



## GUT -JOINT AXIS & OSTEOARTHRITIS (WAJA 'AL-MAFĀSIL) : REVISITING UNANI & MODERN CONCEPT OF DIGESTION (HADM), HUMORS (AKHLĀT) INFLAMMATION (WARAM).

### Unani

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### ABSTRACT

**OSTEOARTHRITIS (Waja 'al-Mafāsīl)** is a common cause of joint pain and disability with increasing prevalence among the global population. According to some ancient scholars all the diseases begin in gut, interestingly, this concept is actually quite old, which is attributed by the Ancient – Greek physician Hippocrates, who proposed this hypothesis 2500 years ago. Osteoarthritis (OA) (**Waja 'al-Mafāsīl**) is a progressive degenerative disorder of the joints marked by cartilage breakdown, stiffness, and pain. Contemporary research increasingly recognises the “gut–joint axis” as a crucial factor in osteoarthritis pathogenesis, implicating gut dysbiosis, systemic inflammation, and metabolic disturbances. In Unani medicine, Waj'a-al Mafāsīl (joint pain) is explained through humoral imbalance, impaired digestion (hadm), and accumulation of morbid humours (akhlāt ghair tabī'ī) within the joints, and improper digestion (hadm) and excretion (istifrāgh). This review explores the correlation between gut health and joint degeneration through both modern medical evidence and Unani theoretical constructs. A holistic, integrative approach rooted in Unani principles may offer adjunctive benefit in managing OA, especially in contexts of gut–joint interaction. This review integrates modern findings on the gut–joint axis with Unani theory, highlighting preventive and curative strategies including correction of digestion, evacuation, temperament regulation, dietary management, regiminal therapies (ilāj bi'l tadbīr), and pharmacotherapy. Understanding osteoarthritis through both perspectives underscores the holistic principle that joint health begins in the gut.

### KEYWORDS

Osteoarthritis, Waj'a-al Mafāsīl, Gut–Joint Axis, Hadm, Akhlāt.

#### INTRODUCTION

Waja'al-Mafāsīl (rheumatism or osteoarthritic pain) is defined as pain arising in the joints due to accumulation of morbid humours (Akhlāt-e-Fāsīda). These humours, generated as a result of digestive derangement (Su'e-Hazm) and improper metabolism (Fasād-e-Taghayyur-e-Ghidhā), mix with the blood and circulate throughout the body.(1,12)

The joints (Mafāsīl) serve as sites of deposition for these impurities, leading to pain (Waja'), swelling (Waram), and inflammatory warmth (Harārat wa Laza'at). It mostly involves the joints of upperlimb & lower limbs. OA (**Waja 'al-Mafāsīl**) is a disease of olden times which is a leading cause of chronic disability between 4<sup>th</sup> & 5<sup>th</sup> decade of life, which is estimated to be the 2<sup>nd</sup> most common problem hereafter. Its overall prevalence in India ranges from 20.5% -68% according to survey in 2018 which with dominant risk factors like, age (>50yrs), female, gender, illiteracy, low socio economic class, positive family history of OA, DM, HTN. World wide it is estimated that 9.6% of men & 18% women of 60 or older probably have symptoms of OA.(11)

#### AIM AND OBJECTIVES OF THE STUDY:

- To explore and critically analyse the Unani understanding of Waja'al-Mafāsīl (Osteoarthritis) in relation to Fasād-e-Hazm (disordered digestion).
- To correlate these classical principles with modern concepts of the gut–joint axis and systemic inflammation.
- To review classical Unani literature describing the pathogenesis (Asbāb-e-Maraz) of Waja'al-Mafāsīl, especially the role of gastric disturbance (Fasād-e-Ma'da) and derangement of humours (Ikhtilāt-e-Akhlāt).
- To analyse the interrelationship between gastrointestinal dysfunction and joint pathology from both Unani and contemporary biomedical perspectives.
- To propose an integrated Unani framework for prevention and management of osteoarthritis through regulation of digestion, lifestyle modification, and humoral balance.

#### PATHOGENESIS /CONCEPT OF OA (Waja 'al-Mafāsīl) ACCORDING TO UNANI SCHOLARS:

##### • Gut (Hadm) and Joint Link

**Ismail Jurjani** in his book “ZAKHERA KHAWARZAM SHAHI” narrated that Waja'ul-Mafāsīl (rheumatism or osteoarthritic pain) is defined as pain arising in the joints due to accumulation of morbid humours (Akhlāt-e-Fāsīda). These humours, generated as a result of digestive derangement (Su'e-Hazm) and improper metabolism

(Fasād-e-Taghayyur-e-Ghidhā), mix with the blood and circulate throughout the body.(1)

The joints (Mafāsīl) serve as sites of deposition for these impurities, leading to pain (Waja'), swelling (Waram), and inflammatory warmth (Harārat wa Laza'at). describe that when food is consumed in excess or before complete digestion of the previous meal, it disturbs the natural digestive process (Amal-e-Hazm).

