

Reflex 44

The Kieser Training Magazine

Unnecessary surgery

Year on year, increasing numbers of people undergo back surgery – a fact confirmed in a recent study by TK, a major German health insurer. Between 2006 and 2011, there was a 25% increase in the number of TK members who had back surgery. This same trend was also evident in another survey conducted on TK's behalf by forsa, a German social research organisation: One in six of all patients with chronic back pain were recommended surgery by their doctors.

89

89% of such surgery is unnecessary according to the results of a study by the Würzburg practice of the orthopaedic and spinal surgeon, Dr. Florian Maria Alfen. A total of 1,146 patients with back or neck problems were given Medical Strengthening Therapy on lumbar or cervical extension machines at Kieser Training. 388 of these patients had symptoms that clearly indicated surgery. The results were sensational: in 89% of cases, surgery was avoided – after just 18 therapy sessions.

The risks associated with surgical intervention should not be underestimated. In many cases, patients who have disc surgery designed to cure the problem will experience a return of the pain and other symptoms. In contrast, it's easy to retain the gains achieved by Medical Strengthening Therapy: one or two 30-minute training sessions per week. Ergo: it's better to bring your back extensors and trunk muscles up to scratch rather than have an unnecessary encounter with the surgeon's knife.



Patrik Meier, COO Kieser Training AG

© Photo: Michael Ingenweyen

45 years under the sign of strength

Werner Kieser set up Kieser Training AG 45 years ago: Today, his name is displayed on more than 140 training facilities in 8 countries.

To be precise, the history of Kieser Training started some 55 years ago in Switzerland. Werner Kieser had suffered a pleural contusion in the boxing ring and both his doctor and trainer ordered him to rest. However, he decided to do weight training and found that it accelerated his recovery. Kieser was one of the first to recognise the problems of muscle loss and its effect on our health. Kieser – a trained carpenter – was fascinated by the health benefits of strength training and so studied the little literature that was then available. He talked to experts and then in 1966 he opened his first studio. A year later, i.e. 45 years ago, he founded Kieser Training AG.

The Kieser concept has consistently focussed on results. "30 minutes of strength training twice a week followed by a shower. That's it". He wanted nothing that would get in the way of customers concentrating on the essentials, i.e. muscle build-up. That was why Kieser deliberately eschewed background music, flowers, bars or saunas. Similarly, the concept did not include stamina machines

but distanced itself from the fitness industry in order to specialise on preventive strength training and medical strengthening therapy. The aim was to improve health through the targeted build-up of muscles.

You will now find the name Kieser Training on more than 140 training facilities in eight countries. As owner and Chairman of the Board, Kieser is still responsible for the fortunes of the company but has handed over its day-to-day management to the CEO, Michael Antonopoulos who shares the Kieser vision: "By specialising in strength training over many years and focussing on the science of the concept and our medical services we have built up a wealth of experience, knowledge and information. This enables us to maximise the benefit offered to customers," explains Antonopoulos.

Numerous studies have shown that the Kieser concept works. "Our success is based on our training principles, our machine technology and the intense personal support provided by staff to customers," says Patrik

Meier, who in April 2011 was appointed Chief Operating Officer with responsibility for markets worldwide. "Although the concept has changed little in the last 45 years, we continue to work hard to improve the quality of our products, whether through the research carried out by our own Research Department, the machines that we develop or the in-house training that all, including our doctors have to complete. These are the building blocks that allow us to maximise the benefit to customers in terms of increases in muscle strength and improvements in their general quality of life".

Continuity and quality creates trust: There are now 260,000 customers worldwide training their muscles with Kieser Training, 240,000 of them in Germany. Even external research has demonstrated the high levels of customer satisfaction enjoyed by the concept. ServiceValue GmbH, the Goethe University in Frankfurt am Main and the newspaper Die Welt recently conducted a survey of customer service in 1,000 companies. Kieser Training came out in second place.

