



**IJAYUSH**  
*International Journal of AYUSH*  
AYURVEDA, YOGA, UNANI, SIDDHA AND HOMEOPATHY  
<http://internationaljournal.org.in/journal/index.php/ijayush/>

International Journal  
Panacea  
Research library  
ISSN: 2349 7025

Review Article

Volume 13 Issue 7

July 2024

## A CRITICAL ANALYSIS ON OJAS (IMMUNITY) AND ITS CLINICAL IMPORTANCE ON HUMAN HEALTH

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### ABSTRACT

**Introduction** Ojas, considered the essence of all bodily tissues (Dhatus), is a vital concept in Ayurveda symbolizing vigor, vitality, and immunity. It is the final by-product of perfect digestion and metabolism, signifying optimal health and wellness. Ojas is crucial in maintaining physiological balance, protecting against diseases, and supporting mental and spiritual well-being. **Objective** To provide a comprehensive understanding of Ojas, its formation, properties, types, functions, factors influencing its quality and quantity, and its role in immunity according to Ayurvedic principles. **Methodology** A thorough review of classical Ayurvedic texts, including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, was conducted. Modern interpretations and research studies were also examined to correlate traditional knowledge with contemporary scientific understanding. **Discussion & Results-Formation of Ojas** Ojas is formed as the final product of nutrient assimilation through the sequential transformation of the seven Dhatus (Rasa, Rakta, Mamsa, Meda, Asthi, Majja, and Shukra). Proper functioning of Agni (digestive fire) and Srotas (channels) is essential for its formation. **Properties of Ojas**-Ojas is described as pale yellow or white, having a sweet taste, and is viscous and oily. It is present in minute quantities in every cell but is primarily stored in the heart and

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circulates throughout the body. **Types of Ojas** There are two types of Ojas: **Para Ojas**: The superior form, located in the heart, critical for life. **Apara Ojas**: The secondary form, distributed throughout the body, providing strength and immunity. **Functions of Ojas** Ojas is responsible for maintaining immunity, vigor, vitality, and overall health. It supports mental stability, emotional resilience, and spiritual growth. It is also crucial in tissue nourishment, cellular integrity, and energy regulation. **Conclusion** Ojas is a fundamental concept in Ayurveda that encompasses physical, mental, and spiritual health. Its optimal presence is essential for robust immunity and overall well-being. Understanding and nurturing Ojas through balanced living and proper Ayurvedic practices can significantly contribute to enhanced immunity and health.

**Keywords-** Ojas, immunity, Dhatus, Para Ojas, Apara Ojas, vitality.

## INTRODUCTION

In the ancient wisdom of Ayurveda, Ojas holds a place of paramount importance. It is considered the essence of all bodily tissues (dhatus) and the final product of perfect digestion and metabolism. Ojas, often described as the "essence of vitality," is the fundamental energy that governs immunity, strength, and overall well-being.[1] Ojas is not merely a physical substance but a subtle entity that pervades the entire body. It is a manifestation of optimal health and balanced functioning of the body's systems. Ayurvedic texts describe Ojas as having the qualities of clarity (prasanna), stability (sthira), and resilience (bala). It is believed to reside in the heart, specifically in the ten drops that support life and consciousness.[2]

**There are two types of Ojas as mentioned in classical Ayurvedic literature:**

1. **Para Ojas**: This is the superior form of Ojas, extremely subtle and pure. It resides in the heart and is responsible for the core vitality and sustenance of life. Disruption of Para Ojas is considered life-threatening.
2. **Apara Ojas**: This is the inferior form, which circulates throughout the body, providing strength and immunity to all tissues. It is more abundant and less subtle than Para Ojas but equally crucial for overall health.

## Factors Influencing Ojas [3]

Ojas can be influenced positively or negatively by various factors:

- **Diet**: A balanced, nutritious diet that includes whole grains, fresh fruits, vegetables, and dairy products nourishes Ojas.
- **Lifestyle**: Regular exercise, adequate sleep, and stress management are crucial for maintaining Ojas.

- **Mind-Body Practices:** Practices like yoga, meditation, and pranayama enhance Ojas by promoting mental and physical harmony.
- **Emotions:** Positive emotions like love, compassion, and joy strengthen Ojas, while negative emotions like anger, fear, and grief deplete it.

