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HEALTH

Air Pollution Causes, Effects, Prevention & Control to Stay Healthy

by ANUPAMA SINGH - 25/07/2017

Air pollution is the biggest concern most of us are facing in cities world over today. Our children are most susceptible to it.

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But we do have control of our homes. So we need to know what to do about cleaning up the air in the surroundings that we can control.

UNICEF's Executive Director Anthony Lake explains.

> *"Air pollution is a major contributing factor in the deaths of around 600,000 children under five every year – and it threatens the lives and futures of millions more every day. Pollutants don't only harm children's developing lungs – they can actually cross the blood-brain barrier and permanently damage their developing brains – and, thus, their futures. No society can afford to ignore air pollution."*

Our cities have witnessed a significant increase in air pollution forcing us to spend a considerable amount of time Indoors.

> *Our consumption of air is 14kg; that is seven times of food per day (2kg). Yikes!*

Needless to say, clean and pure air is the basic requirement of life.

While most of us can't do much about outdoor air quality,we can certainly control air pollution indoors and take care of our families well-being.

Unfortunately, Indoor air quality is worse than the outdoor air quality. So what are the ways for prevention of air pollution naturally at home.

Air Pollution in Delhi

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Just around Diwali festivals, governments agencies requests all the Delhi-ites or Mumbai-ites or Pune-ites to stop bursting crackers.
The only question on everyone's mind is, how to prevent Air Pollution & Stay Healthy.

Air Pollution Effects: Why should we worry about it

As per WHO (World Health Organisation), Air Pollution is the world's biggest environmental risk.

- According to the 2014 WHO report, air pollution in 2012 caused the deaths of around 7 million people worldwide.
- Air pollution causes more than one-third of strokes, lifestyle diseases in India
- Air pollution kills 600,000 children yearly
- Increased exposure to air pollution may cause damage and inflammation to blood vessels among young and healthy adults and thus raise the risk of cardiovascular disease and other related deaths

Air pollution is primarily the introduction of particulate matter, biological molecules, or other harmful substances into Earth's atmosphere.

Air Pollution causes several diseases, allergies, deaths, damage to other living organisms such as animals and food crops.

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India is known to have one of the most polluted air quality in the world. Our capital New Delhi is also known as its Asthma Capital. India also boasts of having half of the top 20 most polluted cities in the world.

Air Quality Index: Measure of Air Pollution or Air Quality levels

To measure and indicate how healthy is the air quality or if the Air Pollution levels are in control, the world over government agencies use Air Quality Index (AQI). AQI is a number that communicates a common man, how polluted the air currently is or how polluted it is forecasted to become.

Indian Air Quality Index

The increase in AQI results in a widespread increase in adverse health effects. India uses a comprehensive formula to measure the air quality with eight parameters under National Air Monitoring Program (NAMP) covering 240 cities with more than 342 monitoring stations.

Indian Air Quality Index has six AQI categories:

- Good
- Satisfactory
- Moderately polluted
- Poor

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Indian Air Quality Index considers eight pollutants

- PM10 (Particulate Matter 10)
- PM2.5 (Particulate Matter 2.5)
- NO2 (Nitrogen Di Oxide)
- SO2 (Sulpher Di Oxide)
- CO (Carbon Mono Oxide)
- O3 (Ozone)
- NH3 (Amonia)
- Pb (Lead)

AQI Category, Pollutants and Health Breakpoints

AQI Category (Range)	PM_{10} (24hr)	$PM_{2.5}$ (24hr)	NO_2 (24hr)	O_3 (8hr)	CO (8hr)	SO_2 (24hr)	NH_3 (24hr)	Pb (24h
Good (0-	0-50	0-30	0-40	0-50	0-	0-40	0-200	0-0.

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Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1-10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430+	250+	400+	748+	34+	1600+	1800+	3.5+

Under this Index Government agencies have also indicated the likely health impacts from the identified eight pollutants as below:

AQI	Associated Health Impacts
Good (0-50)	Minimal impact
Satisfactory (51-100)	May cause minor breathing discomfort to sensitive people.