Dear Reader,



When I opened my practice for Medical Strengthening Therapy in Zurich in 1990, it was the first in Europe. I treated patients with chronic back pain, most of whom had already endured innumerable treatments. The success was – and remains – spectacular. 80% of patients were pain-free after 12 – 18 therapy sessions on the lumbar extension therapy machine and a supplementary programme designed to strength the antagonist muscles and the trunk.

MST is based on a procedure developed during the 1970s and 1980s by 14 research teams at the Center for Exercise Science of the University of Florida in Gainesville. In 1986, Arthur Jones developed a lumbar extension therapy machine. The unusual feature of this machine was the way it immobilized the pelvis. For the first time it was possible to isolate the back extensors and then strengthen them.

In the 1990s, the therapy was described in numerous scientific publications and so it seems somewhat absurd that 26 years after it was first invented a recent study has just proclaimed a new discovery – the need to immobilise the pelvis (see Latest Research) Michael Pollock, one of those US scientists was right when he predicted 26 years ago that "the results are so spectacular that nobody would believe them".

Enjoy!
Dr. med. Gabriela Kieser

KIESER TRAINING

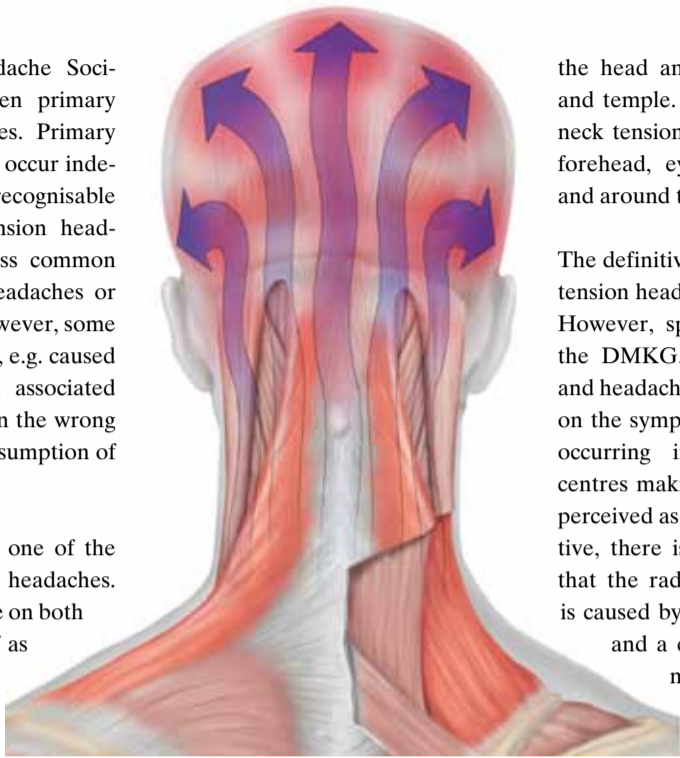
STRENGTH FOR HEALTH

Headaches

Headaches – many of us are all too familiar with them. Specialists distinguish between more than 200 different types. The following article describes some of the main ones.

The International Headache Society distinguishes between primary and secondary headaches. Primary headaches are those that occur independently without any recognisable cause. They include tension headaches, migraines and less common forms such as cluster headaches or trigeminal neuralgia. However, some headaches are secondary, e.g. caused by an illness, symptom associated with an infection, teeth in the wrong position or excessive consumption of medicines.

Tension headaches are one of the most common forms of headaches. Here, the pain tends to be on both sides and manifests itself as a dull, oppressive pain radiating from the neck to the back of



the head and into to the forehead and temple. However, even without neck tension, the pain can be in the forehead, eyes, cheeks, upper jaw and around the ears.

The definitive answer to the cause of tension headaches is yet to be found. However, specialist bodies such as the DMKG, the German migraine and headache society believe – based on the symptoms – that changes are occurring in the pain-processing centres making stimuli more readily perceived as pain. From our perspective, there is considerable evidence that the radiating pain in the head is caused by excessive muscle strain and a chronic inflammation of muscle attachments (see article below left).

