

Reflex 41

The Kieser Training Magazine

350 – a powerful number

Does this sound familiar? It's up in the morning, into the car and off to work. Then it's the lift to the office where the office door opens automatically – but of course, I hear you say. After that, it's 4 hours of concentrated sitting at your desk but eventually it's time for a break: So, it's back to the lift and down to the canteen – time to sit quietly and eat. But before you know it, the office chair summons. At the end of the day, you leave work and in almost no time at all you're sat on the sofa ready for a long session in front of the TV.

350

From morning to night, every aspect of daily life is fully automated. Thanks to technological achievements, the most we need to do is to use the finger muscles to operate a mouse or any number of remote controls. Prof. Dr. Wildor Hollmann, a well-known specialist in sports medicine, has worked out that we need 350 calories less than we did 50 years ago thanks to technology. That in turn has had a detrimental effect on our figure. However, excess body fat combined with a lack of physical exercise not only affects the way we look. Much more serious is the effect on our health: With every additional kilo, we increase the risk of heart, circulatory or metabolic disorders such as high blood pressure or diabetes – a much weightier consequence.

What's to be done? First of all, give up the escalator or lift! But that's not all. As a Kieser Training customer you already know the answer: what modern humans lack is not just exercise but rather our muscles primarily lack resistance. What really helps is muscle training – trained muscles are not only good fat burners round the clock, but also help carry you through life much more lightly.



Refuelling for the job

At Dresden International Airport, nine fuel attendants are responsible for aircraft refuelling. To make sure they are up to the job, they "refuel" at Kieser Training. Their training is sponsored by their employer in what turns out to be a real win-win situation.

Andreas Warmer attaches a 2" thick hose to the wing of an Airbus 300/600 and with arms above his head, he presses the coupling against the opening, locks it and starts to pump kerosene into the tank. It takes about 30 minutes to fill all the tanks for the flight to the Egyptian city of Hurgada. "For this job, you need to concentrate and work quickly and safely. This demands physical fitness as well," explains Warmer.

To keep fit, Andreas trains twice and sometimes even three times a week at Kieser Training. His employer – AFS Aviation Fuel Services GmbH, an affiliate of Lufthansa and German BP – pays for his annual subscription. AFS has more than 400 staff working at 11 international airports in Germany and Austria and each year, they refuel some 600,000 aircraft. They work around the clock, with minutes counting. Irrespective of whether the sun is shining, it's

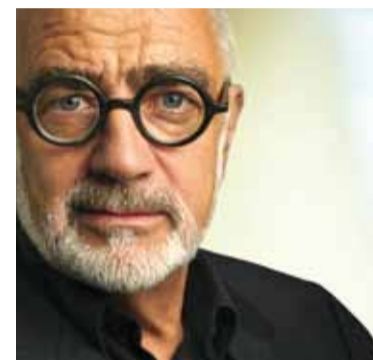
raining or stormy, refuelling must be completed quickly and safely so that the aircraft can leave on time.

Four years ago in a bid to increase the physical fitness and health of its staff and reduce absence rates, the AFS Head Office in Hamburg launched a healthcare programme under the banner "Prevention is better than any cure". "Staff are our most important resource," says Hartmut Gentsch, the Safety Engineer who initiated the prevention programme. "They are crucial if we are to satisfy customer needs in full. It's not enough to invest just in new technology. We want to help staff remain healthy, satisfied and motivated," he stresses.

Hans-Joachim Löscher, Operations Manager at Dresden, values the healthcare programme. Seven of his staff have been on board from the start, including Andreas Warmer. "With an ageing population, staff

are getting older," explains Löscher. "For me, it's important that they remain healthy and can do their job until they retire. One of his staff has since retired – with Kieser Training. Löscher smiles as he recalls: "As a retirement present, he asked for an extension of his training contract. For my staff, training has long been an integral part of their lives." And what about him? "They chide me if I miss training too often," he admits with a grin. The Operations Manager is proud of the statistics showing that his team has the highest participation rate within AFS. However, that's not all; it also has the lowest absence rate. He is amazed that other medium-sized companies still neglect the problem: "Whenever an employee is off sick, it costs the company money. It is much better to invest in the health of staff – it pays dividends for both sides."

