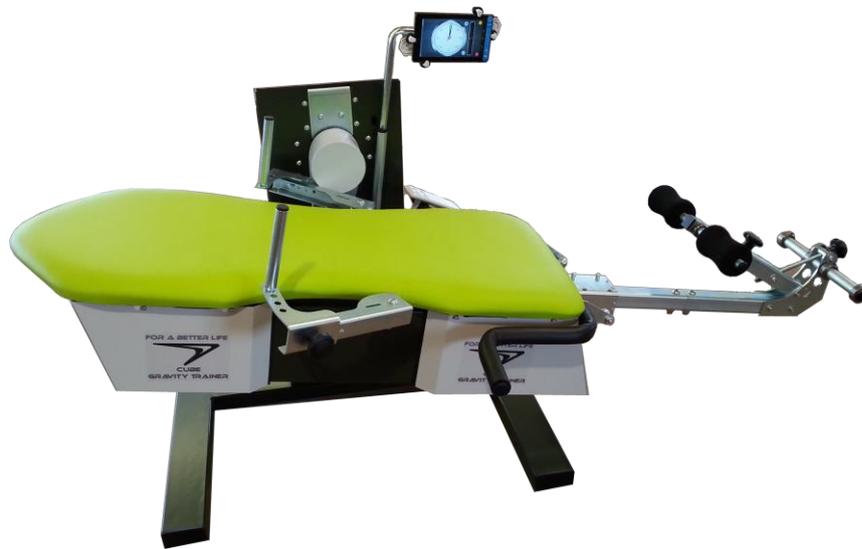


Inversion Training



WHAT YOU NEED TO KNOW ABOUT INVERSION TRAINING

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Content

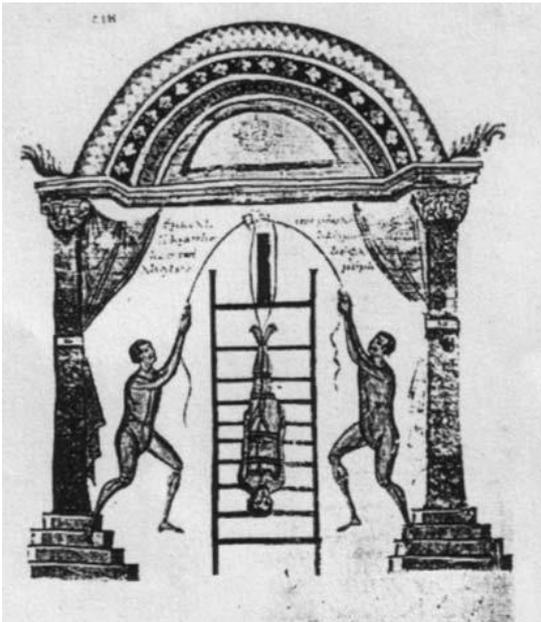
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History

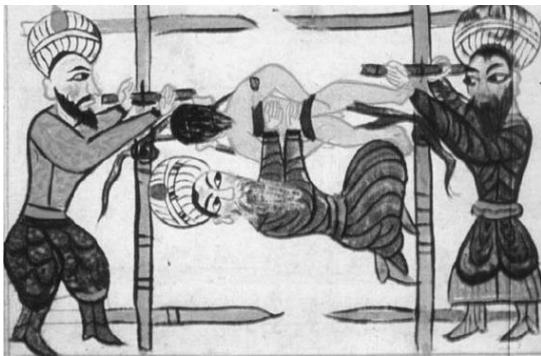
Painful back problems are not an invention of modern times, despite the increasing frequency and number of people affected. Rather, it can be assumed that back problems were and still are a constant companion during the development of Homo Sapiens. Throughout the millennia, various treatment methods have been developed to effectively counter this scourge of mankind.

In ancient Hindu texts around 3500-1800 years before Christ's birth, the treatment of deformed spines was described in the form of stretching the spine.

Further references can be found in ancient Greek texts in which Hippocrates and the leader named after him carried out treatments of back problems.



The Hippocratic ladder for the reduction of spinal curvatures (460-370 BC),



The famous Turkish doctor and surgeon Serefeddin Sabuncuoglu (1385-1468) also used stretching devices to treat back problems.

Inversion training and its positive effects

REDUCE BACK PAIN

Gravity is the most common cause of back pain. The pressure causes the intervertebral discs to lose moisture like a sponge being squeezed out, allowing the vertebrae to approach. This in turn increases the possibility of a pinched nerve, allows dislocations, decreases the flexibility and nutrient uptake of the intervertebral discs. You can not only feel gravity, you can also see it. In fact, these forces are so strong that they can cause a reduction in height of up to 5 cm up to the age of 70.