**Immunity** -In modern medical science, immunity refers to the body's ability to defend itself against pathogens, including bacteria, viruses, fungi, and parasites. The immune system is a complex network of cells, tissues, and organs working together to protect the body.[4]

**The immune system comprises two main components:[5]**

1. **Innate Immunity:** This is the body's first line of defense. It includes physical barriers like the skin and mucous membranes, as well as immune cells like phagocytes and natural killer cells that respond quickly to infections.
2. **Adaptive Immunity:** This is a more specialized system that involves lymphocytes (B cells and T cells). Adaptive immunity develops over time and provides long-lasting protection by remembering previous encounters with specific pathogens.

**The immune response is a coordinated effort to identify, target, and eliminate harmful invaders. It involves several steps:[6]**

1. **Recognition:** Immune cells recognize foreign substances through specific receptors.
2. **Activation:** Once a pathogen is recognized, immune cells are activated to respond.
3. **Elimination:** Activated immune cells work to neutralize and destroy the pathogen.
4. **Memory:** After the pathogen is eliminated, memory cells remain to provide faster and more efficient responses to future infections.

### **Immunodeficiency and Autoimmunity [7]**

Immunodeficiency occurs when the immune system is not functioning properly, leading to increased susceptibility to infections. Autoimmunity, on the other hand, occurs when the immune system mistakenly attacks the body's own tissues, leading to conditions like rheumatoid arthritis, lupus, and multiple sclerosis.

### **Aim**

To understand and correlate the Ayurvedic concept of Ojas with modern immunity.

### **Objectives**

- Explain Ojas and its types in Ayurveda.
- Explain Immunity and its types in Modern Science.
- Identify dietary and lifestyle factors affecting Ojas.
- Suggest combining Ayurvedic and modern practices.

## **MATERIAL AND METHODS**

### **Materials and Methods**

#### **Materials**

1. **Classical Ayurvedic Texts:** Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Other relevant Ayurvedic literature
2. **Modern Medical References:** Immunology textbooks, Peer-reviewed journals and articles on immunology, medical databases (e.g., PubMed, Google Scholar)

#### **Methods**

1. **Literature Review:** Conduct a comprehensive review of classical Ayurvedic texts to gather information on Ojas. Perform a systematic review of modern scientific literature on the immune system.
2. **Data Collection:** Extract relevant data from Ayurvedic texts regarding the characteristics, functions, and factors influencing Ojas. Collect data from modern scientific literature on immune response mechanisms and factors affecting immunity.

## **CONCEPT OF OJAS**

Ojas Derived from the Sanskrit word for "vigor" or "energy," Ojas is considered the quintessence of all bodily tissues and the final product of a well-nourished and balanced system. Its presence is synonymous with health, strength, and immunity, whereas its depletion is associated with disease, weakness, and vulnerability to illness.[8]

Ojas is described in Ayurvedic texts as a subtle, vital essence that permeates the entire body. It is the most refined product of digestion and metabolism, representing the essence of the dhatus (bodily tissues). It is not a single physical substance but rather a concept that encompasses the overall state of vitality and well-being. Classical Ayurvedic texts like Charaka Samhita and Sushruta Samhita describe Ojas with attributes such as clarity, luminosity, stability, and resilience.[9]

### **Types of Ojas [10]**

### Para Ojas

- **Para Ojas:** The superior form of Ojas, characterized as **Atisukshma (extremely subtle)** and **Shuddha (pure)**.
- **Location:** Resides in the **Hridaya (heart)**.
- **Quantity:** Described as **Ashta Bindu (eight drops)**.

### Functions:

- **Jeevanam (Life-sustaining):** Essential for maintaining **Prana (life force)**.
- **Bala (Strength):** Contributes to the core vitality and life force.
- **Manasa Sthira (Mental stability):** Supports mental and emotional balance.
- **Deerghayu (Longevity):** Integral for sustaining life and promoting longevity.

### Vulnerability:

- Highly susceptible to **Vikriti (disturbance)** due to factors such as **Ati-shrama (excessive exertion)**, **Ativyayama (overexertion)**, **Krodha (anger)**, and **Shoka (grief)**.

### Protection and Preservation:

- **Sattvic Aahara (pure diet):** Consumption of nourishing foods.
- **Sadvrutta (righteous living):** Maintaining a balanced lifestyle with adequate rest and stress management.
- **Manas Shuddhi (mental purity):** Cultivating positive emotions and mental stability.

### Apara Ojas

- **Apara Ojas:** The inferior form of Ojas, characterized as **Adhika (more abundant)** and **Stula (less subtle)**.
- **Location:** Distributed throughout the **Sarva Shareera (entire body)**.
- **Quantity:** More abundant than Para Ojas, permeating all bodily tissues.

### Functions:

- **Shareera Bala (physical strength):** Provides **Dehabala (bodily strength)** and endurance.