Dear Reader,



It's a simple calculation: The more productive an employee, the more profitable for the company. That's how the company AFS sees it, as our lead story describes.

Mental and physical productivity cannot be separated. So the principle applies to desk-bound and physical work. Both activities put a strain on certain muscles and thus "train" them, while others remain under-used. This results in a muscular dys-balance, which will eventually lead to pain in the musculoskeletal system. Back and neck pain are often the first to occur, later other joints, such as knees and hips follow.

Preventive and therapeutic strength training are the easiest way to prevent this from happening. Because only a pain free employee is fully productive. Encouraging staff to train regularly therefore does indeed pay dividends to both, the employee and the employer.

So whether you are an employer or an employee, feel free to approach the manager at your facility to ask about the corporate deals on offer for you and your company.

Werner Kieser

KIESER TRAINING

STRENGTH FOR HEALTH

The jaw and its muscles

With eating comes life and vitality! Nature has provided us with a perfectly designed tool that ensures we enjoy eating throughout our lives – the masticatory system.

The masticatory system comprises the organs and tissue that contribute directly to the process of chewing. The upper jaw (maxilla) is a non-moving cranial bone. In contrast, the lower jaw (mandible) is able to move thanks to the temporomandibular joint. With the help of masticatory muscles, the lower jaw is able to rotate and slide relative to the upper jaw, i.e. when we chew, speak or yawn, only the lower jaw moves.

The masticatory muscles are divided into the muscles that open the mouth (lateral pterygoid muscle) and the muscles of the mouth base and those that close the mouth (temporal muscle, masseter muscle and medial pterygoid muscle). They are all attached to cranial bones.

