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... increases vitality

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Metabolism: Life’s engine

Without metabolic processes life would not exist – they are an essential control mechanism providing the body with energy.

Basic metabolic rate – energy metabolism at rest

At rest, the body needs some 1,500 – 2,000 kilocalories per day, i.e. the amount required to maintain vital functions. This is known as our basic metabolic rate and muscles on their own account for 20 – 40 % of this figure. This daily energy consumption is closely related to the percentage of muscle in the body – the more muscle we have the higher the basic metabolic rate.

Energy consumption during strength training

Strength training has a direct effect on our calorie requirements. Studies have shown that 30 minutes of muscle training can increase calorie consumption in women by up to 200 kilocalories and in men by up to 300 kilocalories.

Energy consumption after training

In addition, there is the so-called after-burn effect. Even after we have finished training, metabolic activity remains higher and more energy is used. This is because the regenerative mechanisms occurring in the body also require energy. Studies have shown that the increase in consumption during the first 15 minutes after training is 14 kilocalories and up to 23 kilocalories in the first hour, i.e. the more intensive the training the greater the after-burn effect.

Reduction in blood fat levels and body fat

However, muscle training has a positive effect on more than just caloric consumption. It also aids fat metabolism. Scientific studies have shown that the level of HDL cholesterol beneficial HDL and reduces the LDL cholesterol detrimental LDL. It was also discovered that the calorie consumption resulting from a higher basic metabolic rate, training and after-burn reduces the percentage of body fat.

The bottom line

Strength training can even have a positive effect on those with a metabolic syndrome, i.e. where the metabolism is disturbed. This is because it has an effect on the dangerous vicious circle of obesity, high blood pressure, high cholesterol and high blood sugar levels. In addition to changes in diet and doing endurance training, muscle training can also reduce the risk of heart attacks, strokes and diabetes.

Carbohydrate metabolism: “turbo-charge” for the brain and muscles

Our digestive tract breaks down bread, pasta or muesli into glucose and the resultant monosaccharides are then delivered to the blood. They provide a quick supply of energy always available to cells and muscles and are particularly important for the brain.

Protein metabolism: the cell architect

Some 20 % of the human body consists of amino acids; they help to build and repair our body cells. None of the twenty amino acids are essential, i.e. the body cannot manufacture them itself and relies on our diet to provide them.

Fat metabolism: an inexhaustible energy store

Despite their bad reputation, fats are essential for bodily functions and with their high calorific value they are our greatest source of energy. Unfortunately they can be stored in almost unlimited amounts. The consumption of too many calories results in fat deposits that are dangerous to health.
The Lumbar Extension Therapy machines provide effective training for muscles that are very difficult to target.

The Lumbar Extension Therapy machines are a drop of 36% in their pain levels after just three months. On average, participants recorded a drop of 36% in their pain levels during the course of the study. Physical pain is important in everyday life because it acts as a warning and helps to protect the body from further damage. Our instinct, particularly with back pain, is to avoid any movement that triggers pain. However, in most cases, this means that we adopt an unbalanced posture. Certain muscle groups are put under pressure. For example, a leg curl on the B7, the leg flexors at the back of the thigh, contracts. Similarly, with a leg press, you use not only the thigh muscles but also the gluteal muscles (buttock muscles). In this case, the leg extensors gradually yield and so become extended. This is how a muscle works.

How do muscles work?
A muscle contracts. That’s all it can do. The brain sends out a message telling it to contract – this message travels along the spine and when it reaches the motor end-plate, the nerve fibres transfer it to the muscle fibres. The command can be voluntary or involuntary. When a muscle contracts, it moves a bone in one or more joints – the movement therefore based on the principle of tension and counter-tension.

What is the role of an agonist?
Muscles are not lone warriors; both the agonist and antagonist are on the same side and work together. In most cases, one muscle will have primary responsibility for the movement and it is called the agonist. For example, let’s look at leg extensions on the B1; as you would expect, the muscles with prime responsibility are the leg extensors on the front of the thigh.

