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The Kieser Training Magazine

Strength for kitesurfing thrills

Kitesurfing is "in" and no wonder. Almost no other water sport lets you jet through the water at such high speeds with so little equipment. Kitesurfers can leap higher than all other surfers making it a genuinely exhilarating and technically advanced sport. It may need little equipment but it does require one thing: strength.

Kitesurfers skim across the water at speeds approaching 60 knots, jump more than 30 feet in the air whirling around for up to 6 seconds and then glide majestically through the waves. They do this standing on a small board kept in motion by the kite, the wind and the resultant lift and tensile forces.

The kite is controlled by a bar or handle to which are attached several lines some 75 feet in length and connected at the other end to the kite. The kitesurfer holds the main load via a trapezium-shaped framework into which the kite is mounted.

Kitesurfers have to withstand significant tensile forces and for this you need mobility and strength: "Well trained muscles and body tension are absolutely essential for this dynamic sport," explains Gregor Ortmann. The 42-year-old knows what he's talking about. He's been a kitesurfer for 12 years, is a kite teacher and works as an instructor at the Kieser Training facility in Zurich-Enge.

As he explains, "targeted strength training gets me in shape for kitesurfing. It allows me to strengthen muscles, ligaments and tendons and increases joint stability. Strength training improves agility and resilience and so reduces fatigue."

When suspended in the air or doing the many rotational movements you need a strong torso and in particular strong back extensor muscles. "Machines such as the F3, F2, F1 or the C1 are particularly good," explains Ortmann.

"The shoulders are also subject to considerable force, particularly during the various unhooking manoeuvres. During unhooking, the full force of the kite is transmitted through the shoulders and arms. Targeted training on the C3, C5 or E4/5 helps to prevent problems, particularly with the rotator cuff."

Equally essential are well trained leg and ankle muscles. After all, the surface of the water is rarely like a millpond and tends to be more like a bumpy slope. "Strong leg and foot muscles help me maintain a better position, cushion impacts and control manoeuvres such as turns and jibes. I train these muscles on the B machines. In addition, strength training helps me with the dynamic jumps and allows me to fly higher. My advice: Strength makes kitesurfing even more fun."

Dear Reader,

The genetic blueprint in our cells is the result of 2.5 million years of evolution. Stone Age man was a hunter-gatherer, who collected, picked or hunted for food such as fruits, roots, berries, nuts or animals. He got enough sleep and sunlight, did enough physical exercise and from time to time had to put in maximum physical effort. Evolutionary scientists have found that our ancestors not only had low fat and cholesterol levels but also low blood pressure.

Our genetic programming has changed little since then. We retain the metabolism of those hunter-gatherers even though we live in a highly mechanised world and take in more calories of varying quality than we use. The result is frequently obesity and other lifestyle diseases.

Nowadays, many people only do physical exercise in order to reduce weight. In this edition we look at the central role played by our muscles, how strength training can help with weight control and why we need a high-protein diet.

Enjoy!