How is it possible to resist the long-term effects of gravity? One possibility is inversion therapy. The overhanging of the head for a few minutes at an angle of 20° to 90° allows the spine and the supporting joints to recover. They are held in the device by a comfortable foot clamp system and can thus relax and stretch. Since the body weight of the user creates the stretch, the degree of stretch is always precisely adjusted.

Inversion helps to relieve back pain in four ways:

- Regeneration of the intervertebral discs: Clinical studies have shown that the distance between the vertebrae increases when the patient hangs upside down. This allows moisture and nutrients to reach the intervertebral discs again, allowing them to regenerate and improve their flexibility and damping properties.
- Pressure relief of the nerve roots: The strength of the intervertebral discs determines the space for the nerve tracts located in the spine. A healthy strong disc gives a lot of space and reduces the risk of a pinched nerve.
- The spine is stimulated to align itself correctly: The stretching of the spine relieves it and enables the natural correction of dislocations or curvatures.
- The muscles are gently stretched, blood circulation is stimulated, and tension is reduced.

ALIGNING THE BACK

Many of our daily activities lead to curvature and possibly permanent postural damage - sitting at the computer with a curved posture, carrying heavy bags on one side or carrying high heels. Likewise, many popular sports, such as golf, squash or tennis, are one-sided. These promote one-sided muscle build-up and put a high strain on the spine.

Curvatures mean that the body is no longer carried solely by the bones, but that the remaining tissue must also resist gravity. Curvatures are not always perceived and can lead to degenerative postural deformities if left untreated. They can easily be pressed into a can for illustration purposes. The can, which normally resists a high vertical pressure, now already fails at half the load.

If a vertebra moves, the tendons and muscles hold it in the incorrect position. Since even lying down still leaves a 25% load, it can be difficult to that the spine will reposition itself correctly. Only in a head-up position of 60° the spinal column is completely relieved as the Nachemson study has shown. With the relief of the spine and gentle stretching, it is possible to align the vertebrae again.

RELIEF OF THE NERVE TRACTS

A bundle of nerve cords runs along the spine. These nerves control the communication of the brain with the rest of the body. Between the dorsal vertebrae, along the spine, nerve tracts lie in the free spaces created by the intervertebral discs. Loss of fluid, wear and tear or injury can trap the nerves. Since the nerve tracts run throughout the body, the pain can radiate to the extremities.

The improved supply of the intervertebral discs during inversion allows them to gain strength and thus reduces stress and pressure on the nerve tracts.

MUSCLE RELAXATION

Stress and tension can lead to pain and muscle cramps in the back, neck and shoulders as well as headaches and other problems.

A study by physiotherapist L.J. Nosse² showed that EEG activity decreased by more than 35% after 10 seconds in the upside-down position. The effect occurred at an inversion angle of only 25°. It is suspected that the stretching of the muscles in the overhead position supplies the muscles with oxygen-rich blood. Inversion also stimulates the lymphatic system, which removes toxins from the body. The user feels a reduction in pain and muscle stiffness. As already mentioned, the inversion promotes the alignment of the spine and a reduction in pressure on the nerve tracts.

In a recent report, Dr. Howard Loomis³ explains the relevance of the lymphatic system and how it works. The lymphatic system is not only stimulated by rhythmic muscle tension, but also by blood pressure, respiration and gravity. For a good lymph function, Dr. Loomis has also indicated the raising of the legs.

According to the book: *Healthy Back, Healthy Body*⁴ by Joanne Broatch, many back pains are caused by tense and cramped muscles. Inversion can relieve this kind of pain (by stretching and relaxing the muscles).

Dr. John E. Sarno, of the New York Institute for Rehabilitation Medicine, claims that in more than 90% of patients who see him because of back pain, no structural changes explain the type of pain or its location. He calls this disorder the "tension myositis syndrome" and describes how the tension in this way causes the muscle pain. The muscles tense up and reduce blood flow to the neck, shoulder, back or gluteal muscles. The resulting accumulation of chemical waste causes pain. We often mistakenly think that the lower back muscles are tense, and we have a disc problem.

Roger Jahnke, OMD writes in his article "The Lymph⁵" about the lymphatic system from a holistic perspective and describes gravity as the driving force of the lymphatic system.