So what does the antagonist do?
To ensure the movement is proper-coordinated, the antagonist has to do its bit. In our B1 example, the antagonist would be the leg flexors at the back of the thigh. Acting as an antagonist, the leg extensors gradually yield and are thus extended. This braking action serves to regulate the movement. If the leg is then moved in the opposite direction, the antagonist contracts. Similarly, with a leg curl on the B7, the leg flexors at the back of the thigh act as agonist and the muscles at the front of the thigh become the antagonist. In other words, depending upon the machine used, muscles are agonist for some of the time and antagonist at other times.

What is a muscle chain?
There are few movements in the body that are the result of the actions of a single muscle. In most cases, a movement is a complex interaction between several muscles or even muscle chains. For example, on the B6 (leg press), you use not only the thigh muscles but also the gluteal muscles (buttock muscles). In this case, they form a muscle chain.

How do muscles work in an exercise with a rhythm of 4-2-4?
During strength training, when you tighten (i.e. contract) a muscle you are working against a resistance. Kieser Training uses the three main ways in which muscles work. When you lift the weight, muscles contract and so become shorter. You overcome the resistance and the weight is raised. This concentric movement corresponds to the first four seconds of each repetition. During the next two seconds, the weight is held, the muscle remains tightened but is not contracted further. Even this static hold provides an adequate training stimulus. During the final four seconds in which the weight is lowered, your muscles work in an eccentric way, i.e. they are stretched under tension and so slow down the movement to lower the weight – this acts as a further, extremely intense stimulus to the muscles.

Machine of the month
**Lumbar-Extension-Machine**

We can improve or even eliminate the problems associated with a loss of muscle mass caused by physical inactivity and a lack of resistance by specifically strengthening the back muscles that stabilise the spine.

**Latest research – pain**
Strength training reduces pain by an average of 36%

In the study conducted under the banner “Kieser Training works”, Werner Kaiser demonstrated the effectiveness of his method of training (refer to cover page). One of the most interesting results was the positive effect that strength training had on the participants’ vulnerability to pain. The study, conducted by the Research & Development Department of Kieser Training, involved 531 participants from the 119 Kieser Training facilities in Germany who trained twice a week for 6 months under normal training conditions. At the start of the study, 8 out of 10 participants had painful symptoms. By the end of the study, 8 out of 10 participants had eliminated pain completely. To collect the data, we used self-assessment questionnaires. Participants were asked to indicate on a scale of 1 to 6 the level of physical pain in the preceding four weeks. On average, participants recorded a drop of 36% in their pain levels during the course of the study.

Physical pain is important in everyday life because it acts as a warning and helps to protect the body from further damage. Our instinct, particularly with back pain, is to avoid any movement that triggers pain. However, in most cases, this means that we adopt an unbalanced posture. Certain muscle groups are put under pressure. For example, a leg curl on the B7, the leg flexors at the back of the thigh, contracts. Similarly, with a leg press, you use not only the thigh muscles but also the gluteal muscles (buttock muscles). In this case, they form a muscle chain.

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**5 Questions... about muscles**
One muscle rarely works on its own – in most cases several muscles work together.

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**Expert’s Tip**
Do you suffer from chronic back pain, facet joint dysfunction, prolapsed disc or nerve-root irritation? You don’t have to – in 8 out of 10 cases, the cause is weak erector spine muscles, the deep back extensor muscles that keep the spine erect and stable.

To treat these muscles, I recommend Medical Strengthening Therapy. The medical professional at your facility will design a special programme based on a precise diagnosis of the cause of your pain. During subsequent training, you will be accompanied by a therapist.

A recent study showed how effective therapy is: After just three months, participants in the study reported a 36% reduction in pain intensity and a reduction of 42% in the impairment caused by that pain. Many patients reported reduced pain after just three sessions – if we can break the vicious circle of pain followed by exercise avoidance to minimise that pain, we can increase strength levels exercised in both training and daily life.

For more information, please contact the Medical Strengthening Therapy Department in your facility.

Dr. Uwe Goebel, Research Department Kieser Training AG
Would you expect a car wash to be cosy and relaxing?

