

ADVANCED BUTEYKO BREATHING EXERCISES

Artour Rakhimov

Advanced Buteyko Breathing Exercises

Artour Rakhimov (PhD)

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Introduction

Buteyko breathing exercises have been evolving since the 1960's, when Dr. Konstantin Buteyko, MD, PhD, developed his first respiratory technique. It is known as the "Buteyko reduced breathing exercise" and it forms the foundation for various subsequent Buteyko exercises. For example, some years after the invention of this exercise, Dr. Buteyko and his colleagues added breath holds as a part of his exercises. During the following decades, there were various changes in the structure of Buteyko exercises. These changes are mainly related to duration of a single breathing session and types and frequencies of applied breath holds.

Throughout the last 50 years, over 150 Soviet and Russian medical professionals (mostly family physicians or general practitioners) have applied Buteyko respiratory exercises on thousands of their patients. In total, well over 300,000 people learned these exercises from these doctors. Obviously, they accumulated rich clinical experience in this area. For example, it was discovered that people with panic attacks and hypertension can't get health benefits while practicing more common forms of Buteyko exercises developed for people with asthma, bronchitis, and diabetes.

In addition, they found that there are experience-related differences. Learners or novices get maximum health benefits and the highest results for the body oxygen test, if they practice [breathing](#) exercises for learners. The majority of advanced students, though, are able to get maximum benefits from advanced Buteyko breathing exercises.

While the title of this book suggests only advanced exercises, it includes those respiratory exercises that were designed and have been used for novices. In other words, the book includes initial, intermediate and advanced exercises developed and used by Dr. Buteyko and his medical colleagues.

Bear in mind, that according to experience of Soviet and Russian doctors, a breathing student needs to learn and understand certain physiological facts and laws before starting breathing retraining. These physiological facts and laws include:

- Clinical norms for breathing at rest
- Breathing parameters in people with chronic diseases
- Why overbreathing (or breathing more than the medical norm) reduces O₂ delivery to body cells

- Main qualities and effects of carbon dioxide on the human body
- Why slower and easier breathing at rest increases body oxygenation (even if you breathe 2-3 times less than the medical norm).

While teaching hundreds of Western students, I have discovered that additional education in relation to breathing during sleep and exercise, as well as certain other facts and laws, greatly assists better learning and improves their final results. This book outlines these additional factors and provides detailed descriptions of Buteyko breathing exercises from the initial to advanced level.

Chapter 1. Body O2 test or CP test and morning CP

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

Prof. A.C. Guyton, MD, The Textbook of Medical Physiology*

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

** World's best-selling physiology book*

1.1 How to do the CP test

The DIY body-O₂ test is a very accurate health test. Clinical experience of Soviet and Russian Buteyko doctors shows that this test is the most representational in relation to the health state of people with health symptoms and/or chronic diseases. This test is also called the CP (Control Pause).

CP (Control Pause) = Body O₂ test

You can eat tons of supplements and super-foods, drink canisters of herbal drinks, have hundreds of colonic irrigations, and practice (modern) [yoga](#) for many hours every day, but if your body oxygen level remains the same, you will suffer from the same symptoms and require the same dosage of medication.

Let us now consider the test itself.

Sit down and rest for 5-7 minutes. Completely relax all your muscles, including the breathing muscles. This relaxation produces natural spontaneous exhalation (breathing out). Pinch your nose closed at the end of this exhalation and count your BHT (breath holding time) in seconds. Keep the nose pinched until you experience the first desire to breathe. Practice shows that this first desire appears together with an involuntary push of the diaphragm or swallowing movement in the throat. (Your body warns you, "Enough!") If you release the nose and start breathing at this time, you can resume your usual breathing pattern (in the same way as you were breathing prior to the test).



Do not extend breath holding too long, trying to increase the control pause. You should not gasp for air or open your mouth when you release your nose. Your breathing after the test should be the same as before the test, as it is shown here:



The test should be easy and not cause you any stress. This stress-free test should not interfere with your breathing. Here is the most common mistake that I have observed in thousands of people:



It is common for novices to make this mistake. However, if you repeat this test 3-4 times (with about 3-4 minutes of rest between successive attempts), you will find out that you can do the test correctly. Or, if you overdo the test by, let's say, 2-3 seconds, you need to subtract these 2-3 seconds in order to define your real CP.

Warning. Some, not all, people with migraine headaches, panic attacks, and heart disease, especially hypertension, may experience negative symptoms minutes later after this light version of the test. If this happens, they should temporary avoid this test.

Practical suggestion. Measure your CP throughout the day so that you know your usual CP dynamic. It will help you to find out those adverse lifestyle factors or environmental parameters that are most destructive for your health.

1.2 Usual CP numbers in sick people

“If a person breath-holds after a normal exhalation, it takes about 40 seconds before breathing commences”
 From the textbook “Essentials of exercise physiology”
 McArdle W.D., Katch F.I., Katch V.L. (2nd edition);
 Lippincott, Williams and Wilkins, London 2000, p.252.

More detailed results of these Western medical and physiological research studies are summarized in these Tables.

Body-oxygen test in sick people (13 medical studies)

Condition	N. of subjects	Body O ₂	Reference
Hypertension	95	12 s	Ayman et al, 1939
Neurocirculatory asthenia	54	16 s	Friedman, 1945
Anxiety states	62	20 s	Mirsky et al, 1946
Class 1 heart patients	16	16 s	Kohn & Cutcher, 1970
Class 2-3 heart patients	53	13 s	Kohn & Cutcher, 1970
Pulmonary emphysema	3	8 s	Kohn & Cutcher, 1970
Functional heart disease	13	5 s	Kohn & Cutcher, 1970
Asymptomatic asthmatics	7	20 s	Davidson et al, 1974
Asthmatics with symptoms	13	11 s	Perez-Padilla et al, 1989
Panic attack	14	11 s	Zandbergen et al, 1992
Anxiety disorders	14	16 s	Zandbergen et al, 1992
Outpatients	25	17 s	Gay et al, 1994
Inpatients	25	10 s	Gay et al, 1994
COPD + congen heart failure	7	8 s	Gay et al, 1994
12 heavy smokers	12	8 s	Gay et al, 1994
Panic disorder	23	16 s	Asmundson & Stein, 1994
Obstructive sleep apnea	30	20 s	Taskar et al, 1995
Successful lung transplant	9	23 s	Flume et al, 1996
Successful heart transplant	8	28 s	Flume et al, 1996
Outpatients with COPD	87	8 s	Marks et al, 1997
Asthma	55	14 s	Nannini et al, 2007

Note. These results were adjusted to the breath-holding test done after exhalation and only until first stress since many studies used different tests: some of them were done after full inhalation, with 3 large breaths

(before the test), etc. For details of these adjustments, visit NormalBreathing.com. The same adjustments were used for the next CP Table.

We can see that sick people gave less than 20 seconds for the CP test, and that the CP test correlates with the severity of their health problems.

References (in the same order)

Ayman D, Goldshine AD, The breath-holding test. A simple standard stimulus of blood pressure, Archives of Intern Medicine 1939, 63; p. 899-906.

Friedman M, Studies concerning the aetiology and pathogenesis of neurocirculatory asthenia III. The cardiovascular manifestations of neurocirculatory asthenia, Am Heart J 1945; 30, 378-391.

Mirsky I A, Lipman E, Grinker R R, Breath-holding time in anxiety state, Federation proceedings 1946; 5: p. 74.

