NCHS Data Brief No. 511 (October 2024, page 5) and the Morbidity and Mortality Weekly Report.[10–12]

During the same period, approximately 40.3% of U.S. adults were classified as obese, defined as having a body mass index (BMI) of 30 or greater. Obesity was slightly more prevalent in women (41.3%) than in men (39.2%). The highest prevalence was observed in adults aged 40–59, with 46.4% of this cohort being obese. In comparison, the rates were 35.5% for those aged 20–39 and 38.9% for those aged 60 and above. Severe obesity (BMI ≥ 40) affected 9.4% of adults. This figure represents an increase from 7.7% in 2013–2014 to 9.7% in 2021–2023. Women exhibited higher rates of severe obesity (approximately 12.1%) than men (approximately 6.7%). This data was published in the CDC's NCHS Data Brief No. 508.[13]

Chronic kidney disease (CKD) affects an estimated 14% of U.S. adults, equivalent to more than one in seven people or approximately 35.5 million individuals. CKD prevalence increases with age and is often undiagnosed, with an estimated nine in ten affected individuals unaware of their condition. Among individuals with diabetes, approximately one in three also has CKD, while among those with hypertension, the ratio is one in five. Diabetes is the leading cause of kidney failure, accounting for about 45% of all new cases. Hypertension is the second leading cause, contributing to approximately 26–27% of cases. [84]These statistics are derived from the CDC's 2023 CKD report and resources from the National Kidney Foundation and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).[14]

These three conditions hypertension, obesity, and chronic kidney disease—are closely interconnected. Maladaptive lifestyle choices, such as unhealthy dietary habits and a lack of physical activity, are significant risk factors. Early management of these conditions through improved dietary practices, regular exercise, and appropriate medical care is crucial for preventing serious long-term health complications.

2. Understanding Diet and Its Physiological Implications

In modern biomedical science, diet is defined as the total intake of food and liquid that contributes to an organism's nutrition. Nutrients are categorized as macronutrients (carbohydrates, proteins, fats) and micronutrients (vitamins, minerals). Each class of nutrient performs specific roles in energy metabolism, enzymatic function, tissue repair, and immune modulation. Malnutrition, encompassing both overnutrition and undernutrition, results in structural and functional impairments of the body. An excessive intake of refined carbohydrates and saturated fats, for example, can induce lipotoxicity, mitochondrial dysfunction, and insulin resistance the pathophysiological hallmarks of metabolic syndrome.[15]

From the Unani perspective, while the digestion of food produces beneficial *Akhlāṭ-i-Ṣāliḥa* (healthy humours), every digestive process also unavoidably generates *Fuḍlāt* (waste products). The *Ṭabī'at* (body's complex natural regulatory system) is designed to continuously eliminate these waste products through various excretory pathways. Some of these excretions, such as *'Araq* (sweat), *Barāz* (faeces), and *Bawl* (urine), are readily observable. However, a significant portion of these *Fuḍlāt-i-Laṭīfa* (subtle waste products) are expelled inconspicuously, primarily as vapours, through the action of the body's *Ḥarārat-i-Gharīziyya* (innate heat). This continuous process of elimination is fundamental to maintaining

physiological balance. A serious pathological state arises when the *Ṭabī'at*, responsible for metabolizing and expelling these wastes, becomes weakened or compromised.[2,16] In such circumstances, waste products begin to accumulate internally instead of being efficiently evacuated. Their prompt expulsion is crucial to protect the body from various ailments. These accumulated wastes can adversely affect the body due to their *Kammiyat* (quantity) and *Kayfiyat* (quality). If their removal is delayed or incomplete, they can precipitate a range of health issues, from localized organic disorders to systemic diseases. A significant challenge in Unani diagnostics is the difficulty in predicting precisely which organ or body part will be most affected by this accumulation of waste.[17]