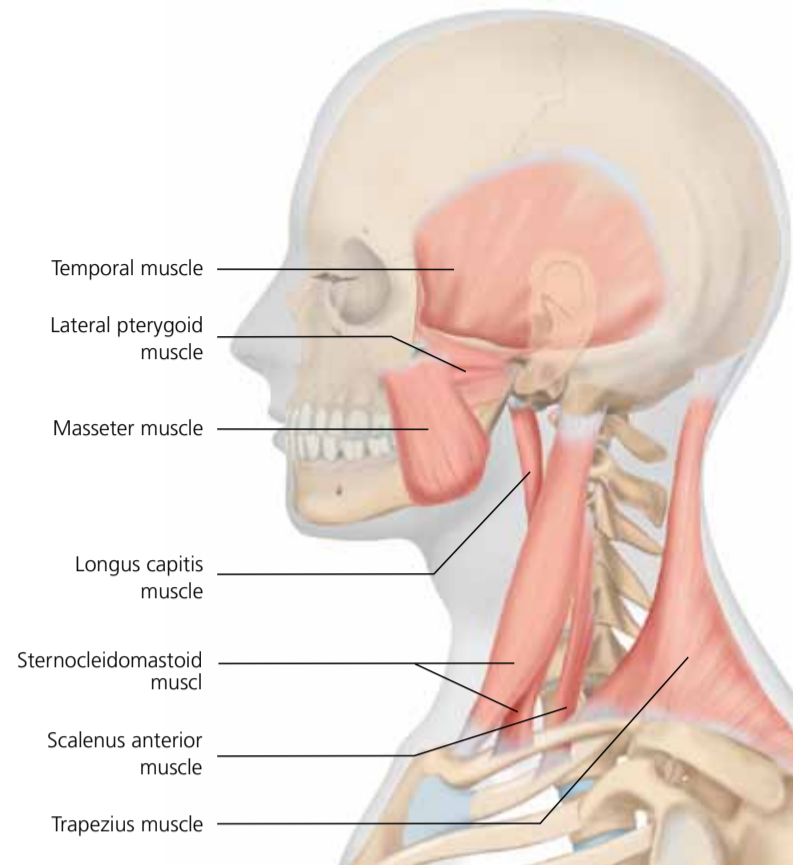
Healthy bite

If the masticatory system is healthy and functioning properly, the position of the upper and lower jaws when we close the mouth (occlusion) is neutral. In the so-called “bite position“, contact is even from the rear molars through to the front canines. As a result, the upper jaw and lower jaw provide ideal mutual support. When we move the lower jaw to the side – e.g. when chewing – the contact between the canine teeth guides the lower jaw as it moves to the side and so reduces the strain on the jaw joints and protects molars and pre-molars. In a healthy jaw, the top and bottom incisors are not in contact unless the lower jaw is pushed forward, i.e. if we pout. This interaction between the upper and lower jaw ensures that the

masticatory system works properly and prevents strain or damage to the joints.

However, many of us do not have an ideal bite position. Fortunately, our masticatory system is very adaptable and can normally adjust to minor and in some cases major deviations. Often, a tooth or jaw disorder will only develop if we experience an additional strain over and above the existing deviation. For example, whiplash injuries, stress or poorly fitting dentures, crowns, bridges or fillings can disturb the individual balance.

Illustrations: © Holger Vanselow



Anatomic interaction according to Dr. Dmoch: Muscles work in chains and so the jaw muscles can affect other muscles

What effect does Kieser Training have on ... **CMD-syndrome?**

A tooth, mouth or joint dysfunction is not only unattractive but can also trigger problems such as back pain.

Such dysfunctions are collectively known as Craniomandibular Dysfunctions, CMD Syndrome for short. CMD Syndrome can develop if, for example, there is no canine contact when we bite together or if teeth other than the canines are in contact during lateral movements. If the incisors are in contact with each other when we bite, this can force the lower jaw into an awkward position and as a result, the joint has insufficient room. This often causes a pathological change to the mandibular joints and may, for example, manifest itself in the form of noise when the joint moves. However, the masticatory muscles also suffer because they are permanently

tense and subject to chronic stress.

These muscles may be small but their impact is far reaching: The central nervous system sends a message to the brain telling it about the disorder. In response, the brain transmits this information to other muscle areas. This can cause muscle imbalances or orthopaedic problems, e.g. back or shoulder pain or pelvic misalignment. Other typical symptoms of CMD include headaches, tinnitus, dizziness and jaw pain.

Kieser Training with bite – strength training for back problems

Targeted strength training done at the

right intensity corrects muscle imbalances, strengthens weak muscles and can prevent or alleviate pain. In addition, it has a positive effect on the masticatory muscles. The following machines are suitable for those with CMD Syndrome: G1 (neck and shoulder) strengthens the upper section of the trapezius muscle; this muscle raises the shoulder girdle and is partly responsible for keeping the shoulder blade in the correct position. G3 (4-way neck - side) strengthens the sternocleidomastoid muscles. The neck stretch on the G5 is also important as it strengthens the posterior muscles of the head. The C5 (rowing torso) strengthens the muscles

that pull the shoulders backwards and straightens the dorsal spine. The D7 (seated dip) works the muscles that pull the shoulders down towards the rear ribs. The E2 (lateral raise – see Machine of the month) is also recommended – with handholds in position 4 or 5. Finally, a medical evaluation ensures that your programme is tailored to your specific needs.

Summary: Strength training cannot cure a craniomandibular dysfunction but it can help correct the position of the body and so reduce or even eliminate symptoms.

Doctor's tip

What to do if CMD torments your back?

