How Fast Exhalation Exercise May Help Detoxify the Brain and Tone the Body

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One of the major *Pranayama* exercises is called *Kapalbhati* where one forcefully exhales rapidly and in short bursts. Practitioners claim that it helps in cleaning and strengthening the lungs and in exercising the abdominal muscles. It is therefore recommended for reducing tummy fat and for improving the flexibility of lungs. Strong and flexible lungs are the best bet against COVID-19 type attacks.

This exhalation exercise can be practiced by either sitting cross legged on the floor or even in a chair. The air is exhaled forcibly and in short bursts. This process is further helped by thinking that by exhaling this air one is cleaning the brain of its pollutants. The reflex action of this forceful exhalation then tones the abdomen muscles and also cleans the lungs. Generally 30-50 short burst exhalation in one sitting is good enough exercise

The word *Kapalbhati* in Sanskrit means skull illumination! Yogis claim that practicing it cleans the brain and gives shining quality to a person's appearance. Modern science may give credence to this claim.

Recently researchers have shown that <u>nanoparticles (particle size of 10-30</u> <u>nanometers which are almost 10-20 times smaller than those emitted in cigarette</u> <u>smoke</u>), can directly reach the brain through nose breathing and bypass the bloodbrain-barrier (BBB).

Medical researchers have known since 1941 that small amounts of fine particles that are inhaled through the nose could be lodged in the brain by breaching BBB. However this field of research remained dormant till the 1990s when scientists, alarmed by rising environmental pollution, visited the early research and started discovering the harmful effects of toxin invasion of brain through breathing.

Today rapidly growing research shows that a small part of the polluted air we breathe through our nostrils goes directly to the brain via the olfactory lobes (this is the area which gives us the sense of smell) and the rest (major portion) goes to the lungs supplying the necessary oxygen to the blood. Thus the action of inhaling affects both the mind and the body directly.

Medical researchers have also shown that though the pollutants in the lungs are most of the times flushed out by the body's immune system the toxic particles in the brain go on accumulating.

This has alarming implications for modern living since the inhaled pollution which includes household and automobile smoke, dust and general industrial pollutants and airborne viruses has the ability to directly affect the nervous system. Recently scientists have shown that <u>incidences of increased cancer</u>, <u>dementia</u>, <u>stroke</u>, <u>Alzheimer's disease</u>, etc., have been attributed partly to the toxin invasion of the <u>brain caused by these pollutants</u>.

Similarly it is quite possible that COVID-19 attack on various organs of the body could be mediated by the virus slipping into the brain through the olfactory lobe and attacking the brain. This makes the brain go <u>into overdrive and sends signals to create a Cytokine storm</u> resulting in attacks on organs like kidneys, heart, gut, etc.

There are indications that some of these small particles might be flushed out by the cerebrospinal fluid which floods the brain. During the dreaming episodes this flushing mechanism is very active. However not all the particles leave the brain and hence affect the brain functioning.

Since these small particles go into the brain through the olfactory lobe it is quite possible that they could be flushed out by the forceful exhalation of *Kapalbhati* process. This follows the principle of equivalence.

The forceful exhalation creates a venturi effect in the nasal passage thereby creating a partial vacuum which might suck out these particles from the olfactory lobes. Natural designs are very efficient and take into account all paths and forces. Thus the forceful exhalation of breath not only exercises the abdominal muscles but also cleans the lungs and the brain. This cleaning of toxins from the brain is the true meaning of *Kapalbhati*.

For people living in the present polluted atmosphere a good strategy would be to wear a mask which filters out the pollutants during outdoor activities and practice *Kapalbhati* daily to remove the particles which inadvertently might have gone into the system.

Naturally it is preferable if we reduce the pollution in our cities so that the air becomes clean. At the same time we should take all the precautions like keeping physical distance, wearing mask and washing hands. Then the loading of brain with pollutants can be drastically reduced.

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