

## The Science Of Laughter Yoga

***This is article reaffirms the scientific rationale behind the concept of Laughter Yoga. This information will enhance your knowledge about the scientific basis of Laughter Yoga and provide a better understanding and insight into the scientific basis of the many health benefits derived from it.***  
Dr. Kataria

<http://laughteryoga.org/>

Doctors and health workers have known for thousands of years of laughter's beneficial effects. Modern medicine is now uncovering why laughter is so important to humans. This document looks briefly at some breakthroughs in understanding the benefits of Laughter.

### Aerobic Exercise

Laughter Yoga is aerobic. It provides low impact exercise and burns calories without special equipment or clothing. Laughing boosts circulation and distributes oxygen around your body. It gives the diaphragm, abdominal, intercostals, respiratory accessory, and facial muscles a complete workout. Some people even use their arm, leg, and back muscles when laughing.

A recent New Zealand study showed that laughter could be as effective as running in boosting health. Laughter burns calories --- 20 minutes of laughter provides a good physical workout. Some people report weight loss from regular Laughter Yoga sessions.

### High Oxygen

During hearty laughter the body takes in vast amounts of oxygen in huge repeat gulps in a sort of temporary hyperventilation session. Oxygen is one of the primary catalysts for biological energy in the human body. We breathe in oxygen and exhale carbon dioxide. It is an element of intracellular energy that's absolutely necessary to sustain human life.

Cancer cells are destroyed in the presence of oxygen. Many parasites and bacteria don't survive well in the presence of oxygen, and to the extent that you can circulate extra oxygen throughout your body, you can help prevent, or in some cases treat, these diseases.

**Laughter Yoga leaves participants with high oxygen levels in the blood and brain, providing feelings of vitality, greater mental clarity and the energy to operate at peak performance.**

### Laughter & Stress

Stress is associated with 90% of all cases of illness and 80% of all prescribed drugs sold. Depression, anxiety, asthma, alcohol & drug addictions, heart disease, diabetes, hypertension and cancer are just some of the major stress related illnesses prevalent today.

Stress attacks our immune system and reduces human condition in many ways. It is recognized as the world's biggest killer. Stress costs business and organizations billions of dollars each year in medical costs, medical leave and loss of performance.

Laughter is nature's stress buster. It is free and is designed and built into each human. Medical studies around the world are proving that Laughter helps healing and keeps us healthy.

### The Stress Cocktail

The human body responds to stress with a massive release of hormones from the adrenal medulla (epinephrine & nor epinephrine) and adrenal cortex (cortisol) into the bloodstream.

These hormones speed up heart rate, breathing rate, blood pressure, and metabolism. Blood vessels open wider to let more blood flow to large muscle groups, putting muscles on alert. Pupils dilate to improve vision. The liver releases some of its stored glucose to increase body energy. Sweat is produced to cool the body. This is known as the stress response. It enhances a person's ability to perform well under pressure.

However, our stress response can cause problems when it overreacts or fails to turn off and reset itself properly. Excess levels of stress hormones have powerful negative effects on our bodies:

**CORTISOL** known as the **stress hormone**, leads to impaired cognitive performance, suppressed thyroid function, blood sugar imbalances such as hyperglycaemia, decreased bone density, decrease in muscle tissue, increased blood pressure, lowered immunity and inflammatory responses in the body, and memory problems. High cortisol levels also lead to increased abdominal fat, which is associated with a greater amount of health problems than fat deposited in other areas of the body. Health problems associated with increased stomach fat are heart attacks, strokes, the development of “bad” cholesterol (LDL) and lower levels of “good” cholesterol (HDL), which in turn lead to other health problems.

Repeated increases in cortisol levels lead to depression-like behaviour and greater signs of anxiety, especially in males.