Patrik Meier
Chief Operating Officer
Kieser Training AG Zurich

KIESER TRAINING

STRENGTH FOR HEALTH

Being fat is bad for your health

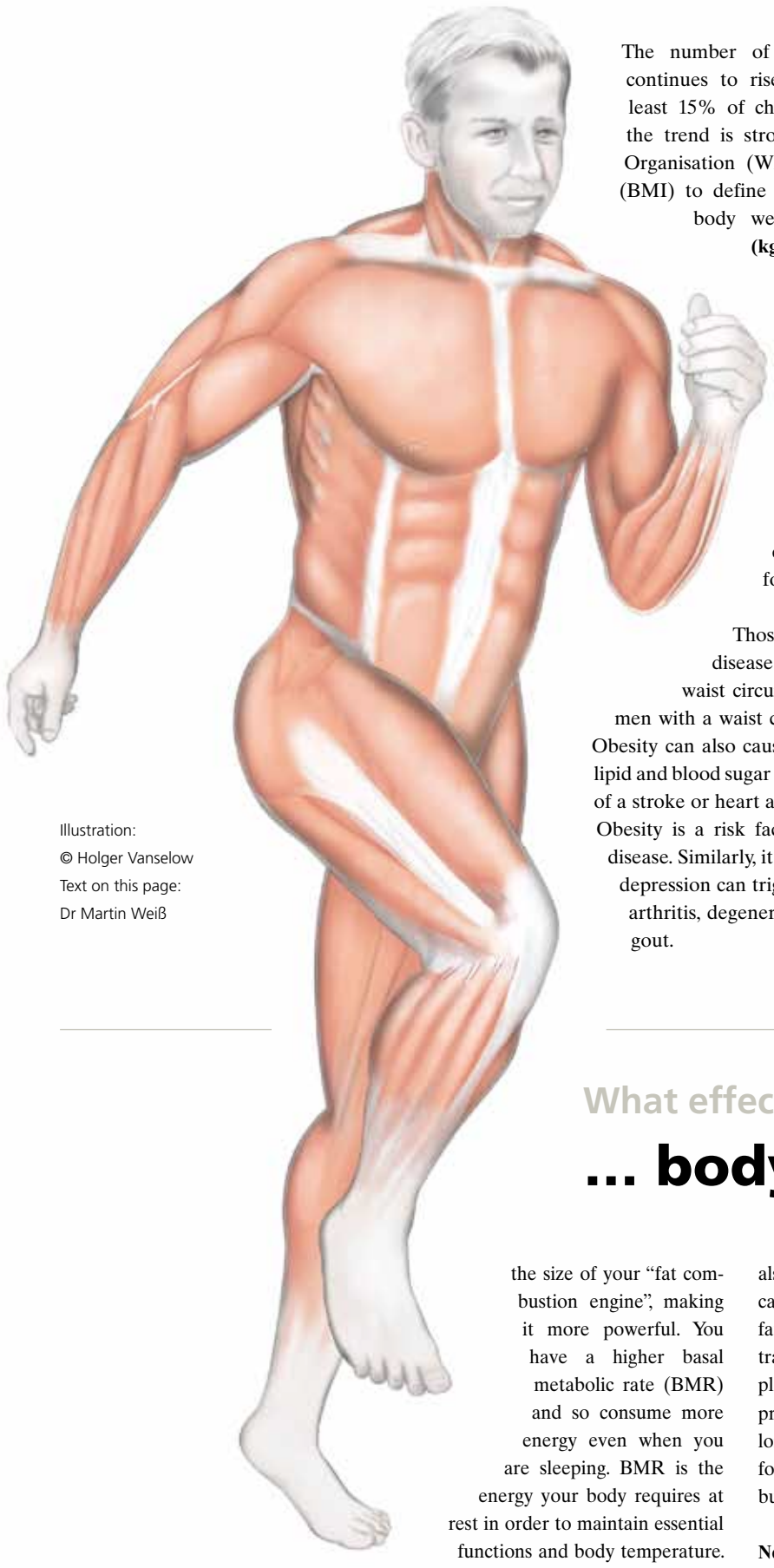

Illustration:
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Text on this page:
Dr Martin Weiß

The number of people who are fat or obese continues to rise sharply. 25% of adults and at least 15% of children fall into this category and the trend is strongly upwards. The World Health Organisation (WHO) uses the Body Mass Index (BMI) to define excess weight or obesity. BMI is body weight divided by height squared **(kg/m²)**. A normal BMI is one under 25. If you are between 25 and 30, you are overweight and above that obese. However, your BMI says little about your health because the BMI takes no account of the composition of the body, i.e. the ratio between muscle and fat and how that fat is distributed. It is these parameters that are crucial for a stable metabolism and for health.

Those with a high risk of cardiovascular disease are particularly women with a waist circumference of more than 80 cm and men with a waist circumference of more than 92 cm. Obesity can also cause high blood pressure, high blood lipid and blood sugar levels. They in turn increase the risk of a stroke or heart attack. Even the brain is not spared: Obesity is a risk factor in dementia and Alzheimer's disease. Similarly, it can cause depression or vice versa depression can trigger it. Other effects of obesity are arthritis, degenerative spinal disorders, cancers and gout.