Kohn RM & Cutcher B, Breath-holding time in the screening for rehabilitation potential of cardiac patients, Scand J Rehabil Med 1970; 2(2): p. 105-107.

Davidson JT, Whipp BJ, Wasserman K, Koyal SN, Lugliani R, Role of the carotid bodies in breath-holding, New England Journal of Medicine 1974 April 11; 290(15): p. 819-822.

Perez-Padilla R, Cervantes D, Chapela R, Selman M, Rating of breathlessness at rest during acute asthma: correlation with spirometry and usefulness of breath-holding time, Rev Invest Clin 1989 Jul-Sep; 41(3): p. 209-213.

Zandbergen J, Strahm M, Pols H, Griez EJ, Breath-holding in panic disorder, Compar Psychiatry 1992 Jan-Feb; 33(1): p. 47-51.

Gay SB, Siström C1L, Holder CA, Suratt PM, Breath-holding capability of adults. Implications for spiral computed tomography, fast-acquisition magnetic resonance imaging, and angiography, Invest Radiol 1994 Sep; 29(9): p. 848-851.

Asmundson GJ & Stein MB, Triggering the false suffocation alarm in panic disorder patients by using a voluntary breath-holding procedure, Am J Psychiatry 1994 Feb; 151(2): p. 264-266.

Taskar V, Clayton N, Atkins M, Shaheen Z, Stone P, Woodcock A, Breath-holding time in normal subjects, snorers, and sleep apnea patients, *Chest* 1995 Apr; 107(4): p. 959-962.

Flume PA, Eldridge FL, Edwards LJ, Mattison LE, Relief of the 'air hunger' of breathholding. A role for pulmonary stretch receptors, *Respir Physiol* 1996 Mar; 103(3): p. 221-232.

Marks B, Mitchell DG, Simelaro JP, Breath-holding in healthy and pulmonary-compromised populations: effects of hyperventilation and oxygen inspiration, *J Magn Reson Imaging* 1997 May-Jun; 7(3): p. 595-597.

Nannini LJ, Zaietta GA, Guerrera AJ, Varela JA, Fernandez AM, Flores DM, Breath-holding test in subjects with near-fatal asthma. A new index for dyspnea perception, *Respiratory Medicine* 2007, 101; p.246–253.

1.3 Usual CP numbers in healthy and ordinary people

CPs in healthy and normal subjects

Types of people investigated	Number of subjects	Control Pause, s	References
US aviators	319	41 s	Schneider, 1919
Fit instructors	22	46 s	Flack, 1920
Home defense pilots	24	49 s	Flack, 1920
British candidates	23	47 s	Flack, 1920
US candidates	7	45 s	Flack, 1920
Delivery pilots	27	39 s	Flack, 1920
Pilots trained for scouts	15	42 s	Flack, 1920
Min requir. for flying	-	34 s	Flack, 1920
Normal subjects	20	39 s	Schneider, 1930
Normal subjects	30	23 s	Friedman, 1945
Normal subjects	7	44 s	Ferris et al, 1946
Normal subjects	22	33 s	Mirsky et al, 1946
Aviation students	48	36 s	Karpovich, 1947
Normal subjects	80	28 s	Rodbard, 1947
Normal subjects	3	41 s	Stroud, 1959
Normal subjects	16	16 s	Kohn & Cutcher, 1970

Normal subjects	6	28 s	Davidson et al, 1974
Normal subjects	16	22 s	Stanley et al, 1975
Normal subjects	7	29 s	Gross et al, 1976
Normal subjects	6	36 s	Bartlett, 1977
Normal subjects	9	33 s	Mukhtar et al, 1986
Normal subjects	20	36 s	Morrissey et al, 1987
Normal subjects	14	25 s	Zandbergen et al, 1992
Normal subjects	26	21 s	Asmudson & Stein, 1994
Normal subjects	30	36 s	Taskar et al, 1995
Normal subjects	76	25 s	McNally & Eke, 1996
Normal subjects	8	32 s	Sasse et al, 1996
Normal subjects	10	38 s	Flume et al, 1996
Normal subjects	31	29 s	Marks et al, 1997
Normal males	36	29 s	Joshi et al, 1998
Normal females	33	23 s	Joshi et al, 1998
Healthy subjects	20	38 s	Morooka et al, 2000
Normal subjects	6	30 s	Bosco et al, 2004
Normal subjects	19	30 s	Mitrouska et al, 2007
Healthy subjects	14	34 s	Andersson et al, 2009

Generally, we see that the CPs for modern normal subjects are about 20-30 seconds, while people living during first decades of the 20th century had about 40-50 seconds.

References (in the same order)

Schneider, 1919 - Observations were made in 1919, published in Schneider, 1930, see below.

Flack M, Some simple tests of physical efficiency, Lancet 1920; 196: p. 210-212.

Schneider EC, Observation on holding the breath, *Am J Physiol*, 1930, 94, p. 464-470.

Friedman M, Studies concerning the aetiology and pathogenesis of neurocirculatory asthenia III. The cardiovascular manifestations of neurocirculatory asthenia, *Am Heart J* 1945; 30, p. 378-391.

Ferris EB, Engel GL, Stevens CD, Webb J, Voluntary breathholding, III. The relation of the maximum time of breathholding to the oxygen and carbon dioxide tensions of arterial blood, with a note on its clinical and physiological significance, *J Clin Invest* 1946, 25: 734-743.

Mirsky I A, Lipman E, Grinker R R, Breath-holding time in anxiety state, *Federation proceedings* 1946; 5: p. 74.

Karpovich PV, Breath holding as a test of physical endurance, *Am J Physiol*, 1947, 149: p. 720-723

Rodbard S, The effect of oxygen, altitude and exercise on breath-holding time, *Am J Physiol* 1947, 150: p. 142-148.

Stroud RC, Combined ventilatory and breath-holding evaluation of sensitivity to respiratory gases, *J Appl Physiol* 1959, 14: p. 353-356.

Kohn RM & Cutcher B, Breath-holding time in the screening for rehabilitation potential of cardiac patients, *Scand J Rehabil Med* 1970; 2(2): p. 105-107.

Davidson JT, Whipp BJ, Wasserman K, Koyal SN, Lugliani R, Role of the carotid bodies in breath-holding, *New England Journal of Medicine* 1974 April 11; 290(15): p. 819-822.

Stanley NN, Cunningham EL, Altose MD, Kelsen SG, Levinson RS, Cherniack NS, Evaluation of breath holding in hypercapnia as a simple clinical test of respiratory chemosensitivity, *Thorax* 1975 Jun; 30(3): p. 337-343.

Gross PM, Whipp BJ, Davidson JT, Koyal SN, Wasserman K, Role of carotid bodies in the heart rate response to breath holding in man. *J of Amer Physiol* 1976, 41 (3); p. 336-339.

Bartlett D, Effects of Valsalva and Mueller maneuvers on breath-holding time, *J Appl Physiol: Respiratory, Environ. & Exercise Physiol* 1977 May, 42(5): p. 717-721.

Mukhtar MR, Patrick JM, Ventilatory drive during face immersion in man, *J. Physiol.* 1986, 370; p. 13-24.

Morrissey SC, Keohane K, Coote JH, The effect of acetazolamide on breath holding at high altitude, *Postgrad Med J* 1987, 63; p. 189-190

Zandbergen J, Strahm M, Pols H, Griez EJ, Breath-holding in panic disorder, *Compar Psychiatry* 1992 Jan-Feb; 33(1): p. 47-51.

