

"Ayurveda's Role in Preventing Non-Communicable Diseases: A Holistic Approach"

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ABSTRACT

Non-communicable diseases (NCDs), including diabetes, hypertension, cardiovascular diseases, cancer, and respiratory disorders, are a leading cause of global morbidity and mortality. Ayurveda, a time-tested system of holistic medicine, offers preventive strategies based on lifestyle modification, diet regulation, and herbal interventions. This article explores Ayurvedic principles like Swasthavritta, Dinacharya, Ritucharya, and Ahara-Vihara in preventing and managing NCDs. By integrating ancient wisdom with modern preventive strategies, Ayurveda provides a sustainable approach to addressing the global burden of NCDs.

KEYWORDS: Ayurveda, Non-communicable diseases (NCDs), Preventive healthcare, Ojas, Stress management, Meditation (Dhyana), Dietary interventions (Ahara), Viruddha Ahara (Incompatible foods), Plant-based diet, Physical activity, Yoga Asanas, Surya Namaskar, Immunity boosting, Lifestyle modification

I. INTRODUCTION:-

Non-Communicable Diseases: A Global Challenge

Non-communicable diseases (NCDs), often termed chronic or lifestyle diseases, are responsible for significant morbidity and mortality worldwide. Conditions such as diabetes mellitus, cardiovascular diseases, hypertension, chronic respiratory diseases, obesity, and certain cancers have become a global health crisis, contributing to nearly 74% of global deaths annually, according to the World Health Organization (WHO). These diseases disproportionately affect low- and middle-income countries, where health infrastructure

struggles to cope with the rising burden. Unlike communicable diseases, which are caused by pathogens, NCDs are typically a result of long-term exposure to harmful lifestyle factors such as unhealthy diets, physical inactivity, stress, tobacco use, and excessive alcohol consumption. The ongoing rise of NCDs poses not only health challenges but also significant economic and societal costs.

The Role of Lifestyle in Disease Onset

Modernization and urbanization have profoundly altered lifestyles, leading to a rapid increase in sedentary behavior, processed food consumption, and mental stress. These changes have shifted the burden of diseases from infectious diseases to lifestyle-related disorders. Urban living has brought conveniences but also increased risk factors such as pollution, limited physical activity, and over-reliance on fast food. Collectively, these factors contribute to the pathogenesis of NCDs. Traditional healthcare systems and practices like Ayurveda emphasize the importance of balancing lifestyle, environment, and individual constitution to prevent the onset of chronic illnesses. This focus on prevention is critical, as many NCDs develop over years due to accumulated risk factors, making them more challenging to reverse once established.

Ayurveda: A Holistic Framework for Prevention

Ayurveda, the ancient Indian medical science, has been practiced for over 5,000 years and is rooted in the philosophy of maintaining health and preventing diseases. The term "Ayurveda" is derived from two Sanskrit words: Ayus (life) and Veda (knowledge or science),

meaning the "science of life." It focuses on achieving harmony between the mind, body, and spirit by following individualized healthcare strategies based on a person's unique constitution (Prakriti). Ayurveda views health as a state of balance among the three biological energies, or Doshas—Vata (air and space), Pitta (fire and water), and Kapha (earth and water). Disease arises when these Doshas are imbalanced due to improper diet, lifestyle, or environmental factors.

Unlike conventional medicine, which often focuses on treating symptoms, Ayurveda emphasizes preventive measures to maintain homeostasis (Swasthya) and prevent disease onset. The core principles of Ayurveda—Dinacharya (daily routine), Ritucharya (seasonal routines), Ahara (diet), Vihara (lifestyle practices), and Rasayana (rejuvenation therapies)—offer practical guidance for preventing NCDs by addressing their root causes rather than merely treating symptoms.

Global Rise of Non-Communicable Diseases

The rise in NCD prevalence is not limited to one region but is a global phenomenon. According to WHO, more than 41 million deaths occur annually due to NCDs, with cardiovascular diseases being the leading cause, followed by cancers, respiratory diseases, and diabetes. In addition to causing premature mortality, NCDs also contribute to disability and reduced quality of life. Several underlying determinants, including economic inequalities, unhealthy lifestyle choices, and stress, have contributed to the escalating burden of NCDs.

Despite advances in modern medicine, the management of NCDs remains a challenge due to their multifactorial nature. This has led to a growing interest in integrative and complementary healthcare approaches, including Ayurveda, which emphasizes prevention, early detection, and natural therapies to maintain health.