Unani medicine conceptualizes diet through the philosophical lens of temperament. Every food item possesses intrinsic qualities, known as *Kayfiyāt Arba'a* (four qualities) *Ḥār* (hot), *Bārid* (cold), *Raṭab* (moist), and *Yābis* (dry). These qualities directly influence the equilibrium of the four humours: *Dam* (blood), *Ṣafrā'* (yellow bile), *Balgham* (phlegm), and *Sawdā'* (black bile).[18,19] Consequently, the selection of food must be harmonized with the *Mizāj-i-Shakhṣī* (individual's temperament) and their prevailing health status. For instance, an individual with a *Ḥār Mizāj* (hot temperament) who consumes an excess of hot-natured foods (e.g., red meat, ginger) may develop excessive *Ḥarārat* (heat), leading to inflammatory conditions or irritability.[20,21] Therefore, the Unani approach personalizes dietary interventions based not only on the specific disease but also on the patient's temperament, digestive capacity, season, age, and climate a dimension largely absents in conventional dietary guidelines.

According to Unani principles, health is maintained by the balance of *Mizāj* (temperament), which is modulated by the *Asbāb Sitta Ḍarūriyya* (six essential factors), including food, drink, and physical activity. An imbalance in these factors, particularly the overconsumption of food and a lack of exercise, leads to an alteration in *Mizāj*, often shifting it towards *Burūdat* (coldness) and resulting in a *Sū'-i-Mizāj Bārid* (abnormal cold temperament).[22] This abnormal temperament fosters excessive fat accumulation and decreases the metabolic rate, thereby creating the physiological foundation for obesity and other lifestyle disorders. This concept finds parallels in modern medicine; for instance, this cold, phlegmatic state is analogous to conditions such as hypothyroidism, where diminished metabolic activity facilitates weight gain. The Unani framework also highlights the relationship between temperament types and disease susceptibility, observing that individuals with a *Bārid Mizāj* (cold temperament) are more prone to obesity and related conditions due to their inherently slower metabolism and greater tendency to store fat. Ancient Unani physicians asserted that correct dietary habits and balanced physical activity are essential for preserving the natural *Ḥarārat-i-Gharīziyya* (innate heat), which in turn maintains normal metabolism and prevents disease.[19–21,23]

Classical Views on Diet: A Summary from Unani and Greek Scholars

Ancient physicians across Greek and Unani traditions emphasized that diet plays a central role in both maintaining health and treating disease. Their insights offer timeless dietary wisdom that holds particular relevance in the fields of preventive and lifestyle medicine.

Aristotle (384-322 B.C) believed that a balanced lifestyle—encompassing the consumption of simple foods like grapes, bread, and meat, combined with regular exercise and adequate sleep—was fundamental to avoiding illness. [24]

Hippocrates (460-370 B.C), renowned as the father of medicine, cautioned against overeating. He famously advised: "Eat to live, not live to eat." He likened gluttony to the habits of wild animals, which he considered detrimental to health, while advocating for light, measured eating habits to promote wellness.[25] also "Let food be thy medicine and medicine be thy food." These teachings form the philosophical cornerstone of dietetics in Unani medicine, emphasizing balance, moderation, and personalization.[25]

***Jālīnūs* (129 A.D)** prioritized digestive indicators, stating that a sick person with a good appetite is in a better prognostic position than a healthy person without one. He also stressed the importance of the order of food consumption, recommending that soft foods be eaten before hard foods to ensure better digestion. [26,27]

***Al-Rāzī* (865-925 A.D)** considered diet, rest, and emotional well-being to be the most potent tools for recovery, often placing greater emphasis on food than on medicine.[19,28]

***Ibn Sīnā* (980-1037 A.D)** notably remarked: "Most diseases begin in the stomach, and food is also the first treatment." This statement encapsulates the foundational Unani belief that digestion and dietary habits are central to health.[29,30]

***Ḥārith ibn Kaladah* (634-670 A.D)** an early Arab physician, lauded the therapeutic value of natural foods such as pomegranates, rose scent, and chicory, highlighting their healing properties. [31]

Additionally, classical Unani scholars outlined four key principles for healthy eating:

Timing – Consume meals at the appropriate time, preferably only when experiencing true hunger.

