



How To Use Frolov Breathing Device (Instructions)

Ultimate Health Restoration Program

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"All chronic pain, suffering and diseases are caused from a lack of oxygen at the cell level."

Arthur C. Guyton, *The Textbook of Medical Physiology**,
Fifth Edition

* *World's most widely used medical textbook of any kind*

* *World's best-selling physiology book*

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Introduction

Hundreds of medical studies have proved that ordinary people and virtually all people with chronic diseases breathe much faster and more air at rest than the medical norms. These studies with exact numbers can be found in my other books and on NormalBreathing.com.

When we breathe more than the medical norm (hyperventilate) at rest, we get less oxygen into our body cells. This book does not quote the hundreds of studies related to CO₂ vasodilation and the Bohr effect.

If a reader has even the slightest doubts in my previous statements, it is better to investigate these medical and physiological facts and laws before reading this book.

Is oxygen important? Each muscular movement, thought or idea in the brain, as well as thousands of other processes and reactions require oxygen 24/7. Virtually all chronic diseases are based on cellular hypoxia or low O₂ levels in cells. All available research has also shown that sick people (those with heart disease, cancer, asthma, bronchitis, COPD, diabetes, and many other chronic conditions) breathe about 2-3 times more than the medical norm. Hence, the solution is to learn how to breathe less.

Leading Soviet physiologist Dr. Konstantin Buteyko, MD, PhD developed a method (the Buteyko breathing method) to normalize one's breathing pattern. The central purpose of the technique is to restore medical norms for breathing or teach the body how to breathe in accordance with medical standards. The Buteyko breathing method helps to increase body O₂. This system has 2 components:

- 1) Buteyko breathing exercises (that are among the most difficult breathing exercises)
- 2) Lifestyle changes that make breathing lighter and body oxygenation higher.

As a result of breathing retraining, sick people experience quick relief from their symptoms and require less and less medication. Dr. Buteyko trained about 180 medical professionals to use the Buteyko method in clinics and hospitals. These Dr. Buteyko's pupils organized numerous clinical trails of the Buteyko method for people with hypertension, asthma, radiation disease (after Chernobyl nuclear disaster), liver cirrhosis, [AIDS virus](#), and metastatic cancer. The results are stunning: all people who manage to slow down their breathing back to the medical norm became free from symptoms and medication. They found that normalization of breathing means normal body O₂ content as well as clinical remission for about 200 common chronic diseases, including heart disease, cancer, obesity, diabetes and COPD.

Dr. Buteyko invented a simple DIY test to measure body oxygenation. This body oxygen test is also called CP (control pause). This test accurately reflects one's personal health. Dozens of Western medical studies showed that sick people have poor results for this test and have values about 2-3 times less than the clinical norm.

I have been teaching the Buteyko method to hundreds of students, mostly in small groups, since 2004. When Buteyko students improve their body oxygen or CP results, their health is always improved. Over 20 second CP means no symptoms and no medication for hypertension, asthma, bronchitis, and many other conditions.

However, the main disadvantage of the Buteyko method is that very few people (less than 1% of the sick people) are able to learn the Buteyko breathing exercises from a book or manual. Dr. Buteyko discovered this fact himself back in the 1960s. This is why he started to teach breathing practitioners by inviting and training sick doctors.

This disadvantage (necessity of the practitioner or teacher) can be solved using the Frolov breathing device. What is it? Vladimir Frolov is another brilliant inventor, who also lived and worked in Russia. Vladimir Frolov knew about Buteyko's discoveries and he invented the breathing device that is even more effective than

Buteyko breathing exercises (You can find them on my [breathing](http://www.normalbreathing.com/) website - <http://www.normalbreathing.com/>). There are more than 500 medical doctors and other health professionals in Russia who endorse and promote the Frolov breathing device for their patients and the general population. There were more than 16 clinical trails of the Frolov device which all showed its safety and great benefits for people with various health problems.

As a result of such training (breathing exercises with the Frolov device), breathing becomes lighter and slower increasing results for the CP or body oxygen test. Hence, the Frolov breathing device is an alternative option to Buteyko breathing exercises. What are the differences? It is much easier to practice breathing exercises correctly using the Frolov breathing device. The immediate effects on the body oxygen test are stronger. However, several groups of people (some severely sick people, pregnant and some others) have important restrictions, limitations, and temporary contraindications for breathing retraining. They need to know these details before starting breathing normalization.

Therefore, after years of teaching [breathing techniques](#), I found a fascinating system that is based on Buteyko lifestyle changes and application of the Frolov breathing device. (I was not the first person who used this combined method.)

This book is the description of this combined method. It provides instructions for the Frolov breathing device and explains key lifestyle changes in order to eliminate major symptoms of chronic diseases and nearly all medication.

1. Who can use this manual?

Normal breathing is a fundamental property and requirement of the healthy organism. Hence, breathing normalization is the natural way to deal with human body pathologies. While people with cardiovascular, lung, and some other problems require a different approach (see the next sections), this manual can and should be successfully used by people who suffer from any of these symptoms, disorders, and conditions that are based on low oxygen levels in body cells:

Respiratory disorders – asthma, bronchitis, COPD (chronic obstructive pulmonary disease), sinusitis; rhinitis; adenoiditis; polyps; tonsillitis; laryngitis; pharyngitis, tracheitis and other related disorders.

Cardiovascular System - ischemic disease of heart, stenocardia, hypertonia, hypotonia, obliterating endarteritis, varicose veins. hemorrhoids; thrombophlebitis; Raynaud's disease.

Brain & Nervous System- depression, neurosis, ADD (attention deficit disorder) / ADHD (attention deficit hyperactivity disorder); addictions; alcoholism; Alzheimer's disease; anxiety; bipolar disorder; carpal tunnel syndrome; multiple (or disseminated) sclerosis, dizziness; eating disorders; encephalitis; epilepsy and other types of seizures; obsessive-compulsive disorder; meningitis (viral and bacterial); motor neurone disease, Parkinson's disease; phobias; post traumatic stress disorder (PTSD); schizophrenia; senile dementia, social anxiety disorder; vertigo.

Sleep-related problems - insomnia; bruxism, restless leg syndrome; sleep apnea; snoring.

Bones, Joints & Muscles Conditions -arthritis; back & neck pain; Carpal tunnel syndrome; chronic fatigue syndrome & fibromyalgia; elbow pain (bursitis); knee pain; muscular dystrophies; osteoarthritis; osteochondrosis; osteoporosis; polyarthritis; rheumatoid arthritis / joint conditions; radiculitis (nerve root syndrome); scoliosis.

Gastrointestinal problems -acute and chronic pancreatitis; cholecystitis; Crohn's disease; chronic gastritis; constipation; duodenal ulcer; gallstone disease; gastric ulcers; heartburn / GERD (gastroesophageal reflux disease); hemochromatosis; IBS (irritable bowel syndrome); IBD (inflammatory bowel disease); liver cirrhosis; peptic ulcer; spastic colitis; weight loss.

Hormonal disorders - adrenal insufficiency; diabetes mellitus type 1; gestational diabetes; hyperthyroidism; hypothyroidism; prediabetes; reactive hyperglycemia and hypoglycemia; obesity.

Immune conditions - allergic conjunctivitis; allergies; dermatitis; hay fever; lupus; multiple chemical sensitivities.

Eye disorders - cataracts; far-sightedness; glaucoma; macular degeneration.

Skin disorders - acne; diathesis; eczema; psoriasis.

Urinary and kidney problems - pyelonephritis, glomerulonephritis, kidney stones; nephritis, nocturia; urinary incontinence; urinary tract infections.