Ayurvedic Perspective on Disease Prevention

Ayurveda categorizes diseases into two broad groups:

1. Nija Roga (endogenous diseases): Arise due to imbalances in Doshas caused by unhealthy lifestyle practices.
2. Agantu Roga (exogenous diseases): Result from external factors such as infections, trauma, or environmental influences.

From an Ayurvedic perspective, most NCDs are Nija Rogas that develop gradually due to the long-term accumulation of imbalances caused

by poor dietary habits, sedentary lifestyles, and mental stress. Preventive healthcare in Ayurveda focuses on:

Eliminating causative factors (Nidan Parivarjanam). Adopting a balanced diet and lifestyle (Ahara-Vihara).

Rejuvenation therapies (Rasayana) to improve immunity and vitality.

By addressing these aspects, Ayurveda provides a holistic and sustainable approach to preventing and managing NCDs.

Preventive Strategies in Ayurveda

The Ayurvedic approach to prevention is grounded in its principles of maintaining balance and harmony. Key strategies include:

1. Daily Regimen (Dinacharya):

Ayurveda prescribes a structured daily routine that aligns with natural circadian rhythms to enhance overall health. Practices such as early rising, physical activity (Vyayama), mindfulness, and self-care rituals like oil pulling (Gandusha) and body massage (Abhyanga) help maintain physiological balance and prevent disease.

2. Seasonal Regimen (Ritucharya):

Seasonal transitions often disrupt body balance, leading to disease susceptibility. Ayurveda recommends adapting dietary and lifestyle practices according to seasonal changes to prevent illnesses. For example, light, cooling foods are advised during summer, while nourishing and warming foods are recommended in winter to maintain Dosha balance.

3. Dietary Practices (Ahara):

Ayurveda emphasizes the role of diet in health and disease. A Satvic Ahara (wholesome, plant-based diet) tailored to individual Prakriti supports metabolic health, reduces inflammation, and prevents conditions like diabetes and hypertension. Avoiding incompatible food combinations (Viruddha Ahara) and processed foods further minimizes toxin accumulation (Ama).

4. Mental Health and Yoga:

Ayurveda recognizes the mind-body connection and highlights the role of stress in disease progression. Yoga, meditation, and Pranayama (breathing techniques) are integral to Ayurvedic practice, promoting mental clarity, reducing anxiety, and improving physical resilience.

5. Rejuvenation Therapies (Rasayana):

Rasayana therapies enhance vitality and slow the aging process by strengthening immunity and reducing oxidative stress. Herbal formulations like Chyawanprash, Amalaki, and Ashwagandha are commonly used to support long-term health.

6. Detoxification (Panchakarma):

Detoxification therapies, such as Virechana (purgation) and Basti (medicated enemas), are employed to cleanse the body of toxins and restore balance, thereby preventing chronic illnesses.

Ayurveda and Non-Communicable Diseases

Ayurveda offers tailored strategies for preventing and managing specific NCDs:

Diabetes: Use of bitter herbs like Guduchi and Neem, along with low-glycemic diets.

Hypertension: Stress management with Pranayama, calming herbs like Arjuna and Brahmi.

Cardiovascular Diseases (Hridaya Roga): Lifestyle adjustments and herbs like Guggulu for lipid management.

Obesity (Sthaulya): Detox therapies like Udwartana (herbal powder massage) and dietary modifications.

By addressing both the root causes and the symptoms, Ayurveda provides a comprehensive framework for NCD prevention.

Integration of Ayurveda with Modern Medicine

The global health community has begun recognizing the value of integrative approaches in managing NCDs. Ayurveda's emphasis on prevention and personalized care aligns with modern preventive strategies, such as risk stratification and health promotion. For example, Ayurvedic interventions like yoga and meditation complement pharmacological treatments for hypertension and diabetes by reducing stress and enhancing metabolic function.

However, for Ayurveda to be effectively integrated into mainstream healthcare, evidence-based validation through clinical trials and public health initiatives is essential. Combining Ayurvedic principles with modern diagnostic tools and therapies can create a synergistic approach to tackling the global NCD epidemic.

II. MATERIAL AND METHODS

1. Study Design:

A narrative review focusing on Ayurvedic preventive measures for NCDs based on classical

Ayurvedic texts (Charaka Samhita, Sushruta Samhita, etc.), modern research articles, and international guidelines (WHO).

2. Data Collection:

Sources include Ayurveda literature, PubMed-indexed journals, and WHO reports on NCDs.

Keywords used: "Ayurveda and NCD prevention," "Dinacharya and lifestyle diseases," "Ritucharya for metabolic disorders," etc.