Migraine attacks are characterised by a throbbing, thumping pain on one side. The pain can last for up to three days. With 15% of sufferers, the pain is preceded by an “aura”, which can cause sight problems, tingling sensations in the arms and legs and sometimes a slight speech disorder. Within a maximum of one hour, this aura is replaced by a raging pain.

Scientists believe that migraines may be caused by an enlargement of the blood vessels and an inflammation of the nerves. The triggers vary from person to person but can include stress, food and drink such as cheese or red wine, hormonal fluctuations in women, lack of sleep, changes in daily routine or the weather. Migraines are often accompanied by tension headaches and they can also be the trigger.

Trigeminal neuralgia and cluster headaches are rarer forms of primary headaches. The trigeminal is the 5th cranial nerve and supplies the face. These headaches occur when the nerve is inflamed. The symptoms of trigeminal neuralgia are individual flashes of pain or sometimes a veritable fusillade of pain on one side of the forehead, cheeks, lips and jaw. Cluster headaches are frequent attacks of excruciating pain in the temple or eye area and always on one side. Pain is sometimes accompanied by a reddening of the eyes, a runny nose, narrowing of the pupils, a drooping eyelid and facial flashes.

Illustrations: © Holger Vanselow

What effect does Medical Strengthening Therapy have on ...

... headaches?

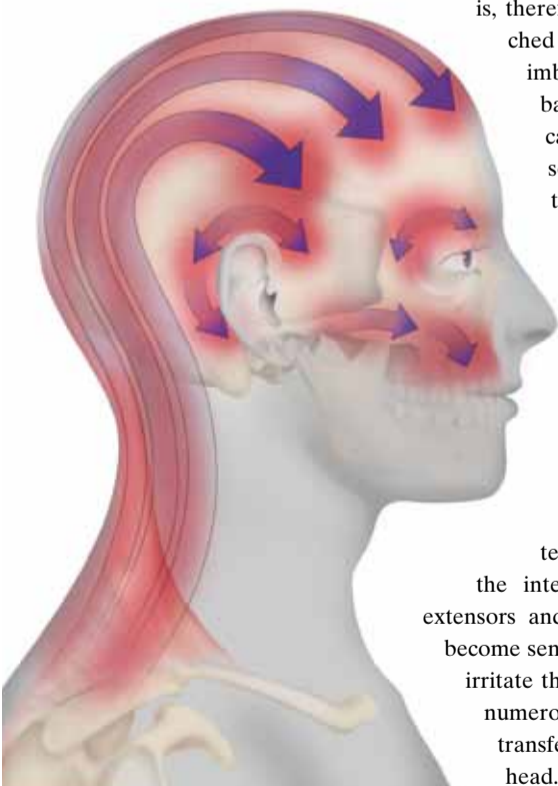
Although strength training for health cannot cure **cluster headaches**, trigeminal neuralgia or **migraine**, it can in our experience have a positive and promising effect on patients with **tension headaches**. For decades, bodybuilders have said that strength training was putting an end to their headaches. I, too, have found that Medical Strengthening Therapy is suc-

cessful with 80% of patients with tension headaches.

Why? Strong and healthy neck muscles are able to support the cervical spine and assuming that posture is good they can also support the head without difficulty. However, when we sit for hours with the head bent forward, e.g. at school or in the office, the muscles contract. The neck is, therefore, constantly stretched and the result is an imbalance (strength imbalance). This in turn causes the neck extensors to contract. Eventually, the strains resulting from school or work cause tension pain and this can be exacerbated by stress, the hectic pace of life or anxiety. Excessive muscle strain can frequently inflame the tendon insertions at the interface between neck extensors and skull. The tendons become sensitive to pressure and irritate the periosteum with its numerous pain receptors that transfer pain signals to the head.