**CATECHOLAMINES** are **immunosuppressive hormones** released by stress. They include epinephrine (adrenaline), nor epinephrine (nor adrenaline) and dopamine. Catecholamine's cause general physiological changes that prepare the body for physical activity (fight-or-flight response). Some typical effects are increases in heart rate, blood pressure, and blood glucose levels. However in higher doses catecholamine's harm or deplete the body and immune system:

- **Epinephrine** suppresses the immune system and causes cardiac irritability which can lead to additional complications.
- **Nor epinephrine** increases heart rate and blood pressure and creates a sense of panic and overwhelming fear/dread. It is associated with loss of alertness, poor memory, and depression.

Moderately high levels of nor epinephrine create worry, anxiety, increased startle reflex, jumpiness, fears of crowds & tight places,

impaired concentration, restless sleep, and physical changes. Physical symptoms include rapid fatigue, muscle tension/cramps, irritability, and a sense of being on edge. Almost all anxiety disorders involve nor epinephrine elevations.

High concentrations of nor epinephrine lead to panic attacks. Symptoms are palpitations, pounding heart or rapid heart rate, sweating and body temperature changes, trembling or shaking, shortness of breath, smothering sensations, choking sensations, chest pain and discomfort, nausea or stomach distress, dizziness, light headedness, faintness, a sense of unreality, as though you are outside yourself, fear of losing control or going crazy, fear of dying, numbness and tingling throughout the body, chills and hot flushes.

**DOPAMINE** effects brain processes that control movement, emotional response, and the ability to experience pleasure and pain. **Regulation of dopamine plays a crucial role in our mental and physical health.**

Dopamine increases heart rate and blood pressure. Disruption to the dopamine system has been strongly linked to emotional problems, psychosis and schizophrenia.

**IMBALANCES** caused by the stress cocktail suppress the immune system and cause a sharp drop in the chemicals and hormones we need to maintain peak performance.

**Low serotonin levels** caused by stress create feelings of depression, impulsive actions, short attention span, a blocked and scattered feeling, and even suicidal tendencies.

**Low beta-endorphin levels** due to stress lead to feeling tearful, isolated, depressed, and hopeless, low self-esteem, a low tolerance for emotional & physical pain and feeling emotionally overwhelmed.

**Growth hormone deficiency** leads to loss of strength, energy, and bone mass as well as increased cardiovascular risk.

## The Laughter Cocktail

**Laughter triggers the release of a cocktail of chemicals and hormones that are extremely beneficial and crucial to good health.** The laughter cocktail includes NK cells, endorphins, serotonin, growth hormone, interferon-gamma (IFN) and a host of other beneficial substances produced naturally every time we laugh heartily for extended periods.

**Laughter boosts the immune responses, particularly components related to anti-viral and anti-tumour defences.** It diminishes the secretion of cortisol and epinephrine, while enhancing immune reactivity. It boosts secretion of growth hormone, an enhancer of key immune responses. The physiological effects of a single laughter session can last 24 hours and regular sessions can produce profound and long-lasting changes.

Experiments show that laughter rebalances the Th1/Th2 immune response which can lead to a significant reduction of autoimmune issues.

It boosts the production of brain-altering chemicals such as serotonin and immune-boosting chemicals such as interleukins. **The healthy body chemicals created by your body during one Laughter Yoga session would cost thousands of dollars to purchase.**

**The laughter cocktail has extraordinary positive healing effects on your body and mind. They boost immune system function, improve your outlook on life, diminish symptoms of depression and because they help reduce stress, they help prevent the many diseases and disorders caused by chronic stress.**

**NATURAL KILLER CELLS** are best known for their capacity to kill tumour cells before they become established cancers. They are also important in controlling microbial infection and viral attack in the earliest phases of the body's immune response.

NK cells are the first line of defence against cancer and infectious diseases. They constitute a major component of the immune system,

defend the body against viruses and other pathogens. NK cells attack cells that have been infected by microbes and serve to contain viral infections by destroying the virus inside destroyed cells.

Psychoneuroimmunology (PSI) studies have shown conclusively that laughter dramatically and immediately increases the levels of NK cells.

