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The Importance of Breathing

by Drs. Natalia and Sergei Lapa

Breathing is one of the most important and most "instant" of all the vital functions of the body, yet the understanding of it, let alone the correction and therapeutic use of it, in complementary medicine is far from sufficient. The aim of this article is to shed light on some of the confusion about respiration.

The very existence of our physical body in the environment requires several "interactions" and "exchanges":

- exchange of oxygen and carbon dioxide between the atmosphere and the body through breathing;
- exchange of organic matters (eating, defecation) provided by the digestive system;
- exchange of heat (emitting, conserving or absorbing heat mainly through the skin) with the environment is provided by the thermoregulatory system;
- movement of the body is provided by the locomotor system (bones, joints and muscles);
- informational, emotional and spiritual exchange is provided by the central nervous system, chakras, and the meridians and channels.

If any of these interactions goes wrong disease will ensue. However, in reality the sick person has many, or all, of these systems deranged, though in different degrees. The therapist should decide which systems need attention, in which order and how they should be corrected. At our disposal are numerous theories, techniques and practices to deal with digestive problems: allergen exclusion diets, anti-candida diets, vegetarianism, veganism, raw food diets, macrobiotics, the Hay diet, the Gerson system, the Bircher-Benner system – to mention just a few. The list of approaches to locomotor, thermoregulatory or mental-emotional-spiritual problems is virtually endless. But that is not the case with the respiratory system. The only system known in the West is pranayama – part of



yoga.

I have no doubt that the original version of pranayama works, but it takes several years of dedication under the direct supervision of a guru. In the West it is so simplified and distorted that it is not only useless but does harm to the patient. You may also occasionally meet retired singers or physiotherapists who use a form of breathing exercises – they are essentially repeating the variations of “full breathing” from pranayama, advocating the idea that all problems stem from insufficient, shallow breathing which does not deliver enough oxygen and that we should breathe more and deeply. However, relatively recently (Lewis T, 1916; Willson and Carroll, 1919) it was noticed that the chronic fatigue and exhaustion of soldiers and workers in World War I were caused by “reaction breathing” (i.e. hyperventilation or breathing too much). Later such common ailments as anxiety, stress, panic attacks, chronic fatigue syndrome and sleep loss were associated with hyperventilation (Nixon, P 1985, 1993; Clark, D 1985; Lewis, B 1954; Bradley, D 1991). However, none of them went as far as the Russian doctor Konstantin Buteyko, who not only proved that chronic hyperventilation is actually the cause of asthma, hypertension, ischaemic heart disease, allergic reactions and more than 150 other “diseases of civilisation” but created an effective, comprehensive and scientifically tested system of “intentional cessation of deep respiration” (Buteyko, K 1962, Genina, V 1982).

To breathe or not to breathe? That is the question (apologies to the bard) which is faced by anyone (patient or practitioner) who has ever even started thinking about breathing.

Although the advice to take “a deep breath” to absorb more “prana”, “chi” or simply oxygen is age old and ubiquitous, it is surprising how ill supported it is from a scientific, esoteric or even common sense point of view.

There is no evidence that increased ventilation in non-critically ill patients can improve blood oxygen saturation which is found to be 96-98% in a majority of the patients and cannot rise above 98% for physiological reasons. It has also been proven that oxygen saturation in those who practise shallow breathing in comfortable zone or extreme breath holding exercises doesn't fall below 95% and 92-93% respectively (Buteyko, K 1962), which is well within physiological ranges. What is more important the utilisation of the oxygen by tissues in those practising Buteyko shallow breathing, thus increasing resting carbon dioxide level, is significantly enhanced by shifting the oxygen dissociation curve to the right (Bohr effect).

Although it is true that hypoxia plays a major part in cell damage in critically ill or injured patients and most of them will benefit from extra oxygen and ventilatory support, that practice should not be automatically applied to the general population as most of us are chronic hyperventilators anyway. Our rough estimate is that about 95-98% of the general population is breathing too much (see the definition of hyperventilation and how to test yourself below).

From an esoteric point of view the idea of deep breathing to get more “chi” or “prana” is just a misunderstanding of ancient techniques. They state that there are two types of “chi”: internal and external, and the objective is to awaken and increase the inner one rather than gulping down the

outer. Besides, "full breathing" is just an initial part of the system. In pranayama, the breathing is controlled and divided into parts, it could, say, be the ratio 2-1-2-1, where inhalation – 2, then pause – 1, exhalation – 2, pause – 1. So you may start with breathing in for 6 (seconds or heart beats), then pause for 3 seconds, breathe out for 6 seconds, pause for 3 seconds, then repeat it. The part which is usually omitted is that one should progress to, say, 16-8-16-8 or more, perhaps 32-16-32-16. That would be only 2 breaths in 3 minutes (compared to 16-18 per minute in an average adult) – miles away from hyperventilation. If a person can master that, he will breathe "as if he does not breathe" – which is how masters of yoga describe ideal breathing. In ancient Greece "light breathing" was a sure sign of good health. Unfortunately, many people take only the "deep breathing" part from the whole system and by applying it in everyday life they are drugged into heavy hyperventilation which eventually ruins their health.