This is where Medical Strengthening Therapy comes in. The therapy is done on a computer-assisted Cervical Extension Therapy Machine. It starts with a low weight. As the muscles become stronger, the weight is gradually increased and imbalances are eliminated. In addition, customers do exercises on Kieser Training machines to strengthen the surface muscles of the neck, shoulder and back. Long-term maintenance programmes ensure that the gains are permanent.

It's important to bear in mind that training may initially exacerbate an irritation and with it the headaches. If this happens, the inflamed tendon insertions must first be treated, e.g. by infiltration therapy. This consists of two or three injections of analgesics and anti-inflammatories into the neck muscle attachments. After the inflammation has subsided, patients can return to strength training and should cope well enjoying good results. If you have strong muscles, you not only cope better with the stresses of daily life but – provided you train long-term – you also strengthen your tendons and tendon insertions and they too cope better with strain. The same applies, of course, to preventive training.



Doctor's tip

What to do about headaches?



Dr. med. Martin Weiß

If you suffer from regular or severe headaches and associated symptoms, you must consult a doctor. Find out as much information as you can before your appointment and ask questions. Don't give up until you obtain satisfactory answers. For example, there is a wealth of relevant information at www.patientenleitlinien.de. This site brings together the current state of research and should form the basis of medical diagnoses and therapy. However, it is not always wise to rely solely on guidelines as these guidelines fail to mention the positive effects of strength training. Nor do the guidelines issued by DGN, the German association for neurology or DKMG, the German migraine and headache

society. Although not surprising because more research is required, I am convinced that strength training for health will become a recommended therapy in due course.

Under no circumstances should chronic headache sufferers rely solely on medication. The risks associated with the long-term use of headache tablets are simply too great: they can cause gastric ulcers, internal bleeding, kidney failure or the medication itself may induce headaches. These serious side effects are often associated with medicines for which no prescription is required. They are considered harmless – whereas they are not – and patients take too many too often.

If you suffer tension headaches, I recommend that you try Medical Strengthening Therapy, which is done under the control of a doctor. In time your weaknesses will become strengths and equipped with strong muscles and tendons, you will be fit for both work and leisure.

Text on this page: Dr. med. Martin Weiß

Reflex

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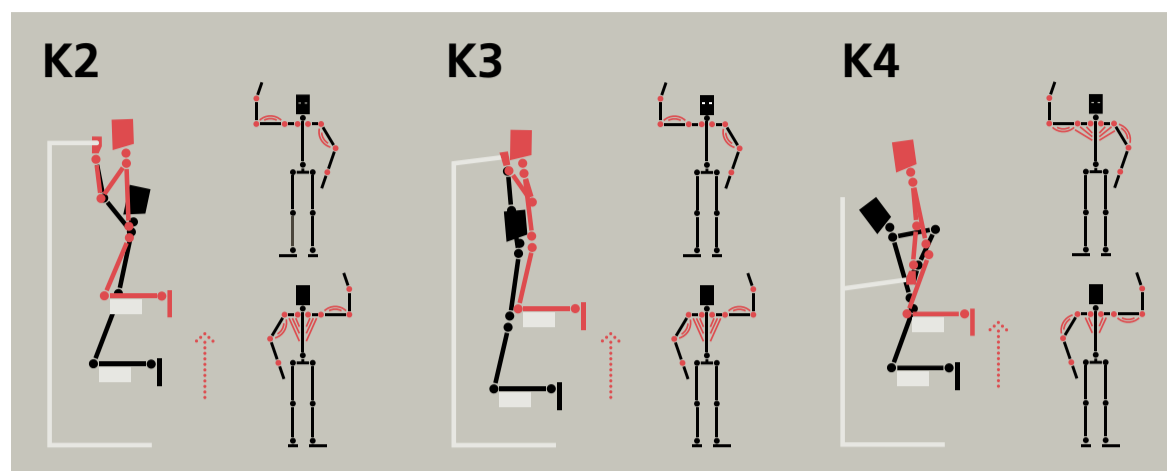
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K Tower