Viral and bacterial conditions - HIV-AIDS (acquired immune deficiency syndrome); bird flu (Avian influenza); cellulitis (bacterial infection); cold; hepatitis A; hepatitis B; hepatitis C; influenza, Lyme disease; rubella (German measles); shingles; West Nile virus.

Women's conditions - cervical erosion; endometriosis; fibroids; fibromyomes; fibrotic mastopathy; irregularities of the menstrual cycle; menopause; sterility; toxicosis of pregnancy; yeast infections.

Cancer - stages 1 and 2; as an additional therapy for a standard complex treatment.

Radiation disease and other conditions - anemia; cystic fibrosis.

Note that it is impossible to provide a sensible classification of modern health problems (“diseases of civilization”) due to overlaps and possible complex clinical pictures. The explanation for this is that modern medicine does not know the cause of these health problems. This manual suggests that all these conditions have one common cause. Hence, they are not separate disorders, but symptoms of one large disease, which we are going to investigate and address.

1. 1 Who has special restrictions, limits, and temporary contraindications?

Breathing retraining and breathing exercises produce a mild stress for the human body so that it can adapt to new conditions and function better in future. Such adaptive effects take place during, for example, physical exercise. It would be silly for an unfit person to try to run a marathon without rigorous preparation.

If the demands due to the exercises are too high, there is no adaptive response, and, as a result, the exercises can even produce a negative effect. Hence, breathing exercises should also be adjusted to the current adaptive abilities of the human organism. For example, people with existing cardiovascular and/or lung problems require certain modifications (individual tailoring) to their breathing training.

For example, a more gentle approach in relation to hypoxic and hypercapnic demands of breathing exercises (quick changes in air composition) is necessary for many patients with high [respiratory rate](#):

Heart disease - aortic aneurysms; angina pectoris; arrhythmia; atherosclerosis (plaque buildup); cardiomyopathy; ciliary arrhythmia (cardiac fibrillation); chest pain (angina pectoris); high cholesterol; chronic ischemia; congenital heart disease; congestive heart failure; coronary artery disease; endocarditis; extrasystole; heart murmurs; hypertension; hypertrophic cardiomyopathy; tachycardia; pericarditis; postmyocardial infarction; stroke.

Migraine headaches and panic attacks

Those people, who have existing problems with their lungs should avoid too fast and too large stretching (expansion or dilation) and shrinking (constriction) of their lungs. Hence, their inhalations and exhalations should be limited (not maximum) in their amplitude and velocity. This relates to people with:

Respiratory disorders involving the lungs - asthma, bronchitis, COPD, emphysema, cystic fibrosis, pneumonia, tuberculosis; pulmonary edema; etc.

Other specific situations include:

Presence of transplanted organs

Pregnancy

Brain traumas

Acute bleeding injuries

Blood clots

Acute stages (exacerbations) of life-threatening conditions (infarct, stroke, cardiac ischemia, etc.)

Respiratory insufficiency of 2nd degree or higher

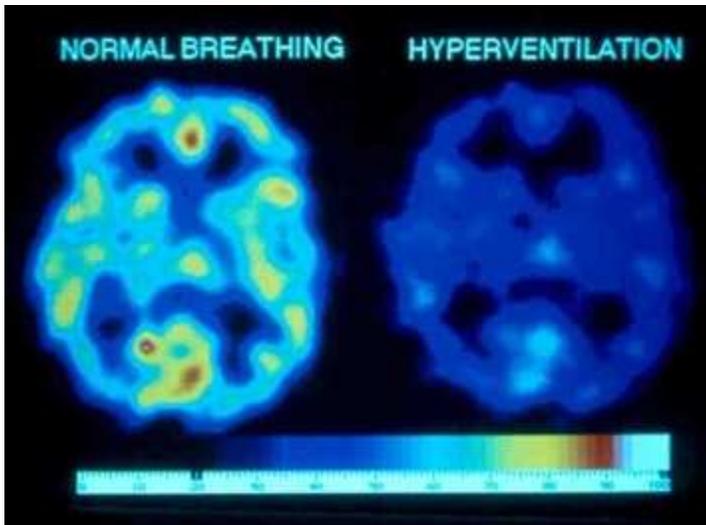
Insulin-dependent diabetes (type 2 diabetes)

Loss of CO₂ sensitivity

If you suffer from any of these conditions, you should follow special suggestions (see below) due to restrictions, limits, and temporary contraindications.

2. How to measure breathing and oxygenation

2.1 Could we measure total body O₂ using devices?



This graph shows oxygen levels in one cross section of the human brain in two conditions: during normal breathing and after 1 minute of voluntary hyperventilation. The scale below provides exact numbers for each color.

We can notice that, on both these images, oxygen distribution is very inhomogeneous. The most oxygenated area is located around the hypothalamus that is also known as the most ancient or primitive brain that is present even in simplest creatures like worms and bugs. The hypothalamus is responsible for primitive reflexes and bodily reactions, and it is generally the most active area of the brain. Since nerve activity requires more O₂, the nature provided

the hypothalamus with rich network of arteries to provide more blood and oxygen.

Depending on the situation and state of the human body, certain areas of the brain, similar to the hypothalamus, can be more or less active requiring more or less oxygen, and this explains why this graph shows inhomogeneous oxygen distribution for normal breathing and hyperventilation that is present in more than 90% of modern people.

In addition, on a cell level, oxygen distribution among neighboring cells can also be very different. Those cells that are adjacent to capillaries can have high oxygen pressure (up to 4-5% or around 30-38 mm Hg). But more distant cells (some cells can be located as far away as 3-4 cells away from the nearest blood vessel) can have only 1% or about 7.6 mm Hg for oxygen partial pressure due to slow diffusion of oxygen through other cells that consume oxygen.

Therefore, it is very difficult to measure total brain O₂ content. Even if we make thousands of similar PET scans for one brain, and then define average oxygenation for each cross section and then average content of the whole brain, there is a large factor related to this uneven cellular oxygen distribution. Even making one such image is a very expensive procedure that can cost hundreds of dollars. Obviously, making hundreds of similar PET scans is a very expensive procedure.

Note that while [chest breathing](http://www.normalbreathing.com/index-chest-breathing.php) (<http://www.normalbreathing.com/index-chest-breathing.php>) contributes to low blood oxygenation, CO₂ plays more significant role in cerebral hypoxia and low total body O₂ content.

Total O₂ content in the body

The situation with total body O₂ content is even more complex. First of all, each organ and tissue has uneven O₂ distribution. Besides, blood flow and O₂ delivery to different organs are greatly influenced by the autoregulation effect that can change perfusion of certain organs up to 3-4 times. Autoregulation takes place due to various bodily processes, such as digestion, sleep, exercise, adaptation to temperature changes, emotions, local and global infections, local inflammation, and many others. Therefore, the total picture is very

complex and, from the purely technical viewpoint, total body O2 content is exceptionally difficult and expensive to measure.

A simple DIY test to measure body O2 content

Dr. Buteyko had devices to measure body O2 levels and knew about the effects described above when he worked as the Manager of the Laboratory of the Functional Diagnostic in Novosibirsk for first Soviet Spaceship Missions. We are going to learn more about his scientific work later in this book.

