

# Breathing Matters



Life on earth, in all of its different shapes and forms, is essentially the result of trillions of chemical reactions happening simultaneously based on the known (and potentially unknown) fields that make up the forces of nature. Forces, such as electromagnetic, that structure protons, neutrons and electrons, or the strong force which structures the smaller particles that make protons. These forces and reactions are doing many fundamental tasks inside of the body that we barely consider and probably do not care to think about as long as they continue to happen. Disturbances in the electromagnetic field based on reactions between different types chemicals, for instance, cause the muscles in the heart to release bursts of energy which works as a pump to move fluid rich in chemical compounds throughout the body. These compounds react within the cells to provide energy to muscles, such as in the lungs, which contract and release to force more chemicals to be absorbed where they are circulated again by this fluid to all cells, creating the cycles of cellular metabolism that give cells energy and us life.

The cells in the liver consistently monitor molecules in these fluids, generally in aggregated forms, such as a bacterium, hormones or other molecular compounds, to ensure what is there should be and will not damage cellular integrity when distributed to the vast systems of muscles, tendons and organs that make up a human body. The cells that make up the glands in our endocrine system are ready to react as necessary to change the structure of different molecules in order to form hormones based on input stimuli (such as getting up the nerve to approach a potential mate in a bar). This whole process is automated and something we typically take for granted in our day to day activities.

These reactions are based on environmental sensory input. My conscious resolve to write this blog is causing chemicals to stimulate neurons in my brain to send electrical signals through a network of microscopic fibers telling the cells in the muscles of my arms and fingers to move in specific ways which manifest into letters on my computer screen. Sensory cells in my eyes receive wavelengths caused by photons (photons that were in turn caused by nuclear reactions of hydrogen to form helium inside of distance stars) reflecting from my computer screen and translate them into electrical impulses that travel to my brain where they are interpreted by neurons and cause multiple systems to react, including my endocrine system which may form compounds (such as hormones) from available molecules based on neuron messaging. Wavelengths traveling through the air are channeled by appendages we call 'ears' causing them to bounce off of my eardrums where they are translated into liquid vibrations that are passed along to neurons in my brain, creating what we call sound. At the same time my olfactory system (smell) is picking up thousands (or possibly hundreds of thousands) of molecules from

special receptors in my nose which cause reactions that are translated by the glomeruli in my brain causing me to react favorably, or not, to environment inputs I may, or may not, be consciously aware of. (In this case, I am aware of the unfavorable smell of the person sitting next to me on the plane.) As an evolved mammal, these molecules picked up by my olfactory system most likely cause many other behavioral traits that I may not even be aware of.

In terms of biological evolution it is apparent that the need for these systems to be involuntarily controlled was better for survival. In a split second fight or flight scenario, we don't have to think about how much oxygen and sucrose is needed to be supplied to each individual cell in order to generate just the right amount of energy to power muscles. We don't have to consciously interact with our endocrine system to determine how much epinephrine (adrenaline) our adrenal glands should secrete into the bloodstream to reach the liver, or how to synthesize the epinephrine to release glucose into the bloodstream to boost cellular metabolism. Our body takes care of these processes so we can leverage them depending on if we decide to fight or run. If we had to think about all of this it would probably mean ending up in a violent death. Instead we evolved with all of our most important systems properly managed and controlled through bodily processes, circadian routines, muscle spasms and homeostasis. This includes automated micro processes, such as individual cellular metabolism, along with macro processes, such as our heartbeat. All this brings me to the point of this blog which is why understanding breathing is so important to good health.

Even though the body automatically manages all of these micro processes for us, there is one area that we control. This area is *how much and when* these molecules are distributed to the cells. We call this process *respiration*. The best way I know to describe this is to imagine you own trillions of production plants that make goods using automation without any intervention. Your only role as the owner is to provide the materials needed for the goods to be made. To do this, you have set up an automated delivery capability that adjusts dynamically depending on required supply. If the factories need to produce more goods then your distribution system works harder to deliver. To compliment this you also have a *manual override* ability. This means that you can manually readjust what is being delivered which automatically slows and steadies production. As it turns out, the way the body has evolved, respiration impacts *every single bodily process* in some way. Respiration is the aggregated controlling mechanism for every chemical reaction that happens in the body. This is why we have evolved to have voluntary control over the act of breathing when we want/need it. It is the most important action the body performs constantly throughout our lives. It even controls other involuntary muscles, such as our heartbeat. When our breathing becomes more rapid our heartbeat becomes more rapid. When our breathing slows down, our heartbeat slows down. If we stop breathing, our heart will stop as a result.

By taking control of our breathing we take control of every cell in our body and as a result all of the exquisite organs, networks, systems and forms that these cells manifest into. We can use the act of breathing to calm the body and as a result control how we react to different types of environmental input. In Buddhism, the act of breathing is used as a way to focus meditation. This is not a spiritual or metaphysical exercise and one does not need to be a Buddhist to understand why breath is so important to life and the benefits proper breathing techniques can have. If we don't consciously control our breathing or learn proper breathing techniques we are missing a significant opportunity to take control of our body and mind. It is an important tool at our disposal. Why not use it?

Contact Me: [jay@jayfoard.com](mailto:jay@jayfoard.com)

[www.jayfoard.com](http://www.jayfoard.com)