Unsupported chins and dips on the J Tower are amongst the most challenging exercises in a Kieser Training programme. They require strong shoulder, back and arm muscles. Kieser Training has now developed a new machine, the K Tower, which allows you to do

supported chins and dips as preparation for the unsupported versions. With supported chins and dips, your own bodyweight – which is what pulls the body downwards – is balanced by a counterweight. To do these exercises, you kneel on a pad and this supports you

as you lift and lower your own body weight. As your strength increases, you can gradually reduce the support provided by the machine and eventually you are strong enough to do unsupported exercises and no longer require a counterweight.

Expert's Tip

Why don't we do a separate warm-up at Kieser Training? This question is easy to answer: We only recommend procedures offering a clear benefit to strength training for health and there is no evidence that a separate warm-up does this. In addition, each exercise is done slowly as part of a controlled movement. Muscles are first isolated and then exercised. This avoids sudden muscle contractions and so there is no risk of injury as there is with some sports.

mes strenuous and gradually the muscle being trained is required to work at its limit. The initial repetitions prepare the muscle well for this exertion. In that respect, the term "muscle preparation" would be a better description than "warm-up". This preparation, i.e. the first part of every exercise, takes up most of the training duration – and it happens exactly where you need it.



Anika Stephan
Research & Development Kieser Training

One of our training principles is to exercise large muscle groups first and then the smaller muscle groups. This means that respiration and cardiovascular activity are stimulated at the beginning of the session. In addition, we start with a resistance that initially seems relatively easy. It is only after 30 – 60 seconds that the exercise beco-

Latest research – the right back treatment

Weak back muscles are a risk factor for back problems. In particular, it's the deep back extensor muscles that cause the problems: these are the short muscles located close to the spine that link individual vertebral bodies together and provide stability. All too often, it is this section that atrophies causing muscles to become tense, facet joints to become painful, discs to degenerate or even prolapse. This is why muscle strengthening is a basic element of both preventive and rehabilitation programmes. But beware! The treatment will only succeed if you do the right sort of strength training.

A recent study by British scientists has confirmed that strength training for the back extensors will only succeed if the patient's pelvis is immobilised during the training. Only then is it possible to isolate the muscles and train them effectively. In addition, only then will the pain subside. To show this, the British researchers studied 42 patients with an average age of 42 and all with chronic back problems. Participants had experienced severe pain for at least six months. For many of them it was years or even decades. 15 participants trained for three months once a week on a lumbar extension

machine, similar to that used at Kieser Training. This machine allows dynamic training through the full range of movement whilst keeping the pelvis immobilised. 15 persons trained on the same machine but without pelvic immobilisation. 12 participants acted as a control group and receive their normal physiotherapy.

The results: Strength only increased significantly in the group that trained on the LE with pelvic immobilisation. However, even more important was that levels of pain only declined in this

group; patients in this group achieved a 50% reduction in pain levels whereas the pain experienced by the other groups remained more or less the same. In addition, only this group significantly reduced the restrictions in their daily life caused by the back pain. Of particular note was the minimal amount of time that was required: 3 months training, once a week and 8 – 12 repetitions on one machine.

So why is pelvic immobilisation so important? If the pelvis is not immobilised, most of the work to extend the back is done by the stronger buttock

and rear thigh muscles. The back extensors do not fatigue and so are not trained – they remain weak. In contrast if the pelvis is secured by the footrest, thigh belt and pelvic roller, the auxiliary muscles cannot intervene to help. The result: the deep back extensors do all the work to move the weight. It is this muscle isolation that makes the training so effective. The motto is not, therefore: the main thing is to do something. Rather it should be: the main thing is to do the right thing.

Training Theory – The Basics

The 5 Instruction Boards – remember them? When you first started Kieser Training we used them to explain the main principles of training theory. Training success is based on adherence to these principles and so reason enough, therefore to revise them – hence our new column.