Inversion stimulates the lymph flow, which eliminates harmful substances and supplies them to the bloodstream. The lymphatic system, which in contrast to the cardiovascular system does not have its own pump, is driven by the tension and relaxation of muscles and a complex system of capillary vessels and disposable valves. The lymph flow is thus pumped against gravity in the direction of the main lymph channels in the upper chest, where the pollutants are disposed of by the cardiovascular system. Even in healthy relaxed

muscles, lymph flow is very slow. In tense muscles, the lymph flow can even stop altogether, and the pollutants can deposit and cause pain. The tilting or head overhanging of the body supports, due to the inverse gravity, the disposable valves and causes the relaxed and stretched muscles to support the lymph flow towards the disposal of the pollutants.

Lifting the legs is also recommended for fluid in the joints. In yoga, too, the advantages of the head over position have already been recognised. But not everyone is able to do a Handstand or can do some exercises with a horizontal bar. In this way the Cube Gravity Trainer offers a good alternative, which relieves additionally still the joints and intervertebral discs.

CARE AND NUTRIENT SUPPLY OF THE INTERVERTEBRAL DISCS

The core of the intervertebral discs consists of a gallery-like material, which gives your back the necessary cushioning and flexibility. During sitting, standing or physical activity, moisture is pressed out of the intervertebral discs like a sponge. The result is a reduction in the strength of the intervertebral discs. To prove this, you only need to measure your height in the mornings and evenings. At the end of the day they will have lost 1-2 cm in height. You can also measure your abdominal girth. Since with reduced body size the body mass does not change, we increase accordingly in circumference.

When lying down, the pressure in the spine is reduced sufficiently so that the intervertebral discs can recover overnight. However, it can happen that the intervertebral discs do not recover completely, which can lead to a loss of body size of up to 5cm in a lifetime.

The fact is that a complete relief is only possible when hanging in the head over position. The Nachemson study gives some insights here: A group of volunteers had a pressure sensor surgically inserted in the third lumbar vertebra. The pressure within the intervertebral disc when standing was set at 100%. It is interesting that the pressure on the spine increases when sitting due to the relaxation of the abdomen and back muscles. Sitting in a bad posture can increase the pressure on the lumbar vertebrae up to 250%. The biggest surprise, however, was lying down. The pressure in the intervertebral discs was reduced by a maximum of 75% compared to the pressure load when standing. The load never dropped below 25%! This residual load seems to be due to the ligaments and muscles which stabilize the spine like rubber bands. The study has also shown that a force of about 60% of the body weight is necessary to completely relieve the spine. The overhead at an angle of 60° is the only practical method to generate this force in a relaxed state. (Hanging on the arms is not effective as muscle tension is necessary and the body weight of the legs is insufficient.

REDUCTION OF SIGNS OF AGEING

Gravity related variables Loss

Our intervertebral discs have the ability to absorb and release moisture. In the course of the day the intervertebral discs are pressed and dehydrated like a sponge. In fact, a healthy disc shrinks by 20% every day, which can lead to a loss of height of 1-2 cm. During sleep, we relieve the spine and the intervertebral discs recover. However, there is

also a more permanent shrinkage. By the age of 70 the intervertebral discs are reduced by an average of 30%, which corresponds to a size loss of 1-5 cm.

The loss of size due to dehydration and tissue loss in the joints reduces flexibility and damping ability and causes changes in body shape. With the shortening of the spine, the body mass remains unchanged, which leads to an increase in abdominal girth. Imagine a clay column. When pressure is applied from above, it expands to the sides. An active program of head over decompression can, by reducing the pressure on the intervertebral discs, help maintain their original body size¹ and return moisture to the spongy tissue¹.

The daily changes in body size were noted in the Foreman Study² on nurse activities. Eight hours of work produced a greater loss than twelve hours of leisure. The average size loss of the 12 nurses studied was 1.1% of their height, which would mean 1-2 cm a day for most of us.

Loosening of the internal organs

As we age, the internal organs (kidneys, abdomen, intestines) are lowered due to gravity. The "lifelift" around our waist, besides the weight gain, is due to the sinking of the internal organs. Digestive and intestinal problems are common symptoms. Inversion helps to maintain the normal shape and placement of the organs.

Improved oxygen supply to the brain

Against gravity, the heart has to pump the blood to the brain, which has the greatest oxygen demand in the body. With only 3% of the body mass it consumes 25% of the absorbed oxygen. Peter Russel notes in the "Book of the Brain³" that the wear and tear of the brain is not only related to age. The wear is rather caused by the hardening of the arteries and by high blood pressure. Both reduce the oxygen supply to the brain. A big step towards reducing mental decline (senility) can be improved oxygen delivery to the brain. An active brain that is well supplied with oxygen can improve brain functions and mental clarity for the rest of your life. (ATTENTION: In case of high blood pressure please consult your doctor before inversion program.)