Is there a central risk factor? Probably yes! It is insulin, a hormone that is produced in the pancreas and that regulates sugar metabolism. The supply of insulin allows sugar molecules (glucose) to reach the muscle cells where they are "burned" in order to generate energy. During the Stone Age, that worked fine. The supply of carbohydrates from berries, roots and grasses was limited. There was enough to supply energy for the brain and the remaining sugar was transported to the muscle and liver cells for processing.

And today? The modern diet supplies too much energy in the form of rapidly accessible carbohydrates. These carbohydrates are broken down into sugar and this results in a massive release of insulin. It drives the sugar out of the "sugary blood" and into the cells. The oversupply of sugar is followed by an undersupply. The brain identifies an apparent need and so triggers hunger pangs. We eat more! The vicious circle continues as we are driven from one hunger attack to the next and become fat.

The fattening effect of carbohydrates has existed for hundreds of years without people becoming fat. Not surprising as our forebears immediately burned off the excess energy through manual labour. Nowadays only 15% of the population in western industrialised countries have a predominantly manual job. Most of us are at the mercy of carbohydrates – or to be more precise an insulin overdose.

Weight

Each of us has 400 odd skeletal muscles. They can be likened to combustion engines for fat. They help avoid the dreaded yo-yo effect many experience with dieting and so are invaluable for long-term weight control.

What effect does Kieser Training have on ...

... body weight?

A war of words is currently raging around the issue of weight control. However, most attempts to lose weight end in failure. So, how can you lose weight and retain your healthy weight long term? The answer is "triple" fitness:

1. metabolic fitness
2. neuromuscular fitness
3. musculoskeletal fitness

Metabolic fitness is the fitness of your metabolism. Intensive strength training for every major muscle group improves metabolic fitness. Muscle fibres become thicker and stronger. Dormant muscle fibres, i.e. those previously inactive are reactivated. Strength training improves the ratio between fat and muscle.

Muscles are heavier than fat and so when you start strength training you initially put on weight. This is to be welcomed because the body is burning fat and converting it into muscle fibre. The increase in muscle mass increases the size of your "fat combustion engine", making it more powerful. You have a higher basal metabolic rate (BMR) and so consume more energy even when you are sleeping. BMR is the energy your body requires at rest in order to maintain essential functions and body temperature.

The additional energy consumed through activity is called your active metabolic rate (AMR) and the two together is your total energy requirement, which helps you maintain your energy balance and keep your weight in check.

Strength training also prevents the dreaded yo-yo effect that many dieters experience. This happens when you do not eat enough calories for energy production purposes. The body then calls on the protein in your muscles and as a result, you are not able to consume as much fat. Of particular importance is the scientifically established effect of intensive strength training on our "mitochondria". Mitochondria are the power packs in the muscle cells, which convert fatty acids and glucose into energy. Training increases their number, it also makes them larger and more efficient. In addition, the "metabolic lubricant" (enzymes) is increased and metabolic performance improved. However, metabolic fitness also requires the "right" diet: fewer carbohydrates, enough protein, healthy fats and a good supply of vitamins, trace elements and minerals. Proteins play a particular role because high-protein foods satisfy your appetite for longer and are also the building blocks for muscle development (see also The building blocks of strength, page 3).

Neuromuscular fitness is the optimum interaction between the nervous system and muscles. It occurs automatically within a few weeks of starting intensive strength training. Initially, your body does not bother to increase muscle mass or upgrade its power packs. It improves the efficiency of the interaction and control of nerve and muscle fibres allowing you to make better use of existing muscle strength. In calling up these dormant fibres the body brings to an end its neuromuscular hibernation. You feel stronger even after a few days. However, this strengthening potential is soon exhausted but provided you continue to train regularly the body starts to build up muscle mass and you will get even stronger.

Musculoskeletal fitness increases very gradually as a result of intensive strength training. The process extends over one to two years. Your performance improves, strong muscles increase joint stability and ligaments and tendons become more resilient. You develop a real spring in your step – what was initially a chore becomes a real appetite for intensive physical activity. At this stage your energy balance becomes part of the equation and you use at least as many calories as you take in. Weight control only works long term if your energy balance is correct.