- **Vyadhikshamatva (Immunity):** Enhances the body's **Roga Pratibandhaka (disease resistance)**.
- **Shareera Rasayana (body rejuvenation):** Supports natural healing and recovery.
- **Manasik Bala (mental strength):** Contributes to stress resistance and mental resilience.

#### **Vulnerability:**

- Depletable due to factors such as **Durvritta (improper conduct)**, **Alpa Nidra (lack of sleep)**, **Durbala Aahara (poor diet)**, and **Chinta (worry)**.

#### **Functions of Ojas [11]**

Ojas plays several critical roles in maintaining health and vitality:

1. **Immunity (Vyadhikshamatva):** Ojas is the foundation of the body's immune system. It provides the strength to resist and combat diseases, enhancing both innate and adaptive immunity.
2. **Strength (Bala):** Ojas imparts physical strength, endurance, and stamina. It is essential for maintaining energy levels and performing daily activities.
3. **Mental Clarity (Prasanna):** Ojas supports cognitive functions, emotional stability, and mental clarity. It helps in maintaining a balanced and positive state of mind.
4. **Reproductive Health:** Ojas is closely linked to reproductive health and fertility. It nourishes the reproductive tissues and supports healthy conception and pregnancy.
5. **Vitality and Longevity:** Ojas is synonymous with vitality and longevity. It sustains life, promoting overall health and a long, healthy life.

#### **Factors Influencing Ojas [12]**

The state of Ojas can be influenced by various factors, which can either enhance or deplete it.

1. **Diet and Nutrition:** A balanced diet rich in whole grains, fresh fruits, vegetables, dairy products, and natural sweeteners supports the production and maintenance of Ojas. Foods that are nourishing and easy to digest are particularly beneficial.
2. **Lifestyle:** Regular exercise, adequate sleep, and a balanced lifestyle are crucial for maintaining Ojas. Practices like yoga and pranayama help in enhancing and preserving Ojas.

3. **Mind-Body Harmony:** Mental and emotional well-being significantly impact Ojas. Positive emotions like love, compassion, and joy strengthen Ojas, while negative emotions like anger, fear, and grief can deplete it.
4. **Stress Management:** Chronic stress and overexertion can drain Ojas. Stress management techniques such as meditation, relaxation exercises, and spending time in nature are essential for preserving Ojas.
5. **Proper Digestion:** Efficient digestion and metabolism are fundamental for the production of Ojas. Agni (digestive fire) must be balanced to ensure proper digestion and assimilation of nutrients.

### **Signs of Balanced and Depleted Ojas [13]**

Balanced Ojas manifests as:

- Radiant skin and complexion
- Robust immune function
- High energy levels and stamina
- Mental clarity and emotional stability
- Overall sense of well-being and happiness

### **Depleted Ojas,**

- Frequent infections and weakened immunity
  - Chronic fatigue and low energy
  - Dull complexion and dry skin
  - Mental fog, anxiety, and depression
  - General feeling of malaise and dissatisfaction

### **ACCORDING TO MODERN SCIENCES**

Immunity is the body's ability to resist harmful microorganisms and pathogens, preventing infections and diseases. It is a complex system involving various cells, tissues, and organs working together to identify and neutralize foreign invaders. Understanding how the immune system functions and the factors that influence it is crucial for maintaining health and well-being.[14]

### **Immune System [15]**

**Innate Immunity-** Innate immunity is the body's first line of defense against pathogens. It provides a non-specific response that is always ready to protect against infections.

- **Physical Barriers:** These include the skin, mucous membranes, and bodily secretions (such as saliva and mucus) that physically block pathogens from entering the body.
- **Phagocytic Cells:** Cells such as macrophages and neutrophils that ingest and destroy pathogens through a process called phagocytosis.
- **Natural Killer (NK) Cells:** A type of lymphocyte that can kill virus-infected cells and cancer cells.
- **Inflammatory Response:** The body's reaction to injury or infection, characterized by redness, heat, swelling, and pain, which helps isolate and eliminate pathogens.
- **Complement System:** A group of proteins that work together to lyse pathogens and enhance the ability of antibodies and phagocytic cells to clear infections.

### **Adaptive Immunity [16]**

**Definition:** Adaptive immunity is a specific response to pathogens that the body has encountered before. It involves the activation and proliferation of lymphocytes and the production of antibodies.

- **B Lymphocytes (B Cells):** These cells produce antibodies that bind to specific antigens on pathogens, marking them for destruction by other immune cells.
- **T Lymphocytes (T Cells):** These cells come in two main types:
  - **Helper T Cells (CD4+ T Cells):** Help activate B cells and other T cells.
  - **Cytotoxic T Cells (CD8+ T Cells):** Kill infected or cancerous cells.
- **Memory Cells:** Both B and T cells can form memory cells after an initial infection, allowing for a faster and more robust response if the pathogen is encountered again.