Quality – Select food that is clean, fresh, and nourishing.

Quantity – Avoid excess; consume only the amount your body can comfortably digest.

Suitability – Eat food that is compatible with your individual *Mizāj* (temperament), categorized as hot, cold, dry, or moist according to Unani classification.

3. Diet in the Etiology and Management of Lifestyle Disorders

3.1 *Samn-i-Mufriṭ* (Obesity)

Modern science defines obesity as an abnormal accumulation of adipose tissue resulting from a chronic energy imbalance, where caloric intake exceeds expenditure. It is strongly influenced by diets rich in ultra-processed foods, sugar-sweetened beverages, and saturated fats. Obesity significantly increases the risk for type 2 diabetes, cardiovascular diseases, non-alcoholic fatty liver disease, and certain cancers. Patho-

physiologically, it induces systemic inflammation, leptin resistance, and metabolic dysregulation.[4] A sedentary lifestyle, irregular meal patterns, and emotional eating further exacerbate the condition. [32]

In Unani medicine, obesity is termed *Samn-i-Mufriṭ* and is commonly observed in individuals with a *Bārid Raṭab* (cold and moist) temperament. It arises from an excessive intake of moist, cold, and fatty foods, combined with sedentary habits. Ibn Rushd, in *Kitāb al-Kulliyāt*, explains that excess moisture leads to laxity of the organs and the accumulation of *Fuḍlāt* (morbid residues), culminating in obesity.[17] Therapeutic strategies are aimed at reducing moisture and enhancing digestive heat through the consumption of foods like roasted barley, vinegar, radish, and bitter vegetables. Furthermore, *Riyāḍat* (physical activity), *Dalk-i-Yābis* (dry massage), and *Hammām* (steam baths) are recommended to facilitate the expulsion of excess moisture and restore temperamental balance.[21]

3.2 *Dhiyābīṭus Shaḳarī* (Diabetes Mellitus)

From a biomedical perspective, type 2 diabetes mellitus is a disorder of carbohydrate metabolism characterized by insulin resistance and impaired pancreatic beta-cell function. A diet high in simple sugars and refined grains, and low in fiber, increases the glycemic load and promotes hyperinsulinemia, which can eventually lead to beta-cell exhaustion.[33] Modern dietary recommendations emphasize foods with a low glycemic index, fiber-rich meals, and plant-based proteins.[34]

Unani medicine classifies diabetes under the broader category of *Dhiyābīṭus*, with the sugar-related variant known as *Dhiyābīṭus Shaḳarī*. It is conceptualized as a weakness of the *Quwwat-i-Māsika* (retentive faculty) of the kidneys or liver, often attributed to an excessive *Ḥār Yābis* (hot and dry) temperament in the vital organs. Ibn Sīnā notes that when internal heat consumes bodily moisture, the body responds with excessive thirst and urination, the clinical hallmarks of diabetes. [21]Dietary treatment involves the consumption of cold and moist foods such as *Mā' al-Sha'īr* (barley water), bitter gourd (*Momordica charantia*), fenugreek seeds (*Trigonella foenum-graecum*), purslane (*Portulaca oleracea*), and cucumber. Sweet fruits, red meat, and milk are typically restricted. The Unani emphasis on bitter and sour foods to counteract internal heat is mirrored in modern research demonstrating the hypoglycemic effects of bitter melon and fenugreek.[8,35]

3.3 *Zaght al-Damm Qawī* (Hypertension)

Hypertension is primarily caused by the narrowing and stiffening of arteries, influenced by factors such as high sodium intake, low potassium intake, obesity, stress, and endothelial dysfunction. [143]The typical Western diet, rich in sodium and deficient in fruits and vegetables, is a significant contributor. [144]Modern interventions often recommend the DASH (Dietary Approaches to Stop Hypertension) diet, which emphasizes fruits, vegetables, whole grains, and reduced sodium intake.[15,36]