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Poor (201-300)	May cause breathing discomfort to people on prolonged exposure, and pain to people with heart disease.
Very poor (301-400)	May cause respiratory illness to the people on long exposure. The effect may be more pronounced in people with lung and heart diseases.
Severe (401-500)	May cause respiratory impact even on healthy people, and severe health effects on people with lung/heart disease. The health effects may be experienced even during light physical activity.

Causes of Air Pollution or Air Pollution Index (Air Quality Index)

First of all, you need to understand the causes of increase in Air Quality Index:

- Air Quality Index can increase due to an increase in emission of pollutants
- During peak traffic
- Forest fire
- Fire in the farms to burn the leftovers
- Fire in the dump yards
- Construction activity
- Air Quality Index can also increase due to change in weather
- Lack of dilution of air pollutants

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- Chemical reactions between air contaminants
- Hazy conditions

So what should you do when AQI is in danger Zone

Well there is hardly much you can do to the ambient, or outdoor air quality is you are facing a situation, however below is what you must certainly do:

1 Stay Indoors

Ensure that person in the sensitive age groups such as elderly, children, and those with respiratory or cardiovascular problems to avoid outdoor activities. Please advise them to stay indoors.

2 Helps to reduce Air Pollution

Use public transportation on days when there are dangerous levels of air pollutions. Your ownership of this matter will go a long way to providing a pollution free atmosphere to our loved ones.

3 Use masks

You can use masks to ward off particulate matter entering your lungs.

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4 Grow Your Own Fresh Air Indoors with Houseplants

Many of we have used houseplants for their decorative purposes, but do you know some of them have been cleaning the air inside your home and have been keeping you healthy. In several studies benefits of houseplants for human beings have been found:

- As per a report published in 2009 by the American Society of Horticultural Science in The Science Daily houseplants have been found effective in reducing indoor ozone (the main component of air pollution) concentrations.
- Houseplants regulate indoor humidity levels and eliminate asthma triggers like allergens by providing a clean and pure supply of oxygen, vital for every organ of your body.
- As per NASA study of 1980's, houseplants purify air and are great at keeping respiratory conditions in check.

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- I keep my doors closed.
- My house is away from major roads.

Why would there be air pollution indoors? However, do you know that

> *Over 300 of air-borne contaminants such volatile organic compounds (VOCs) have been identified in the indoor air.*

Well, let me come straight to the point, the primary issue our homes are facing today is that indoor air quality is poor due to existence of volatile organic compounds (VOC's) released from the paint, furniture, plastic goods we use at home.

> *Urban-dwellers spend 80-90% of their time indoors, therefore quality of the indoor environment has become a major health consideration.*

Indoor Air Pollution effects on Children

It is not that only that the outdoor air is polluted, in fact, indoor air pollution is also a major source of toxins. Our kids take 26000 breaths each day (more than adults) and are much more susceptible to harmful effects of airborne pollution because:

> *Our children take 26000 breaths each day (more than adults) and are much more susceptible to harmful effects of indoor airborne pollution.*

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- Children breathe more through mouth
- Children breathe at lower level owing to less height
- Air pollution to kids can lead to acute Poisoning, respiratory diseases, allergies, cancer, developmental disturbances, etc.
- Diseases pass around quickly in classrooms

Our buildings, furniture and other things emit hazardous substances & pollutants and may lead to a broad range of health problems and may even be fatal.

> *The indoor air quality could be much worse than outdoors. Several studies claim that Indoor air pollution could be five times worse than the outdoor.*

Most of us spend more time inside our homes, offices or, schools rather than outdoors. Therefore the quality of air has a significant impact on life and people's well-being.

Causes of Air Pollution Indoors

Most of us think that the primary causes of air pollution indoors are the external pollution in cities. That is why most of us keep doors closed with air-conditioners running through the day.