If CMD symptoms are severe or chronic, a medical examination followed by Medical Strengthening Therapy is recommended. The Cervical Extension Therapy Machine (for

the cervical spine) and the Lumbar Extension Therapy Machine (for the lumbar spine) are able to diagnose and treat muscle deficits.

As well as doing Medical Strengthening Therapy, a detailed functional analysis of the mandibular joints is recommended for those with craniomandibular dysfunctions. This applies particularly if pathological jaw changes have already occurred and if joints are making a noise. Therapy can re-position the lower jaw, correct the bite and so alleviate jaw pain and encourage spinal regeneration.

cases, it has recently been possible to fit transparent Cranio Caps that ensure that the bite remains correct both day and night. They fit over the teeth but are not visible and ensure that the contact between the teeth is correct. On completion of the CMD treatment, therapy can continue based on the new bite position.

This should always be done by a CMD specialist. The conventional therapy is for the patient to wear a “dental guard” at night in order to reposition the jaw and eliminate the stress. The problem with this therapy is that during the day and when you eat, teeth contact reverts to the old position and so strain cannot be eliminated on a 24-hour basis. For more difficult



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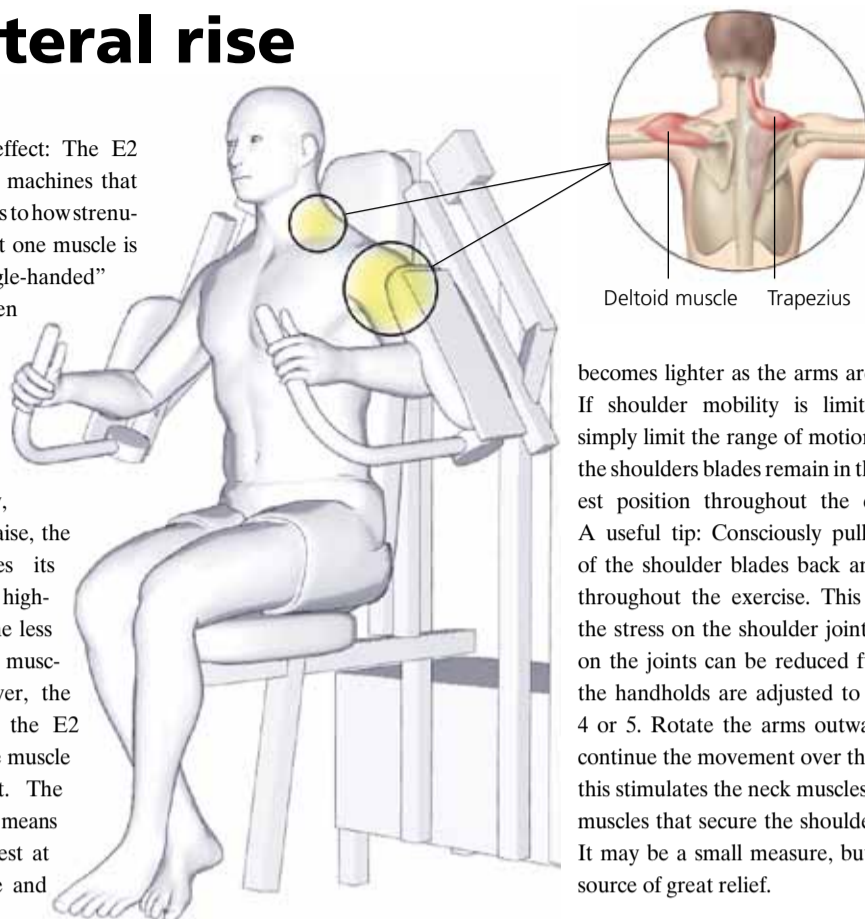
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E2 – Lateral rise

