



## AYURVEDIC LIFESTYLE RECOMMENDATIONS FOR LIVING IN HIGH POLLUTION AREAS - A REVIEW

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## ABSTRACT

Air pollution refers to the presence of harmful or excessive quantities of substances in the air that can be detrimental to human health, the environment, and the climate. These substances, often called pollutants, can originate from natural and human-made sources. Air pollution is a significant risk to public health, particularly in municipal and industrialised regions. This article explores Ayurvedic lifestyle recommendations to diminish the adverse effects of air pollution on health. Ayurved is an ancient system of natural healing. It can offer a holistic approach to strengthening the body's defence system and promoting overall well-being in polluted environments. Key recommendations include dietary modifications, herbal *Rasayanas*, breathing exercises, and daily routines that enhance the body's natural detoxification processes. By integrating Ayurvedic practices with modern preventive measures, individuals can better protect themselves from the harmful impacts of air pollution and improve their quality of life.

**Keywords:** Air pollution, Common air pollutants, health impacts, Ayurved, lifestyle recommendations, public health, Exercise.

## INTRODUCTION

Air pollution means the presence of harmful or excessive quantities of substances in the air that can harm living beings' health, the environment and the climate. These substances, often called pollutants, can originate from natural and human-made sources. Critical components of air pollution include Particulate matter (PM) which are tiny particles of 10 & 2.5 micrometer or more minor. Fine and ultrafine particulate matter seems to be associated with more severe illnesses (1), which is why they penetrate the cells of the living body after inhalation in the respiratory system and blood streams, which causes many health issues like respiratory, cardiovascular, central nervous diseases, etc. Like this, so many types of pollutants are present on earth which causes air pollution. We are going through their health and environmental impacts in detail. The progress of air pollution is increasing due to more population and urbanization, which we can't stop or avoid. In developing countries, women of household carry the highest risk of disease development due to indoor air pollution (2). There is spatial heterogeneity in India, as areas with diverse environmental conditions and population and education levels generate different indoor air qualities, with higher PM<sub>2.5</sub> observed in North Indian states (557–601 µg/m<sup>3</sup>) compared to the Southern States (183–214 µg/m<sup>3</sup>) (3, 4). So, there is a need to prevent serious health hazards and create awareness of the different aspects of air pollution.

### AIM AND OBJECTIVES

- 1) To study the concept of the Ayurvedic lifestyle.
- 2) To study ayurvedic lifestyle for living in high pollution areas

### MATERIAL-METHODS

- 1) For this study, we referred to various *Samhitas*.
- 2) Related modern textbooks also referred to modern references

### REVIEW OF LITERATURE

In many medical sciences, many preventive measures are explained along with treating diseases caused by pollutants. Ayurveda and Yoga science are the safest lifestyle methods aimed at preventing and curing dis-

eases. *Swasthasya Swasthya Rakshana Aturasya Vikara Prashaman ch. Ch. Su. 30/12*

Ayurved is an ancient science in India. *Ayurved* is derived from *Ayu* and *Veda*, which means science of life. It maintains the healthy individual healthy. Though *swasthvritta* is not mentioned branch of *Ashthang* of ayurved, it plays an important role in maintenance of *Aarogya*. (5). Ayurveda is the science of life; hence, as per our Acharya of Ayurveda, maintaining health is more important than cure of disease.

*Samdosha ch Samagnis Samdhatu Malakriya.*

*Prasnatmendriya Mana Swasthya Ityabhidiyate.*

*Su. Su.15/41*

According to Ayurveda, a healthy person is defined as a person whose *dosha*, *agni*, *dhatu*, and *mala* are in a normal state and *mana* and *indriyas* are also in a normal state. All these conditions are similar to WHO Health's definition, i.e. Health is a state of complete physical, mental, spiritual & social well-being and not merely in the absence of disease or infirmity. (6) That's why we will get the knowledge of various lifestyles to prevent as well as therapies/treatments to treat the diseases caused by air pollution. We will learn all these parts one by one.

According to Ayurveda, a healthy person is referred to as a *Swastha Purusha* because they have all three *Doshas* (*Vata*, *Pitta*, *Kapha*, *Agni* (digestive system), *Dhatus*, *Mala* (excretory products), and *Kriyas* are normal; additionally, their *Atma* (soul), *Indriya* (all sense organs), and *Mana* (mind) are calm. To put it another way, the notion of *Swastha* denotes the balance condition for all *Dosha*, *Agni*, *Dhatu*, and *Mala*. The term "*Swasthya*" refers to a healthy individual free from pathology, disease, or any other illness.