3. Data Analysis:

Qualitative synthesis of Ayurvedic principles and their applicability to modern NCD prevention strategies.

PREVENTIVE MEASURES

Ayurveda emphasizes prevention as a cornerstone of health management, particularly for lifestyle-related and chronic conditions like NCDs. The holistic approach integrates dietary regulations, lifestyle modifications, detoxification therapies, and mental health practices to address the root causes of diseases. Below are detailed preventive measures outlined by Ayurveda:

1. Adopting a Balanced Diet (Ahara)

Diet plays a pivotal role in the prevention of diseases. Ayurveda categorizes food based on its quality (Satvic, Rajasic, Tamasic), taste (Rasa), and its effect on the Doshas. A balanced diet, tailored to an individual's Prakriti (constitution), promotes digestion (Agni) and prevents the accumulation of toxins (Ama), which are key contributors to NCDs. Key dietary recommendations include:

Whole Foods: Fresh, unprocessed, and nutrient-dense foods that nourish the body and enhance immunity.

Avoidance of Incompatible Foods (Viruddha Ahara): For instance, combining milk and sour fruits is discouraged as it creates Ama.

Herbal Support: Incorporating medicinal herbs and spices such as turmeric (Haridra), ginger (Adraka), and fenugreek (Methi), which are known to reduce inflammation and improve metabolic health.

For specific NCDs like diabetes and hypertension, Ayurveda advocates the use of foods with low glycemic index and minimal sodium content, respectively, along with regular detoxification to enhance metabolic processes.

2. Daily Regimen (Dinacharya)

Ayurveda prescribes a structured daily routine to establish harmony with the body's circadian rhythms. Consistency in daily activities

strengthens the body's natural defense mechanisms and prevents diseases. Essential components include:

Early Rising: Waking before sunrise aligns the body with nature's rhythms, promoting mental and physical health.

Oral Hygiene: Practices like oil pulling (Gandusha) and tongue scraping help remove toxins and prevent oral diseases, which are often linked to systemic inflammation.

Exercise (Vyayama): Regular physical activity tailored to an individual's capacity is recommended to balance Kapha Dosha and prevent obesity-related NCDs.

Self-Massage (Abhyanga): Using medicated oils nourishes the skin, enhances circulation, and reduces stress.

Such daily practices serve as preventive tools against conditions like cardiovascular diseases and musculoskeletal disorders by ensuring regular detoxification and maintaining physiological balance.

3. Seasonal Adaptations (Ritucharya)

Seasonal changes can disturb the balance of Doshas, making the body vulnerable to diseases. Ayurveda recommends adapting diet, clothing, and lifestyle to each season:

Summer (Pitta Season): Cooling foods like cucumbers and coconut water are emphasized to prevent heat-related conditions.

Winter (Kapha Season): Warming and nourishing foods such as ghee and spices like cinnamon help strengthen immunity.

Monsoon (Vata Season): Light, easily digestible foods are preferred to combat digestive irregularities caused by damp conditions.

By synchronizing habits with seasonal variations, Ayurveda helps mitigate environmental triggers that contribute to the onset of NCDs.

4. Detoxification (Panchakarma)

The accumulation of toxins (Ama) is a primary factor in the development of NCDs. Panchakarma therapies aim to eliminate toxins, cleanse the body, and restore Dosha balance. Key therapies include:

Vamana (Emesis): Purifies the upper digestive tract, reducing inflammation and metabolic irregularities.

Virechana (Purgation): Removes toxins from the liver and gastrointestinal tract, aiding in the management of obesity and lipid disorders.

Basti (Enema): Effective for managing conditions like arthritis and chronic constipation by addressing Vata imbalances.

These therapies are not only preventive but also therapeutic for conditions like metabolic syndrome, which is a precursor to diabetes and cardiovascular diseases.

5. Rejuvenation Therapy (Rasayana)

Rasayana, or rejuvenation therapy, focuses on strengthening the body's immune system and delaying the aging process. By revitalizing tissues (Dhatus), Rasayana therapies act as preventive tools against chronic diseases. Commonly used Rasayana therapies include:

Herbal Formulations: Chyawanprash, Ashwagandha, and Guduchi enhance immunity and reduce oxidative stress, which is a major contributor to NCDs.

Dietary Supplements: Superfoods like Amalaki (Indian gooseberry) and Haritaki (*Terminalia chebula*) support digestion and prevent toxin accumulation.

Rasayana therapy is especially beneficial in preventing degenerative conditions like osteoporosis and neurodegenerative disorders.