Asmundson GJ & Stein MB, Triggering the false suffocation alarm in panic disorder patients by using a voluntary breath-holding procedure, *Am J Psychiatry* 1994 Feb; 151(2): p. 264-266.

Taskar V, Clayton N, Atkins M, Shaheen Z, Stone P, Woodcock A, Breath-holding time in normal subjects, snorers, and sleep apnea patients, *Chest* 1995 Apr; 107(4): p. 959-962.

McNally RJ & Eke M, Anxiety sensitivity, suffocation fear, and breath-holding duration as predictors of response to carbon dioxide challenge, *J Abnorm Psychol* 1996 Feb; 105(1): p. 146-149.

Sasse SA, Berry RB, Nguyen TK, Light RW, Mahutte CK, Arterial Blood Gas Changes During Breath-holding From Functional Residual Capacity, *Chest* 1996, 110; p.958-964.

Flume PA, Eldridge FL, Edwards LJ, Mattison LE, Relief of the 'air hunger' of breathholding. A role for pulmonary stretch receptors, *Respir Physiol* 1996 Mar; 103(3): p. 221-232.

Marks B, Mitchell DG, Simelaro JP, Breath-holding in healthy and pulmonary-compromised populations: effects of hyperventilation and oxygen inspiration, *J Magn Reson Imaging* 1997 May-Jun; 7(3): p. 595-597.

Joshi LN, Joshi VD, Effect of forced breathing on ventilatory functions of the lung, *J Postgrad Med.* 1998 Jul-Sep; 44(3): p.67-69.

Morooka H, Wakasugi Y, Shimamoto H, Shibata O, Sumikawa K, Hyperbaric Nitrogen Prolongs Breath-Holding Time in Humans, *Anesth Analg* 2000; 91: p.749 –751.

Bosco G, Ionadi A, Data RG, Mortola JP, Voluntary breath-holding in the morning and in the evening *Clinical Science* (2004) 106, p. 347–352

Mitrouska I, Tsoumakidou M, Prinianakis G, Milic-Emili J, Siafakas NM, Effect of voluntary respiratory efforts on breath-holding time, Respiratory Physiology Neurobiology 2007, 157; p. 290–294.

Andersson JPA, Schagatay E, Repeated apneas do not affect the hypercapnic ventilatory response in the short term, Eur J Appl Physiol 2009, 105: p.569–574.

1.4 How and why the morning CP is a crucial health test

Either you already measured your CP many times or not, in both cases you are probably wondering which CP number is the most important for the Buteyko breathing method. This question is very important since the answer and attitude shape the strategy and chosen activities.

Some Buteyko breathing practitioners greatly emphasize the importance of many breathing sessions and an ability to achieve very large CP numbers during the day. These are great things. However, it is even more important to maintain the same level of health during and after sleep.

What are the possible problems and dangers of sleep? During the night we do not control our breathing. For most people, as was discussed before, breathing is heaviest between about 4 and 7 am. The CP is lowest during these early morning hours. Meanwhile, the main damage to the body with resetting of the breathing center corresponds to the minimum daily CP. Many positive changes due to higher daily CPs could be eliminated during sleep because of hyperventilation. The rate of overall weekly progress is reduced. The student has to start over each morning almost from the beginning.

Conclusion: Severely sick people are most likely to die during early morning hours (4-7 am), when our breathing is heaviest and body oxygenation lowest. This fact was found for heart disease, stroke, COPD, asthma, epilepsy and many other conditions.

Imagine, for example, what happens when the morning CP is below 10 or 20 s.

If you have [bronchial asthma](#) and acutely hyperventilate during early morning hours (as most asthmatics do), oxygenation of the body is critically low, airways become more irritated, and more inflammation is produced. Your body will try to repair airways during the day, when the CP is higher. But if you hyperventilate every morning, or even every other morning,

healing will never take place. There is simply not enough time to heal since damage is systematically repeated. It is the same as scratching a wound every day until it bleeds and hoping that it will go away one day.

If you have a congenital heart disease or other abnormalities in the heart muscle, the situation is the same. You will produce considerable damage to your heart, once your CP becomes less than 10 seconds. Later you may have the best breathing exercises, a perfect diet, and many other great things, but if you hyperventilate every morning, there is no health system that can help you.

If you have cancer, your tumor will grow and even metastasize during early morning hours. Later, you can have the best diet, supplements, physical exercise, and many other wonderful things which can reduce your tumor. But if your tumor grows by about 2 mm during 2-3 hours in the morning and shrinks by 1 mm during the remaining part of the day, what would be the total effect in 1-2 months?

To find out the degree of this problem, every night, just before going to sleep, the student should measure, if there are no contra-indications, the evening CP. It will tell about the progress achieved during that particular day. Then you need to compare this number with your morning CP.

The morning CP is not just a test. It also provides us with energy and reminds us about our commitment to breathe less.

After several days of measurements, there are many numbers - daily, evening and morning CPs. Then the goal is to find out the emerging pattern related to personal circadian CP changes. Is the morning CP much smaller than the previous evening CP? By how much? Some people have relatively short sleep (e.g., about 6 hours) even when their CPs are about 10 s or less. Usually these people do not have problems with morning CP. It is nearly the same as their evening CP values.

Practice shows that over 50% of modern students have a large CP drop (at least twice) during the night sleep. For some of these people the drop is even more drastic. Only a small proportion of people (about 5-10%) have almost no difference (e.g., 1-2 s) between the evening and morning CP values.

Practicing breathing exercises and many other common sense activities gradually restores the CO₂ level back to the usual daily values. During the

next night the pattern is repeated again: good daily values with about 30-70% morning CP drop.

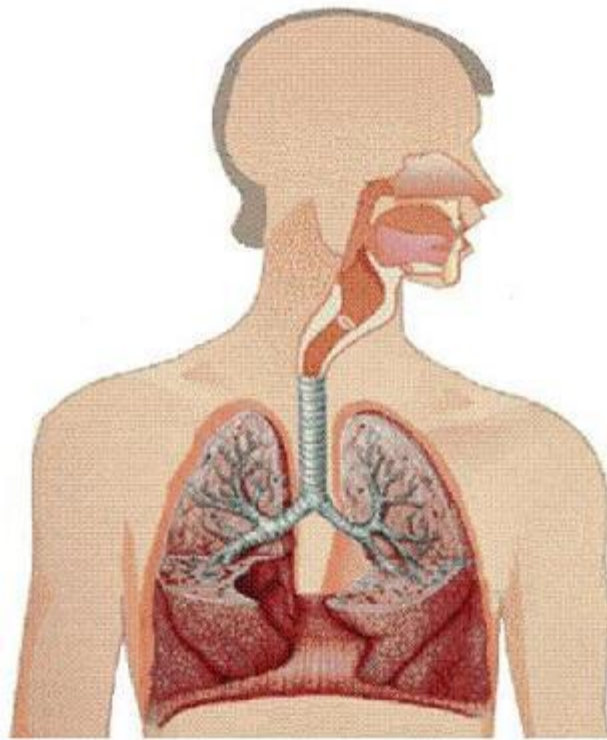
Would the morning CP, after weeks of practice, improve, if breathing exercises and common sense activities are practiced? Practice of Buteyko breathing method practitioners shows that usually it will, but low morning CP would be the greatest factor impeding the general CP progress and health restoration. It would make sense, therefore, to address the problem directly. However, the first step is to find out the degree of the problem. Hence, it is important to measure and record your morning CP.

Practicing reduced breathing, when going to sleep, helps you to remember about doing the morning CP test. In addition, it helps you to solve the problem [how to fall asleep fast](#).