While Unani scholars did not use the modern term "hypertension," they described conditions with similar clinical features under concepts related to vascular imbalances and *Sudda* (obstruction). It is understood as a disturbance in the humour of blood (*Dam*), affecting either its quantity or quality. Foods that are light, cooling, and blood-purifying are recommended. Ibn Sīnā suggests sour pomegranate juice, soaked raisins, coriander water, and spinach to reduce vascular pressure and cleanse the blood.[2] Red meat, salt, and fried

foods are contraindicated. These dietary measures are intended not only to reduce heat but also to decrease blood viscosity and enhance vessel elasticity.[21]

3.4 (*Sudda fi al-Sharāyīn*) cardiovascular diseases

Atherosclerosis, myocardial infarction, and heart failure are leading causes of mortality, primarily linked to high-fat diets, elevated LDL cholesterol, and chronic inflammation. Trans fats, sugar-sweetened beverages, and red meat are known to accelerate endothelial damage. The Mediterranean diet, which is rich in olive oil, fish, green vegetables, and whole grains, has been demonstrated to be cardioprotective[37–39]

In the Unani framework, *Sudda* (obstruction) in the blood vessels, caused by thick and viscous humours, leads to decreased perfusion of the heart. Jurjānī, in *Dhakhīra-i-Khwārazmshāhī*, explains that the accumulation of phlegmatic and sanguine humours (*Balgham* and *Dam*) causes stagnation and narrowing of the vessels. Garlic, onions, olive oil, saffron, and vinegar are prescribed to dissolve morbid residues, purify the blood, and resolve obstructions. Such foods, which are generally considered hot and dry in temperament, are also recognized in modern phytomedicine for their anti-atherogenic and anti-inflammatory properties, making them cardioprotective.[20,39]

4. Integration of Meal Timing and Chrono nutrition

Emerging evidence in modern science indicates that the timing of food consumption is as crucial as its content. Late-night eating has been shown to disrupt circadian rhythms, contributing to the development of metabolic syndrome. Time-restricted feeding and intermittent fasting have been found to improve glucose metabolism, lipid profiles, and inflammatory marker.[40] This concept directly reflects the ancient Unani principle that food should only be consumed after the previous meal has been fully digested (*Haḍm Ṭa'ām*), and that heavy meals should be avoided at night. Ibn Sīnā was a strong proponent of early dinners and intermittent fasting, such as *Ṣawm Dāwūdī* (alternate-day fasting), for promoting detoxification. He wrote that eating while a previous meal is still undigested leads to the accumulation of *Fuḍlāt* (waste products) and weakens the *Quwwat-i-Hāḍima* (digestive faculty).[21] Thus, both systems underscore the importance of meal spacing, ensuring complete digestion, and adapting dietary habits to seasonal variations.[41]

Unani Perspective on Multi-Organ Failure and the Role of Diet

Multi-organ failure (MOF), also known as multi-organ dysfunction syndrome (MODS), is a critical, life-threatening condition where two or more organ systems progressively lose function. From the Unani perspective, this condition arises from a prolonged and severe disruption in the equilibrium of the *Mizāj* (temperament), *Akhlāṭ* (humours), and *Quwā* (faculties) of the body. Classical Unani scholars such as *Ibn Sīnā, Al-Rāzī*, and *Jurjānī* asserted that the genesis of most systemic illnesses lies within the stomach (*Mi'da*) and results from the improper management of food, thereby highlighting the central role of diet (*Ghidhā'*) in both disease causation and prevention. According to *Ibn Sīnā*, "The stomach is the house of disease, and diet is the foundation of treatment". [21]When the consumed food is incompatible with an

individual's temperament or is of poor quality (e.g., an excess of cold, heavy, or moist foods), it leads to the generation of *Mawādd-i-Fāsida* (corrupted humours). These pathological substances accumulate and disseminate throughout the body via the blood and vessels, ultimately impairing the function of vital organs such as the *Qalb* (heart), *Kabid* (liver), *Dimāgh* (brain), and *Kulya* (kidneys). This pathological accumulation results in *Sudda* (obstruction) and *Tafsīd* (corruption) of organ structure and function, a concept analogous to ischemia, cellular hypoxia, and oxidative damage in modern pathophysiology. [23] For example, an excess of *Balghamī* foods (those with a cold and moist temperament), such as dairy, rice, and fried items, contributes to damp stagnation in the stomach and vessels. This can lead to congestion in the lungs, kidneys, and brain, thereby precipitating multi-organ dysfunction.[28]