Nobody will debate that the air pollution of any kind will cause severe damage to our health. However, you can not do much about outdoor air quality, but you have

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> *Are you aware that there are several chemicals are present in your household air.*

Most of us are simply not aware of that.

> *Indoor air pollution is making us sick and we are not taking any action on this.*

You must be thinking that I am joking here.

> *That is why in my opinion primary causes of air pollution indoors is the lack of awareness.*

So stop blaming the ambient or outdoor air quality for your deteriorating health. Now, this is the time to start paying attention to what is happening in our house or office.

Indoor air quality is poor or polluted due to several reasons listed below:

1 Excessive usage of Air Freshener and Candles

Have you ever noticed someone having an asthma attack when you use air fresheners or candles? Just imagine if someone could be asthmatic to air freshener, how it could be healthy for you.

Yes, I agree that you do not have any issue with it today, however, why to wait for a problem to emerge. Many people don't realise that these products cause indoor air pollution.

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Most of the people don't realise that these products are anything but chemicals and pollute indoor air. These scented products emit tiny particles of chemicals into the air, which enter our body when we breathe.

2 Fungus pollutes indoor air & makes you ill

As per WHO (World Health Organization), indoor air quality is severely affected by structural dampness in building and fungus growth inside a building. It further states that fungus generated air pollution can cause early onset of asthma and can bring on flu, pneumonia, sinusitis and other upper airway health problems.[(6)]

Fungus spores are omnipresent and are a decaying catalyzer. When it settles on organic material, it starts decomposing or eating it. Similarly, when fungus ends on us, it wants to eat us. In a typical situation, our Immune system can defend us, however, in a damp building, there will be an excess of fungus, and in such cases, our immune system can not handle this, and the fungus spores cause inflammation in our bodies.

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3. Inadequate ventilation

As most of the homes, offices and schools are getting air-cooled, to save energy they are recirculating indoor cold air. This leads to lack of fresh air from outside.

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products[6]

- Building materials and furnishings[6]
- Asbestos-containing insulation
- Wet or damp carpet
- Furniture made of certain pressed wood products
- Cleaning and maintenance products
- Usage of pesticides in housekeeping.

4. Increasing usage of Plastics causes Air Pollution Indoor

Most of us will instantly recall the exhausts of cars on the highways. And some better-versed people out there might go as far as thinking about industrial pollution.

But the kind of pollution that I am referring to is much closer to you and your family. We are talking about the pollutants that dirty your food and air in your house!! Plastics & household cleaners!

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Plastic one of the biggest causes of air pollution

Plastics are polymers that have the capability of being moulded or shaped, usually by the application of heat and pressure.

This property of plasticity allows plastics to be made into a great variety of products. These include beverage bottles made of polyethylene terephthalate (PET), flexible garden hoses made of polyvinyl chloride (PVC), insulating food containers made of foamed polystyrene, and shatterproof windows made of polymethyl methacrylate and much more.

Who are we kidding? Plastic is a way of life now.

But What Is The Price We Are Paying For The Convenience Of Using Plastics?

So how exactly does plastic pollute our food, air and bodies?

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The most common culprits in plastic compounds are Bisphenol-A (BPA), PCB's, phthalates and agricultural pesticides.
According to the reports, animal studies have demonstrated that there's "very strong evidence" that

> *BPA can interfere with thyroid hormones. Brain damage, decreased intelligence, attention deficit hyperactivity disorder and autism were also found to be potential side effects.*

BPA is one of the world's highest production-volume chemicals and is widely used in the production of:

- Plastic water bottles
- Tooth sealants
- Plastic gallon milk bottles
- Canned foods and soda cans (most have plastic lining in the cans)
- Plastic microwavable plates, ovenware, and utensils
- Baby toys, bottles, pacifiers, and sippy cups

This information led to consumer groups asking manufacturers to remove BPA.

Most leading brands complied. However, As it has been now found out many manufacturers have simply replaced BPA with bisphenol-S (BPS), an equally toxic chemical.

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A 2012 study found 81 percent of people tested from the United States and seven Asian countries had BPS in their urine!