Chapter 2. Diaphragmatic breathing

2.1 Why do we need diaphragmatic breathing?

The diaphragm, in normal health, does over 75% of the work of breathing at rest (Ganong, 1995; Castro, 2000). Most modern people, as it is easy to observe, have predominantly [chest breathing](#). Does chest breathing interfere with the health of humans and the normal functioning of the diaphragm?



1. Yes. We need diaphragmatic breathing 24/7 to regulate efficient O₂ delivery and (partial) CO₂ elimination. (Note that, while the majority of modern people believe in the deep breathing myth and the poisonous nature of CO₂, medical science has found dozens of benefits of CO₂ in the human body.)

Respiratory Physiology, by John West, documents that the upper 7% of the lung delivers 4 ml of oxygen per minute, while the lower 13% of the lung brings in 60 ml of oxygen every minute (West, 2000). Therefore, lower parts of the lungs are about 7 times more productive in oxygen transport. While normal breathing at rest has a small tidal volume (only about 500 ml for a 70-kg person), it provides hemoglobin in the arterial blood with up to

98-99% O₂ saturation due to the leading role of the diaphragm in the respiratory process.

In contrast, chest breathing is usually larger and deeper (up to 12-18 L/min for minute ventilation, 700-900 mL for tidal volume, and 18-25 breaths/minute in mild forms of heart disease, diabetes, asthma and so forth). But during thoracic breathing, blood oxygen levels are actually *reduced* due to inhomogeneous gas exchange: lower parts of the lungs do not get fresh air supply during chest breathing. In certain cases, this pathology (chest breathing) can greatly contribute to or even lead to pneumoperitoneum, more mucus of phlegm, emphysema, chronic respiratory fatigue, severe asthma, bronchitis, cystic fibrosis, heart disease, diabetes, cancer tumor growth, and other pathologies. (For mucus, see this link – [how to get rid of phlegm](#).)

2. We need diaphragmatic breathing 24/7 to perform lymphatic drainage of the lymph nodes from the visceral organs. The diaphragm is a lymphatic pump, since about 60% of all lymph nodes in the human body are located just under the diaphragm. Dr. Shields, in his study, "Lymph, lymph glands, and homeostasis" (Shields, 1992), reported that diaphragmatic breathing stimulates the cleansing of the lymph nodes by creating a negative pressure pulling the lymph through the lymphatic system. This increases the rate of toxic elimination by about 15 times, as this clinical study reports.

Chest breathing at rest causes lymphatic stagnation in the stomach, pancreas, spleen, liver, kidneys, large and small colon, and other organs. Hence, effective lymphatic drainage is also among the benefits of [diaphragmatic breathing](#).

When we switch to thoracic breathing (as during unnoticeable hyperventilation), this function of the diaphragm is taken over by the chest muscles. The resulting hypocapnia constricts bronchi and bronchioles, leading to a tenser and higher pitched voice. This effect is especially noticeable during singing, so it is not a surprise that singing teachers encourage diaphragmatic breathing in their students.

References

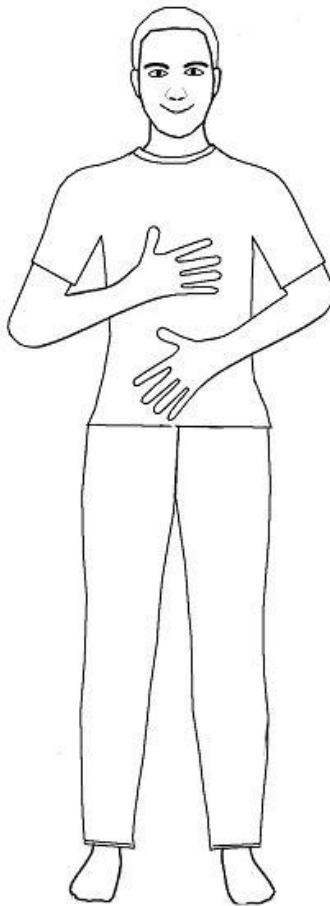
Shields JW, MD, Lymph, lymph glands, and homeostasis, Lymphology, Dec. 1992, 25, 4: 147.

West JB. Respiratory physiology: the essentials. 6th ed. Philadelphia: Lippincott, Williams and Wilkins; 2000.

2.2 How to test your own breathing technique

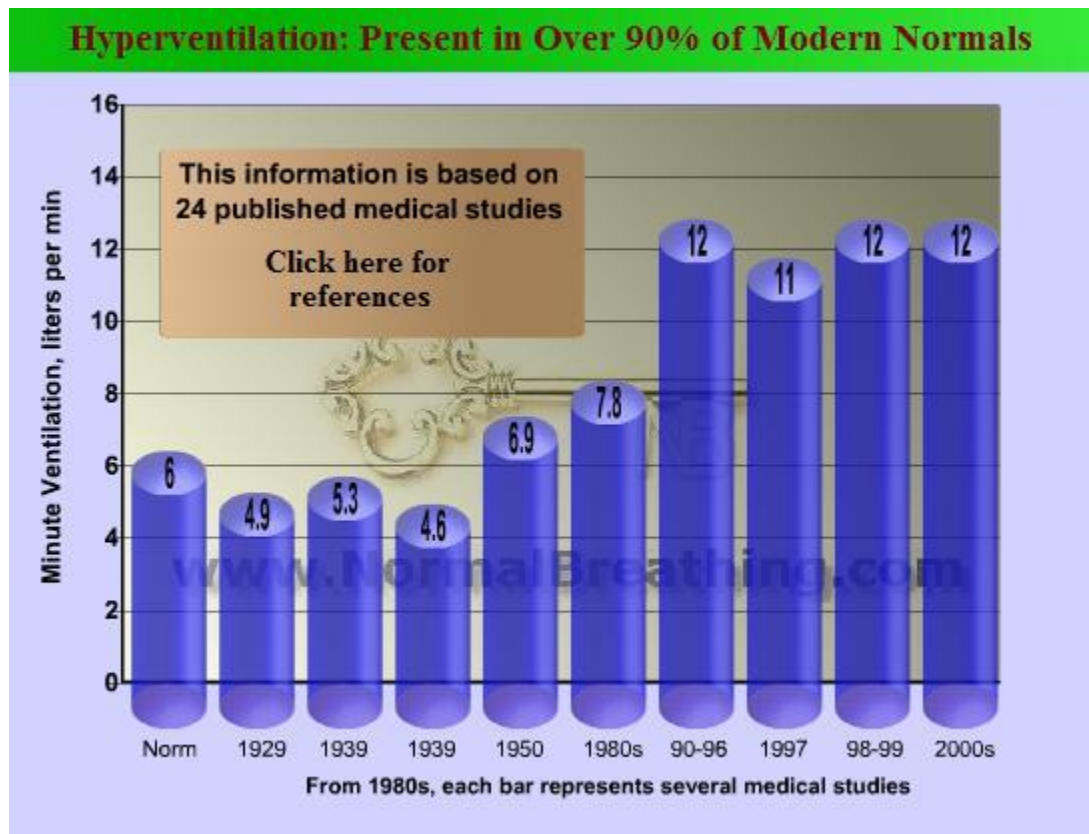
How can you check your predominant automatic breathing technique? Do you usually breathe using the belly and diaphragm or chest at rest?