He was surely interested in finding total body O2 content using his devices or other means. And he found a simple technique. After many years of research devoted to [uses of carbon dioxide](#) and oxygen, he stated,

"Oxygen content in the organism can be found using a simple method: after exhalation, observe, how long the person can pause their breath without stress" Dr. K. P. Buteyko, "Dr. Buteyko lecture in the Moscow State University on 9 December 1969"

This statement is from a Buteyko's famous lecture in the Moscow State University. This special event was organized for the staff of the University. It was likely the classified nature of Buteyko's research during the 1960s (for first Soviet spaceship missions or Soviet Cosmos) and exclusiveness of his discoveries that predetermined the organization of this lecture (there was one more lecture, in 1972). Hence, it was definitely a very large and significant event for the scientific staff of the Moscow State University, the most famous and prestigious University of the USSR. Later, the whole Lecture was republished in the very popular Soviet journal "Science and Life".

Buteyko's observation about body O2 content makes common sense. When we hold our breath, we require more O2. But if you have certain O2 reserves, then we can comfortably tolerate breath holding ... until a certain point. Beyond this point in time, we suffer from stress and there is a growing desire to breathe.

2.2 How to measure the CP (the index of oxygenation)

Look at the diagram below: after the test you can comfortably breathe as before the test.

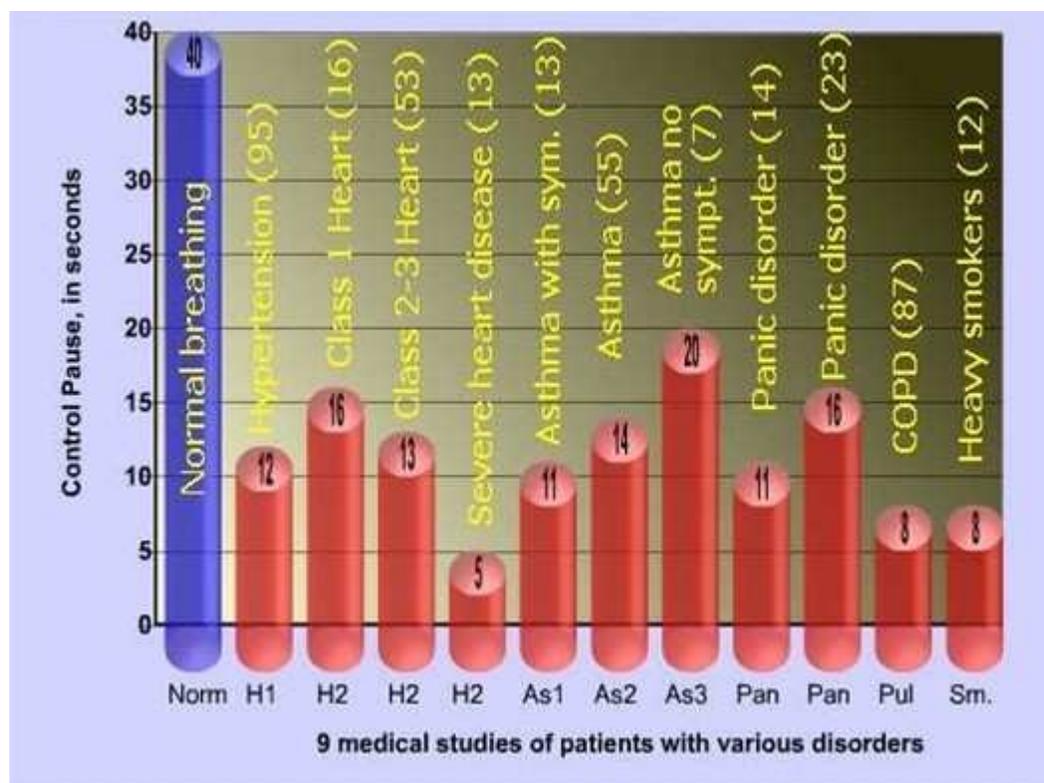


If you hold the breath for too long time, the first inhale will be deeper, as shown here:



Now one can easily define their own health state at any moment of time. Since breathing and body oxygenation vary throughout the day, one's health parameters are usually worse during early morning hours and the MCP (morning Control Pause), according to Dr. Buteyko and his colleagues, is the main parameter that reflects personal health state. The MCP test is done first thing in the morning, while lying in bed. It is important for future success to write down your MCP every day. (The daily log is provided in Chapter 7 and also can be downloaded from the website.)

The CP is the simplest and most accurate test of personal physical health for well over 97% of people. This physiological fact has been confirmed by many professional studies and experiences of thousands of formerly-sick people who recovered their health using breathing training. The CP test also reflects CO₂ content in the lungs alveoli and, if there is no ventilation-perfusion mismatch, in the arterial blood. The CO₂ values for various CPs are provided in the Buteyko Table of Health Zones (see below).



Consider this graph with bars that summarize data from 9 independent medical publications. Each bar represents one physiological study with the title of the health condition studied and the number of patients (in brackets). The normal CP is about 40 seconds (the large blue bar). Shorter red bars correspond to disease states.

(Note. For example, the first red bar on the left represents a medical study in which it was found that 95 patients with hypertension had, on average, 12 seconds

Control Pause instead of the normal 40 seconds.)

We can also easily observe here that the oxygenation index correlates well with severity of the disease for asthma and heart patients. For example, functional heart disease corresponds to about 5 seconds of body oxygen, moderate heart disease (class 2 US classification) to about 10 second CP, and light forms of heart disease to about 15 seconds. Similarly, asthmatics, who experience symptoms, have about 10-12 seconds CP or less. In between attacks (or in stable conditions), asthmatics usually have about a 15 second CP. If they get up to 20 seconds, they do not experience chest tightness, wheezing, blocked nose and other effects.

In both cases, asthma and heart disease, patients generally do not require any medication and do not experience any negative symptoms, if their CP is above 20 seconds 24/7. The same observation has been found for bronchitis, sinusitis, chronic fatigue, eczema, epilepsy (see [What causes seizures](#)) and many other disorders. The first goal for most patients, in order to get more stable health and reasonable well-being is to have over 20 second CP 24/7.

The CP test not only defines oxygenation of the human body, it also tells us about your minute ventilation (or how much you breathe). If you have normal breathing, your CP should be about 40 seconds. If your CP is about 20 seconds, you breathe for 2 people. If your CP is 10 seconds, you breathe 4 times more than the norm.

Hence, if you learn and practice some exercises that increase your body CO2 content and help you to breathe less 24/7, your CP will grow and your health will improve.

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2.3 MCP (morning CP): your main health parameter

Physiological, medical and epidemiological studies have clearly shown that people with severe forms of heart disease, asthma, COPD, epilepsy, and many other conditions are most likely to die during early morning hours (4-7 am), when their breathing is the heaviest, body oxygenation is critically low, and the CP is the shortest (about 5 seconds or less).

Most people also experience the shortest CPs during early morning hours and feel worst in the morning after waking up. Practical observations of Buteyko breathing teachers have confirmed that, indeed, in most people, up to 80% or more, their CPs significantly drops (up to 3-7 seconds or even more) during the night.

There are many causes, including [hypoxemia](#), that contribute to this Morning Hyperventilation effect. However, the very first aim for each person is to identify the presence and extent of this problem. How? Measure your CP immediately after waking up in the morning. As soon as you open your eyes, before getting out of the bed, do the stress-free breath holding time test. Have a ticking clock or watch nearby to help you define your breathing rate during last hours of sleep. The MCP (morning control pause) is the most important parameter of your physiological health.

2.4 Buteyko Table of Health Zones

Based on hundreds of medical studies, it is possible to suggest that the following effects take place with the progression of a chronic disease:

- we breathe more air (minute ventilation increases);
- breathing frequency becomes higher;
- breathing becomes deeper (tidal volume increases);
- CO₂ content in blood decreases;
- CP becomes shorter;
- body oxygenation decreases;
- heart rate increases, etc.

These effects are reflected in the Buteyko Table of Health Zones.