However, it is far from simple. Genetic factors play a major role: the way each of us metabolises food varies significantly. This makes the height of the barriers to be overcome extremely variable. In addition, psychological factors, including eating disorders demand quite different therapies. However, not all of us are addicted and so many people could extract themselves permanently from the mire by developing "metabolic fitness".

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Kieser Training AG
Hardstrasse 223
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CEO Michael Antonopoulos

Editor
Claudia Pfülb
reflex@kieser-training.com

Regular contributors/Editorial
Tania Schneider
www.prschneiderei.de

Translations
Sue Coles

Editorial office
Dr Philippa Söldenwagner

Layout
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Instructors and their favourite machine

C3

Inge Davoras,
Instructor,
Kieser Training Vienna

Muscles:
- Trapezius, lower section
- Latissimus dorsi
- Biceps

The C3 is my "must have" machine and absolute favourite. Just adjust the seat, select a weight, fasten belt and off you go. Keeping your back straight, lean slightly forward and pull the handholds down until your hands are level with your shoulders. Make sure that the elbows remain close to your body and pointing outwards. Make sure your head remains in the same axis as your spine, i.e. it should represent an extension of your spine. Hold this position briefly and then return to the start position. And now comes the best bit. Consciously extend the length of your body and enjoy a full stretch of the torso before you start the next repetition. Important: the weight should not touch down between each repetition. If it does, lower the seat. I have been faithful to the C3 for 7 years and I look forward to it every time. Until now, I have never felt the need to omit it from my programme. After the exercise, I feel taller, straighter, stronger and lighter – all at the same time. There's nothing to beat it and whenever I use the machine, a smile spreads across my face.

Tip: Endurance to fight flab

Do you want to lose weight? Dr Marco Caimi explains why you need both endurance and strength training.

Intelligent dieting is not just about losing weight. It's about reducing body fat. Have you ever wondered why squirrels are not fat? After all, they eat mainly nuts which are very high in fat. They know something that many of us have forgotten: fat is an energy source, i.e. it's not for storage. We would only need to store it if there were a famine just around the corner and there isn't. However, if we do endurance training, we burn not just sugar but also the fat in our muscles. Regular endurance training has the following benefits:

- Increases the number of fat-burning enzymes (biocatalysts)
- Increases the number and size of the power packs (mitochondria) in our cells that burn fat
- Increases energy consumption as you need more oxygen to burn fat than you do for carbohydrates
- Increases the volume of blood vessels in muscle tissue
- Increases the amount of myoglobin (the red blood pigment in muscle tissue), so improving oxygen supply
- Increases the active metabolic rate, i.e. the additional energy used when you do physical activity

To sum up: Targeted muscle build-up enlarges and multiples the fat "incinerators" and increases basal metabolic rate. Endurance training increases the active metabolic rate and melts fat deposits.

Photo: © Fotolia.com

"Almost everyone has two doctors with them at all times: a right and a left leg."
(Chinese proverb)

Steak with ratatouille (serves 2)

Ingredients:
- 2 onions, 2 garlic cloves, 1 red pepper, 1 yellow pepper, 1 aubergine (300 g),1 courgette
- 2 tbsp. of rapeseed oil, 2 tbsp. of white wine
- ½ tsp. thyme, salt and freshly ground black pepper
- 2 steaks, each 200 g

Peel onions and garlic. Cut onion into rings, finely dice the garlic, clean and wash the vegetables, cut peppers and aubergine into bite-sized pieces and cut courgette into semi-circular slices. Dab steaks with kitchen towel. Heat 1 tbsp. oil in a pan. Cook the steaks on each side for 2 minutes on a high heat. Reduce the heat and cook on both sides for a further 2 – 4 minutes (to taste). Wrap steaks in foil and leave to rest.

Heat a further 1 tbsp. of oil. Sweat the onions and garlic for 2 minutes, stirring continuously. Add the pepper, aubergine and thyme and douse with the white wine and sweat for a further 3 minutes on a medium heat. Add the courgette and cook for a further 2 minutes. Add salt and pepper to taste and serve with the steaks.