Self-test. *Put one hand on your stomach (or abdomen) and the other one on your upper chest (see the picture on the right). Relax completely so that your breathing dynamic has little changes. (We want to know more about your usual unconscious breathing.) Pay attention to your breathing for about 20-30 seconds. Take 2-3 very slow but deep breaths to feel your breathing in more detail.*



Now you know about your usual breathing technique. In order to be certain, you can ask other people to observe how you breathe when you do not pay attention to your breathing (e.g., during sleep, while reading, studying, etc.).

2.3 Causes of diaphragm dysfunction and chest breathing in modern people



Modern ordinary people breathe nearly 3 times more air than people living during first decades of the 20th century. Hyperventilation is the main, and generally the only, cause of chest breathing in modern people and their inability to enjoy the diaphragmatic breathing benefits. Let us consider why.

Alveolar hypocapnia (low CO₂ in the lungs) leads to hypoxia in body cells (low body oxygenation), including the muscle cells of the diaphragm. As a result, the diaphragm gets into a state of spasm. If breathing gets slower or closer to the norm (e.g., due to breathing retraining), the oxygen level in the diaphragm will increase and it will become again the main respiratory muscle used for breathing at rest.

The situation in sick people or those who suffer from chronic diseases, such as heart disease, diabetes, cancer, asthma, and bronchitis, is even worse. These people breathe even faster and deeper than normal subjects, usually between 12 and 18 Liters per minute. There are dozens of such studies.

You can find references for this chart and for studies on respiration parameters in normal people on the web pages of the site NormalBreathing.com.

2.4 How to restore function to the diaphragm 24/7?

You can restore constant (or automatic) diaphragmatic breathing if you have more than 30 seconds for body oxygenation 24/7. Here is a chart that provides a relationship between basal breathing (measured using the body oxygen test or Buteyko Control Pause) and typical breathing at rest.

Diaphragmatic vs. chest breathing and body O₂ content

Body-Oxygen Content	Automatic breathing at rest: diaphragmatic or chest?
1-10 s	Virtually always chest
11-20 s	Chest in over 90% of people
21-30 s	Mostly chest
31-40 s	Mostly belly
over 41 s	Virtually always belly

As we see from this Table, diaphragmatic breathing becomes automatic (24/7), when the body-oxygen level (CP) is over 30 s 24/7. This means that the morning CP is also more than 30 s. It is logical then that people in the past (about 100 years ago or more) had abdominal breathing 24/7 because they had more than 40 s for the body-oxygen test.

This chart also agrees with observations related to contemporary people. Indeed, since relatively healthy people have only about 20-25 s CP these days, most people are chest breathers. Nearly all sick people are chest breathers as well.

Therefore, in order to achieve diaphragmatic breathing, you need to get more than 30 s for brain and body oxygenation 24/7.

This is the long-term goal. If we consider more immediate goals (how to learn and have diaphragmatic breathing during breathing exercises), the situation depends on various factors. The age of the person is another

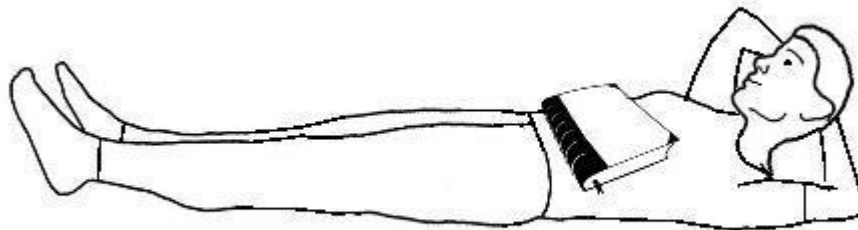
important factor. For younger people, in their 20's or 30's, it is much easier to learn diaphragmatic breathing. For teenagers, it is even easier. Finally, children naturally have automatic diaphragmatic breathing even when they have CPs as low as 5-7 seconds.

2.5 Specific techniques with diaphragmatic breathing: exercise with books

In order to achieve constant abdominal (or diaphragmatic) breathing, some people may require special [breathing techniques](#).

Take 2-3 medium weight books or one large phone book and lie down on your back with the books on your tummy. Focus on your breathing and change the way you breathe so that:

- 1) you can lift the books up about 2-3 cm (1 inch) with each inhalation and then relax to exhale (the books will go down when you relax to exhale)
- 2) your rib cage does not expand during inhalations.

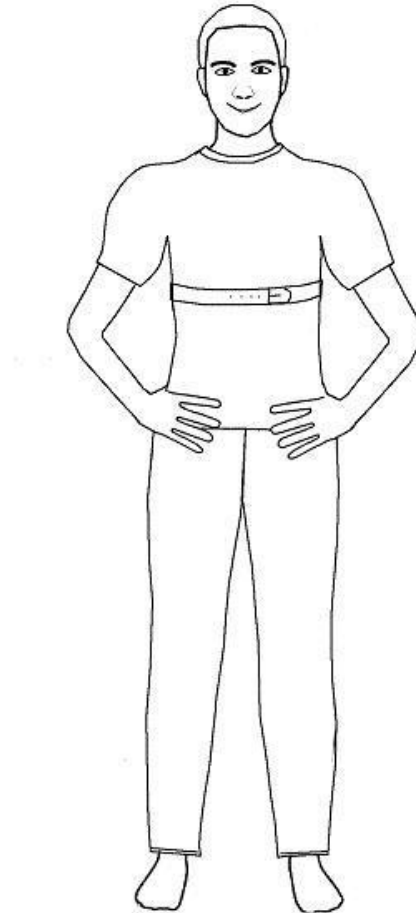


Repeat this **diaphragmatic breathing** exercise for about 3-5 minutes before your main breathing exercises to reconnect your conscious brain with the diaphragm. You can practice this exercise for some days (up to 5-7 times per day for only about 3-5 minutes each time) until you are sure that diaphragmatic breathing is the usual way to breathe during the breathing sessions.

If the diaphragm is not yet the main muscle for your automatic breathing at rest, and/or you have doubts about your ability to keep your chest muscles relaxed during breathing exercises, you can apply the following ultimate solution that blocks chest breathing.

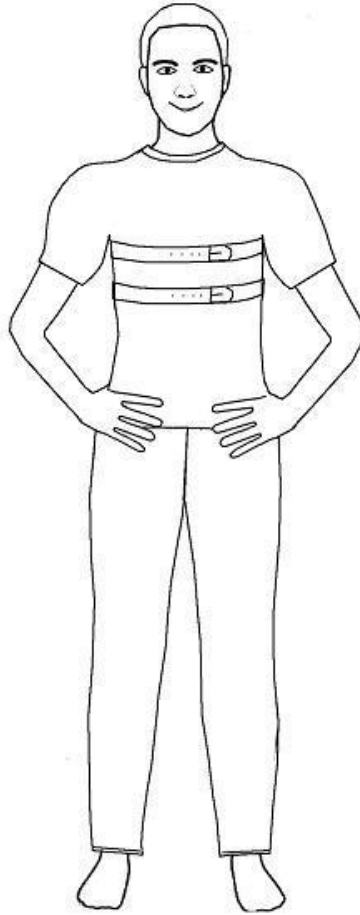
2.6 Diaphragmatic breathing technique with belts

You can use a strong belt to restrict your rib cage and “force” the diaphragm to be the main breathing muscle using the following technique.



Put a belt around your lower ribs (in the middle of the trunk) and buckle it tightly so that you cannot take a deep inhalation using your rib cage or chest. Now for slow deep inhalations your body needs to use your tummy (or abdomen). Try it. While leaving the belt in place for some minutes or even hours, you can acquire diaphragmatic breathing and corresponding sensations.