The liver, considered the primary organ of blood and humour production in Unani medicine, is particularly vulnerable to poor dietary habits. Ibn Sīnā stated that if the liver fails to properly metabolize and assimilate nutrients, it will produce impure blood that spreads disease systemically.[21] This initiates a cascade effect where other organs become progressively involved. A modern parallel is non-alcoholic fatty liver disease (NAFLD) progressing to metabolic syndrome, which in turn adversely affects the heart and kidneys.

Furthermore, a decline in the *Quwwat-i-Hāḍima* (digestive faculty) due to overeating, irregular meal times, or the intake of incompatible food combinations (such as consuming fruits immediately after heavy meals or milk with fish) impairs digestion. This leads to the accumulation of *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile), both of which are considered harmful when in excess. These humours contribute to inflammatory and obstructive conditions in various organs, which corresponds to the modern understanding of low-grade inflammation, oxidative stress, and metabolic derangements involved in MOF.[9,42] *Al-Rāzī*, in *Kitāb al-Ḥāwī*, also warned that "persistent bad food habits destroy the equilibrium of internal powers and pave the way for terminal diseases"[8]

Unani physicians understood that MOF results not from the failure of a single organ but from the collapse of the entire regulatory system (*Tadbīr*), a concept akin to the modern notion of homeostatic failure. Their therapeutic approach involves correcting dietary habits, purifying the humours (*Tanqiya*), and strengthening the organs (*Taqwiyat-i-A'ḍā'*) through meticulous dietary regulation and the use of simple herbal formulations. Thus, in Unani medicine, diet is not merely sustenance but a primary therapeutic agent, the misuse of which can initiate the systemic breakdown of organ function, and the correct application of which can restore balance and health.[8,28]

Mechanism and Pathophysiology of Lifestyle Disorders

Lifestyle disorders such as obesity, type 2 diabetes, cardiovascular disease, and metabolic syndrome share a common biological pathway rooted in chronic low-grade systemic inflammation and metabolic dysregulation. The persistent consumption of an unhealthy diet, combined with physical inactivity, sleep deprivation, and psychological stress, leads to the accumulation of visceral fat. This in turn activates immune cells, particularly macrophages in adipose tissue, which release pro-inflammatory cytokines such as TNF-α, IL-6, and CRP.[43]

This inflammatory milieu promotes insulin resistance by interfering with insulin signalling pathways, notably through the serine phosphorylation of insulin receptor substrates. This process renders insulin less effective, despite its adequate or even elevated levels in circulation, which is a key mechanism in the pathogenesis of type 2 diabetes mellitus. Additionally, oxidative stress resulting from an imbalance between the production of reactive oxygen species (ROS) and the body's antioxidant defences inflicts damage upon lipids, proteins, and DNA. This contributes to endothelial dysfunction, a hallmark of atherosclerosis and hypertension.[44] The endothelium, which lines the blood vessels and regulates vascular tone, becomes less responsive to nitric oxide (NO), thereby impairing vasodilation and promoting vascular stiffness and inflammation.

Simultaneously, dyslipidaemia develops, characterized by elevated triglycerides, increased LDL cholesterol, and decreased HDL cholesterol. These lipid abnormalities are driven by insulin resistance and altered hepatic lipid metabolism, further fueling atherosclerotic plaque formation and increasing the risk of ischemic heart disease.[45]

Chronic stress, a common feature of modern lifestyles, activates the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system, leading to sustained elevations in cortisol and catecholamines. This results in increased sympathetic tone, elevated heart rate, and heightened blood pressure all established risk factors for stroke and myocardial infarction.[46] Moreover, chronic stress and circadian rhythm disruption negatively affect hormonal axes, particularly those involving insulin, leptin, ghrelin, and thyroid hormones. This further disrupts metabolic homeostasis and contributes to obesity, depression, and fatigue.[47]

At the cellular level, these cumulative factors inflict damage on mitochondria, the energy-producing organelles. Mitochondrial dysfunction leads to impaired energy metabolism, reduced ATP production, and increased ROS formation, thereby perpetuating a cycle of cellular damage, inflammation, and eventual multi-organ failure over time.[48] Ultimately, this pathological cascade contributes to the development and progression of a wide range of lifestyle-related disorders, creating a vicious cycle that links behavioural habits with deep-rooted biological damage.