**ENDORPHINS** are our bodies' natural pain killers. The name means 'morphine made by the body'. **Laughter stimulates high levels of endorphins which create a pleasant 'high' feeling and also act as an effective pain killer.**

American journalist Norman Cousins who suffered from the very painful disease ankylosing spondylitis famously described that after stopping all his pain medications and sleeping pills, he discovered that ten minutes of belly laughter could give him two hours of pain free sleep. **Beta endorphin produces a sense of well-being, reduces pain, eases emotional distress, increases self-esteem, and even creates a sense of euphoria.** A recent medical study showed BE levels increased by 27% after laughter.

**SEROTONIN** makes you feel mellow and relaxed, hopeful and optimistic. You have a sense of being at peace with life. You are creative, thoughtful, and focused. You also have a lot of impulse control, which enables you to "just say no" more easily.

**GROWTH HORMONE** increases calcium retention, and strengthens and increases the mineralization of bone. It increases muscle mass. It induces protein synthesis and growth of many different organ systems of the body, resulting in a "positive nitrogen balance". GH stimulates the immune system. It improves liver and digestive functions and reduces body fat. A recent medical study showed GH levels increased by 87% after laughter.

**INTERFERON-GAMMA (IFN)** activates T cells, B cells, immunoglobulin's, and NK cells. It helps to fight viruses and regulate cell growth. **It fights tumourous cells including cancer.** Blood samples taken before, during, and after

a laughter session, show a significant increase in IFN which lasts till the following day.

## Laughter & Cardiovascular Health

The heart benefits of laughter are generally accepted: stress reduction, aerobic exercise, improved circulation & more oxygen throughout the body & major organs.

Now US medical research has proved laughter is also linked to the healthy function of blood vessels.

A Maryland School of Medicine study showed that laughter causes the tissue that forms the inner lining of blood vessels, the endothelium, to expand in order to increase blood flow, while stress has the opposite effect, constricting blood vessels and reducing blood flow.

The endothelium regulates blood flow, adjusts coagulation and blood thickening, and secretes chemicals and other substances in response to wounds, infections or irritation. It also plays an important role in the development of cardiovascular disease.

The endothelium is affected by atherosclerosis or hardening of the arteries, a major cause of heart disease and death. **Laughing maintains a healthy endothelium and reduces the risk of cardiovascular disease.**

## Laughter & Lymph

Biophysical studies have shown that the convulsions experienced during the process of laughing move lymph fluid around your body. This boosts immune system function and helps clear out dead waste products from organs and tissues.

## Coping With Stress

**Laughter Yoga teaches people to use laughter as a mechanism for coping with stress.**

This is extremely useful as a way to deflect stress and prevent the stress reactions and

resulting release of stress hormones and chemicals.

## Laughter In Medicine

**Laughter is now respectfully regarded as the most easily accessible analgesic for pain and depression.** It is recommended by institutions around the world for victims of aging, Alzheimer's, arthritis, asthma, bronchitis, cancer, circulatory problems, diabetes, eczema, heart disease, high blood pressure, mental disorders, obesity, schizophrenia and a host of other conditions.

It has also been recognized as a powerful tool in chronic care and is finding growing acceptance in hospice and aged care.

**Hospitals around the world have introduced laughter as a therapy and an important part of their treatment. Methods used include clown doctors, humour carts, and humour or laughter rooms.**

Laughter speed healing and recovery, leading to shorter hospital stays for many patients.

A study of abdominal, thoracic, orthopaedic, gynaecologic, cancer, and eye-ear-nose-throat patients concluded that laughter had significant positive impact on recovery rate, pain reduction, psychological well-being and satisfaction with care.

A head nurse observed that some patients are able to reduce their pain and nausea medications following a laughter session.

**LAUGH UNTIL IT HELPS!**

For more information contact:

**Cheryl Ann  berg**  
403.955.7629

[cherylann.oberg@ahs.ca](mailto:cherylann.oberg@ahs.ca)