

Benefits of correct breathing

Facts of breathing:

- ❖ We breathe 15 times a minute, 21600 times per day.
- ❖ The average relaxed person inhales and exhales 1½ a litre of air at any time.
- ❖ If the same person inhaled fully he\she could take in two extra litres and exhale 1 ½ litres.
- ❖ The yogis say - "Life is the period between one breath and the next; A person who only half breathes only half lives; He who breathes correctly, acquires control of the whole being; No breath, No life, Life is breath, Breath is life."

The benefits are:

- ❖ Correct inhalation gives enough oxygen to the whole body; Oxygen is the most important substance for maintenance of life.
- ❖ Deep correct breathing, massages the liver, stomach, intestines and other organs as the diaphragm moves up and down.
- ❖ Rhythmic breathing brings about a calm state of mind, gives energy and vitality.
- ❖ Correct exhalation gets rid of toxins and impurities via carbon dioxide from the lungs.
- ❖ Slow correct breathing allows for the maximum transfer of oxygen and carbon dioxide.
- ❖ With the deep slow intake of air, the heart functions at a slower rate and it helps to regulate the blood pressure.
- ❖ Using the breath is the way to help increase the internal Prana, which is of the utmost importance to a yogi. Pranayama helps to remove blockages in the Pranic body.

Nose Breathing

- ❖ It filters the air getting rid of dust etc.
- ❖ It keeps the air moist.
- ❖ It warms the air coming in.
- ❖ The warm air keeps the nose warm on the way out.
- ❖ Nose breathing conserves energy (if we breathe in and out of the mouth we lose more energy).
- ❖ It improves our sense of smell.
- ❖ There is a gas called nitric oxide (NO) in the nose that helps to break down bacteria and viruses (not found in the mouth).

BREATHE THROUGH THE NOSE!

Modern research confirms the wisdom of the yoga tradition

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Nitric Oxide (NO) is a gas previously regarded as an environmental pollutant. The gas is formed by combustion and is present in high concentrations in, among other things, cigarette smoke and car exhaust fumes. It was therefore quite sensational when it became apparent that NO is also generated in the human body.

In 1998 the Nobel Prize for medicine went to three American researchers for this discovery. They were able to show that NO is important in the regulation of the tone of the blood vessels. A continuous generation of NO takes place in the walls of the blood vessels and this tiny gas molecule dilates the blood vessels, facilitating the flow of blood. Recent studies have also shown that NO is involved in the function of the nervous system, and is able to kill bacteria and virus.

Our research group at the Karolinska Institute in Stockholm has studied the significance of NO in the respiratory system. We have shown that a lot of NO is normally formed in the sinuses of humans. It is worth mentioning, that in many people the concentration of NO in the sinuses exceeds the safety limit established by the authorities. The sinuses are in contact with the nostrils via small openings and this means that the level of NO in the air of the nose is relatively high.

What is the significance of this? On inhalation, NO follows the air into the lungs, that is, when breathing through the nose. As NO is a blood-vessel dilator, the blood vessels coming in contact with the pulmonary vesicles (alveoli) are expanded. This means that a greater amount of the blood that passes through the vesicles can be oxidised.

More oxygen in the blood

We compared breathing through the nose with breathing through the mouth to see if it was possible to show whether there was a difference in the oxidation of the blood. Quite rightly it revealed that breathing through the nose led to a 1015% higher oxidation of the blood. As a verification, breathing through the mouth with added NO from a gas bottle gave a similar effect, which corroborates that the NO in the nasal air has these positive effects.

We have also looked at the importance of the nasal air for patients lying in a respirator. These patients are intubated, that is to say they have a tube from the respirator directly into the respiratory passage. This means that their nasal air is never part of the breathing. We connected a simple pump system, which sucked nasal air from one of the nostrils, and this air was given as a supplement in the respirator. This relatively simple procedure increased the patient's oxidation of the blood by 10-20%.

These findings demonstrate a new principle where an effective substance from the body itself, NO, is generated in the sinuses and carried with the in- haling air to produce an effect in another part of the body, the lungs. In this way, NO works as an airborne mediator in the human respiratory passages.

If one looks at the animal kingdom, then only monkeys and possibly elephants have NO in their nose. The other species seem to be lacking this system. One might imagine that monkeys and humans require this system to optimise oxidation because we have risen up from walking on all fours.

Known in many places

The knowledge that it can be advantageous to breathe through the nose is widely known, but there has been no scientific explanation for why it should be good. It is obvious that the air is cleansed more effectively when breathing through the nose, but that does not explain the positive effects of oxidation.

On maternity wards the expectant mothers are encouraged to breathe in through the nose and out through the mouth during contractions. Physiotherapists often point out that patients with respiratory problems should breathe in through the nose and out through the mouth. Certain elite athletes use nasal expanding plasters. Within Yoga there are a wide variety of techniques for nasal breathing.

Even in the Bible a reference is found that can be interpreted as that nasal breathing can be important: "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul [Gen. 2:7]."

Consequently there is a many thousand year-old knowledge of the importance of the nose for the breathing. The current research into this tiny gas molecule NO may have contributed with a scientific explanation.