The stomach becomes overburdened, and the partially digested matter transforms into impure and thick humours (Akhlāt-e-Ghalīza wa Fāsīda). These humours, when absorbed into the bloodstream, not only impair the quality of blood but also circulate throughout the body, settling in tissues with poor elimination or weak vitality.

Particularly, the joints (Mafāsīl) are highly susceptible sites, as they are distant from the primary heat and have limited blood flow. The deposited matter there produces pain (Waja'), inflammation (Waram), and restriction of movement (Tashannuj). If the innate heat (Harārat-e-Gharīzī) is weak or the body's expulsive faculty (Quwwat-e-Dāfi'a) is deficient, this accumulation occurs more readily.

HE emphasize that overeating, improper timing of meals, lack of physical activity, and frequent consumption of heavy or moist foods all contribute to the generation and retention of these morbid humours. Thus, such dietary and lifestyle errors lead to gastric derangement (Fasād-e-Ma'da), thickening of humours, and ultimately to joint disorders.

**Ibn e sina** in his book “Al QANOON FI TIB” narrated that Waja'al-Mafāsīl refers to pain, swelling, and restriction of movement occurring in the joints, arising primarily from the accumulation of morbid humours (Akhlāt-e-Fāsīda). These humours originate as a result of digestive derangement (Su'e-Hazm) and gastric dysfunction (Fasād-e-Ma'da), which disturb the natural processes of digestion and assimilation. The classical physicians unanimously agree that the stomach (Ma'da) serves as the foundation of nourishment and vitality for the entire body (Asl-e-Ghidhā wa Quwwat). When the stomach fails to digest food properly, partially digested or corrupted materials (Ghidhā-e-Fāsīda) are formed. These substances enter the bloodstream and alter the quality of blood, leading to the production of impure and thick humours (Akhlāt-e-Ghalīza wa Fāsīda). Once mixed with the circulation, these humours tend to deposit in distant organs — particularly in the joints (Mafāsīl) — which are relatively cooler and

weaker in innate heat (Harārat-e-Gharīzī). This results in pain (Waja'), swelling (Waram), and stiffness or obstruction (Sudad/Tashannuj).(2) Over all All Unani Physician have the same perspective for Gut -joint axis ultimately giving the outcome for the etiopathogenesis as follow :

**ETIOPATHOGENESIS OF Waj'a-ul Mafāsīl :**

**1. (Asbāb-e-Mādīya)**

Accumulation of morbid humours in joints, due to faulty digestion (hadm), impaired evacuation (istifrāgh) and retention of waste matter. Faulty digestion (Su-i-Hadm) leads to formation of morbid humours (Akhlat Ghair Ṭabī'ī), which circulate and accumulate in joints particularly if excretion (Istifrāgh) is impaired. Cold, damp climates and diets rich in heavy, raw, or cold foods worsen this state.(8)

**2. Temperamental Correlation**

Alteration of temperament of the joint and surrounding tissue: e.g., cold temperament (mizāj bard) may lead to 'balghamī' type, hot temperament (mizāj hār) to 'safirāwī' type.

- Different types of Waj'a-al Mafāsīl are recognized.
- Balghamī type (cold, moist): characterised by stiffness and swelling; aggravated by cold.
- Safirāwī type (hot, dry): acute inflammation with redness and burning pain.
- Damwī type (sanguine): throbbing pain and mild swelling.(8)

**3. External triggers** such as over-exertion, cold damp climate, improper diet (excess of raw, cold foods) as per Asbāb-e-Sitte Zarūriyya.