### **Immune Response [17]**

The immune response is a coordinated effort between innate and adaptive immunity to recognize, respond to, and eliminate pathogens.

1. **Recognition:** The immune system identifies pathogens through pattern recognition receptors (PRRs) on immune cells that detect pathogen-associated molecular patterns (PAMPs). In adaptive immunity, B and T cells recognize specific antigens through their receptors.



2. **Activation:** Once a pathogen is recognized, immune cells are activated. In innate immunity, this includes the activation of phagocytes and the complement system. In adaptive immunity, this involves the activation and proliferation of B and T cells.
3. **Elimination:** The activated immune cells work to neutralize and destroy the pathogen. Phagocytes engulf and digest pathogens, antibodies neutralize and mark pathogens for destruction, and cytotoxic T cells kill infected cells.
4. **Memory:** After the infection is cleared, memory cells remain in the body, providing long-lasting immunity. This allows for a quicker and stronger response if the same pathogen is encountered again.

### Factors Influencing Immunity [18]

Several factors can influence the functioning of the immune system, either enhancing or impairing its ability to respond to pathogens.

1. **Nutrition:** Adequate intake of vitamins, minerals, and other nutrients is essential for optimal immune function. Nutrients such as Vitamin C, Vitamin D, Zinc, and antioxidants play crucial roles in supporting the immune system.
2. **Physical Activity:** Regular exercise enhances immune surveillance and reduces inflammation, contributing to a stronger immune response.
3. **Sleep:** Quality sleep is crucial for the regeneration and proper functioning of immune cells. Lack of sleep can impair immune function and increase susceptibility to infections.
4. **Stress:** Chronic stress can suppress immune function by affecting the hypothalamic-pituitary-adrenal (HPA) axis and increasing the production of stress hormones like cortisol, which can inhibit the activity of immune cells.
5. **Vaccination:** Vaccines train the immune system to recognize and combat specific pathogens without causing disease. Vaccination is a critical tool for preventing infectious diseases and enhancing herd immunity.
6. **Age:** Immune function can decline with age, making older adults more susceptible to infections and diseases. This is due to a decrease in the production and function of immune cells, a phenomenon known as immuno-senescence.

### Immunodeficiency and Autoimmunity [19]

**Immunodeficiency:** This occurs when the immune system is not functioning properly, leading to an increased susceptibility to infections. Immunodeficiency can be congenital (primary) or acquired (secondary). Examples include:

- **Primary Immunodeficiency:** Genetic disorders such as Severe Combined Immunodeficiency (SCID).
- **Secondary Immunodeficiency:** Conditions like HIV/AIDS or the use of immunosuppressive drugs.

**Autoimmunity:** This occurs when the immune system mistakenly attacks the body's own tissues, leading to autoimmune diseases. Examples include:

- **Rheumatoid Arthritis:** The immune system attacks the joints, causing inflammation and damage.
- **Systemic Lupus Erythematosus (SLE):** The immune system attacks multiple organs and tissues, including the skin, kidneys, and brain.
- **Multiple Sclerosis (MS):** The immune system attacks the protective covering of nerve fibers, leading to neurological symptoms.

## DISCUSSION

Ojas, a profound concept in Ayurveda, signifies the essence of vitality and immunity. It is often described as the vital energy that sustains life and underpins the body's ability to withstand diseases and stress. Understanding Ojas is key to comprehending how Ayurveda approaches health and well-being holistically.[20]

In Ayurveda, Ojas is the essence of all the bodily tissues (dhatus) and the final product of digestion and metabolism. It is the refined energy that gives rise to strength, vitality, and immunity. Ojas is not just a physical substance but a subtle entity that permeates the entire body, influencing both physical and mental health.[21]

- **Characteristics:** Ojas is described as being clear, stable, and luminous. It is often compared to a golden honey-like substance, symbolizing its purity and richness.
- **Manifestation:** A person with abundant Ojas will display radiant health, robust energy, and a calm and joyful demeanor.