There are, however, some people who will switch to upper chest breathing. This is common for elderly women who have been chest breathers for decades. In some of these women, this belt will not make any difference since they are breathing using the upper chest. Therefore, the belt does not make any difference. The solution to this problem is following: they need to use a second belt and fix it just under their armpits so that they cannot have upper chest breathing as well.



While having 2 belts, it is not possible to have any chest breathing.

For some people with persistently tense diaphragms, who in addition have problems with slouching and constipation (see [constipation remedies](#)), extra magnesium can be an additional assisting factor. (A lack of magnesium leads to spasm and tension in body muscles.) Elderly women and people with COPD may require up to 1-2 weeks to master abdominal breathing.

2.7 Magnesium can be a key factor for some people

The diets of modern people are low in **magnesium**, which is a known relaxant of muscles, the diaphragm included. The normal daily requirement for Mg is about 400-500 mg. Typical symptoms of magnesium deficiency include: a tendency to slouch (indicating muscular tension), predisposition to constipation (muscles of the bowel also get into a state of spasm; hence "Milk of magnesia" or magnesium oxide is a popular and safe remedy for constipation) and **tense diaphragm**, causing chest breathing 24/7. Try

taking a Mg supplement (about 400-500 mg daily plus calcium to maintain a proper balance) for 3 days and monitor your symptoms and any effects on your posture, breathing mechanics and CP. (See more about this 3-day test in the manual **Major-Nutrients Guide for higher Body-Oxygen Levels**, which is freely available from NormalBreathing.com.)



You need to restore a light and easy automatic breathing pattern or normalize your breathing in order to have abdominal breathing 24/7. What are the most effective abdominal breathing techniques? Hatha yoga and the Buteyko breathing technique are two methods to prevent chest breathing. There are even more effective ways listed below.

2.8 Advanced diaphragmatic breathing exercises for unblocking the diaphragm

While using the exercise with books (described above) and magnesium supplementation, most people with chronic diseases and an overwhelming majority of ordinary people are able to achieve success in their attempts to learn basic diaphragmatic breathing.

If you still have difficulties with diaphragmatic breathing even after using these techniques, you better start with the use of breathing devices, such as the Frolov breathing device or the Amazing DIY breathing device.

Why is it easier to learn diaphragmatic breathing with a device? The reasons are the following. When using breathing devices you can breathe more air than at rest and have large inhalations and exhalations since the devices keep your CO₂. They trap the last portion of your exhaled air with the highest CO₂ concentrations. In contrast, in order to practice Buteyko

reduced breathing, you need to breathe less and to have shorter inhalations using the diaphragm.

If, after several days of practicing the exercise with books and using Mg supplementation, diaphragmatic breathing is still a challenge for you, then it is better for you to start breathing exercises with a breathing device.

Exercises with breathing devices (for example, the Frolov device or Amazing DIY Breathing Device) are much easier since you can safely have diaphragmatic breathing with large or even nearly maximum amplitude.

Furthermore, when teaching my students during last 2 years, I found that those people who have less than 25 s for their current CPs get more benefits while using these breathing devices rather than using the Buteyko breathing exercises. Buteyko exercises become nearly equally effective when the current CP is about 30 seconds or more.

If you found that diaphragmatic breathing is easy for you, excellent, you can proceed without devices. If you get 30+ s CP in about 1-3 weeks, these weeks of practicing reduced breathing will help you in the long run.

2.9 Importance of posture for diaphragmatic breathing

It is vital for your health, abdominal breathing, good blood oxygenation, and respiratory and GI health to have a straight spine 24/7. Correct posture encourages diaphragmatic and abdominal breathing, while slouching prevents them.



Illustration by Victor Lunn-Rockcliffe

Slouching shoulders, while seemingly relaxing, leads to stress and tension in various muscles. Most of all, it causes chest breathing since the diaphragm becomes immobile. During quiet breathing at rest we need the diaphragm to do the main work of breathing (up to about 90%, as many medical textbooks suggest). Hence, slouching shoulders immediately causes chest breathing with reversal of breathing modes: up to 90% of respiratory movements will be done by the chest muscles.

Slouching shoulders make breathing deeper and faster leading to chronic hyperventilation that causes low body-oxygen content, poor body oxygen test results and ... more slouching. Why?

Relationships between body oxygen level and chances of slouching

Body-Oxygen Level	Minute Ventilation*	Chance of slouching
Less than 20 s	Over 12 L/min	Likely
20-30 s	9-12 L/min	Possible
30-40 s	6-9 L/min	Almost impossible
> 40 s	<6 L/min	Virtually impossible

*** Minute ventilation for a 70-kg person at rest**

Clinical experience of Russian doctors shows that slouching intensifies breathing causing a lack of CO₂ in the lungs and the arterial blood. Since CO₂ is a potent vasodilator (see [Vasodilation](#)) and required for the Bohr effect, poor posture immediately reduces oxygen content in the cells. This promotes chronic diseases since they are based on tissue hypoxia. It is normal then that some people can experience chest pain, angina pain, exacerbations of digestive problems, heart palpitations and arrhythmias due to slouching. Hence, they should stop slouching shoulders.

Less than 10% of modern people have normal breathing parameters and over 40 s for the body oxygen test. It is not a surprise then that most modern people have poor posture. Slouching shoulders is a norm in public schools, universities, libraries, and other places. However, if you watch old movies and investigate old pictures and photos, you can notice that people living during first decades of the 20th century naturally had a good posture with no slouching.

Furthermore, the problem is even worse in people with chronic diseases since their heavy breathing makes muscles even more tense and oxygen deficient. As a result, generally, the sicker the person, the stronger the slouching. To stop slouching shoulders is easy with breathing retraining. At higher body-oxygen levels, correct posture becomes normal naturally.

Generally, people stop slouching completely and naturally when they get over 40 s for their morning CP. However, when a person with about 25-30 s has a poor posture, his or her breathing gets worse and the CP drops.

My suggestion is that, if you have more than 15 s for the CP test, you need to consciously correct your posture 24/7. Later, with higher CPs, it will be much easier for your body to maintain correct posture automatically.

Chapter 3. Restrictions, limits, and temporary contraindications

Normal breathing is the fundamental property of the healthy organism. Hence, breathing normalization is the natural way to deal with many pathologies or diseases of the human body. However, not all people can use the same method in their breathing normalization. While most people can apply the same exercises and techniques (including Buteyko reduced breathing exercise), there are groups of people who require individual tailoring and adjustments in their breathing retraining programs due to certain restrictions, limits, and temporary contraindications.

You should adjust your program and follow specific instructions, if you have:

- Migraine headaches, panic attacks, and 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; post-myocardial infarction; stroke)
- Presence of transplanted organs
- Pregnancy
- Brain traumas and acute bleeding injuries
- Blood clots
- Acute stages (exacerbations) of life-threatening conditions (infarct, stroke, cardiac ischemia, severe asthma attack, metastasizing cancer, septic shock, multiple organ failure, near-death experience, etc.)
- Insulin-dependent diabetes (type 2 diabetes)
- Loss of CO₂ sensitivity
- Low weight (underweight)
- Been using many types of prescribed medical drugs.

Warning: Consult your family physician or GP about the use of these breathing exercises for your specific health problems. Slower breathing and increased body oxygenation increase the effects of many types of medical drugs and can cause undesirable symptoms.

3.1 Heart disease, migraine headaches, and panic attacks

These restrictions and conditions are for people with:

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; pericarditis; post-myocardial infarction; stroke; tachycardia)

Migraine headaches and panic attacks.