**4. Secondary factors** like obesity, sedentary lifestyle are modern correlates of movement/rest imbalance within Asbāb-e-Sitte Zarūriyya

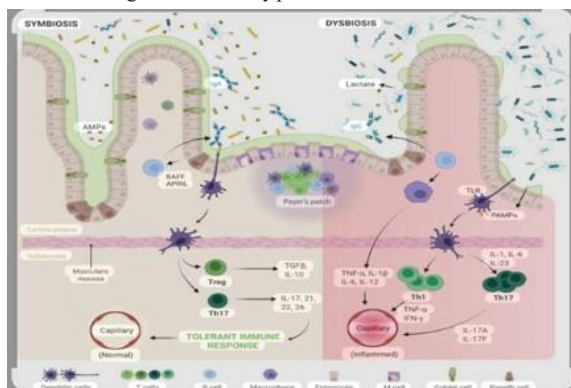
**• Gut–Joint Axis in Osteoarthritis: Modern Perspective**

The human gut harbours a complex ecosystem of microbiota which modulates immune function, metabolic homeostasis and systemic inflammation. When the gut barrier is compromised, lipopolysaccharide (LPS) and other microbial products may enter the circulation, driving low-grade inflammation, which is increasingly implicated in OA pathogenesis.(14,15)

Recent discoveries demonstrate that gastrointestinal health directly influences systemic inflammation, immune function, and metabolic homeostasis all key players in OA.

1. Studies show patients with knee OA often have metabolic comorbidities (obesity, insulin resistance) and evidence of systemic inflammation.
2. Gut dysbiosis may exacerbate cartilage degradation by promoting inflammatory cytokines (IL-1β, TNF-α) and matrix-metalloproteinases (MMPs).
3. Metabolic Linkages-OA patients often present with obesity, diabetes, and dyslipidemia conditions linked to gut microbial imbalance. Short-chain fatty acids (SCFAs), derived from microbial fermentation, influence both gut barrier and bone metabolism.
4. Animal models suggest that altering gut microbiota (via diet, probiotics) can ameliorate cartilage damage and joint inflammation.
5. Therapeutic Implications- Experimental models show that dietary modification, probiotics, and prebiotics reduce OA severity, supporting the gut–joint relationship. Hence, improving gut ecology may serve as an upstream intervention for joint health.
6. Hence, gut health emerges as an upstream modifiable factor in OA, rather than mere symptomatic joint treatment.

This modern axis (gut → systemic inflammation → joint degeneration) resonates with the Unani notion of internal imbalance and origin of disease in the digestive/excretory processes.



**By aligning modern and Unani frameworks, one can map the following correspondences:**

1. Gut dysbiosis / increased permeability → Faulty hadm / impaired istifrāgh (Unani)
2. Systemic low-grade inflammation → Accumulation of akhlāt ghair ṭabī'ī and temperament derangement
3. Joint cartilage degeneration & osteophytes → Manifestation of Waj'a-al Mafāsīl due to humoral jamā' and mizāj change
4. Modifiable factors such as diet, physical activity, bowel habits → Correspond to Asbāb-e-Sitte Zarūriyya interventions
5. Thus, the gut–joint axis gains a Unani articulable basis: promote healthy digestion and excretion, regulate humours and temperament, and support joint tissue health.

**Integrating Modern Gut–Joint Axis and Unani Theory**

Modern Mechanism	Unani Conceptual Parallel
Gut dysbiosis and leaky gut	Su-i-Hazm (impaired digestion), weakness quwwat-e-hāzima
Systemic inflammation	Ghalba-e-Akhlat Ghair Ṭabī'ī (dominance morbid humours)
Cytokine activation	Ghalba-e-Mizāj Hār (hot temperament excess)
Metabolic endotoxemia	Fāsīd akhlāt circulating in body
Cartilage degradation (degeneration of joint material)	Istihāla-e-Mādā fi'l Mafāsīl

Both systems converge on the principle that improper digestion initiates systemic imbalance, which eventually manifests as joint degeneration.

**CLASSIFICATIONS/TYPES OF Waj'a-al Mafāsīl :(10,12)**

1. **Waja-al-Mafasil Sāda:** Derangement of joint temperament (Mizāj) without humoral infiltration Pain and stiffness without swelling or redness; aggravated by cold, relieved by warmth Musakkhkhin, Murattīb, Mulayyin measures; massage and fomentation
2. **Waja-al-Mafasil Maddī:** Accumulation of Mādā (morbid humour) due to deranged digestion or metabolism Pain, redness, swelling, warmth; systemic signs of humoral imbalance Istifrāgh (elimination) through Ishāl, Hijāmah, Fasd, followed by Ta'dīl-e-Mizāj
3. **Waja-al-Mafasil Damvi :** Accumulation of dam causes throbbing type pain , redness and restricted movement.
4. **Waja-al-Mafasil Safrawi:** Chronic & persistent joint pain with stiffness and limitation of movement ,retention of thick ,viscid morbid humor mostly safra leading to chronicity. Dull ,prolonged pain, stiffness ,mild swelling ,hot & dry temperament aggravated in hot weather.
5. **Waja-al-Mafasil Balghamī:** Dominant Humour Balgham (Phlegm), Cold and moist (Mizāj Bārid Ratab) Dull, deep pain; heaviness; stiffness; aggravated by cold and moisture; relieved by warmth Evacuation of Balgham, use of Musakkhkhin and Muhallil agents, hot fomentation, light warm diet, and exercise.