- **ca. 481 kcal**
- **43% protein**
- **38% fat**
- **19% carbohydrate**
- **77 kcal per 100 g**

The building blocks of strength

What role do diet and nutrients play in the build-up or loss of muscle?
The nutritionist and author Professor Nicolai Worm considers the question in his column.

It is the pipe dream of many that they can eliminate excess fat and at the same time build muscle. It would be good but it will remain a dream. The body can only do one – it can increase body mass or reduce it. You have to choose.

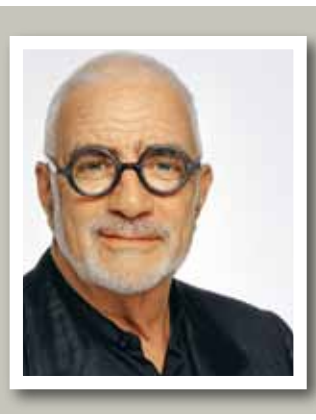
Initially, most professional body-builders go for an increase in mass. They accept that a high-calorie, high-protein diet will also increase body fat. However, later they set to work to eliminate the fat.

However, if you are overweight, I recommend the reverse: start by losing weight but make sure that in the process you lose as little muscle as possible, i.e. eat the right foods and do strength training to build muscle.

Strength training is the most effective way of minimising muscle loss. Resistance training triggers the stimuli needed to maintain muscle mass.

At the same time, eat a diet high in protein. The increase in protein helps to ensure that the body – if you are burning more calories than you are eating – does not think it would be a good idea to use the protein in your muscles in order to supply the central nervous system with sugar. This extra protein also ensures that you have enough building materials for muscle build-up.

It has been shown that if you compare a low carbohydrate, fat and protein-rich diet with a high carbohydrate, low fat and protein diet, the former – assuming the same weight loss – increases the daily basic metabolic rate by some 100 calories. That is a lot in the long run and so helps to minimise increases in weight or avoid them together.



Kieser's Corner

Swiss fitness bureaucrats

SFGV, the Swiss Association of Fitness and Health Centres is planning to introduce a 5-star classification system for fitness studios in Switzerland. Why? For 17 years, an independent institution, Qualitop, has guaranteed both quality and safety using its own stringent and well-established classification system. Our Swiss facilities have also been subject to unannounced inspections twice or three times a year.

We know from experience that a 5-star classification system results in an absurd expansion of the range of services provided. This is clear from the hotel sector where in order to gain 5 stars, hotels had to build a swimming pool that was used by few but paid for by all. Similarly, the SFGV is demanding that one of the requirements for a 5-star rating will be the supply of a towel and shower gel each time a customer attends a fitness studio.

The rationale behind this bureaucratic measure is all too clear. Many fitness studios are unable to meet the stringent criteria set by Qualitop. The Association, in seeking to expand its own sphere of influence, plans to replace the Qualitop system with a system that the Association itself controls.

The Qualitop system enjoys wide acceptance. It was initiated and jointly founded by Paul Eigenmann, who was also largely instrumental in the development of the standard for the German Institute for Standardisation (DIN 33961). The DIN standard is extremely important, not least because it is planned to apply it throughout Europe in future. Against this background, attempts to attack a standardised and proven system can only be motivated by bureaucratic parochialism coupled with an insatiable thirst for power.

James McLean ...

DOB: 16/09/1978
Place OB: Sydney, Australia
Lives in: Port Melbourne, Australia

... is a professional golfer. He played on the US PGA tour from 2003 to 2006 until sidelined with a chronic wrist injury which has only recently been resolved allowing him to compete again. Still only 34, James has spent the past 7 months training at Kieser Training South Melbourne and is delighted with his strength gains and is excited at his prospects for 2013.

What inspires you?
I love seeing and hearing stories of people overcoming adversity. Athletes that have suffered horrific career-ending injuries or individuals that have been dealt an unlucky hand in life get back up and keep on fighting, striving to be better and to take all the positives out of life. It never ceases to amaze me just how strong the human spirit is.