Small weight but big effect: The E2 machine is one of those machines that constantly surprises you as to how strenuous it is. No wonder, just one muscle is responsible almost “single-handed” for lifting the weight when the exercise is done properly: the deltoid muscle. It raises the arms to the side and gives the shoulders their beautiful form. Admittedly, when you do a lateral raise, the deltoid quickly reaches its limits. The reason: The higher you raise the arms, the less strength the shoulder muscle can develop. However, the sophisticated design of the E2 machine ensures that the muscle copes with the weight. The machine has a cam, which means that the weight is heaviest at the start of the exercise and



becomes lighter as the arms are raised. If shoulder mobility is limited, you simply limit the range of motion so that the shoulder blades remain in their lowest position throughout the exercise. A useful tip: Consciously pull the tip of the shoulder blades back and down throughout the exercise. This reduces the stress on the shoulder joints. Stress on the joints can be reduced further if the handholds are adjusted to position 4 or 5. Rotate the arms outwards and continue the movement over the head – this stimulates the neck muscles and the muscles that secure the shoulder blade. It may be a small measure, but it's the source of great relief.

Expert's Tip

Using momentum often makes things easier. However, with strength training it is counterproductive: As you build up momentum, you produce more muscle tension than is desirable and in the momentum phase you produce less. The braking phase can also cause undue strain. For example, let's look at the B1 (leg extension): In this case, it's often the final moments of leg extension that are the most difficult. If you use momentum to achieve full extension, you “spare” your muscles at the precise point where they are at their weakest. In addition, you have no control over the movement as you reverse the direction. This means that you absorb the training weight when your legs are almost straight. That does not sound a good idea, does it?

Watch yourself critically: are you using momentum during the exer-

cise? If so, reduce the speed at which you do the exercise and just use your strength to complete it. German fitness expert, Axel Gottlob, even recommends an “artificial pause” at the critical point before continuing slowly with the exercise.



Anika Stephan
Research Department Kieser Training

Latest research – Strength training for Type 2 diabetes

Sport not only keeps you healthy but makes you well again. This has long been common (albeit very helpful) knowledge in the field of sports medicine thanks to numerous studies. Admittedly, until now strength training has just been a side issue in medical research with scientists tending to focus on endurance training as it was seen as particularly beneficial to health. The same applied to earlier research into Type 2 diabetes mellitus: cardiovascular training and

dietary changes were regarded as the ultimate in the treatment of so-called late-onset diabetes.

However, in recent years an increasing number of researchers have turned their attention to muscle training and have recognised its value as a therapy. We now know that patients with diabetes can exert a positive influence on muscle metabolism, energy balance and bodyweight through sport and dietary changes, physical

fitness and trained muscles. A more active lifestyle, particularly in the early stages of the disease, can have far-reaching effects and diabetics can reduce the impact of the disease and delay or even avoid medication.

What's new is that recent studies have shown that the benefits of strength training are almost equal to those of endurance training. Muscle training also reduces insulin resistance and improves glycaemic metabolism

and body composition. A primary indicator in determining the benefits of this type of therapy is long-term blood sugar level – known as HbA1c. Strength training can reduce HbA1c by an amount equal to that achieved by endurance training. The most effective therapy for Type 2 diabetes mellitus is a combination of cardiovascular and muscle training.

The Diabetes Associations in both Germany and the United States rec-

ommend strength training. Patients should strengthen major muscle groups three times a week. The ideal interval between sessions is every other day as the one-off effect on insulin resistance from training is limited to 48 hours. The reward for this effort can be found in blood sugar levels: the higher the level of exertion, the greater the effect on the metabolism. For that reason, intensity should, wherever possible be moderate to high.

Tales from the Training Floor ... the strength of camaraderie

The best stories come from real life – or from training. Life does not simply grind to a halt when the thousands of Kieser Training customers are training. Quite the opposite, life goes on around them. Tales from the Training Room is the name of our series. This time we meet Ramón Bernaus, a customer in Barcelona who shows how strength, team spirit and a good idea paid off.



Ramón Bernaus (second from right), Kieser Training customer in Barcelona, prepared his 100 km run with Kieser Training.