An even more recent study has raised the alarm on BPS, showing the chemical estrogenic activity comparable to estradiol, the most potent human estrogen, making it a potent endocrine disruptor. The study has also shown that BPS can interfere with metabolism, reproduction and lactation.

Indoor Air Quality Monitoring: Applying Air Quality Index

Poor Indoor air quality is one of the top five health concern faced by us globally. Therefore indoor air quality monitoring is becoming an essential requirement for not only offices and schools but also homes.
Indoor air quality monitor is an easily available and a small size tool that could be handy to improve the air quality inside. Air quality index is the parameter which is used to measure the quality of air.
Indoor air quality monitors measure biological substances, gases, vapours and particles that can cause adverse reactions.
A good Indoor air quality monitoring system measures the following:

1. Pollutants or Contaminants: RSPM and VOCs; CO; SOx; NOx, O3; Formaldehyde; Microbial agents
2. Ventilation parameters: CO2; Air flow rate
3. Comfort parameters: Temperature and humidity

How to prevent Air Pollution Naturally

It is quite easy to remove indoor air pollution. There are several inexpensive and natural ways to get rid of pollutants. Here are some of the best tips to fights off indoor air pollutions naturally:

1 Avoid use of Air Freshener & instead use Essential Oils

Air fresheners are cheap and easily available. However, they can wreck havoc on your health. Therefore you must stop its use altogether. However, for any reason, if you want to freshen up your house with a fragrant smell, use 100% Organic & Natural Essential Oils. Essential oils are also known for their therapeutic benefits.

2 Use bathroom and kitchen fans

Install exhaust fans in your kitchen and bathrooms. Exhaust fans can help you reduce moisture, remove chemicals from fabric softeners & bathroom cleaners and keep your indoors flush with fresh air.

3 Open Doors & Windows Regularly

Open doors and windows regularly. With this simple task, you can dilute indoor air pollution.

4 Dust off furniture curtains usually

Use a moist cloth to remove dust from furniture and use a vacuum to remove dust from curtains, sofas, etc. on a regular basis. Dust may contain allergens, heavy metals and chemicals.

5 Use chimney to filter cooking fumes

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6 Avoid smoking Indoors

When you smoke indoors, it stays within. Therefore your exposure to the toxic gases in for a longer duration. Therefore you must avoid smoking indoors.

7. Eliminate Plastic – Decrease Your Household Pollution

To safeguard from plastic pollution in household find alternatives to plastic products whenever possible.

- Buy food in glass or metal containers;
- Avoid polycarbonate drinking bottles with Bisphenol A
- Avoid heating/ microwaving food in plastic containers, infact do not use microwave for cooking or heating at all. I intend to do a post on the hazards of using a microwave soon.
- Do not use storing fatty foods in plastic containers or plastic wrap.
- Do not give small children plastic teethers or toys
- Use natural fiber clothing, bedding and furniture
- Replace all PVC and Styrene products
- Replace all plastic containers with stainless steel or glass containers

8. Change bed linen regularly

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9. Use Houseplants: Grow your Fresh air Indoors with air-purifying plants

Modern houses use houseplants for decoration. The presence of green houseplants indoors leads to the relaxing and peaceful atmosphere as if you are in a garden. You must be thinking yes, they do, but you are already doing it. So why are we talking about it here?
However, do you know that houseplants improve the air quality inside the house giving a real boost to your overall health?

> *Houseplants can help you purify indoor air. They absorb particulates in the air and then process it into oxygen via photosynthesis.*

Plants like chrysanthemum (Garden mum), spider plant, weeping fig and peace lily are some of the indoor plants you can consider keeping at your home. (7)

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NASA Clean Air Study

As per the NASA Clean Air Study[1] elements such as benzene, Carbon Mono Oxide, formaldehyde and trichloroethylene naturally from the air. These plants help by neutralising the effects of sick building syndrome.
This study by NASA was looking at ways to clean air in the space stations.
On the basis of this study, NASA researchers suggested that:

> *For efficient air cleaning of home or offices one should have atleast one plant per 100 square feet.*

In some recent research[2] it has been found that microorganisms in the potting mix (soil) of a potted plant remove benzene from the air and that some plant species also contribute to removing benzene.(2)
Well, below are some of the amazing properties of some of the houseplants:

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care.