Health state	Type of breathing	Degree	Pulse	Respiratory frequency	% CO ₂	AP	CP	MP
Super-health	Shallow	5	48	3	7.5	16	180	210
		4	50	4	7.4	12	150	190
		3	52	5	7.3	9	120	170
		2	55	6	7.1	7	100	150
		1	57	7	6.8	5	80	120
Normal	Normal	-	60	8	6.5	4	60	90
Disease	Deep	-1	65	10	6.0	3	50	75
		-2	70	12	5.5	2	40	60
		-3	75	15	5.0	-	30	50
		-4	80	20	4.5	-	20	40
		-5	90	26	4.0	-	10	20
		-6	100	30	3.5	-	5	10

Table parameters:

- **Pulse*** – heart rate in 1 minute (all parameters are measured at rest)
- **Respiratory frequency** – respiratory rate in one minute (number of inhalations or exhalations in one minute);
- **% CO₂** – percentage of CO₂ in alveoli of the lungs (or arterial blood if there is no ventilation-perfusion mismatch) – Crucial CO₂ effects are [vasodilation](#) and the [Bohr effect](#)
- **AP** - the Automatic Pause or natural delay in breathing after exhalation (*during unconscious breathing)
- **CP** - the Control Pause, breath holding time after usual exhalation and until first distress;
- **MP** - the Maximum Pause, the sum of the CP and WP.

* **Note about pulse:** Not all people have greatly increased heart rates, as is provided by this table, when parameters are at the bottom of the table or their CPs are low. Some categories of people with less than 20 second CP can have a resting pulse of around 60 - 70. However, increased heart rate for lower CPs is a feature of, for example, heart patients and patients with severe asthma. During the 1960's, when conducting his research, and later, Buteyko and his colleagues applied the Buteyko breathing training program mainly for heart and asthma patients, who were mostly hospitalized with frequent deficiencies in blood cortisol levels. / *This version of the Table is based on Buteyko KP, The method of volitional elimination of deep breathing [English translation of the Small Buteyko Manual], Voskresensk, 1994.*

Dr. Buteyko developed this table during 1960s, after analyzing hundreds of sick and healthy people in his respiratory laboratory, and presented it during his Lecture for the leading scientists at the Moscow State University in 1969. The Table reflects the health of his numerous hospitalized and severely sick patients, who started their journey for health at the very bottom of the table and climbed up, sometimes to the very top of the table.

The middle row of the table corresponds to normal health. Below this row are 7 zones corresponding to disease. The borders for these zones are given by 7 rows (from normal down to “minus 6-th” degree). Five zones of super-health are above the middle row. Let us start from the very bottom of this table and work up.

Terminally sick and critically ill patients during acute stages

The lowest row of this table corresponds to severely sick and terminally ill patients in critical conditions. When people are at the risk of dying, the table predicts over 100 beats per minute for their heart rate, over 30 breaths per minute for respiratory frequency, less than 3.5% CO₂ in the alveoli of the lungs. The CP (Control Pause or stress-free breath holding time after usual exhalation) is less than 5 seconds.

Terminally sick and critically ill patients in more stable conditions

The next row from the bottom corresponds to severely sick and terminally ill patients in stable conditions. Typical heart rates of such people are above 90 beats per minute (sitting at rest). Respiratory rate (or breathing frequency) is above 26 breaths per minute at rest. A CO₂ concentration in alveoli of the lungs is no more than 4%. There is no automatic pause (period of no breathing after exhalation). The Control Pause is less than 10 seconds, while the Maximum Pause is less than 20 seconds. (Numerous medical studies confirmed that over 90% of patients with chronic diseases indeed die in conditions of severe [hyperventilation](#), while their heart rate and respiratory frequency become much higher than the norms. Quotes and exact numbers from such studies can be found on my website in relation to heart disease, asthma, cancer, and many other conditions.)

These patients usually require numerous types of medication to prevent their multiple symptoms and complaints. Due to heavy labored breathing, dyspnea, and low body oxygenation at rest, walking is hard and climbing stairs is often impossible. Most of the time is spent in bed, since even sitting requires effort. Sleep is dreadful since breathing and symptoms get much worse after transition into a horizontal position. Early morning hours (4-7 am) is the time when these patients are most likely to die from heart attack, stroke, asthma attack, or complications from cancer, diabetes, and many other pathologies.

Patients with moderate degree of their disease

The next row (“minus 4-th” degree of health) corresponds to patients whose life is not threatened at the moment, but their main concern are symptoms. People with mild asthma, heart disease, diabetes, initial stages of cancer, and many other chronic disorders are all in this zone. Taking medication is the normal feature for most of these people.

As we see from the table, heart rate for these patients varies from 80 to 90 beats per minute. Breathing frequency is between 20 and 26 breaths per minute (the medical norm is 12, while doctor Buteyko's norm is 8 breaths per minute at rest). CO₂ concentration in alveoli of the lungs is between 4.0 and 4.5%. The CP is between 10 and 20 seconds.

Physical exercise is very hard, since even fast walking results in very heavy breathing through the mouth, exhaustion, and worsening of symptoms. Complains about fatigue are normal. All these symptoms are often so debilitating that they interfere with normal life and the ability to work, analyze information, care about others, etc. Living in the chronic state of anxiety due to [effects of stress](http://www.normalbreathing.com/causes-stress.php) (<http://www.normalbreathing.com/causes-stress.php>) and being preoccupied with one's own miserable health are normal, while efficiency and performance in various areas (science, arts, sports, etc.) are compromised. Sitting in armchairs or soft couches is the most favorite posture.

Parameters of these people get worse during early morning hours with corresponding worsening of symptoms. Many sufferers get less than 10 seconds for the morning CP with all effects accompanying the last stage of the disease.

Most modern people

Most modern healthy people have between 20 and 30 second CP. Hence, they are going to be in the third row from the bottom ("minus 3-rd" degree of health). While there is no need for taking medication in this zone, numerous health pathologies are frequent. This relates to gastrointestinal disorders (gastritis, IBS, IBD, etc.), musculoskeletal problems (arthritis, osteoporosis, etc.), hormonal and metabolic problems (mild obesity, light diabetes), initial stages of cancer, and many others.

Standing for many hours is hard and they prefer to sit for most part of the day. Physical performance after meals is very poor since respiratory and cardiovascular parameters can shift to the lower zone. The level of energy and physical desire to work are low. The over-excited brain easily invents excuses for laziness. Morning parameters are much worse (less than a 20 second CP) with all effects that are present for this zone.

Normal health

As we continue to climb up the table, the next row corresponds to the norms. The row "minus 2" reflects international norms for breathing: breathing frequency of 12 breaths per minute; 5.5 % for CO₂ concentrations in the alveoli of the lungs (about 41 mm Hg); 40 second CP and 70 beats per minute for heart rate. People with normal health naturally have a so called "automatic pause" or period of no breathing (total relaxation of all respiratory muscles after each exhalation) during their unconscious breathing. The duration of the automatic pause is about 2 seconds.

People with normal health are able to run with strictly nasal breathing, safely take a cold shower (if they follow certain other rules), have good quality sleep, and are reasonably able to function on the social level (family, community, workplace, etc.).

Buteyko norms

Dr. Buteyko suggested his own standards for health so that one can be free from about 200 chronic conditions. As we see in the table, healthy people should have a breathing frequency of no more than 8 breaths per minute at rest, more than 60 second CP, over 6.5% CO₂ (slight [hypercapnia](#)), less than 60 beats per min for heart rate, and at least 4 seconds for the automatic pause.