What does "quality of life" mean to you?
It means having a good work-life balance. Because of my profession I am on the road 30 plus weeks a year, so when I am home, I love to spend the majority of my time with my family and close friends.

What do you need strength for?
For my job it is imperative that I keep my body strong and flexible, so I can continue to hit the ball long and straight, but most of all I need to have a strong mind so I am able to deal with the adversity and the pressure that may come my way while playing the back nine on Sunday. Knowing that I have optimised my physical preparation gives me that confidence.

My favourite machine is ...
the F1. I love the feeling I get through the core, and how I can feel it improving my rotation in my golf swing. A strong core in golf is one of the best ways to hitting the ball further straighter, and achieving lower scores.

Photo: © Bronwyn Blair

Profile

DIN establishes quality standards for fitness studios

On the 1st March, Germany introduced its first DIN standard for the fitness sector. We talked to Paul Eigenmann, chair of the DIN Committee.

Mr Eigenmann, what does the new DIN standard contain?
The DIN 33961 standard formulates for the first time minimum requirements and inspection procedures for fitness studios. Its aim is to ensure their safety and quality. First of all, we had to define what a fitness studio is. For the public, the essence of a fitness studio is that it uses equipment for strength training. As a result, we divided the DIN standard into three parts: Part I specifies the requirements for equipment-based strength training together with the basic requirements for management, contracts, maintenance, emergency systems, hygiene, etc. Part II specifies the requirements for equipment-based cardiovascular training and Part III the requirements for group training sessions.

What are the requirements for equipment-based strength training?
Part I covers, for example the selection of machines for use in the studio but does not cover the machines themselves as they are already covered by the European DIN EN 957. The new standard stipulates which exercises or muscles must be included. Particular attention is given of course to the education and training of staff. This is crucial as staff must be capable of ensuring that customers are competent to start training in the first place. This process includes information on a customer's medical history, personalised training programmes and introductory sessions. Staff must then of course provide an element of supervision. In addition, the DIN standard defines – depending upon the size and opening times of a studio – how many trainer hours must be available for supervision. Obviously, one person on his or her own cannot supervise an unlimited number of customers.

Photo: © Lautenschlager

Paul Eigenmann was born in 1947 in St. Gallen, Switzerland and is a pioneer in the standardisation process for fitness studios. In 1996 he, together with the five largest health insurers in Switzerland, founded Qualitop – an association designed to guarantee the quality of health-promoting exercise facilities. This led in 2008 to the formation of QualiCert, a third-party certification body.

Since February 2009, Paul Eigenmann has chaired the DIN Standardisation Committee for Fitness Studios and in March 2013 he was appointed chair of the Working Group 2 of CEN/TC 136.

Who was involved in its development?
The DIN Standard was an initiative of the Technical Inspection Agency in the Rhineland, who had already been involved in the certification of fitness studios for some time. In 2008, the German Institute for Standardisation brought together interested parties and set up a working group. In addition to the Technical Inspection Agency itself, the group included the DSSV (employers' federation for German fitness and health facilities), a representative from health insurers, the Warentest Foundation (German consumer organisation), equipment manufacturers, the DOSB (German Olympic Sports Confederation), the Freiburger Kreis (association representing larger sports clubs in Germany), BSA-DHfPG (German University of Applied Sciences for Prevention and Health Management), Kieser Training, individual studios, profes-sional associations, etc. Its adoption is, therefore widely supported.

What is the aim of the standardisation process?
The process is designed to guarantee safety and quality and so provide comparability and credibility. This is crucial for all interested parties. For customers, the DIN standard indicates that they can train safely and effectively in a DIN-certified studio. For studios, it provides a degree of legal certainty. The importance for the industry includes the fact that the DIN standard allows them to operate within the health system as a serious and relevant partner. A significant stage in the standardisation process will have been reached when most studios are certified by an independent third party in accordance with the DIN standard and meet the current quality standards. In order to extend this throughout Europe, CEN, the European Committee for Standardisation decided in March to establish a European standard based on the DIN standard. I have been appointed to chair the "Fitness Studios" working group within CEN/TC 136. This "European DIN", will be pivotal for the fitness industry.