6. Stress Management

Stress is a significant risk factor for NCDs, particularly hypertension, diabetes, and cardiovascular diseases. Ayurveda places great emphasis on managing mental health through mindfulness and relaxation practices:

Yoga: Regular practice of yoga asanas helps reduce physical tension, improve flexibility, and regulate hormonal imbalances.

Pranayama (Breath Control): Techniques such as Anulom Vilom and Bhramari calm the mind and lower stress-induced cortisol levels.

Meditation: Enhances emotional well-being and helps individuals cope with the psychological aspects of chronic diseases.

These practices not only prevent stress-related conditions but also improve overall quality of life.

7. Behavioral Modification and Avoiding Addictions

Ayurveda advocates the principle of Achar Rasayana (ethical and behavioral conduct) as part of preventive healthcare. Good conduct, including mindfulness, ethical behavior, and avoiding harmful addictions like smoking and alcohol, fosters mental peace and physical

resilience. Additionally, Ayurveda advises maintaining healthy interpersonal relationships and a positive mindset to enhance immunity and reduce stress-related risks.

8. Immunity Boosting Measures

Enhancing Ojas (vital energy) is central to Ayurveda's preventive strategies. Practices that boost Ojas include:

Consumption of immune-boosting herbs like Tulsi (holy basil), Neem, and Giloy.

Proper sleep (Nidra) and rest to restore bodily functions and maintain mental health.

Strengthening digestive fire (Agni) through warm, easily digestible foods and herbal teas.

A robust immune system serves as a natural defense mechanism against the early onset of NCDs.

PROMOTIVE MEASURES

Strengthening Immunity (Ojas);

In Ayurveda, Ojas is considered the essence of vitality and the ultimate factor responsible for physical and mental immunity. A strong Ojas ensures a well-functioning immune system, which is essential for the prevention of diseases, including non-communicable diseases (NCDs). Ayurvedic approaches to strengthen Ojas emphasize rejuvenation therapies (Rasayana), balanced nutrition, and holistic lifestyle practices.

Use of Rasayana Herbs;

Ashwagandha (Withania somnifera): Known as an adaptogen, Ashwagandha enhances resilience against stress, which is a major contributor to weakened immunity and NCDs like hypertension and diabetes. It boosts energy, strengthens the nervous system, and reduces oxidative stress, making it effective in enhancing Ojas.

Amalaki (Phyllanthus emblica): Rich in vitamin C and antioxidants, Amalaki improves digestion (Agni), detoxifies the body, and rejuvenates tissues. It plays a key role in reducing inflammation and supporting cardiovascular health.

Guduchi (Tinospora cordifolia): Recognized for its immune-modulating properties, Guduchi balances Doshas and combats chronic inflammation, a critical factor in the development of lifestyle diseases.

Personalized Diet Based on Prakriti;

Ayurveda recommends tailoring the diet to an individual's constitution (Prakriti) to optimize immunity. For example:

Vata Dominant Individuals: Warm, nourishing, and moist foods such as soups and stews to prevent dryness and enhance strength.

Pitta Dominant Individuals: Cooling and calming foods like cucumbers, melons, and coconut water to prevent inflammation.

Kapha Dominant Individuals: Light, spicy, and detoxifying foods like ginger tea and bitter greens to counteract heaviness and sluggishness.

Such a personalized approach ensures that Ojas is continuously supported, reducing the risk of diseases caused by immune system dysfunction.

Mental Health Promotion;

Ayurveda recognizes the mind-body connection and the significant impact of mental health on overall well-being. Chronic stress, anxiety, and depression are major risk factors for NCDs, including hypertension, cardiovascular diseases, and diabetes. Therefore, mental health promotion is a critical preventive strategy.

Pranayama for Stress Management and Improved Oxygenation;

Pranayama (breathing exercises) is an integral part of Ayurvedic and yogic practices, aimed at controlling the breath to enhance both mental and physical health.

Anulom Vilom (Alternate Nostril Breathing): Balances the sympathetic and parasympathetic nervous systems, helping to reduce stress and improve focus. It also enhances lung function and oxygenation, which are essential for metabolic and cardiovascular health.

Bhramari (Bee Breathing): Promotes relaxation by stimulating the vagus nerve, reducing anxiety, and improving emotional well-being.

Kapalabhati (Skull-Shining Breath): Detoxifies the lungs, energizes the mind, and boosts metabolic function, helping prevent obesity and diabetes.