It's 09.00 hours on the 7th May in Santa Maria de Palautordera in Barcelona Province. 808 competitors

are about to complete 100 kilometres on foot in a maximum of 36 hours. They compete in teams of 4 – but

does that mean that each team is competing against the others? Not quite, because all are walking for the same good cause. “We are walking to fight poverty,” explains Ramón Bernaus. “Each team has to collect a minimum of 1,500 Euros before they can start”.

The event is the Oxfam Trailwalker, which is held 15 times each year in 12 different countries, including, Australia, United Kingdom and Germany. This year, Spain joins them for the first time. “Often, people living in developing countries have to walk miles to find food, water, medical treatment, work or education. These charity events are designed to provide some relief,” explains Bernaus. The total amount collected by the 202 teams will exceed 470,000 Euros. “The money raised by the Inter-món Oxfam Trailwalker in Spain will be used primarily for the const-

ruktion of wells in Ethiopia,” he says with a smile. “I like that thought. We walk so that others won't have to walk as far to reach the nearest well. That's what kept me going during the event. We also valued the support of Kieser Training – it allowed us to donate 3,190 Euros”. The name of the team says it all: “Nosaltres i tu, junts per una causa” – “We and You – together for a single cause”.

A sense of common purpose was also needed for the sporting side of the event because Ramón Bernaus and fellow team members David Cabanillas, Raimón Gabara and Zenón Cubillas had to stay together during the walk and cross the finishing line together. Easier said than done in the event that uses the “Els 3 monts” – a long-distance trail that takes its name from three mountains – the highest being the Turó de l'Home at 1,706 metres. “It was a hard experience but

a good one,” says Bernaus. “In all, we walked 108 kilometres, up and down the whole time. It rained overnight and the paths were narrow and stony.”

Bernaus' team of four was the fourth oldest in the event. He is 64 years old and has been training at Kieser Training for the last year to get his muscles in trim. “It was ideal preparation for the intense effort required,” explains Bernaus. He used a training programme tailored to his own needs in order to strengthen and stabilise his legs, trunk back and arms. “That really paid off,” stresses the 64-year old Spaniard. And indeed it did: Ramón Bernaus and his team completed the event in 23 hours and 59 minutes and came in 18th out of 202 teams. And not just that! They demonstrated that strong camaraderie brings its own rewards. A great show of strength!

A brand is a promise

We talk to Volker Pommerening, Head of Quality Assurance at Kieser Training Germany, about the importance of quality.



Volker Pommerening
Head of Quality Assurance
Kieser Training Germany

Mr. Pommerening, you are responsible for quality assurance at Kieser Training. What does quality mean to you?

For us, quality means that we meet customer expectations and provide consistent services in line with our concept. Kieser Training is a franchise operation with more than 140 facilities worldwide. Each facility offers strength training for prevention and therapy and is fitted out more or less identically. If it says Kieser Training on the outside, it has to be Kieser Training on the inside as well. After all, a brand is also a promise.

More than 140 facilities, each employing staff with very different personalities – what about the old adage that too many cooks spoil the broth?

In order to prevent that, you have “recipes” – in our case the standards. The standards contain the ingredients and procedures but we leave the seasoning to the individual. Our internal training represents the “how” in the mix.

How important is a consistent appearance?

The brand must have a visible expression that is universally recognised. This includes a consistent appearance – known as corporate design – and consistent behaviour – known as our corporate behaviour. Both contribute to our corporate identity. In this way, we bring the brand alive.

And so the staff employed by Kieser Training play a major role?

Exactly! Our recommendation to franchisees is that they recruit staff with a background in sports science or healthcare or who have completed a course as a health trainer at an institution such as the University of Applied Sciences for Health and Prevention in Germany with whom Kieser Training has a cooperation arrangement. However, we also attach considerable importance to communication skills and so in our internal training, we work with Professor Friedemann Schulz von Thun, an expert in the psychology of communication.