Depending on the severity and type of the condition and some other personal factors, many of these patients can worsen their health state if they try intensive breathing sessions accompanied by quick CO₂ increases. Predisposed patients can even develop higher blood pressure, panic attacks, and migraine headaches.

Even a CP measurement can trigger negative cardiovascular changes in some heart patients. Note that other groups of people can do breath holds without any negative effects, but the blood vessels of some heart patients can constrict due to too quick changes in blood gas composition. This effect was known to Dr. K. Buteyko, who described it in his medical publication in the 1960's.



Many of these patients (with heart disease, migraine headaches, or panic attacks) can practice the main breathing exercises, including the reduced breathing developed by Dr. Buteyko. However, in order to be safe, it is better for these people to start with lighter forms of breathing exercises.

When practicing Buteyko breathing exercises, various pauses and reduced breathing, follow these instructions.

If you feel uncomfortable/overstressed after doing the CP test and any other pauses (including maximum and extended pauses) and your heart rate gets higher (3-5 min after the test), do not do any breath holds. It is a known effect that some groups of people get an abnormal cardiovascular response with constriction of the blood vessels, as a reaction to sudden and sharp changes in arterial CO₂. Breathing sessions and exercises should lead to a higher CP, a lower heart rate and an improved feeling of well-being. Hence, you need to adjust your breathing exercises to your current (temporary) state by avoiding uncomfortable pauses and focusing on reduced breathing.

Your goal for the Buteyko breathing exercises is to reduce your heart rate after the session. Start with the relaxation of the diaphragm exercise that does not create any sensation of air hunger. (This exercise is explained below.) Practice this exercise for several days and then try the CP test again. Later you can proceed to more demanding exercises and start practicing reduced breathing without any pauses (as it is described on the web page Learn Buteyko reduced breathing).

When your breathing, after some days/weeks of practice becomes lighter, the ability to do pauses is improved (you can safely do, for example, the CP measurement) and they are safe and useful to do. For example, with over 20 s CP such people are comfortable doing the CPs and even practicing the reduced breathing immediately after the CP without any unpleasant sensations. Then you can practice a regular Buteyko breathing exercise session.

When such students (panic attacks, heart disease, or migraine headaches) get over 30 s CP, no restrictions are usually necessary, extended and maximum pauses are safe, and these students can join the main group in further breathing normalization.

Keep in mind, that at any stage, it is important that you feel better after the breathing sessions and your heart rate should become lower either immediately after the breathing session or 5-10 minutes later.

Important note for patients with high blood pressure. Within 3-4 days after starting breathing retraining, people with hypertension experience a better quality of life (more energy, better concentration,

alertness, sleep and digestion). However, they often experience a very light increase in blood pressure (about 10-15 mm Hg) during the first 5-7 days of breathing retraining. During the following 2-6 weeks their blood pressure gets back to normal. It is very important for them to practice regularly.

When practicing the relaxation of the diaphragm (a special Buteyko breathing exercise for patients with high blood pressure), these people should not try to create any air hunger or sensation of shortage of air.

3.2 Presence of transplanted organs

You should not have more than 30 s for your CP (preferably less than 27 s) at any time of the day to prevent rejection of the transplanted organs. When the CP gets more than 30 s (it corresponds to transition to the next health zone according to the Buteyko Table of Health Zones), the immune system can become more sensitive to foreign tissues and cells and can launch an attack on these tissues in an attempt to repair them.

However, depending on differences in DNAs or a matching of the transplanted organ (transplant compatibility), some students can safely achieve 30, 40 s or even higher CPs.

3.3 Breathing exercises during pregnancy

The main danger during pregnancy is a spontaneous abortion that can happen due to a cleansing reaction caused by a very fast progress in body-oxygen test results due to breathing retraining.

Imagine a pregnant woman who starts with about 10-12 s CP. Note that hyperventilation, hypocapnia, reduced perfusion, [hypoxemia](#), headaches, cramps, and many other effects of hyperventilation (hypertension, asthma, poor blood sugar control, anxiety, [dry cough](#), and many other effects) are common in pregnant females these days. Then assume that she achieves 35-40 s for the body-oxygen test in 4-6 days due to intensive breathing retraining.



Her automatic or unconscious breathing pattern becomes much slower and lighter. Her body oxygenation gets much higher. The immune system becomes highly sensitive to abnormal tissues and is able to reject transplanted organs, as we considered above. Similarly, the immune system at higher CPs can easily reject an embryo at the state when it is not yet attached to the womb of the mother (the first trimester of the pregnancy), as Buteyko breathing doctors discovered during the 1960's. The chances of spontaneous abortion are much higher, if the growing embryo accumulated medical drugs or if the mother has been taking medication before and immediately after getting pregnant.

In order to prevent this scenario, the pregnant woman should have a defensive program of breathing retraining based on prevention of large CP fluctuations or CP losses (episodes of hyperventilation) due to overeating, mouth breathing, supine sleep, poor posture, morning hyperventilation, etc. The rate of the CP progress while learning the Buteyko technique or using breathing devices (e.g., the Frolov device or DIY breathing device) should be limited:

- for women who used medical drugs for a long time or were exposed to toxic chemicals by 2 s in one week;
- for other pregnant women by 3 s in one week.

3.4 Brain traumas and acute bleeding injuries

Hyperventilation is a normal and useful reaction to bleeding injuries. Reduced CO₂ content in the blood decreases the blood flow to vital organs and other tissues of the human body. This prevents excessive blood losses and can save one's life. Emergency professionals even coined a term

“permissive hyperventilation” that is used for people with, for example, brain trauma.

Therefore, it is beneficial, and sometimes life-saving, to hyperventilate when having acute injuries with bleeding. You should not try to reduce your automatic breathing in such conditions.

Later, when bleeding has ceased, it is possible to follow the common program, if there are no other restrictions.

3.5 Blood clots

Reduced breathing dilates the arteries and arterioles and makes the blood thinner so that existing blood clots could get loose and travel via the blood. The released clot may block the blood flow through the artery leading to the brain or heart muscle and cause death.

Hence, a person with a blood clot will benefit from avoiding maximum pauses, extended pauses, control pauses and other breath holds that cause sudden dilation of arteries and arterioles. Breathing exercises (Buteyko technique, Frolov device, and so forth) should be short and the weekly CP (control pause of body oxygen level) growth should be limited to 1-2 seconds only. It is better to focus on defensive measures in relation to breathing retraining (prevention of CP drops due to sleep, mouth breathing, slouching, overheating, and so on). These defensive activities prevent periods of hyperventilation that make the blood thicker and the clot larger.

Other beneficial lifestyle changes are physical exercise with strictly nose breathing and a good diet. In particular, a raw vegetarian diet and natural enzymes or supplements can be great assisting factors to dissolve the blood clot naturally.

Later, when the clot is dissolved or removed, the person can follow the common program of breathing retraining adjusted to their new health state. Depending on diet and CP fluctuations, the natural process of blood clot dissolving takes place between 20 and 35 seconds. The same CP numbers are necessary to prevent formation of blood clots.

3.6 Acute stages (exacerbations) and life-threatening conditions

This section relates to people with infarct, stroke, cardiac ischemia, severe asthma attack, metastasizing cancer, septic shock, multiple organ failure, near-death experience, and other very serious conditions.

Modern EM (Emergency Medicine) professionals developed many successful and useful methods and techniques for people in critical care and life-threatening states. Breathing retraining cannot replace these techniques (CPR, breathing pure oxygen, etc.) when people are unconscious or unable to have a good control of their actions due to their very poor health state.

