

The Theoretical Understanding Behind the Buteyko Breath Reconditioning Program

The Buteyko technique represents a development of the hyperventilation syndrome theory. This theory is based on the contemporary understanding of the immense biological role of carbon dioxide gas in the human organism. The human metabolism developed in the ancient geological eras when carbon dioxide in the air and water measured in tens of percent. It is probably due to this factor that a definite concentration of carbon dioxide gas (approximately 7%) must be an absolutely essential condition of each human cell in order for it to sustain all the normal pathways of the biochemical processes.

The problem faced by the evolving human organism has been the depletion of carbon dioxide in our atmosphere from the tens of percent of ancient eras to the current level (1982) of 0.03% [1996 of 0.035%]. Human evolution has dealt with this dilemma by creating an autonomous internal air environment within the alveolar spaces of the lungs. These alveoli contain around 6.5% of carbon dioxide, quite a contrast to the surrounding air. The gaseous mix in the womb is also an interesting indicator of the ideal human environment. Here there exists between 7 to 8% of carbon dioxide. Professor Buteyko was asked to speak on this subject at the World Congress of Biochemistry which took place in Moscow in 1972.

CURRENT PHYSIOLOGICAL UNDERSTANDING

1. Carbon dioxide is, through the conversion into carbonic acid, the most important buffer system in the body's regulation of its acid-base balance (acid-alkali balance). A low level of carbon dioxide may lead to alkalosis. If the level of carbon dioxide lowers to below 3% shifting the pH to 8 then the whole organism dies.
2. A low level of carbon dioxide causes a displacement of the oxyhaemoglobin dissociation curve, thereby not allowing

correct oxygenation of the tissues and vital organs. (Bohr effect)

3. Poor oxygenation leads to hypoxia and a whole gamut of medical disorders.
4. Carbon dioxide is a smooth muscle vessel dilator. Therefore a shortfall of carbon dioxide causes spasming of the brain tissue and, bronchus tissue etc.
5. Hyperventilation causes a progressive loss of carbon dioxide. The higher the breathing, the lower the carbon dioxide level.
6. Carbon dioxide is the catalyst to the body's metabolic processes, playing a vital role in biosynthesis of amino acids and their amides, lipids, carbohydrates, etc. This is explained in more detail in "The Biochemical Basis of K.P. Buteyko's Theory of the Disease of Deep Respiration".

Through an understanding of current physiology we should begin to see links between carbon dioxide and oxygenation of the body, carbon dioxide and disease. It is clear that a deepening of the breathing does not mean an increase in oxygen uptake. On the contrary it means a decrease in oxygenation, which leads to hypoxia, imbalance in the acid-alkali balance, and cell spasming.

The fifth point of physiological understanding explains the destructively poisonous influence that hyperventilation has on the organism. It shows us clearly (in conjunction with the other points) that over-breathing leads to imbalance in the body and general deterioration of health.



THE DANGERS OF HYPERVENTILATION

The term "hyperventilation" should be clearly defined. It is not reserved only for the most extreme and visible cases. Hyperventilation simply means "an increase in the function of the lungs above the normal recommended amount".

The significance of Buteyko's discoveries hinge on the diagnosis of what Buteyko termed "hidden hyperventilation", that is long term over-breathing that is not clearly visible in the patient. If a patient hyperventilating at 30 Lt/min can receive disastrous physical repercussions in the very short term, then it should be understood that over-breathing at 5-10 Lt/min will have equally dire consequences over the long term. The average asthmatic over-breathes between 3-5 times the recommended amount, sometimes more.

The detrimental effect of the deep breathing on the organism is a direct result of the creation of a carbon dioxide deficit. This has been proven by many experiments, starting with the work of the well-known physiologist, Dr. D. Henderson, in 1909. In his experiments, animals were mechanically induced to deep breath and died as a result.

ACID-ALKALI BALANCE

Through its conversion into carbonic acid, carbon dioxide is the most vital player in the maintaining of the body's acid-base balance. Lowering carbon dioxide in the lungs by deep breathing shifts the body's pH towards alkalinity, which changes the rate of activity of all body ferments and vitamins. An alkaline system is more 'susceptible to virus' and allergies. The shift in the rate of metabolic regulator activity disturbs the normal flow of metabolic processes and leads to the death of the cell. As mentioned before, if the level of carbon dioxide is lowered to below 3%, shifting pH to 8, the whole organism dies.

The Theoretical Understanding

Behind the Buteyko Breath Reconditioning Program



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HYPERVENTILATION, DISEASE, AND MODERN MEDICINE

Symptoms of various combined disturbances in the organism of a deep-breathing person are exceptionally diverse. The traditional methods of disease analysis have resulted in the various symptoms of over-breathing: (bronchospasms, heart muscle spasms, increased or decreased arterial pressures, fainting spells with convulsions) being called separate illnesses: bronchial asthma, stenocardia, hypertension, allergies, etc. The latter named all lead to complications, sclerosis of the lungs and vessels, myocardial infarcts, and strokes.