What is the role of your department – Quality Assurance?

We investigate the extent to which our standards are implemented and lived out in practice. We observe what is happening on the ground and this allows managers to compare their perception with ours and if necessary to “add some more seasoning”.

Yes, but such checks are only a snapshot in time?

That is why we visit each facility at least twice a year. During these visits, our experienced staff observe what

is happening. In addition, we do not rely solely on these snapshots but use other investigation tools. Working with an external supplier, we operate a “mystery shopper” scheme whereby impartial mystery shoppers check out our services, including our medical services. Similarly, the annual inspection by TÜV, the German Technical Inspectorate, provides further external evaluation of our facilities. Finally, customer feedback is also very important. Many customers write or email to tell us what they think of Kieser Training.

And so, quality assurance is a core function of a franchise system?

Yes, although I prefer to use the term “quality development”. We monitor the results from these various channels to see whether changes or additional training is required. Our ultimate aim is to ensure that our concept is applied in our facilities so that we can continuously improve our training offer. We want to strengthen customers in every sense of the word and so substantially improve their quality of life.

When less is more

Werner Kieser likes to say: “Kieser Training isn’t fun, but it makes you happy!” That’s why we try to make the training as efficient as possible – to minimise the “no fun” factor and maximise your happiness.

One of those measures is our strict adherence to the one-set principle. Various studies have shown quite clearly that multiple-set training has no significant advantage. There are still plenty of advocates of the multiple-set training out there as old habits die hard. One problem is the confusion between techniques that might help top athletes reach certain aims (without necessarily being good for them) and techniques that are suitable for the general public seeking to improve and maintain their musculoskeletal system.

The aim with both methods, if applied properly, is to fully fatigue the trained muscle in order to prompt a response during the ensuing rest period, i.e. the recruitment of dormant muscle fibres.

Multiple-set training

Multiple-set training involves up to 20 repetitions of a movement, followed by a brief break, before moving on to the next set, most commonly for a total of three sets. So if you do ten different machines, you can imagine by how much your training time increases compared to the one-set method. One risk arising from multiple-set training is an unnecessary strain



on the nervous system if the weight chosen is too high and full fatigue of the muscle is reached more than once, i.e. in the second and third set.

One-set training

In order to ensure the highest effectiveness of the one-set training, it is imperative that you select a weight

that will indeed fully fatigue your muscle in the 60 to 90 seconds duration of that one set. Only with this demanding training will you reach the desired results.

It is also important that you avoid using momentum (see Expert’s Tip on page 3) just because the weight is relatively high. So the concentrated manner in which the movement is carried out correctly is of great importance! And that concentration is also very important when you come close to the end of your repetitions and the going gets tough. It’s all too easy to give up on the first signs of a “burning” muscle – but it is essential that you try to complete those last two movements that really fully fatigue the muscles. Finally, you must make absolutely sure that you rest for at least 48 hours between such intensive sessions. Some people may find an even longer break beneficial.

Add cardio effect

And to make things even more time-efficient: if you keep the breaks between the machines very short, that will add a significant cardiovascular effect to your training as well.

Openings

Zurich

A new Kieser Training facility will open on 1 October as part of the development incorporating Switzerland’s tallest building: Zurich-Prime Tower Hardstrasse 223.

Vienna

The fourth Kieser Training facility opens in the Austrian capital at the Praterstern on 21 September.

Melbourne

A third Kieser Training facility will open on 24 October at Mont Albert on 733 Whitehorse Road.

Brno

In Czechia, a second facility opened on 19 September in the city of Brno on Palackého třída, while the Prague facility moved to a new location on Karolinská.

Please check our web-site www.kieser-training.com for the exact locations and contact information.

The Singapore facility closed on 31 August 2011. The search for a new location is on, but as we went to print a suitable replacement location had not been found.