At this stage people enjoy and even crave physical activity. They are full of energy (when they have a normal blood glucose level). Standing throughout the day is easy and natural. Sleep is less than 5 hours and early

morning parameters are not worse than evening ones. All tissues of the body are histologically normal (or in accordance with medical books), while chronic disorders are impossible.

Stages that correspond to super-health

Buteyko also identified 5 stages that correspond to super-health. Transition to the next row above the norm triggers certain biochemical processes and the appearance of lost abilities of the human body, including ability to digest wider varieties of fibers, painless childbirth, production of antibodies in saliva that prevent cavities and the formation of plague (no need to visit dentists 1-2 times every year), and some other effects.

Buteyko generalized this table to a wide variety of conditions (heart disease, cancer, diabetes, asthma, and many others). He considered this table as an important discovery since he applied for a patent. His patent application is provided below.



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(54) METHOD OF ASSESSMENT OF HUMAN HEALTH

(57) Abstract:

1. The method of assessing human health, including the definition of the parameters of functional systems and calculation of health indicators based on the above parameters other than those that form the contingent of the surveyed people who determine the parameter information by measuring the breath holding time of the person after a usual exhalation before the first inhalation without following disturbances in breathing, and then determine and record the basic parameters of main functional systems, and each of them is compared with the informational parameter of the investigated person and obtain the parameter, which is a marker of major functional systems and / or indicator of human health, create a method to assess health through establishment of the scale, while comparing the actual values of each parameter of health survey with the normal value, and based on the received data, health groups can be formed.

2. The method, according to Paragraph 1, but is different in that the scale of health has five categories with a positive sign that characterize the health status of people with different levels of super-endurance and seven categories with a negative sign, which characterize the state of poor health and / or disease in humans with varying degrees of disease severity.

2.5 History of the Buteyko Method

Doctor Konstantin Pavlovich Buteyko (1923-2003) received his medical degree from the First Medical Institute in Moscow, where he studied from 1946 to 1952. During this period he had a medical practice attending and dealing with severely sick and critically ill patients. A series of events helped him to realize the connection between the respiration and health of patients with hypertension, angina pectoris, asthma, and some other serious diseases. He noticed that with approaching death, patients' respiration got heavier. By visual observation of patients' breathing in the hospital, he could predict how many days or hours of life were left. Later he discovered that deliberate acute hyperventilation (which we explored as the HVPT or hyperventilation provocation test in previous chapters) quickly worsened the health of patients, while breathing less caused elimination of their symptoms. Buteyko also confirmed these findings in his own problem, hypertension. He then decided to devote his life to studying respiration, in general; and CO₂ properties, in particular.

After graduation with Honors, in 1952, he joined the Department of Clinical Therapy of the same institute, working as the manager of the Laboratory of Functional Diagnostics in Moscow. During these years the Soviet state was developing the unique program of outer space exploration for the first space missions. It was of exceptional importance to know and study effects of air parameters (air pressure and its composition) on human health, as well as ideal breathing parameters for astronauts. Hence, Soviet officials were looking for bright young scientists who could lead such projects in physiology and medicine. At the end of 1950's he was chosen to head such a project in Novosibirsk. Due to importance attached to the project, his laboratory was provided with the best available equipment and best-qualified support.



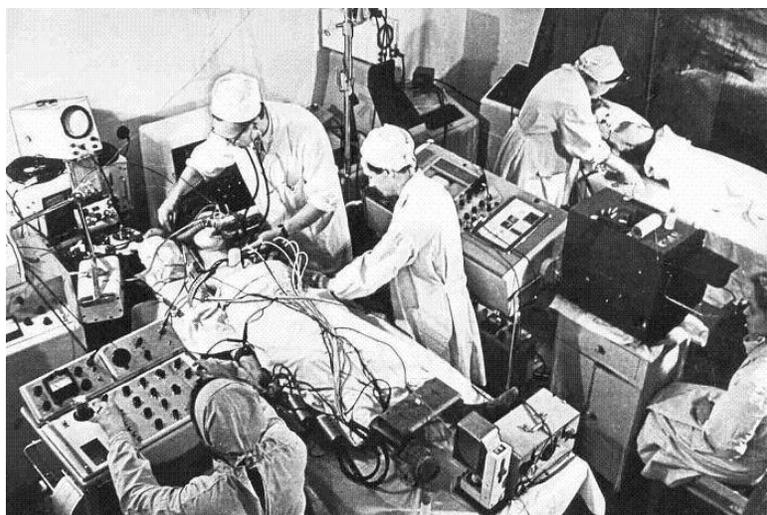
The main goals of this research included:

- finding optimum air parameters for human functioning during space missions depending on the stage of the flight and initial parameters of astronauts;
- breathing of healthy and sick people and interactions between various diseases and respiration;
- effects of various environmental factors (sleep, sleeping postures, exercise, posture, meals, diets, daily activities, thermoregulation, emotions, etc.) on breathing, body oxygenation, and health.

Thus, in 1960 [Buteyko](http://www.normalbreathing.com/buteyko.php) (<http://www.normalbreathing.com/buteyko.php>) became the manager of another Laboratory of Functional Diagnostics organized at the Institute of Experimental Biology and Medicine in Novosibirsk. Buteyko created in his laboratory a unique diagnostic complex, which included several physiological devices to measure 40 important health parameters in real time (or with each breath). According to Buteyko and Dyomin, "One such investigation, lasting about 1 hour, produces about 2,000 recordings of 40 main parameters of respiratory and cardiovascular processes, resulting in about 100,000 numbers..." (Buteyko & Dyomin, 1963). These parameters included pulse, EKG, blood pressure, tidal volume, respiratory rate, minute ventilation, arterial and venous blood gases and chemical analysis of the expired air. The complex produced many thousands of measurements per hour, analyzed by a computer. The unique features of this complex were described in the Soviet magazine "Izobretatel' i ratsionalizator" ("Inventor and Efficiency

Expert”, Buteyko 1961; Buteyko, 1962). Some characteristics and abilities of this machine were also reported in more than 20 scientific articles written by Buteyko with his colleagues and published in medical, physiological and diagnostic magazines and conference proceedings.

Photo 1. This is the unique diagnostic complex created in 1960s for USSR’s first space missions in the Laboratory of Functional Diagnostic in Novosibirsk headed by Doctor Buteyko. The volunteers were to breathe air with varying composition. About 40 physiological parameters of the body were measured by the complex in real time 24/7, thousands of numbers every hour, literally with each breath of the person. The information was recorded and analyzed by a computer. Simultaneously Doctor Buteyko studied the interactions between breathing and diseases, breathing and life style factors and other breathing-related and CO₂-related challenges.



Research with the use of this complex was done from 1960 to 1968. That allowed Buteyko to receive information about physiology and respiration of the human organism in health and disease and relationships between respiration and different factors.

In 1985, the Soviet Health Ministry officially approved the Buteyko breathing method. It has been used by family doctors (or GPs) and breathing practitioners in Russia for more than 200,000 patients (mostly asthmatics), including over 30,000 people with cardiovascular problems and many other conditions. The Buteyko breathing method has saved the lives of thousands of people in the Soviet Union who were officially diagnosed as terminally ill.

According to testimonials of his medical colleagues and friends, for many decades Dr. Buteyko was persecuted by Soviet KGB secret agents. They organized more than 6 assassination attempts to kill Dr. Buteyko using food poisoning, car accidents and other techniques. In 2001, during his visit from Moscow to Novosibirsk, Dr Buteyko was severely beaten by 3 men with a metal rod and left unconscious to die in snow. He, in spite of the attack of vandals, survived, but died later.