Common sense will tell you that there is something wrong with somebody who is sighing and breathless at rest, that they might need medical attention. Breathlessness at light exercises is a sure sign of poor physical fitness and cannot be interpreted as the "strong lungs" of someone practising deep breathing exercises.

To agree that some form of "reduction" of ventilation is a better way to deal with breathing (and other) problems is to agree that most of us hyperventilate. Before we answer the question why do we do it, we should define what is hyper-ventilation.

"Hyper~" means "too much" in Latin and "ventilation" means breathing.

Hyperventilation is chronic overbreathing in excess of metabolic requirements, which leads to symptomatic loss of carbon dioxide and activates the body's defence mechanisms.

Symptoms are: irritability, tiredness, lack of concentration, loss of sleep, anxiety, panic attacks (acute on chronic hyper- ventilation), eating disorders, being under or overweight, breathlessness, an irritable cough, palpitations, indigestion, muscle aches, pins and needles in lips or fingers, cold or clammy hands and feet, frigidity, impotence, premature ejaculation and many others, too many to list them all.

Defence reactions are the natural attempts of the body to prevent loss of carbon dioxide through the airways by blocking the nose (allergic rhinitis, sinusitis, etc.), but this is usually ignored and people just open their mouths. That in turn increases the loss of carbon dioxide and the body starts to narrow windpipes by inflammation (chronic bronchitis) and spasm (bronchial asthma). Those who are not blessed with such an effective and direct response and those who bypass it by taking bronchodilators will suffer the consequences on a different level: pulmonary sclerosis, hypertension, arterial atherosclerosis, inflammatory diseases, infections, etc.

Such a wide spectrum of symptoms and reactions is explained by the fact that overbreathers lose carbon dioxide – probably the most important and universal substance in our body after oxygen. Optimal amounts of carbon dioxide facilitates the release of oxygen from the blood to each cell of the body. When carbon dioxide is lost, all cells (different types in different people and to a different

degree) will suffer a lack of oxygen bringing about symptoms of malfunction in different systems: nervous, cardiovascular, endocrine, immune, digestive, etc.

DO I HYPERVENTILATE?

- For 9 out of 10 people the answer will be "yes" (do you have any of the symptoms above?). But you can check it for yourself:
- sit comfortably, relax;
- take notice of how you breath in and out;
- breath out as usual and hold your breath;
- notice the time you can hold your breath until the first strong desire to breathe in.

The test is done correctly if you can take the first breath in after it without gasping too much. The time you obtained is called the Control Pause or "CP" (Buteyko, K) and should normally be at least 60 seconds. If it is less – you hyperventilate. A simple formula even allows you to calculate the amount of extra air you pass through your lungs every minute. For example, if your CP is 20 seconds, dividing 60 by 20, gives 3, which means you breathe 3 times more then you should. Most so called healthy people will be between 20 and 40 seconds; asthmatics will be anywhere from 0 to 20 seconds.

Who says that the norm is something which only 5% of the population can do? Well, Professor K.P. Buteyko. If a patient is correctly taught and correctly applies the Buteyko technique his CP increases, and Buteyko noticed that all of the symptoms and defence reactions disappear when the patient's CP reaches and is sustained at 60 seconds. Is there anything beyond 60 seconds? Some patients go on to reach 90, 120 or 180 seconds and many of them report the development of unusual extra abilities: healing power, super endurance, super memory, artistic talents and so on. This is in keeping with ancient wisdom: "The perfect man breathes as if he is not breathing" (Lao Tze).

WHY DO WE HYPERVENTILATE?

Unfortunately human beings as a species have several solid, biological, social and historic reasons for doing so.

1. Due to our specific life style our "fight or flight" response (which is acute hyperventilation preparing an individual for imminent physical exertion) is not usually followed by actual physical activity. Moreover, simple intellectual activity in the quiet of an office increases respiration and so causes a loss of carbon dioxide. This is what makes office workers feel drained though it is often put down to "sick building syndrome".
2. When emotions, particularly negative ones, kick in, serious hyperventilation starts. We can certainly put an equal sign between stress and hyperventilation. Advanced Buteyko training allows those who practise it to separate intellectual activity from physiological reactions, in other words one can think of and analyse any issue objectively and impartially without getting involved, upset or excited and therefore without hyperventilation. Another name for this state is meditation.