Regular practice of Pranayama improves oxygen delivery to tissues, reduces cortisol levels, and prevents oxidative damage, which are all critical for NCD prevention.

Meditation Techniques (Dhyana);

Meditation techniques like Dhyana (mindfulness meditation) are effective in calming the mind, improving emotional regulation, and reducing anxiety. They promote a state of inner

peace and mental clarity, which supports both emotional and physical health.

Benefits:

Reduces stress-induced inflammation, which is a contributing factor in NCDs like arthritis and heart disease.

Enhances focus and productivity, reducing the mental fatigue that can lead to unhealthy lifestyle choices.

Practice: Regular meditation sessions of 10–20 minutes a day can significantly reduce symptoms of anxiety and improve overall well-being.

Dietary Interventions (Ahara);

Ayurveda places immense emphasis on food (Ahara) as a foundation for health and a primary means of disease prevention. Dietary interventions are tailored to support digestion (Agni), balance Doshas, and minimize the accumulation of toxins (Ama), which are considered precursors to chronic diseases.

Balanced, Plant-Based Diet;

A plant-based diet, rich in fresh, seasonal, and locally sourced foods, is central to Ayurvedic dietary recommendations. Such a diet ensures the body receives adequate nutrients while reducing inflammation and oxidative stress.

Fresh Foods: Unprocessed and whole foods such as fruits, vegetables, whole grains, and legumes support metabolic health and reduce the risk of obesity and diabetes.

Seasonal Foods: Consuming foods that are in season enhances their nutrient availability and aligns with the body's natural needs. For example, cooling foods like watermelon are ideal in summer, while warming foods like ginger are suited for winter.

Avoidance of Incompatible Foods (Viruddha Ahara)

Ayurveda warns against certain food combinations that can disturb digestion and produce Ama.

Examples:

Milk and fish, which create digestive disturbances.

Sour fruits with dairy, leading to the formation of toxins in the body.

Avoiding Viruddha Ahara reduces the risk of gastrointestinal disorders and systemic

inflammation, thereby preventing chronic conditions.

Promoting Physical Activity and Yoga

Physical inactivity is a leading risk factor for NCDs, including obesity, diabetes, and cardiovascular diseases. Ayurveda advocates incorporating physical activity, particularly yoga, as a preventive measure to maintain health and vitality.

Incorporating Yoga Asanas

Yoga not only enhances physical strength and flexibility but also promotes mental balance and stress management. Specific asanas are particularly beneficial for metabolic and cardiovascular health:

Tadasana (Mountain Pose): Improves posture and stimulates the digestive and respiratory systems.

Trikonasana (Triangle Pose): Enhances blood circulation and strengthens muscles, reducing the risk of obesity and hypertension

Bhujangasana (Cobra Pose): Improves spinal flexibility, stimulates digestion, and promotes cardiovascular health.

Surya Namaskar (Sun Salutation)

Surya Namaskar is a dynamic sequence of 12 poses performed in a flowing motion, making it an excellent form of aerobic exercise.

Benefits:

Enhances cardiovascular function and promotes weight management, reducing the risk of obesity-related diseases.

Improves joint flexibility, strengthens muscles, and enhances overall stamina.

Balances hormonal functions, helping to regulate conditions like polycystic ovary syndrome (PCOS).

Practice: Performing 5–10 rounds daily can significantly improve physical fitness and metabolic health.

III. DISCUSSION

1. Ayurvedic Relevance in Modern Context:

Ayurveda's preventive measures align with global goals of reducing NCDs through lifestyle interventions and dietary habits.

Ayurveda focuses on root cause management and sustainability, reducing dependency on pharmacological interventions.

2. Integration with Modern Medicine:

Ayurveda complements modern diagnostics with personalized care. For example: Ritucharya addresses seasonal disorders that exacerbate NCDs.

Vyayama aligns with WHO recommendations for physical activity in disease prevention.

3. Scientific Validation:

Studies demonstrate efficacy of herbs like Triphala in weight management and Guduchi in diabetes prevention.

Yoga and Pranayama have proven benefits in hypertension and mental health.

4. Challenges:

Lack of awareness and accessibility to authentic Ayurvedic practices globally.

Need for large-scale clinical trials to validate traditional therapies.

IV. CONCLUSION

Ayurveda provides a robust preventive and promotive healthcare framework for NCDs.

Holistic approaches like Dinacharya, Ritucharya, and herbal interventions address the root causes of diseases.

Integration with modern healthcare systems can enhance global efforts to combat NCDs.

Future research should focus on evidence-based validation of Ayurvedic practices for global applicability.

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