As in other areas of our life, it applies equally to strength training: success demands a regular and long-term commitment. Depending upon your training objectives and training intensity, the optimum is to train once or twice a week throughout the year.

For newcomers, the ideal is to start with two or three training sessions per week. Initially, the important thing is use moderate weights so that you can learn the exercises. At this stage, the training is not so exhausting and your body only needs a short recovery time. If you then gradually increase the training intensity and do each exercise to the point of local fatigue, your body is subject to a much greater load and you are likely to feel weaker after the session than before. That's why at this stage you need a gap of at least two days between individual sessions. This gives your muscles time to regenerate. There are even some people who – when training at high intensity – require a gap of up to 10

days between sessions. It's during this so-called regeneration phase that you reap the fruits of your labours: the body replaces muscles cells worked during the training and repairs and enlarges them. The muscles become stronger. This biological response to an excess load is called super-compensation. It can be likened to the development of calluses on your hands when subject to hard use. The strength gained from the previous training sessions lasts for between one and three days – making that the best time for your next session. You start your next session with a higher level of strength and following this next session the body again responds with super-compensation. You become even stronger.

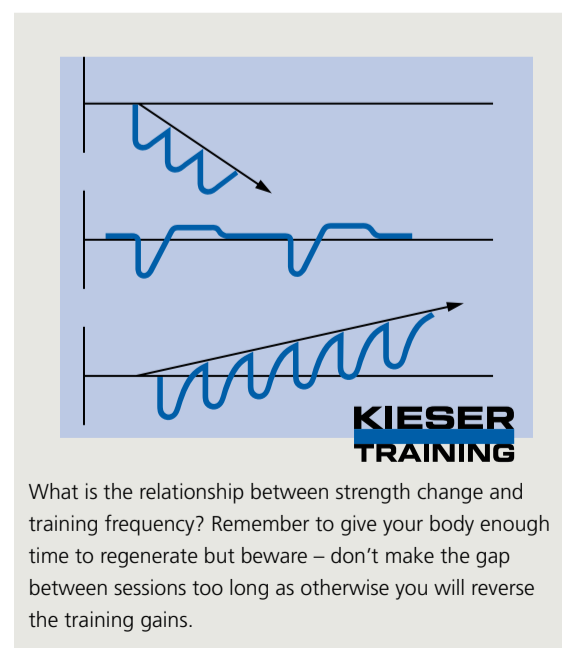
Training intensity, additional physical strains, your own regeneration capacity, the quality of your diet and the amount you sleep all influence the length of this regeneration phase. If, despite regular training, you notice a decline in your

performance and other symptoms such as a susceptibility to infections, tiredness or irritability, it could be a sign of overtraining. In that case, simply in-

crease the gap between training sessions.

To sum up: Give yourself sufficient time between training sessions and at least

two days. Remember that it's during the recovery phase that you increase your strength and not during the training itself.



What is the relationship between strength change and training frequency? Remember to give your body enough time to regenerate but beware – don't make the gap between sessions too long as otherwise you will reverse the training gains.

This Board illustrates the three typical changes to muscle strength depending upon the frequency of training. The horizontal axis is the time and the vertical axis the strength.

- **Top graph:** If you train too often, you become weaker because your muscles have not fully recovered and lose strength when you train again. That can be compared to a relapse after an illness from which you have not fully recovered.
- **Middle graph:** If the gap between training sessions is too long, training gains will ebb away. When you start your next session, you are back to square one. That may be appropriate if you have already achieved a high level of strength and simply want to maintain it. However, even then the gap between training sessions should not be too long.
- **Bottom graph:** Training at the intervals required for super-compensation. Muscle strength is gradually increased.