The method has had several successful clinical trials (in England, Australia, New Zealand, Ukraine, USSR), including 6 randomized controlled Western trials on asthma. During 6 randomized controlled trials of the Buteyko method, in average, in 3-6 months, those asthmatics practicing the Buteyko method reduced their use of beta 2-agonists (relievers or bronchodilators) by 70-90% and steroid use by about 50%. Their symptoms' score (coughing, [shortness of breath](#), etc.) was improved by over 50%. However, there were no changes in bronchial responsiveness or lung function results in these patients with asthma since there were almost no asthmatics who achieved the main goal of the Buteyko method and the golden standard of breathing, 60 s CP.

Dr. K. Buteyko made the following key claims:

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1. Sick people, asthmatics included, breathe more air than the tiny medical norm. Overbreathing reduces body oxygenation and intensifies the drive to breathe even more.
2. If asthmatics and other sick people normalize their breathing pattern (normal breathing 24/7), then they would not require medication and would not experience symptoms.
3. The Buteyko Table of Health Zones links respiratory parameters of sick people (with any chronic disease) with their health state. This table suggests parameters that reflect normal breathing (8 breaths/min for breathing frequency at rest, 6.5% for alveolar CO₂ content, 60 s for stress-free breath holding time after usual exhalation, etc.). These parameters, according to Dr. Buteyko, correspond to normal health and absence of asthma and many other diseases.

Currently hundreds of Buteyko breathing practitioners teach the Buteyko method in Australia, New Zealand, the UK, the Netherlands, Ireland, the USA, Canada, and many other countries.

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3. How to increase CO₂ and body O₂

3.1 Methods suggested by Dr. K. P. Buteyko

There were 2 main methods or types of exercise suggested by Dr. Konstantin Buteyko in order to boost CO₂ and O₂ contents in the human body: 1) physical exercise; and 2) reduced breathing exercise.

Physical exercise is done with nose breathing only (in and out). Nose breathing leads to higher CO₂ in the lungs and arterial blood and reduced heart rate during exercise. In addition, nose breathing allows utilization of nitric oxide generated in sinuses. Nitric oxide also dilates blood vessels and improves oxygen transport. Note that since sick people have too heavy breathing at rest, they cannot exercise intensively with nose breathing. Such people need to exercise slower using, for example, walking. When a person exercises with nose breathing for many hours every day, his body O₂ content increases. Fitness and energy levels also become higher, and it becomes easier to exercise more. At more than 40 seconds for the morning CP, people start to enjoy and crave physical exercise.

Reduced breathing exercise has many requirements, such as empty stomach, hydration, correct posture, cool conditions, diaphragmatic breathing, and some others. The purpose of reduced breathing is to breathe little less air and create air hunger. When the exercise lasts for 10-20 minutes, the breathing center adapts to higher CO₂, and this improves O₂ transport. The Buteyko reduced breathing can be used to unblock the nose; stop bouts of coughing, asthma attacks, heart attacks, and seizures; warm up cold hands; relieve constipation and produce many other positive effects in about 40-120 seconds.

During these activities CO₂ content in the lungs, blood and other cells is higher than at rest and we get a stronger desire to breathe (air hunger). If we are able to tolerate this air hunger and relax for a certain amount of time (e.g., for 15-20 min), the breathing centre adapts to lighter breathing and higher CO₂ concentrations in cells and tissues.

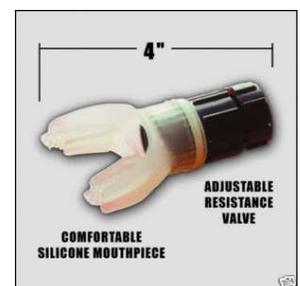
It is not the activity itself, but rather the after-effects of the activity or long-term effects that have to be analyzed for health benefits. When breathing becomes lighter, the final CP (Control Pause after the breathing session or physical exercise) is higher, indicating favorable adaptations of the respiratory centre. (Note that the CP usually does not increase after intense physical exercise. Physical exercise has a definite positive effect only on the next morning CP, which is the main parameter of health for the Buteyko method.)

3.2 Breathing devices



Any breathing device ([Powerlung](#), [Powerbreathe](#), etc.) or an apparatus that resists to air flow and/or traps part of the inhaled air for the next inhalation will change the air composition in the alveoli of the

lungs and blood. If the person does not try deliberate overbreathing and can relax instead of panic, then any device or apparatus will increase inhaled CO₂ (hypercapnia) and reduce inhaled O₂ content (hypoxia) producing positive effects on all systems of the human organism.



Consider a simple dust mask and a surgical mask. Both breathing devices create resistance to air flow and trap some exhaled air with very large CO₂ content. Breathing becomes slower and slightly deeper, but the body CO₂ content gets higher. (Nasal breathing increases the body CO₂ content in comparison with mouth breathing due to the same principle: greater resistance to air flow.) Hence, alveolar CO₂ gets



slightly higher, while O₂ concentration is reduced.

Similar effects (higher CO₂ and hypoxia in the lungs with subsequent adaptation of the breathing centre) takes place during paper bag rebreathing, a popular technique known for 2-3 centuries and used by young artists in theaters before performance in order to prevent nervousness and stage fear and to reduce panic. (Modern medical professionals do not advice bag rebreathing anymore due to too large and unpredictable changes in CO₂ and O₂ content of the inhaled air.)



Another type of exercise, with large temporary CO₂ increase, is running with gas masks (those heavy gas masks with carbon filters which are used in the military services). During Soviet times there were many legendary stories from young rookies about their dramatic health improvements after having daily runs (up to 10 km!), while wearing such breathing devices. Obviously, if one would be able to tolerate such an ordeal, it should lead to large changes in the direction of less breathing and better health.

From a physiological viewpoint, when using these breathing devices we tolerate higher arterial CO₂ levels than arterial CO₂ values present at rest. The longer the use of the device and the larger the change, the higher the final change in the arterial CO₂ after the session. Which devices are going to produce stronger effects? Clearly, the effects of a dust mask, surgical mask and paper bag are quite small since we hardly notice any air hunger. However, when we exercise and use, for example, a “PowerLung” or gas mask, while running, we experience stronger air hunger. Both devices create strong resistance to our breathing. Hence, the effects of these devices during physical exercise can be more lasting.

3.3 Are deep breathing and mouth breathing always bad?

“And finally one should not confuse the following concepts: we are speaking about breathing, which goes on day and night, about our basal breathing, foundation of life. Meanwhile, the system of yogi has separate breathing exercises. Therefore, it is practically unimportant for us how and what you do: feet upwards or downwards, through the right or left nostril, or by right or left side. We are interested in where you will arrive as a result of these exercises. If carbon dioxide increases, and breathing decreases, with each day, then this will ensure the transition of man into a super-endurance state...”
Dr. Buteyko’s lecture in the Moscow State University on 9 December 1969

“... The diver does about 100 dives 2 minutes each; for 200 minutes or 3 hours he is under water [every day]. This is most active work. But this is not that important. It is how he breathes the other 21 hours, instead of those 3 hours. If he breathes deeply, then he will be severely sick and will die. And if he breathes normally, he will somehow endure 3 hours. The key is not in the dive, but in the way the person breathes day and night. First, what is the basal breathing?” Dr. Buteyko’s lecture in the Moscow State University on 9 December 1969

Is [deep breathing](#) (or large minute ventilation) always dangerous or disadvantageous for health? During physical exercise our breathing rate is also very large (up to 100-150 L/min), but CO₂ in the lungs and arterial blood increases, as in the case of nasal breathing during physical exercise, causing gradual adaptation of the breathing centre to higher CO₂ values. (This is the main mechanism, according to Dr. Buteyko why physical exercise is good for our health.) Buteyko also taught us that we are biochemical machines, not mechanical ones. In his words, a rigid approach to breathing (“any deep breathing is bad”) is silly. Most importantly, we should see what is going on with the CO₂ content in the human organism after training. Hence, we should find changes in the CP before and after the breathing session.