## Rejuvenation and Enhancement of Ojas [22]

Ayurveda offers various strategies to rejuvenate and enhance Ojas:

1. **Rasayana Therapy:** These rejuvenation therapies are designed to nourish and enhance Ojas. They include herbal formulations, dietary recommendations, and lifestyle practices aimed at rejuvenating the body and mind.
2. **Herbal Remedies:** Herbs such as Ashwagandha, Shatavari, Amalaki, and Brahmi are renowned for their Ojas-enhancing properties. These herbs support vitality, immunity, and overall health.
3. **Dietary Practices:** Consuming Ojas-building foods such as ghee, milk, almonds, dates, and honey can significantly boost Ojas. Warm, nourishing, and easy-to-digest foods are particularly beneficial.
4. **Mind-Body Practices:** Regular practice of yoga asanas and pranayama techniques helps balance the mind and body, supporting the enhancement of Ojas. Practices like Shavasana (corpse pose) and Nadi Shodhana (alternate nostril breathing) are particularly beneficial.

### **Physiological Correlates of Immunity [23]**

**Cellular Health and Metabolism:** Modern science emphasizes the importance of cellular health and efficient metabolism in maintaining overall vitality. Mitochondria, the powerhouses of cells, produce energy through the process of cellular respiration. This energy is essential for all bodily functions and can be seen as a modern correlate to the concept of Ojas, which is the refined essence of all tissues.

**Neuroendocrine Regulation:** The hypothalamic-pituitary-adrenal (HPA) axis plays a crucial role in regulating stress responses and maintaining homeostasis. Chronic stress can lead to dysregulation of this axis, resulting in conditions like adrenal fatigue. This concept aligns with the Ayurvedic understanding that stress and emotional imbalance can deplete Ojas.

**Antioxidants and Free Radicals:** Oxidative stress, caused by an imbalance between free radicals and antioxidants in the body, can lead to cellular damage and a weakened immune system. Antioxidants, which neutralize free radicals, play a vital role in maintaining cellular health and immunity. The protective and nourishing qualities of Ojas can be compared to the function of antioxidants in preserving health and preventing disease.

### **Factors Influencing Immunity and Vitality [24]**

**Nutrition:** A balanced diet rich in essential nutrients is fundamental for a robust immune system. Vitamins such as Vitamin C and D, minerals like Zinc, and antioxidants are crucial for

immune function and overall health. This mirrors the Ayurvedic emphasis on a nourishing diet for maintaining Ojas.

**Physical Activity:** Regular exercise enhances immune surveillance, reduces inflammation, and supports metabolic health. Physical activity is also linked to the production of endorphins, which improve mood and reduce stress, supporting both physical and mental aspects of vitality akin to Ojas.

**Sleep and Recovery:** Quality sleep is critical for the regeneration and proper functioning of immune cells. During sleep, the body repairs tissues, consolidates memory, and releases growth hormones, processes that contribute to maintaining overall health and vitality.

**Stress Management:** Chronic stress can suppress immune function by affecting the HPA axis and increasing the production of cortisol, a stress hormone that can inhibit immune activity. Stress management techniques such as mindfulness, meditation, and yoga help in maintaining emotional balance and supporting immune health.

**Environmental Factors:** Exposure to pollutants, toxins, and harsh environmental conditions can adversely affect immune function and overall health. Maintaining a clean and healthy environment is essential for preventing the depletion of vitality, much like the protection of Ojas in Ayurveda.

### **Integration with Ayurveda [25]**

**Holistic Health Approach:** Integrating the Ayurvedic concept of Ojas with modern scientific understanding provides a comprehensive approach to health. Both systems emphasize the importance of balanced nutrition, regular physical activity, adequate sleep, and stress management for maintaining vitality and immunity.

**Psychoneuroimmunology:** The emerging field of psychoneuroimmunology studies the interaction between psychological processes, the nervous system, and immune function. This aligns with the Ayurvedic principle that mental and emotional states significantly impact physical health and Ojas.

**Preventive Healthcare:** Ayurveda's focus on maintaining Ojas through preventive measures such as proper diet, lifestyle, and mental well-being can complement modern preventive healthcare practices aimed at enhancing immune function and overall health.

### **Conclusion**

The Ayurvedic concept of Ojas offers a Traditional perspective on health and immunity, emphasizing the importance of balance and harmony in all aspects of life. By integrating Ayurvedic principles with modern scientific insights, a more comprehensive understanding of immunity can be achieved. This approach underscores the significance of maintaining physical, mental, and emotional well-being to support overall health and resilience against diseases. a strong and balanced immune system is paramount for overall health and longevity. Understanding the intricate workings of the immune system and the factors that influence its function can empower individuals to adopt lifestyle practices that enhance their immunity. Combining the holistic approaches of Ayurveda with modern medical practices can provide a robust framework for maintaining and enhancing health, ensuring a resilient and vibrant life.

#### **CONFLICT OF INTEREST -NIL**

#### **SOURCE OF SUPPORT -NONE**

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