The theory of the disease of deep breathing has previously been presented in a lecture: "On Discovery of the Deep Breathing Being the Principal Reason for Allergies, Sclerosis, Psychosis, Tuberculosis, Precancerous Conditions and Other Symptoms of Disease". In that lecture Professor Buteyko mentioned that his discovery is not only represented in the method of treatment of diseases, but in the exposure of their causes. Professor Buteyko believes that modern medicine has slipped to the levels of blind empiricism. This appears to have happened because attempts to find the causes of diseases such as asthma, stenocardia, hypertension, etc., have been fruitless therefore an important principle of medicine is being trampled on. The very principle upon which the Buteyko philosophy is based: "Having not found the reason of the disease, the physician has no right to treat the patient. Only having discovered the reason for the disease, is it possible to guarantee recovery."

Modern medicine, as it stands at the moment, has either stopped looking for the causes of asthma, stenocardia, hypertension, etc., or it has false impressions of these causes. That is why these diseases continue to remain incurable. Through understanding "trigger factors" we can only hope to treat the problem symptomatically. Only through the understanding of the cause of the disease, can we hope to cure. It has eventuated, through Professor Buteyko's research, that deep breathing is directly linked to at least 150 diseases. Buteyko has conducted an immense analysis of diseases and has found that diseases such as asthma,

hypertension, stenocardia, myocardial infarcts, strokes, haemorrhoids, eczema, amongst others, are all symptoms of imbalance created by deep breathing.

In cases where Buteyko's patients had these diseases, they have all been cured, as was proven in the Leningrad and Moscow clinical trials. (See: The History of Buteyko). The Buteyko theory proposes that these diseases are the body's defence mechanisms against the excessive loss of carbon dioxide through over-ventilation.

THE NERVOUS SYSTEM

The lowering of carbon dioxide in the nerve cells heightens the threshold of their excitability, alerting all branches of the nervous system and rendering it extraordinarily sensitive to outside stimuli. This leads to irritability, sleeplessness, stress problems, unfounded anxiety fears, allergic reactions, etc. Concurrent with this, the breathing centre in the brain is further stimulated thereby causing a further loss of carbon dioxide. In this way another vicious cycle has commenced.

THE CAUSES OF DEEP BREATHING

Having touched directly on the physiological problems of hyperventilation, and the resulting "blowing off" of too much carbon dioxide, an obvious question arises: What is the cause of deep breathing itself? What is hyperventilation a consequence of? There are several factors known to induce deepening of the breath. The most important factor, in Buteyko's opinion, is the propaganda of the usefulness of deep breathing. The contemporary human starts to be taught to breathe deeply even before birth, when its mother is sent for sessions of deep breathing exercises during her pregnancy. Often the newly born is encouraged to increase his/her breathing by having its little arms raised and lowered. And so it follows on, in kindergartens, schools, armies, sport, etc. Deep breathing is encouraged without any scientific basis.

There are other factors as well - overeating, especially of animal protein (fish, chicken, eggs, milk and naturally meat) sharply increases breathing. It should be noted that animal products increase breathing more than plant products: cooked foods more than raw. Another factor deepening the breath is

a state of limited mobility, lack of physical work or activity, idleness. Physical activity encourages the release of carbon dioxide from the cells, increasing its levels in the body. The breath is deepened by hydrodynamics, by bed rest regimes, by prolonged horizontal positions (especially lying on the back), prolonged sleep. Recommendations for longer periods of sleep and even sleep therapy have never cured anybody. Most attacks of epilepsy, asthma, myocardial infarction, strokes, paralysis, etc. occur towards the end of sleep, around 5 a.m. Further factors deepening the breath are the various emotions either positive or negative, stress, heat, stuffy environments. And the other way around, calmness, temperance cold temperatures, all assist the shallow breathing.

THE AIM OF THE BUTEYKO TECHNIQUE

In contrast to the dangers of low carbon dioxide, if the breathing is decreased to below normal and the level of carbon dioxide is above normal by 0.5 to 1.0%, there are no negative symptoms manifested. Those afflicted with the heavy consequences of deep breathing e.g., bronchial asthma, stenocardia, hypertension, develop symptoms of super-endurance when trained to accept higher than normal levels of carbon dioxide.

The Buteyko clinics have been regularly observing this for the second decade now. It is evident that decreasing of the depth of breathing does not result in any kind of undesirable occurrences.

The aim of the Buteyko method is to correct the patient's breathing pattern, that is recondition the breathing pattern to internationally recommended levels (3-5 ltrs/min). Through this process the shortfall of carbon dioxide is rectified. The Buteyko process is completely safe and drug free.

For more information contact Buteyko Training Services on freecall Australia **1800638444** or Ph/Fax **(08) 93160193** or Mobile **0404 217753** or email **bts@buteyko.com.au** or visit the website **<http://www.buteyko.com.au>**