The same ideas should be applied to [mouth breathing](#). During mouth breathing in normal life, alveolar CO₂ content drops and nitric oxide is not inhaled in the lungs. (Nitric oxide is produced, among other parts of body, in human sinuses and it is a powerful dilator of blood vessels and is necessary to kill pathogens in airways and lungs.) Sick people, due to abnormal parameters of their breathing pattern (fast exhalations and absence of the automatic pause), have greatly reduced NO (nitric oxide) intake. With healthy people, main NO accumulation takes place during automatic pauses so that they can inhale it in after the automatic pause.

Let us consider what is going on with these parameters (CO₂ and NO) during mouth breathing through some device. If the device can trap a portion of the air exhaled, then this CO₂ can be inhaled in during the next inspiration. Hence, breathing devices (paper bags, gas masks, dust masks, etc.) increase CO₂ content in the blood and in all cells of the human body.

If the person does active inhalations through the mouth, while wearing or using the breathing device, then a small portion of the air (about 5-10% at least) will be inhaled through the nose involuntarily. Hence, the person will inhale NO that has been accumulated in the nasal passages during the automatic pause and slow inhalation through the mouth. If the person uses nasal clips, nitric oxide will be retained in sinuses and most likely get diffused through mucosal surfaces into the bloodstream. (Heart patients normally take nitroglycerine, which is converted in the body into NO, sublingually, i.e. under the tongue. It should not be a problem for NO to diffuse through mucosal membranes.)

Therefore, mouth breathing through the device should not produce any negative effects even during the breathing session. Finally, when various breathing exercises are practiced, it is necessary to consider the after-effects of these breathing exercises on the main parameters of the human organism: most of all, changes in the CP and heart rate. This is exactly what Buteyko taught us: consider changes in basal breathing or breathing that is going on unconsciously, the remaining 23 hours per day.

4. Frolov's Respiration Training Device

4.1 History

Frolov's breathing device was invented by Vladimir Fedorovich Frolov (1938-2009). He graduated from the Military Academy of Chemical Defense in Moscow and worked in the area of development and production of devices for chemical defense. Well educated in the areas of biochemistry and medicine, Vladimir Frolov was an author of 6 patented practical inventions. At the end of his military career, he worked in the Central Apparatus of the Ministry of Defense of the USSR. After his military career, he worked as a chief engineer for production of powdered materials.



During these times, in late 1980's, his health got progressively worse. Vladimir Frolov was searching for solutions to his health problems, and he found an article in a local newspaper about the Buteyko breathing method (Dr. Buteyko had been working in Novosibirsk in 1960-90's). Judging by the spirit of this article, Frolov realized that the Buteyko method was successful for many different health problems. However, there were many obstacles. The Buteyko method could only be learned from an instructor during special lessons. As Frolov wrote, "I was unsatisfied about this factor. If there is a method of breathing, which does not require any special conditions and equipment, why could a person not use it independently at home?"

Hence, he got an "idea about creation of the Device for Each Person". He continued, "the Buteyko method could become the scientific foundation for such device... According to Buteyko, diseases appear due to carbon dioxide deficiency in the arterial blood". This is correct for most people, except patients with ventilation-perfusion mismatch (severe asthma and bronchitis, emphysema, other forms of COPD, etc.). In order to be more accurate, the hypothesis, according to Dr. Buteyko, is that the cause of chronic diseases is alveolar hyperventilation or CO₂ deficiency in the functioning alveoli of the lungs.

4.2 How does the Frolov device work?

The main principle is relatively simple: when we breathe in and out through the device, we get a different air composition in our lungs. In normal conditions, when we breathe usual air, the air that we inhale has about 21% of oxygen and 0.03% of carbon dioxide. If we start to breathe through any device, in and out, the device traps a portion of the exhaled air. This exhaled air has less O₂ and more O₂. For example, if we collect all exhaled air of the ordinary healthy man during normal breathing, it will contain about 15.3% O₂ and 4.2% CO₂ since the human body uses O₂ and generates CO₂.



When we breathe only through the device (inhalations and exhalations), there are changes in the air composition that enters our lungs depending on the parameters of our breathing and device. Indeed, during our exhalation, part of the exhaled air is trapped in the breathing device. Furthermore, the initial part of the exhaled gas has almost no extra CO₂ and about 21% O₂ since this air does not participate in gas exchange. (Ironically, it is called "dead volume", but in reality it is a factor promoting health due to drastic changes in air compositions during Earth's evolution). The last portion of the exhaled air has highest CO₂ content and lowest O₂ values. Hence, the device can trap this last portion of the exhaled air, which has high CO₂ concentration (up to about 5-6% in healthy people) and much less oxygen (about 14-15%) than in normal air.

Hence, during our next inhalation, when we breathe only through the device, this trapped air mixes with fresh air. Hence, most people can more safely practice deep breathing (e.g., 3-5 large deep breathe in one minute) when using the device without problems with low CO₂ in the lungs and other body cells. The approximate composition of the inhaled air during breathing sessions is provided in this Table:

	Inhaled air during breathing sessions	Inhaled normal air
CO ₂ content	1.5% CO ₂	0.03% CO ₂
O ₂ content	18% O ₂	20% O ₂

The exact composition of the inhaled air is difficult to predict because it depends on many parameters:

- 1) volume of trapped air in the plastic bottle (the larger this volume, the higher the inhaled CO₂ and the lower the exhaled O₂);
- 2) amplitude of breathing (it is called tidal volume);
- 3) breathing frequency (it is considered in the next section);
- 4) metabolic rate (or CO₂-generation rate).

Those people, who inhale through the nose and exhale through the device, do not use air that is trapped in the device for their breathing. However, since they try to make longer exhalations, their lungs naturally accumulate more CO₂ and have less O₂. Hence, they experience a similar physiological effect, but to a smaller degree.

Therefore, Frolov device breathing exercise is a type of **intermittent hypercapnic hypoxic training**:

“intermittent” means that it is done only for about 15-20 minutes, but the effects are lasting for many following hours; “hypercapnic” indicates higher CO₂ levels in the alveoli of the lungs during sessions; and “hypoxic” implies temporary reduced oxygen content in the alveoli.

Similar effects (more CO₂ and less O₂ in the inhaled air) take place during Buteyko breathing exercises and pranayama (a slow deep breathing exercise from hatha yoga). However, the breathing device has some advantages: it allows active movements of the respiratory muscles (mainly the diaphragm) and, as a result, it is much easier to tolerate higher CO₂ and lower O₂ concentrations in the lungs and blood. Active muscular diaphragmatic movements, together with variations in internal pressure during inhalations and exhalations, gently stimulate all internal organs as during intensive physical exercise. Furthermore, the device causes gentle or gradual CO₂ increase, while pramayama breath holds and Buteyko breath holds lead to sudden CO₂ upsurge, which can cause problems to some groups of people. Hypoxic training (less O₂ in the inhaled air) without hypercapnia takes place when athletes and other people breathe air and live at high altitude (1,500-3,000 m above the sea level).