***Table 1**: Comparative Table Modern vs. Unani Dietary Approaches to Lifestyle Disorder*

Category	Modern Medicine	Unani Medicine
Etiology of Diseases	Nutrient excess/deficiency, insulin resistance, inflammation	*Ikhtilāl-i-Mizāj* (temperamental imbalance), *Fuḍlāt* (morbid residues), incompatible foods
Pathophysiology	Oxidative stress, low-grade inflammation, hormonal imbalance	Disrupted *Mizāj* and *Akhlāṭ*, accumulation of harmful humours
Dietary Principles	RDA-based, food groups, caloric control, glycaemic index	Temperament-based selection (*Kayfiyāt*), seasonal and individual suitability
Meal Timing	Emphasis on time-restricted eating, intermittent fasting	Emphasis on *Haḍm* (complete digestion), avoidance of *Idkhāl* (eating before prior meal is digested), early dinner, alternate-day fasting
Therapeutic Focus	Biochemical correction, weight management, chronic disease prevention	Restoration of *Mizāj*, purification of *Akhlāṭ*, strengthening of *Ṭabī'at*
Food Recommendations	Fruits, vegetables, fibre-rich foods, lean protein, DASH diet	Barley, vinegar, bitter vegetables, seasonal fruits matching *Mizāj*
Contraindicated Foods	Ultra-processed foods, high-fat red meat, trans fats, refined sugars	Moist, cold, and heavy foods; milk with fish; sour items with milk
Clinical Customization	Based on BMI, laboratory values, medical history	Based on *Mizāj*, age, season, digestion, *Asbāb Sitta Ḍarūriyya*
Prevention Philosophy	Prevention through nutrition education, public health interventions	Prevention through dietary discipline, harmony with natural rhythm and individual temperament

Conclusion

Lifestyle disorders such as obesity, diabetes, hypertension, and cardiovascular diseases represent some of the greatest public health challenges of the modern era, and diet lies at the heart of both their causation and management. Modern science provides detailed insights into how improper dietary patterns characterized by excessive calories, processed foods, nutrient deficiencies, or poor meal timing lead to chronic inflammation, oxidative stress, hormonal imbalances, and long-term organ dysfunction. In parallel, Unani medicine, grounded in centuries of clinical experience and philosophical reasoning, attributes the development of these disorders to disturbances in *Mizāj* (temperament) and imbalance in *Akhlāṭ* (humours) caused by inappropriate dietary intake.

Despite the differences in language and theoretical frameworks, both traditions converge on the essential truth that food has the potential to act as a double-edged sword: a cause of disease when misused and a powerful therapeutic tool when prescribed wisely. The Unani principle of *Ilāj bi'l-Ghidhā* (diet therapy) resonates strongly with modern preventive and nutritional sciences, both emphasizing moderation, balance, personalization, and the timing of meals.

The synthesis of these perspectives paves the way for an integrative dietary approach that is not only preventive but also curative. Such an approach recognizes the individuality of patients their constitution, temperament, lifestyle, and environment while also applying scientific evidence on nutrients, metabolism, and disease mechanisms. Strategically designed, personalized diets rooted in this integrative framework

could improve metabolic health, prevent complications, and reduce the global burden of lifestyle disorders.

Ultimately, the convergence of Unani wisdom and modern scientific evidence demonstrates that sustainable health is best achieved when diet is understood not merely as fuel but as medicine capable of restoring harmony within the body and safeguarding well-being across the lifespan.

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