Air pollutants (7)

**a.**Particulate Matter (PM): PM<sub>10</sub> and PM<sub>2.5</sub>: Tiny particles or droplets in the air that are 10 micrometres (PM<sub>10</sub>) or 2.5 micrometres (PM<sub>2.5</sub>), or smaller (8). These particles can penetrate the respiratory system and cause health issues.

**b.**Nitrogen Oxides (NO<sub>x</sub>): Gases such as nitrogen dioxide (NO<sub>2</sub>) and nitric oxide (NO) produced by

burning fossil fuels. They contribute to the formation of smog and acid rain. (9)

**c. Sulfur Dioxide (SO<sub>2</sub>):** A gas produced by volcanic eruptions and industrial processes, notably the burning of coal and oil at power plants and for domestic heating. (10)

**d. Carbon Monoxide (CO):** A colourless, odourless gas produced by incomplete combustion of fossil fuels. It can interfere with the oxygen-carrying capacity of blood. (11)

**e. Volatile Organic Compounds (VOCs):** A group of organic chemicals evaporating easily at room temperature. They are emitted from products like paints, varnishes, and vehicle exhausts and contribute to ozone formation. Volatile organic compounds (VOCs), such as toluene, benzene, ethylbenzene, and xylene (90), are associated with cancer in humans (12)

**f. Ozone (O<sub>3</sub>):** A gas that forms in the atmosphere when sunlight reacts with pollutants like VOCs and NO<sub>x</sub>. Ground-level ozone is a critical component of smog and can cause respiratory problems. (13)

**Sources of Pollutants:** (14)

a. Natural Sources: Volcanic eruptions, forest fires, dust storms, and biological decay processes can all release pollutants into the air.

b. Anthropogenic (Human-Made) Sources

1. Industrial Activities: Factories, power plants, and refineries.

2. Transportation: Cars, trucks, aeroplanes, and ships.

3. Agriculture: Livestock emissions, pesticide sprays, and fertiliser use.

4. Domestic Activities: Heating, cooking, and use of household products.

**Health & Environmental impacts of pollutants:** (14)

a) Damage to crops and forests.

b) Acid rain affects soil and water bodies.

c) Harm to wildlife and aquatic ecosystems.

d) Climate change is due to greenhouse gases like CO<sub>2</sub> and methane (CH<sub>4</sub>).

e) Respiratory diseases (asthma, bronchitis, emphysema).

f) Cardiovascular diseases.

g) Cancer.

h) Premature death.

i) Adverse effects on vulnerable populations such as children, the elderly, and those with preexisting health conditions.

Certain chemicals used in agriculture and industry have the potential to penetrate the food chain and build up within our bodies. Research on biomonitoring continues to provide insight into these substances and their effects on health. Events linked to climate change or environmental pollutants can significantly affect human health. Health problems like asthma, hearing loss, dehydration, and heart disorders are closely related to air and noise pollution, heavy metals like mercury, and other environmental contaminants. While everyone is impacted by heatwaves and floods, vulnerable populations such as older people, young children, sick people, and those living in floodplains bear the brunt of these natural disasters.

**Ayurvedic lifestyle and its effects on health in preventing diseases caused by air pollution:** (15,16,17,18)

Due to air pollution, the Respiratory system gets affected first, so here in this article, we are going to see the lifestyles mentioned in Ayurved which can make the respiratory system strong and healthy lifestyles are as follows -

**Daily Routine (Dinacharya) –**

**a. Waking Up Early:** Wake up before sunrise, which is believed to be a time of purity and calm. This time gives fresh, non-polluted air or less polluted air and high concentrated Oxygen level in air. So, waking up early in the morning and doing the practice of yogic breathing gives more pure and concentrated oxygen intake in the body, which helps to maintain the health of body cells and especially the lung cell membrane. So, starting the daily routine by waking up early in the morning can build a healthy body to prevent contamination of air pollutants.