Breathing exercises cannot stop quickly progressing metastasizing cancer (stages 3 and 4).

Later, when the person is in a stable state, these people can follow the Buteyko method program of breathing retraining adjusted to their new health state.

3.7 Loss of CO₂ sensitivity

Loss of CO₂ sensitivity is a specific topic that can be very important for some students. Unfortunately, most Western Buteyko trainers and practitioners do not have any information or even tests and practical approaches to solve this problem. It is discussed in detail in Oxygen Remedy. Some guidelines are also provided in this book.

This problem is caused by a too large alveolar CO₂ increase and takes place only in a small number of people who are genetically predisposed to heart disease, suffer from allergies, inflammation, low body weight, overheating, a lack of Ca and arginine in their diet, and/or lack of deep stages of sleep. It is a combination of factors that leads to loss of CO₂ sensitivity.

Loss of CO₂ sensitivity causes vasoconstriction and reduced blood flow to vital organs. The effect can cause headaches and drastically reduce the well-being of a person.

Loss of CO₂ sensitivity is manifested in the dys-regulation of breathing and a sudden increase in the resting pulse, generally up to 90 beats per minute or more. The effect can last for hours, weeks, or months depending on the lifestyle and changes made.

Practical note

You may suspect that you have this problem, only if your heart rate is about 20 or beats higher than your usual numbers. For example, your usual pulse at rest while sitting is about 70 beats/min. If later your heart rate constantly stays above 90 beats per minute, you may have this challenge with lost CO₂ sensitivity.

3.8 Breathing exercises for underweight (or low weight) people

The most natural way [how to gain weight](#) fast is to improve the digestive system, the liver function, and the appetite (or hunger) naturally by increasing the body-oxygen levels. When a person is underweight and struggles with weight gain, he or she always has low body oxygenation, generally less than 20 seconds for the body-oxygen test. This means chest breathing 24/7 (which drastically reduces blood oxygenation), possible mouth breathing (especially at night), and chronic overbreathing or breathing more than the norm. These abnormalities cause poor perfusion of all organs, a lack of hunger, low levels of energy, a horrible quality of sleep and many other problems. This how to gain weight approach suggests removing the cause of all these problems: too fast and too deep chest breathing.

Note that apart from low body oxygenation, hyperventilation or fast and deep breathing can also increase blood glucose levels, and while having low energy levels due to tissue hypoxia, such underweight people are not hungry and that causes problems with how to gain weight. This can be easily reversed with correct breathing exercises.

It is a very common effect that when underweight or too slim people start practicing the Buteyko breathing exercises, their blood glucose level drops since the body is “inviting” new calories to be used for weight gain with the goal to get your body weight closer to the norm. Therefore, **these people may require a snack immediately after breathing exercises** especially if they start to feel cold and hungry. People with very low weight can eat more, but only until their hunger disappears.

3.9 Breathing exercises and prescribed medical drugs

Many types of medical drugs become more potent with higher CPs. Most doctors do not know this effect and they adjust dosages of medical drugs arbitrary. There are many guidelines related to dosages. However, since these guidelines do not take into account breathing patterns of patients,

many people get too much medication, and some too little. In addition, most doctors prescribe medication for fixed periods of time. Soviet Buteyko doctors realized that the dosages of nearly all types of medical drugs should be adjusted to the current CP of a patient.

For example, people with severe **hypertension** require large dosages of antihypertensives (medications to lower blood pressure). This is logical since such people have only about 8-12 s (or less) for their CPs. However, when the same person with hypertension increases his or her CP up to about 15 seconds, they may need about 2-3 times less medication. If they continue to use the same dose, they can get a too low blood pressure, and this can cause other serious symptoms and problems. With over 20 s for the morning CP, most such people have a normal blood pressure without drugs. Therefore, any medication that lowers their blood pressure can become dangerous.

A similar situation was discovered by Soviet Buteyko doctors in relation to **diabetics** who take insulin or other types of medication that lowers the blood glucose levels. However, people with diabetes still require insulin even when they have 25 s for the morning CP. This is because the body starts to produce more insulin at higher CPs, and this insulin becomes more effective. Insulin becomes unnecessary when a person has about 35 s for the morning CP with less than 70 beats per minute for pulse at rest. This was the conclusion reported by Dr. Buteyko and Dr. Angelina Nikolaevna Samotesova, Chief Endocrinologist of the Krasnoyarsk region during the 2nd Conference of Soviet Buteyko breathing doctors in 1991. Note that an insulin overdose is potentially very dangerous. Fortunately, nearly all contemporary diabetics use glucometers (devices to measure glucose levels in the blood) in order to define the next dose of medication to lower blood glucose.

People with **hypothyroidism** are often prescribed thyroxine. The effect of this hormone is also CP-related. For example, a person with this condition can increase the CP from 10 up to 20 s. At this higher CP level (20 s), the body starts to produce its own thyroxine. The same dosage of thyroid medication can cause too high blood levels of thyroxine causing heart palpitations and other adverse symptoms. With over 35 s for the morning CP, there is no need for this thyroid medication.

Therefore, if you take any type of medication, it is good to know and discuss these effects with your health care provider. Most importantly, you need to pay close attention to your symptoms

and report them to your health care provider so that he or she can adjust or change your medication.

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This extract of the book contains only about 1/3 of the whole book, or about 44 pages out of 128..

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"[Advanced Buteyko Breathing Exercises](#)" -

<http://www.amazon.com/Advanced-Buteyko-Breathing-Exercises-ebook/dp/B00CAXAKAA>.

For the PDF format of this book, head to the NormalBreathing.com site:

"[Advanced Buteyko Breathing Exercises](#)" -

<http://www.normalbreathing.com/advanced-buteyko-breathing-exercises.php>

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- * 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
- * Joined Religious Society of Friends (Quakers) in 2001
- * Author of the publication which won Russian National 1998 Contest of scientific and methodological sport papers
- * Author of the books, as well as an [author of the bestselling Amazon books](#):
 - “*Oxygenate Yourself: Breathe Less*” (Buteyko Books; 94 pages; ISBN: 0954599683; 2008; Hardcover)
 - “[Cystic Fibrosis](#) Life Expectancy: 30, 50, 70, ...” 2012 - Amazon Kindle book
 - “[Doctors Who Cure Cancer](#)” 2012 - Amazon Kindle book
 - “[Yoga Benefits Are in Breathing Less](#)” 2012 - Amazon Kindle book
 - “[Crohn's Disease and Colitis](#): Hidden Triggers and Symptoms” 2012 -

Amazon Kindle book

- [“How to Use Frolov Breathing Device \(Instructions\)”](#) - 2012 - PDF and Amazon book (120 pages)

- [“Amazing DIY Breathing Device”](#) - 2010-2012 - PDF and Amazon book

- *“What Science and Professor Buteyko Teach Us About Breathing”* 2002

- *“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 the world’s largest website devoted to breathing, breathing techniques, and breathing retraining (www.NormalBreathing.com)

* Author of numerous YouTube videos

(<http://www.youtube.com/user/artour2006>)

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

* Inventor of the [Amazing DIY breathing device](#) and numerous [contributions to breathing retraining](#)

* Whistleblower and investigator of [mysterious murder-suicides](#), massacres and other crimes organized worldwide by GULAG KGB agents using the fast total [mind control](#) method

* Practitioner of the New Decision Therapy and Kantillation

* Level 2 Trainer of the New Decision Therapy

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