Werner Kieser on being children of the Earth, vinegar-flavoured chocolates, the status quo, the fun factor, lean mass and manufacturing

Herr Kieser: Professor Seiwert, Germany’s time management expert, called Kieser Training a “purist concept without the bells and whistles”. Why do you dispense with such add-ons?

We don’t train because it’s fun or the “in” thing to do. We do it because we know it’s necessary. As children of the Earth, the effects of gravity mean that resistance is fundamental and essential. Many seek it in sport but sport is limited in its capacity to deliver resistance. Kieser Training offers targeted and measured resistance. That may not be attractive but it does work.

Despite that you could package it with more bells and whistles... That would be a joke, just like vinegar-flavoured chocolates – eat one and you spit it out immediately – after all, you were expecting quite a different experience. We don’t take that risk and so don’t promise that training is fun.

Instead, you say it makes you happy – what’s the difference? The training itself is not unpleasant. In fact, it’s hard work. It has to be, because the human body treats the status quo as the ideal. Movement in our everyday life may be just enough to maintain strength levels but without real exertion, strength will gradually decline. In contrast, strength training improves the status quo. The majority of us live with strength below optimum levels and this causes problems. It’s not the training that makes us happy but in its effects – with every passing day we feel healthier, lighter and better able to cope.

You present your concept as something very simple. The concept has not changed significantly. I see no reason to change it. After all, the packaging is also part of the promise and it would be wrong if the packaging failed to mirror the content. We don’t claim to provide pleasure, sport or even wellness. We do claim to deliver efficiency.

Mrs Leszuk, can you remember how your friends reacted when you took up strength training at the age of 53?

As Kieser Training was completely unknown in Austria at the time, most of them simply did not know what to make of it. They figured I had simply joined a fitness club. But what I liked most was the close supervision of my training. You just can’t get it wrong, particularly if you have any problems. With the wrong training you could do more damage than good.

So did you also benefit from the medical evaluation?

Yes, I did. I suffer from osteoporosis; it runs in the family, so I was very pleased to be seen by the doctor who had impressed me so much in her presentation during the launch event. Have you seen improvements in your condition?

My osteoporosis was diagnosed at an early stage. I have been taking drugs ever since, have regular checks and do Kieser Training. The condition has hardly progressed and I feel I have it under control. If I think of my mother – broken bones, even broken vertebrae – I’ve been spared all that. My mother was always in hellish pain, while I’m relatively pain free without taking any painkillers. That’s worth a lot! I’m sure that’s due to my strength training.

Was it hard to get started?

No, not at all, because the concept really agreed with me. I noticed very soon that it was doing me good and I was really looking forward to my next session. In the first year, I trained twice a week; now I find once a week sufficient. When I started, I had very weak muscles. I’m certainly not the sports type, but within a short time, I improved tremendously. Now, after all those years, I have reached my potential. You cannot ignore ageing – it makes a difference whether you’re just past 50 or 63, as I am today.

And how do you keep going? It’s not really fun, is it?

I still like going for my sessions, but not with quite so much enthusiasm as at the beginning. But there is one thing. The training really does make a world of good! Somehow, I just feel lighter. I think, it’s almost a bit like an endorphin rush.

Could you imagine stopping with Kieser Training tomorrow?

Oh no, that would be a real loss. For as long as I am healthy enough, I will continue to renew my subscription. I want to stay fit for my two grandchildren.

STRENGTH FOR LIFE

An unrivalled success story: 10 years Kieser Training in Austria

The Austrians must have really been waiting for Kieser Training to enter their lives. From the moment the first site opened in March 2000, they have been tolerating waiting lists for their introductory sessions, but kept their appointments and made Austria the most successful market for the concept.

This is not meant to belittle the hard work put in by all the staff over the years, starting with Werner Kieser himself when he had to get behind reception after his presentation on the opening day to help sell subscriptions to relieve staff overwhelmed by demand.

Today there are three facilities in Vienna and one each in Graz, Salzburg and Linz with a total of 18,000 customers. Two major resorts, Bad Tatzmannsdorf and Kitzbühel both sport a Kieser Training Selection facility – a new business model for smaller locations. The success of the concept is very well summed up by the expression “the event” in our life, it is the fun factor, lean mass and manufacturing.