Relief for varicose veins

During inversion, they help their heart pump blood out of their feet, legs and lower body. This enables better blood circulation in the legs and can help reduce blood congestion in the varicose veins.

Functional Fitness

This term defines a state of flexibility, strength and balance that supports youthful agility and performance. Inversion is a way to keep joints healthy and flexible despite aging and to enable a lifelong active lifestyle.

ADDITIONAL BENEFITS OF INVERSION TRAINING

Reduce pain in overworked muscles by promoting the processes that remove old tissue and toxins.

Improve balance and stimulate orientation by stimulating the upper regions of the inner ear.

Strengthen ligaments by increasing collagen levels through gentle mobilization and exertion.

Improve flexibility and mobility without overloading the joints. Since only one's own body weight is used, all exercises are within their tolerance.

Reduce stress after the workout By stretching the body and opening the joints, the regeneration is accelerated by the improved blood flow.

Muscle building promote by old cell tissue destroyed during training is removed faster and makes room for new muscle tissue.

The inner as well as external abdominal muscles and lower back muscles which support the torso.

INVERSION FOR THE ATHLETE

Today, fitness and health conscious people are a diverse group with a wide range of needs. With increasing training experience, many are looking for more than just treadmills or fitness equipment to train on. They recognize the importance of a balanced workout that keeps them fit, flexible and in shape.

Just like the benefits of yoga or Pilates, inversion machines can help users improve their flexibility, strengthen or relax core muscles and reduce stress. The ease of use of inversion devices makes them attractive to many. A regular inversion exercise program can help:

Reduce pain in overexerted muscles:

Athletes who are prone to cramps or stiffness after training can benefit from lymph flow stimulation. Intensive muscle exercise can lead to muscle soreness. This is due to the accumulation of lactic acid and destroyed muscle tissue in the muscles. Unlike the cardiovascular system, the lymphatic system does not have a pump. Only the tightening and relaxation of the muscles moves the lymph fluid upwards through capillaries and valves to the chest to cleanse it. The faster the lymphatic system is cleansed, the faster the pain and stiffness in the muscles disappear.

Train balance and sense of orientation:

All performances in activities that require a head over orientation can be improved by inversion training. Inversion helps to improve the sense of orientation by stimulating the inner ear. Skydivers, gymnasts, high jumpers and divers can accustom their inner ear to

head over positions. Inversion therapy has also been used to normalize the ear canal for the treatment of seasickness.

To strengthen ligaments:

Ligaments are fibrous tissue strands filled with collagen that hold our bones together. They are flexible but not very elastic and can tear due to jerky loading or overstretching. The mobilisation and gentle loading of the ligaments can increase their collagen content and thus contribute to their strengthening. Stretching and exercises in the upside-down position reverse the load and mobilize the joints and spine, strengthening the ligaments surrounding these joints. Strong ligaments and muscles are essential to support the joints.

Improve flexibility and mobility:

Stretching in the upside-down position improves effectiveness by taking advantage of the user's weight and removing all stress. The resulting traction stretches the muscles and opens the joints, improves blood flow to the tissue and promotes natural joint regeneration.

Reduce physical training stress:

Inversion relieves the joints and helps them to recover, thus reducing pain and improving their damping properties. During intensive training, we temporarily lose 1-2 cm in height due to the loss of moisture in the intervertebral discs and joint capsules. Inversion stretches the vertebral column and helps the intervertebral discs to recover faster.

Building nuclear musculature:

Core muscles (lower back muscles, inner and outer abdominal muscles) support the body and are responsible for posture, functionality and power distribution in the body.

Weak abdominal muscles arch forward and make them susceptible to incorrect posture and injuries. Well-developed core muscles improve every day and athletic performance and support the spine to prevent injury. Strong abdominal muscles support the spine by increasing internal pressure to reduce disc stress. Unfortunately, most exercises to support the core muscles must be performed very accurately to avoid injury. Exercises in the upside-down position support core muscle training without stressing the spine. Full inversion exercises such as crunches, sit-ups or back stretches can strengthen the core muscles with a low risk of overstretching or misloading.

Improve correct alignment and balance:

Poor postures and dislocations are naturally aligned through gentle stretching during decompression and improve stature and posture. The correct posture makes the body more resistant to injuries and increases performance and effectiveness.