**b. Oral Hygiene:**

a. Brush teeth with herbal toothpaste or powders have properties of cleansing as well as strengthening the gum cells.

b. Performing tongue scraping to remove toxins from the tongue, i.e., the whitish layer formed due to undigested food material (*Aama*), can help the tongue regain its normal physiology.

c. Oil or Decoction gargling with sesame oil or *triphala kashay* improves the health of the whole oral cavity. Hence, the initial organ of the digestive system becomes strong and helps in maintaining the healthy condition of cells.

**c. Hydration with stimulation to elimination:**

Drinking a glass of warm water helps in stimulating intestinal cells for their normal activity. Without its movement, it can cause or help in eliminating the bowel efficiently in the morning.

**d. Nasal cleansing and strengthening:** Nasal irrigation with lukewarm water (Jal Neti) or thread (Sutra Neti). This procedure clears the pathway of each nostril and sinuses. After that, medicated oil, such as *Shadbindu tail*, *Panchendriya tail*, etc., helps strengthen the nasal cells along with all other activities.

**e. Abhyanga** (self-massage with warm oil) and taking a bath with warm water helps nourish the skin and helps blood circulation properly all over the body. Due to this, the body and mind get fresh.

**f. Exercise (Yoga):** The practice of brisk body warm-up movements told in yogic practice helps the body to become warm and can cause easy blood circulation to every cell of the body. After that, some *yogasanas* related to the Neck, Chest, Face, Abdomen, back and both limbs help in improving the strength of respiratory organs muscle. These muscles help in air entry and exist in the lungs. Yoga asanas (postures) enhance physical and mental flexibility.

**g. Pranayam (Breathing exercises)** – Practice of *Pranayama* (breathing exercises) like Inhaling and Exhaling exercises known as *Nadishuddhi pranayam*, *Kapala Bhati*, *Bhramari*, *Anuloma Viloma*, *Bhasrika* etc helps in exhaling maximum CO<sub>2</sub> from body cells and intake of more O<sub>2</sub> in the respiratory system which allows the lung cells to become healthy as well as heart muscle cells also becomes strong with these breathing practices. This helps to increase vitality and calm the mind.

**h. Meditation:** According to yogic practice, meditation is a process of controlling the body and mind to achieve a balanced state, i.e., a physical and mental health state, which fulfills the ayurvedic principle of Health.

**i. Diet and Nutrition (Ahara)-** The Ayurvedic lifestyle states the balanced diet to maintain the three basic elements of the human body: *Vata*, *Pitta* and *Kapha*. There are three basic fundamental factors of body as per ayurveda are called as *Tridoshas*, they maintain the physical health at their balanced state. If these three factors get imbalanced then they vitiate the dhatus (tissues of body) and forms, the diseases. In diseased condition all the systems of body can get involved if not treated early and by that all major systems i.e Respiratory, cardiovascular, Nervous system also gets involved and overall immunity get diminish. So, the balanced nutrition according to ayurveda helps in maintaining the good immunity of human body. **Balanced Diet:** Follow a diet that is suitable for your dosha are fresh, seasonal, and organic foods. **Meal Timing:** Eat meals at regular intervals, with the largest meal at midday when digestion is strongest. Avoid eating late at night or just before bedtime. **Mindful Eating:** Eat in a calm and relaxed environment. Chew food thoroughly and savor each bite. **Digestive Aids:** Use spices and herbs like ginger, cumin and turmeric for proper digestion.

**Seasonal Routine (Ritucharya)**

1. Adapting to Seasons: Change lifestyle and dietary habits according to the season to maintain balance. Ayurved states that improper seasonal routine causes aggravation or imbalanced doshas causes diseased state of body which further reduces the immunity.

2. Seasonal Foods: Consume foods that are appropriate for the season e.g. cool foods in summer and warm foods in winter. Rest and Sleep (Nidra) are more important to keep healthy mental and physical state.

3. Sleep Routine: Go to bed and wake up at the same time every day. Ensure a restful sleep environment, free of electronic distractions.

4. Adequate Sleep: Get 7-8 hours of sleep each night to rejuvenate the body and mind.

During the rainy season, *Vata Prakopa* should be prioritized, *Pitta Prakopa* in summer and *Kapha Prakopa* in spring. Ayurveda advises everyone to alter their diet and workout routine during this time as per their *Prakruti*. The primary goal of Ayurveda is to maintain health through preventive measures, which can be achieved by altering diet and lifestyle choices in accordance with changing seasonal conditions. If we do not adapt *Aahar* and *Vihara* according to the seasons, which is *Rutu*, it could lead to *Dosha Vaishamya*, which causes various ailments to arise.

