

## Breathing 101

### Two States of the Central Nervous System (CNS)

The *sympathetic* state of the CNS prepares us for 'fight, flight, freeze or fake it' to survive a threat to life. Non-essential systems (digestion, rejuvenation, detoxification) close down, and the body reacts by:

- releasing a shot of adrenaline into the bloodstream, causing the heart to race
- speeding up the breathing, which becomes a gasping in the upper chest and shoulders
- blood rushes to the head, the brain becomes very alert, the eyes become hyper-vigilant
- muscles of movement tense up in readiness, muscles of the digestive system stop working

The *para-sympathetic* state is opposite - breathing and heart rate slow, and we enter a state of comfort and ease where digestion and other metabolic processes resume. The energy is calm and located lower in the abdomen. Each breath is like a sigh (emphasis on out-breath) rather than a gasp (emphasis on in-breath).

A healthy person will be always ready to jump into the fight-or-flight response, but will not spend much time there, because it is too exhausting for the body to stay on red-alert. But some people habitually stay in this red-alert state for long periods. So they feel constantly anxious, exhausted from being vigilant (but unable to relax or sleep well), and unable to digest food properly - leading to food sensitivity and nutrition issues. Keeping the CNS in this alert state is an unhealthy habit leading to many chronic diseases.

### Connection with Breathing

Breathing patterns are quite different between the two CNS states. In the *sympathetic* state, the breath comes in short gasps, the main breathing muscles are the upper ribs, neck and shoulders, and a lot of effort is used because the volume efficiency is very low and the muscles are small and numerous.

In the *para-sympathetic* state, the diaphragm is the main breathing muscle. This is a huge muscle lying laterally across the body, immediately under the lungs, and its volumetric efficiency is very high. When the diaphragm contracts, it presses down strongly into the abdominal cavity, greatly enlarging the chest cavity for very little muscular effort, and bringing in huge amounts of air to the lungs.

The magic is that the connection works both ways. The CNS will change the breathing pattern as part of the change between *sympathetic* and *para-sympathetic* states, but we can change the state of our CNS by deliberately changing the pattern of our breathing. This is a most useful thing to learn.

### Breathing with the Diaphragm

Learning diaphragmatic breathing starts with sensing the action of the diaphragm. It can be hard to feel directly, but its movement can be sensed by watching the stomach area expand gently while breathing in at the same time. Energy blocks show up as places which do not allow the breath to come in.

The diaphragm sits on top of the liver, stomach, and other organs, and must displace them downwards in order to move. It cannot do this if the stomach and belly are constantly sucked in, which some believe is necessary to look good! The whole lower body needs to be soft and free to expand as the diaphragm moves down with each in-breath. Imagine your body as a skittle, and feel the whole lower section inflate.

With practice the sides and back of the body become engaged. The spinal vertebrae increase their spacing, the floating ribs flex, and ultimately the muscular sheet spanning the pelvic floor will be relaxed enough to deflect gently downwards like a trampoline with each in-breath. Each breath will become a wave of pleasure flowing deep into the body.

*References: The Breathing Book, Donna Farhi. Simon & Schuster, 2001*