**CLINICAL FEATURES :(11)**

FEATURES	DESCRIPTION	UNANI CORRELATION
<b>PAIN</b>	Dull, aching, and localized joint pain that worsens with activity and improves with rest.	Pain due to Balghamī Mādā accumulation causing heaviness and obstruction of Rūh and Dam.
<b>STIFFNESS</b>	Morning stiffness lasting less than 30 minutes, or after prolonged inactivity.	Stiffness and heaviness due to thick, cold, and viscous Balgham within joint spaces.
<b>SWELLING</b>	Mild to moderate joint effusion may be present, usually non-inflammatory.	Balghamī swelling -cold to touch, without redness or heat.
<b>CREPITUS</b>	Grating sensation during movement due to cartilage wear and osteophyte formation.	Corresponds to loss of natural Taleen (lubrication) due to excess Balgham and dryness. Due to imbalance in safra excess dryness weakens organ.
<b>DEFORMITY</b>	Joint deformity due to cartilage degeneration and bone remodeling (e.g., Heberden's nodes).	Chronicity leads to Su' Mizāj Muzmin (persistent temperamental imbalance) and rigidity.

<b>RESTRICTED MOVEMENT</b>	Limited range of motion and difficulty in bending or extending affected joints.	Thick humoral deposits obstruct Masālik (pathways), limiting movement.
<b>JOINT ENLARGEMENT</b>	Bony enlargement from osteophyte formation, typically in knees, hips, hands.	Manifestation of retained Mādā and lack of absorption (Nazj o Ikhrāj failure).

**PREDISPOSING FACTORS**

1. Improper diet (fasid ghiza)
2. Fasad e hadm
3. Sedentary lifestyle (qillat e harkat)
4. Excessive rest & sleep (kasrat naum wa sukoon)
5. Mental stress & emotional disturbance (Asbab e nafsaniyah)
6. Ageing & temperamental predisposition.

**USOOL E ILLAJ:**

- Isla e hadm.(correction of digestion).
- Intake of food that is muqawwi e mada in nature which produces balanced humours (Akhalāt i saliha)
- Giza I lateef and muqawwi should be taken.
- Increase mobility, physical exercise i.e: walking, squats that maintains the intestinal mobility that ease in relieve of constipation.

**MATERIAL & METHODS :**

The gathered information was analyzed using a comparative and interpretative approach, this research aims to reinterpret the unani understanding of hadm, humoral imbalance in light of modern finding on the gut-joint axis.

**STUDY DESIGN :**

CONCEPTUAL & LITERATURE BASED REVIEW.

**DISCUSSION :**

Unani scholars have profoundly emphasized the pivotal role of digestion in maintaining joint health. According to Ibn Sina (Avicenna) and Jurjānī, the stomach is the source of humoral generation; any disturbance here produces defective humours that travel via blood and deposit in weak joints. This Unani explanation parallels the modern gut–joint axis, wherein intestinal dysbiosis and increased permeability (“leaky gut”) lead to systemic inflammation through bacterial endotoxins and cytokine release, contributing to osteoarthritic degeneration.

Unani therapeutics aim at the root cause by correcting digestion (Islāh-e-Hazm), expelling morbid matter (Tanqiya-e-Ma'da), and restoring humoral balance (Ta'dīl-e-Akhlāt). Regimenal therapies (Ilāj bil Tadbīr) such as Hijāmah (cupping), Dalk (massage), Hammām (steam bath), and Riyāzat (exercise) are advised to enhance metabolism and eliminate waste. The integration of classical Unani principles with contemporary insights provides a unified approach to OA management that focuses not only on symptomatic relief but also on the correction of the underlying gut dysfunction.

**CONCLUSION :**

The Unani system of medicine offers a holistic understanding of osteoarthritis as a systemic manifestation of digestive derangement and humoral imbalance rather than a mere local joint disorder. The correlation between Fasād-e-Hadm and modern gut–joint axis validates the ancient wisdom of Unani scholars. Strengthening digestive function, regulating lifestyle, and correcting humoral imbalances can prevent and manage osteoarthritis effectively. The integration of Unani therapeutic principles with modern biomedical research opens new pathways for comprehensive, non-invasive, and preventive management of osteoarthritis and related musculoskeletal disorders.

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