Column

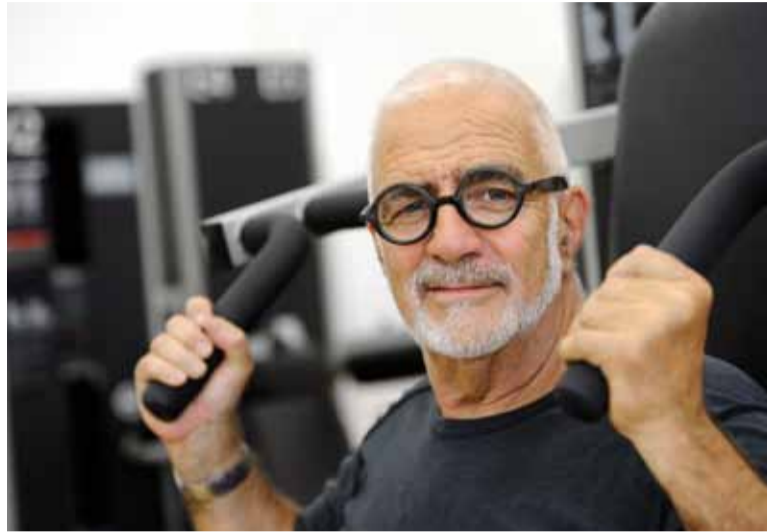
The Brain and Strength Training

Dr. med Marco Caimi

Scientists now believe that strength training strengthens not only our heart and muscles but also our mental faculties and memory. This is primarily due to growth factors that are only stimulated if exposed to adequate physical loads. For example, these factors encourage the regeneration of nerve cells in the hippocampus, the area that transfers the content of our short-term memory to our long-term memory. In addition, strength training increases the concentration of neuro-transmitters, the messengers that transmit signals from one nerve cell to another. If a nerve cell receives a high number of signals from its neighbours within a short period of time, this increases its sensitivity and with it its performance. In addition, training increases actual oxygen flows in the brain, which in turn increases clarity of thought and creativity! Muscle training not only encourages these processes but also distributes the anti-inflammatory substances that protect our nerve cells from the damage occurring during metabolic processes. Result: Nerve cells function correctly for longer. Even patients with dementia or Alzheimer's disease achieve better results from training than from medicines. In short: training not only improves our physical strength and health, it improves our brain as well!

"It's my business – it's what I can do."

Strong muscles are the key to good health. Strength training for health is an effective way to achieve that. From the time he opened his first studio, Werner Kieser has been extolling the benefits of a strong body and that has not changed in the intervening 45 years. The pioneer of strength training for health explains how it all began.



Werner Kieser, you founded Kieser Training AG 45 years ago in Zurich. What has motivated you all those years?

I was driven by the knowledge and conviction that strength training plays a significant role in preventing muscle decline, even though it is still not fully accepted as a method. On reaching 25 years of age, we have fulfilled our evolutionary function, i.e. to hand down our genes. It's all downhill after reaching the age of reproduction. Our bones and muscles start to decline and this is one of the main reasons for reduced quality of life. Strength training is something that allows us to outwit evolution – successfully. Look around you and

you will see fit, globe-trotting pensioners, doing sports and enjoying life. In biological terms we are 15 years younger than we were. Previously, a 40-year old farmer would have walked with a stick.

You come from a village and trained as a carpenter. How did you get into strength training?

When I was ten I fractured my left forearm doing traditional Swiss wrestling. I was scarcely rid of that plaster when I broke the arm again playing football. I watched with horror as my arm became thinner and thinner. In the same year, I visited my uncle in France. He was a really sporty type and in his front garden he had a bar-

