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Nasal Cycle and Swara Yoga

We breathe through our nostrils most of the time. The air goes in through both nostrils, left and right, and then through the trachea, into the lungs. Anatomically, in healthy adults, both nasal passage ways are symmetric, but very often we feel that one nostril is more patent (open) than the other, especially when we get an upper respiratory infection. Sometimes we are breathing predominantly through the right nostril, sometimes through the left, sometimes equally through both, and rarely both nostrils are congested, and we have to breathe through our mouth.

The best way to tell how we are breathing at a particular time is to exhale through both nostrils on the palm of one of our hands and to feel which nostril has a more forceful expiration. The increased patency of one nostril over the other occurs normally and cyclically with a frequency of one to three hours. This very intriguing physiologic phenomenon is called the nasal cycle.

The nasal cycle results from alternating congestion and decongestion of venous sinuses in the nasal turbinates, due to cyclical autonomic activity. When one nostril is more patent, the sinuses are vasoconstricted in response to sympathetic activation and the opposite nostril is less patent due to venous congestion in response to the parasympathetic vasodilatation.

The cycle exists even in the absence of air flow, as shown in patients with total laryngectomy. The nasal cycle can be influenced with forced uninostril breathing when lying on one side. When we lie down on one side, the nostril on that side often becomes more congested and the other side becomes more patent. Pressure to the underarm has also been shown to increase the nasal resistance on the same and decrease it on the opposite side.

Yoga, a part of the ancient Indian system of healing, Ayurveda, has described this phenomenon in great detail, under swara yoga. "Swara" means breath in Sanskrit. Breath is the source of *prana* (chi), the force governing all functions of the body. When breathing predominantly through the left nostril, the energy (*prana*) flows through *ida* (the *nadi* or the energy channel on the left side of body) that controls the right cerebral cortex, the left side of the body, and the parasympathetic (cooling) functions. When breathing predominantly through the right nostril, the energy flows through



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pingala (the energy channel on the right side of body) which controls the left cerebral cortex, the right side of the body and the sympathetic (heating) functions. When both nostrils are equally patent, energy flows through *sushumna* (the central energy channel), which balances the left and the right sides and the sympathetic and the parasympathetic functions.

Hatha yoga literature describes various exercises for the *prana*: *adi shodhan pranayama* (alternate nostril breathing), *kapalbhati pranayama* (forceful repetitive abdominal

exhalations), *bhastrika pranayama* (forceful repetitive inhalation and exhalations), *ujjayi pranayama* (slow and deep throat breathing), and *bhramari pranayama* (humming bee exhalation). The health benefits of yoga and the breathing exercises (*pranayama*) are attributed to the balancing effects on the left and the right side of the body.

Inspired by the yogic teachings, various modalities (including forced uninostril breathing) have been used extensively to study the nasal cycle. It has been postulated that forced right nostril breathing leads to increased left brain activity and stimulation of the sympathetic nervous system.

Similarly, forced left nostril breathing leads to increased right brain activity and stimulation of the parasympathetic nervous system. The physiologic effects of alternate nostril breathing and *kapalbhati pranayama* have also been studied. More research is needed to investigate the role of nasal cycle in the health benefits of *pranayama*. ■

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