3. The second major factor specific to humans is our speech. We have to breathe in and out excessively in order just to convey our treasured thoughts to others. So, do not "waste your breath", unless you have to. Alternatively you can enrol in a Buteyko course where correct speech is included in the curriculum.
4. The other fundamental cause of hyperventilation is incorrect nutrition. Biologically herbivorous, we eat meat and overload ourselves with protein which increases respiration. Processed, rectified and polluted foods not only cause allergies and indigestion but also make us breathe more and deeply. Some foods are worse than others and that makes a case for a nutritional approach (partially successful if on its own) to respiratory conditions like asthma. We have also acquired the nasty habit of the daily use of such powerful respiratory stimulants such as tea, coffee and chocolate.
5. Another problem is that our genetic make-up is geared to irregular scanty nutrition and so encourages us to eat more than is needed at the moment, saving up for a "rainy day". As most of us never experience a real shortage of food, that old survivor's instinct now works against us, making us overeat on a regular basis. Overeating itself leads to hyperventilation. A lack of carbon dioxide in turn slows down the synthesis of vital proteins, and so makes us eat even more. This "catch 22" is almost impossible to break without employing the Buteyko technique. However, it explains why obese patients tend to lose weight and wasted patients gain weight after a Buteyko course.
6. The propaganda of deep breathing is another negative factor. Even before we are born we are subjected to our mother's deep breathing taught to her in antenatal classes. From an early age we hear everywhere "take a deep breath" as the answer to any problem we may have. It is difficult to get rid of this kind of deep-rooted stereotype.

WHAT IS THE BEST WAY TO DEAL WITH HYPERVENTILATION?

As you have no doubt already guessed, it is the Buteyko method. It has the strongest scientific foundation, the broadest philosophical basis and decades of experience. The only problem is to find a bona fide practitioner trained by Buteyko or someone close to him. They are few and far between at the moment. However, the recent visit of K. Buteyko to the UK has moved things forward. He founded the Buteyko Health Campaign in order to regulate the practice of his method in this country. Our advice is to go to those who either have certificate from Buteyko or are members of the Campaign. The technique should be taught in groups of a maximum of 10 patients and each patient must be assessed and guided individually. We cannot comment on practitioners trained in Australia and New Zealand, as they have not been assessed by the Campaign yet. Patients with multiple diseases, serious, or unusual conditions should be treated by medically qualified practitioners.

Who will benefit from the Buteyko method?

Anybody who hyperventilates (see symptoms and test above), particularly asthmatics. Hypertension, panic attacks, emphysema, angina, migraine, allergic reactions, obesity and many other conditions have a good rate of improvement in experienced hands. Those who are not sick but want to improve

their breathing for health, fitness or for esoteric practices are also welcome, but practitioners may give priority to ill patients.

Case Histories have been chosen randomly and represented an average improvement for our patients.

CASE HISTORY 1

A young woman, 25 years old, attended the Buteyko course in September 1998.

She had been diagnosed as having had asthma since birth and, for the last 5 years she had been taking steroids and bronchodilators on a regular basis. She came with three inhalers in her pocket (Ventolin, Serevent and Flixotide) and was not at all happy that her life would always depend on these medications. She had been trying to reduce the amount of bronchodilators she used for the last 2 years with little or no result.

Initial assessment:

She had a positive and enthusiastic personality;

Her appearance was that of a typical asthmatic: open mouth with audible and visible breathing;

Respiratory rate was 36 per minute;

Pulse 96 per minute, irregular;

Deep breathing test was positive;

Control pause was 10-12 seconds.

Results on the Buteyko Method:

After first lesson – became able to control her breathing through the nose;

After second lesson – no need for bronchodilators;

After one month – free from all medications, including steroids;

After two months – her Control Pause increased from 12 to 65-70 seconds;

Eleven months later – free from asthma symptoms, no need for any medication.

Final assessment:

Breathing is quiet, invisible, through the nose;

Respiratory rate is 12 per minute;

Pulse 64 beats per minute, regular;

Control Pause is 65 seconds.

Total savings for the NHS just on medications – £914.76 per year.

CASE HISTORY 2

A 12 year old girl came to learn the Buteyko method with her mother, in October 1998.

Her mother did not have asthma, but decided to do the training and show a good example to her daughter.

The girl had been diagnosed as having had asthma for the last four years and was taking steroid inhalers and bronchodilators on a regular basis.

Though well built, she was exempted from all kind of physical activity, as it aggravated her

symptoms.

Initial assessment:

Breathing through open mouth, gasping for air when she was talking;

Respiratory rate was 32 per minute;

Pulse 78 beats per minute, regular;

Deep breathing test was positive;

Control pause was 10 seconds.

Results on Buteyko Method:

Like that of many children, her improvement was straightforward and positive.

After five lessons of the Buteyko course she left the Clinic free from symptoms and medication.

Ten months later: completely free from symptoms, inhalers.

Final assessment:

Breathing through the nose, silent, invisible;

Respiratory rate is 16 per minute;

Pulse is 68 beats per minute;

Control Pause increased to 60 seconds.

Total savings for the NHS just on medications – £114.91 per year.

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