- Aloe: Aloe helps remove VOC's such as formaldehyde and benzene.
- Areca Palm: Areca Palm helps remove airborne toxins.
- Spider Plant: Spider Plant helps remove VOC's, carbon monoxide, and xylene.
- Rubber Plant: Rubber plant helps remove formaldehyde.
- Golden Pothos: Golden Pothos helps remove formaldehyde.
- Janet Craig: Janet craig helps remove trichloroethylene.
- Chrysanthemum: Chrysanthemum helps remove benzene which is found in glue, paint, plastic, or detergent at home.
- Ficus Alii: Ficus Alii resists pests and purify air at home.
- Peace Lily: Peace Lily helps remove alcohol, acetone, trichloroethylene, benzene, and formaldehyde.

10 Use Air Purifiers

During the last decade Air purifiers have entered several households and offices as awareness about need for prevention of air pollution has gone up significantly. Air purifiers removes contaminants from the air in a room. are are useful for people with allergy and asthma. In public spaces such as offices, hotels these devices are also used to reduce or remove tobacco smoke.

Air purifiers have the ability to remove mold spores, pollen, dust, dust mites (air pollutants as small as 0.3 microns), poisonous gasses even VOC (Volatile Organic Compounds).

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As discussed above, I believe that Low-light-requiring houseplants, along with activated carbon plant filters are the most promising solution for the prevention of air pollution found in homes, offices and schools., have

Sustainable ecosystem for the prevention of air pollution in offices and schools[3]

Houseplants have the potential for improving indoor air quality by removing trace organic pollutants from the air in energy-efficient buildings as well. In such buildings, the houseplants are the best way to alleviate the sick building syndrome associated with many new, energyefficient buildings. The soil and root of the plant seem to be the most efficient are for removing volatile organic chemicals.

In such premises, air exposure should be maximised to the plant root-soil area so that volatile organic chemicals can be removed effectively. Such building should be installed with fans containing activated carbon filters to filter polluted air. Houseplants should be an integral part of the design for such offices.

References:

1. A study of interior landscape plants for indoor air pollution abatement (Report). NASA. NASA-TM-108061. BC Wolverton; WL Douglas; K Bounds (July 1989).
2. Removal of Benzene by the Indoor Plant/Substrate Microcosm and Implications for Air Quality. Orwell, R.; Wood, R.; Tarran, J.; Torpy, F.; Burchett, M. (2004).
3. Plants Clean Air and Water for Indoor Environments

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7. Simple Ways To Purify Your Indoor Air. *Times Of India* extracted 26 Jul. 2017
8. Do Plants Really Purify Our Air? *Nordic Pure* extracted 26 Jul. 2017
9. National Air Quality Index (AQI) launched by the Environment Minister AQI is a huge initiative under 'Swachh Bharat.'
10. Half of world's 20 most polluted cities in India, Delhi in 11th position
11. Air pollution causes more than one-third of strokes, lifestyle diseases in India
12. Two billion children exposed to high levels of air pollution

HEALTHY LIFESTYLE TIPS | THE ART OF HEALTHY LIVING

ANUPAMA SINGH

I am the founder of Vitsupp and have a bachelors in engineering. My family suffers from every lifestyle disease you can think of. Heart disease, obesity, high blood pressure, diabetes, hypothyroidism . . you name it and some one in my family has it. Trying to save myself and my family from our genetic disposition, I learnt much about nutrition, exercise and lifestyle diseases. Certificate in "Diabetes – The Essential Facts" by University of Copenhagen

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USE NEEM FOR ACNE AND WELCOME HAPPY SKIN DAYS

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ACNE TREATMENT AT HOME THAT ACTUALLY WORKS

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