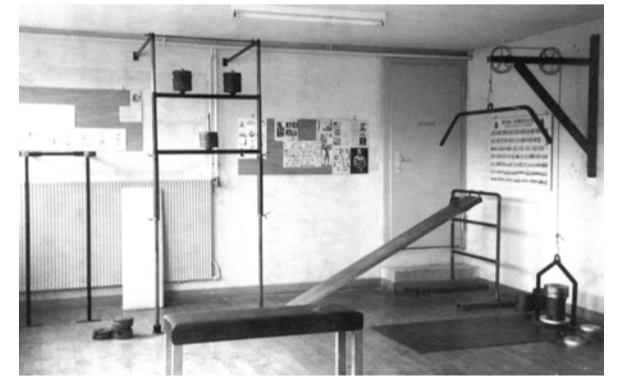
bell cut using a welding torch from a burned out tank. I used the barbell to train my arm. It not only recovered quickly but was soon stronger than before. Something similar happened when I was 17 years of age. I wanted to be a professional boxer but whilst training I suffered a pleural contusion. Strength training was frowned upon at the time and it was said that it would make you slow and inflexible. Even though my doctor and trainer ordered me to rest for four months, I trained – successfully – with dumbbells. Ever since then, I have felt that I had discovered something important. Boxing lost its magic and I took up strength training.

And in 1966 you opened your first studio.

That's right. I set up Zurich's first strength training studio in a building with a rough wooden floor, a shower in a converted wash-room, drinking water from the tap and machines that I welded together from iron from the local scrapyard. This studio was the first in Europe.

One year later, I formed a limited company giving a strict legal form to a creation of scrap metal and hopes. At the time I wanted to give my creation a grandiose name like the Galaxy or Orion Studio. I asked one of the first customers who took out an annual subscription what name I ought to choose. He said: "If it's your baby, you ought to give it your name". How right he was. A name is both a commitment and a promise: It's my business; it's what I can do. My business is effective strength training for health. My aim is to keep the body healthy. 30 minutes twice a week. Strength for health – that is what I have stood for in the last 45 years.

The full interview is available at: www.kieser-training.com



Kieser's first studio

Container Art

Zurich 1966: a derelict building, a rough wooden floor, drinking water from the tap, training machines from scrap iron welded together by the owner. These were the raw materials of that first strength studio that started trading one year later as Kieser Training AG – the company that now has its head office in the Cubus, part of the prestigious Prime Tower complex in Zurich designed by the architects Gigon and Gyer. To commemorate its 45th anniversary, Jan Eichenberger created an artwork as a reminder of where it all started.

Mr. Eichenberger, you are a freelance artist. How did you get into art?

I have been drawing and designing for as long as I can remember. I then trained as a graphic designer, naively thinking that this would allow me to design and draw what I wanted. It took me some time to realise that graphic design was also a service.

You still work as a graphic designer ...

Correct. In addition to my graphic design work, I have been doing illustrations for the Friday Magazine for the last four years. However, my own work and in particular the work I do by hand remains close to my heart. I have been pursuing my own projects for the last 10 years or so and for this

work, I often draw on technical skills such as the use of graphics software or image processing. Certainly, when it comes to the design and aesthetics of my work, I see no clear demarcation between graphics and my personal creativity. My own work contains many elements of graphic design and to me they are virtually synonymous.

For Kieser Training, you transformed a rusty shipping container into a walk-in, three-dimensional artwork

Yes, over a period of eight days, I painted all three spatial dimensions, i.e. the floor, walls and the ceiling. This was a new challenge for me. However, in addition to that, I tried to use certain elements of the painting in a way that, when viewed from a certain perspective, they were perceived as two-dimensional. For example, the red hand: This emerged from the floor, continued up one of the side walls and onto the ceiling but when the observer entered the

artwork it took on certain elements of a two-dimensional painting.

The container was located for 4 days in front of the Prime Tower allowing passersby to watch you at work.

That was great fun! It provoked innumerable questions and generated curiosity.

How important is art in spaces where the old is disappearing and is being replaced by modern architecture?

I believe we need art: It is something that creates a break from those new spaces that are modern and homogeneous. It challenges those spaces and forces you to look at them in a different light.

You work under the pseudonym mundoredondo, literally a circular world ...

Not directly! I work under the name Jan Eichenberger. Mundoredondo is simply a device to give my personal work an identity, a name and a platform.

www.mundoredondo.ch