Support of muscle growth:

Thousands of destroyed cells have to be removed after each training session to make room for new growth. This happens through the slow-flowing lymphatic system, which takes many hours to complete a cycle. Inversion helps to stimulate lymph flow and thus eliminate

waste products which helps the body to build new muscle tissue. This means a faster recovery after training with better results.

Improve correct alignment and balance:

Poor postures and dislocations are naturally aligned through gentle stretching during decompression and improve stature and posture. The correct posture makes the body more resistant to injuries and increases performance and effectiveness.

Recover from intense training:

Almost every activity puts some strain on the spine. The strain of gravity is increased by activities such as running, weightlifting, aerobics, skiing, cycling and golf, which place incredible demands on the spine, intervertebral discs and back muscles.

Incorrect performance of our daily activities can deform our skeleton. Most of these deformations are temporary and correct themselves. Inversion with movement (lateral movements, back bends and sit-ups) provide an opportunity for this correction.

One-sided activities such as golf or tennis can be particularly risky for two reasons. The body overcompensates the stronger musculature and pulls thereby one-sided at the spinal column likewise usually under incredibly strong load the spinal column is turned. Hanging upside down after sporting activities can help the to align the spine and enable the athlete to perform better over a longer period of time.

Other sports activities permanently strain individual muscles. In-line skating, cycling, windsurfing and rowing are examples of activities that place a heavy strain on the lower back muscles. Athletes who can practice these sports benefit immensely from the relaxing stretching of inversion therapy.

Contraindications

Inversion therapy can have numerous advantages for your health. It can relieve back pain, stretch and relieve the spine, stretch muscles and ligaments, relieve stress, improve circulation and help maintain overall health.

But inversion is not suitable for everyone. If you have any of the following symptoms, please get your doctor's permission first. (The following list is for orientation only and does not guarantee completeness.)

Use of anti-coagulants: blood thinners or aspirin prevent clogging of the arteries and blood vessels. These agents are associated with a risk of circulatory problems.

Bone weakness or fresh bone fractures: The pull of body weight could aggravate these conditions. Osteoporosis is a calcium deficiency symptom that makes bones porous and weak.

Conjunctivitis: An eye infection caused by a virus or bacterial infection.

Glaucoma: Constant overpressure in the eyes. Over time, it can destroy cells in the optic nerve, which can lead to blindness.

Cardiovascular problems: For any circulatory symptoms, consult your doctor first.

Inguinal hernia or diaphragmatic hernia: In diaphragmatic hernia, part of the stomach is pushed into the chest by a weakness of the diaphragm. An inguinal hernia can be caused by a weakness in the abdominal wall.

Uncontrolled high blood pressure: An elevated blood pressure above 140/90. A widespread disorder in which the heart pumps the blood too strongly through the circulatory system. The state of relaxation in inversion can also lower heart rate and blood pressure. There are also cases where inversion has been used to treat hypertension. Ask your doctor here for safety.

Middle ear inflammation: The middle ear regulates the pressure in the ear. It could lead to disorientation or discomfort.

Extreme obesity: Obesity may be associated with the aforementioned circulatory or eye problems. Also pay attention to the stated maximum load of the devices!

Pregnancy: Pregnant women should exercise caution during inversion.

Corneal detachment at the eye: A detachment of the cornea results from an injury of the retina which allows the transparent chamber fluid to escape. An operation is usually necessary. A retinal haemorrhage usually heals on its own. Consult your doctor if you have any symptoms of the eye.

Injuries to the spine: In case of a severe spinal cord trauma it is necessary to talk to your doctor beforehand.

Stroke: Caused by a blocked blood vessel in the neck / brain or when a vessel in the brain bursts. Symptoms include paralysis, difficulty speaking, memory loss and impaired thinking.

Transitory ischaemic attack: Also called "small stroke". It occurs when the blood supply to the brain is temporarily interrupted by a blockage. It is often a sign of a real stroke!

Recommendation for use

Exercise 3 times a week for 5-10 minutes over several weeks.

Please do not overdo the training, it is better to start slowly.

Links to studies and interesting facts

natural-sciatic-relief.com

naturalnews.com

Nosse, L.: [Inverted Spinal Traction. Arch Phys Med Rehabilitation](#); 59: 367-370, August 1978.

Broatch, Joanne: Better Back, Better Body. Stl International, 1996.

Abhijeet A. Raut, Prof. S. T. Bagde: [„Inversion Therapy & Zero Gravity Concept: For All Back Pain Problems“](#). International Conference on Advances in Engineering & Technology – 2014 (ICAET-2014), Page 18.

<https://docplayer.net/11142146-The-historical-development-and-proof-of-lumbar-traction-used-in-physical-therapy.html>