### **Ayurvedic Treatments and Therapies**

1. Herbal Remedies: Using of Ayurvedic herbs and formulations to bring the doshas to normal state prevents or cures the diseased condition. From ayurvedic literature and experienced formulations some herbs are stated here to use in daily routine to maintain the *tridoshas* and *dhatu*s in normal state to increase the immunity of specific systems that herbs are called as *Rasayan dravyas* e.g. *Brahmi, Mandukaparni, Shankhapushpi, Bhringaraj* for central nervous system ; *Pippali, Amalaki, Guduchi, Bhallatak, Ashwagandha, Nirgundi, Ankot,* for respiratory system; *Haritaki* (*Terminalia chebula*), *Arjun, Jeevak, Bala, Shaliparni, Gorakhamundi, Vidang, Punarnava, Prishnaparni, Kumari, Rason, Sharapunkha, Bakuchi, Beejak* etc for overall immunity of cardiovascular, blood system, musculoskeletal system. So as per ayurvedic physician suggestions the people from highly polluted areas can take the appropriate herb or their formulations in their daily routine.

2. *Panchakarma*: *Panchakarma* is a therapeutic procedure system which is used to clean the channels of various systems in a diseased condition or also followed for maintaining health state or immunity to prevent the diseases of major systems.

a) *Vaman*- Process is followed for eliminating the disease conditions occurred due to aggravation of *Kapha dosha* i.e. maximum Respiratory and Skin diseases, in the form of vomiting process. Also, this procedure is followed to maintain *Kapha dosha* in normal state in *Vasant Ritu* (spring season) as preventive measure for all.

b) *Virechan*- This process is used for balancing *Pitta dosha* and eliminating the diseased state of *pitta dosha* through purgation process. In *sharad ritu* (end of monsoon season) this procedure is followed for all to maintain the *Pitta dosha* at balanced state for all.

c) *Basti*- This process is followed to eliminate the imbalanced *Vata dosha* through enema process. This also helps to maintain the *vata dosha* at a balanced state. In *Varsha Ritu* (monsoon Season) this process is followed for maintaining the *Vata dosha* at normal state.

d) *Shirovirechan- Shirobasti* and *Nasya* (Holding oil on Head and Nasal Medication) are the procedures done to maintain the healthy state of Central Nervous system along with nose area.

e) *Raktamokshan*- Bloodletting is the purification process to maintain healthy blood system and advised in blood or skin related diseases.

### **DISCUSSION**

Air pollution is the presence of harmful substances in the air, originating from both natural and human-made sources. Key components include Particulate matter, which can cause serious illnesses. The progress of air pollution is increasing due to population and urbanization, with women in developing countries at higher risk. Due to Air pollution can have a detrimental effect on the respiratory system, it is necessary to have a lifestyle that supports respiratory health. Ayurvedic lifestyles emphasize regular practices like eating a healthy breakfast, brushing your teeth, and doing yoga poses to keep your body in good condition. The digestive tract and oral cavity can be strengthened by practicing good oral hygiene, such as gargling with sesame oil, scraping the tongue, and brushing teeth with herbal toothpaste. The respiratory system can also be strengthened by abhyanga, nasal cleaning, and hydration along with stimulation to excretion. *Pranayama* is one of the yoga poses that can assist strengthen the respiratory organs and boost energy. Another key component of Ayurvedic health is meditation, which promotes balanced mental and physical regulation.

## CONCLUSION

By integrating Ayurvedic lifestyle practices into modern preventive measures, every individual can achieve balance and harmony in their physical, mental, and spiritual well-being. All above lifestyles can help the people from the area of air pollution to manage their respiratory, cardiovascular and other major system's health status at balanced form.

## SUMMARY

Pollution, a significant public health risk, is exacerbated by pollutants from both natural and human-made sources. Ayurvedic lifestyle recommendations, based on ancient healing practices, can help mitigate its effects. These include dietary changes, herbal *Rasayanas*, breathing exercises, and daily routines to strengthen the body's defence system and promote overall well-being. Pollution, a significant public health risk, is exacerbated by pollutants from both natural and human-made sources. Ayurvedic lifestyle recommendations, based on ancient healing practices, can help mitigate its effects. These include dietary changes, herbal *Rasayanas*, breathing exercises, and daily routines to strengthen the body's defence system and promote overall well-being.

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