4.3 Physiological effects

It is easy to notice that sick people are generally chest breathers. Chest breathing reduces oxygenation of the arterial blood because lower portions of the lungs do not get new oxygen supply. In addition, chest breathing causes lymphatic stagnation since about 60% of lymph nodes are located just under the diaphragm (These and other additional abnormal effects of chest breathing are described in detail on web pages of www.NormalBreathing.com). Generally, people switch to diaphragmatic unconscious breathing at rest, when their morning CP is about 30 seconds or more. Regardless of the health state and other details, Frolov device breathing sessions are done with strictly [diaphragmatic breathing](#). Diaphragmatic breathing leads to the numerous beneficial effects described above.

Apart from improved body oxygenation and higher CO₂ in the lungs, breathing exercises with the Frolov breathing device provide gentle massage of internal organs due to periodic changes in internal pressure of the gas (exhalations produce positive air pressure, while inhalations generate negative pressure).

For people without ventilation-perfusion mismatch (over 80% of the sick)

Higher CO₂ in the alveoli of the lungs increases CO₂ content in the arterial blood. Since CO₂ is powerful vasodilator (some research articles claim that it is the most powerful known vasodilator), breathing sessions improves blood supply to all vital organs of the human body. Additional CO₂ also enhances the Bohr effect (more oxygen will be released by red blood cells in tissues). Since breathing exercises are done while using the diaphragm, most people will get immediate improvement in the oxygenation of the arterial blood (most modern people are chest breathers and, even though they overbreathe, their heavy chest breathing reduces oxygenation of the arterial blood since lower parts of the lungs do not participate in gas exchange.) Improved cell oxygenation reverses tissue hypoxia and generation of free radicals due to the anaerobic energy production mechanism in cells' mitochondria. This normalizes the work of the immune system (less cellular damage to repair). Additionally, improved metabolism of proteins and amino acids, normalizes production of the immune cells. Most importantly, since the breathing session can last up to 15-20 minutes, the breathing centre adapts to slower (less) breathing causing long-lasting increase in arterial blood CO₂ content (for many hours after the session).

For people with ventilation-perfusion mismatch (severe asthma, COPD, emphysema, etc.)

These groups of patients have too high CO₂ level in the arterial blood due to their main problem: dysfunctional alveoli that do not participate in gas exchange. The main physiological problem for them is insufficient oxygenation of the arterial blood and, as a result, too low level of oxygen in cells of the brain, heart and other vital organs. (Hence, these patients are among the first candidates for breathing supplemental oxygen 24/7.)

Breathing through the device increases their CO₂ content in the alveoli and airways (bronchi and bronchioles). Since CO₂ is a powerful natural bronchodilator and breathing exercises are done with gentle mechanical stretching of the whole lungs (deep diaphragmatic breathing through the device with maximum inhalations and exhalations), the number of their alveoli that participates in gas exchange increases. Therefore, these patients can use finger or pulse oximeters to confirm that their blood oxygenation increases during and after a breathing session.

The main physiological effect of the breathing exercises for these people is improved lung functions and better oxygenation of the arterial blood. This leads to quick reduction in symptoms of their main disease and [dyspnea](#), increased energy, improved focus, sleep, digestion and many other physiological and biochemical parameters. Their easier and lighter breathing will last for many hours due to the adaptation of the breathing centre to slower and more relaxed breathing.

4.4 Some facts about the Frolov Breathing Device

- Over 500 health professionals (MDs, GPs or family physicians; nurses; physiotherapists; and other medical professionals) have been involved in the studying and promotion of the Frolov breathing device and its application to their patients in Russia during the first decade of the 21st century.
- More than 2,500,000 people in Russia could confirm that they have improved their health with the help of Frolov Respiration Training Device, implying the goals set have been successfully achieved (Source: the main world's producer of the Frolov breathing device - <http://www.intellectbreathing.com/>)

According to the results of clinical trials on children and adults and long-term practical application of the Frolov device, it is a very efficient therapy against diseases of the respiratory, cardiovascular and nervous systems. Breathing exercises with the Frolov device, according to numerous clinical trials, normalize:

- oxygenation of the arterial blood
- blood supply to the brain and myocardium
- oxygenation of cells
- the immune system\
- metabolism

- lung function tests
 - abnormal blood parameters, including hormonal profile.
- They also improve energy level, sleep and digestion.

Typical reduction in medication in clinical trials for bronchial asthma was about 60-80%. (Note that since correction of risk life style factors was not a part of the program, much better results are expected when the practicing person makes positive changes in this area.) Clinical trials also found reduced inflammation in airways and normalizations in the heart rate, electrocardiogram, blood pressure, cardiointervalography and renovasography measurements. The Frolov breathing device improved removal of mucus, and reduced [coughing](#), wheezing and shortness of breath

Systematic clinical trials and published medical studies with hundreds of patients have been conducted on the following health problems: bronchial asthma, children with bronchial asthma, bronchial asthma with weakness of respiratory muscles, hypertension, angina pectoris, chronic bronchitis, acute stages of bronchitis, emphysema, and diabetes. Apart from these investigations, medical reports included information about positive effects on gastrointestinal problems, cystic fibrosis, psychological disorders, obesity, osteochondrosis, and many other conditions.

10 About the author Dr. Artour Rakhimov



- * High School Honor student (Grade “A” for all exams)
- * Moscow University Honor student (Grade “A” for all exams)
- * Moscow University PhD (Math/Physics), accepted in Canada and the UK
- * Winner of many regional competitions in mathematics, chess and sport orienteering (during teenage and University years)
- * Good classical piano-player: Chopin, Bach, Tchaikovsky, Beethoven, Strauss (up to now)
- * Former captain of the ski-O varsity team and member of the cross-country skiing varsity team of the Moscow State University, best student teams of the USSR

* Former individual coach of world-elite athletes from Soviet (Russian) and Finnish national teams who took gold and silver medals during World Championships

* Total distance covered by running, cross country skiing, and swimming: over 100,000 km or over 2.5 loops around the Earth

* Author of the publication which won Russian National 1998 Contest of scientific and methodological sport papers

* Author of the books:

- “*Oxygenate yourself: breathe less*” (Buteyko Books; 94 pages; ISBN: 0954599683; 2008; Hardcover)

- “[Cystic Fibrosis: Defeated With Natural Self-Oxygenation Methods](#)” 2012 - Amazon Kindle book; ASIN: B00793UMNQ

- “[Cancer: Medical Triumph with Self-Oxygenation Therapies](#)” 2012 - Amazon Kindle book; ASIN: B007IZZ4AQ

- “[#1 Yoga Secret](#)” 2012 - Amazon Kindle book; ASIN: B007MS6CS2

- “[Amazing DIY Breathing Device](#)” 2010-2012 (120 pages)

- “*What science and Professor Buteyko teach us about breathing*” 2002 (120 pages)

- “*Breathing, health and quality of life*” 2004 (91 pages; Translated in Danish and Finnish)

- “*Doctor Buteyko lecture at the Moscow State University*” 2009 (55 pages; Translation from Russian with Dr. A. Rakhimov’s comments)

- “*Normal Breathing: the Key to Vital Health*” 2009 (The most comprehensive world’s book on Buteyko breathing retraining method; over 190,000 words; 305 pages)

* Author of one of the world’s largest website devoted to breathing retraining (www.NormalBreathing.com)

* Author of numerous YouTube videos (<http://www.youtube.com/artour2006>)

* Buteyko breathing teacher (since 2002 up to now) and trainer

* Health writer and health educator

This is an extract from the electronic book “**How To Use Frolov Breathing Device**” – Ultimate Health Restoration Program (pages 1-26 only). The full version of the book (all 88 pages, together with Dinamika instructions) can be bought online from this web page: [How to Use Frolov Device \(Instructions\)](#) or <http://www.normalbreathing.com/how-to-use-frolov-device-instructions.php>