

## **EMS-Group Training: a dangerous development with high consumer risk**

### **How guidelines of German sports scientists rule out group training with electrical stimulation**

Group training is becoming increasingly popular as a fitness programme. In groups of varying size and under supervision of a single instructor, the athletes approach their limits or the given training goal. Many sporting activities are offered in this manner today. The most popular courses are aerobic, aquaFit, yoga, pilates or cycling, but more intensive training programs like Bodypump or H.I.T.T. are offered as well. What is common to all forms of group training is that a single trainer is responsible for the entire group at the same time, which usually consists of far more than three athletes. In fact, the concept of group training is associated with a number of advantages: most participants find the sociable workout particularly enjoyable; it has a positive effect on motivation and in some sports, the offer is only affordable through group training in the first place. The reason for this is the specific supervision model with just one trainer (1toX), which is rightly regarded sufficient for the abovementioned sports.

In principle, however, group training must be advised against if the latter is not the case and the corresponding sport requires a higher level of supervision than is possible with group training. In this sense, leading sports scientists have long warned against offering EMS (or full-body EMS) training outside of the close supervision of a personal training. An EMS group training, as is sometimes offered, within a trainer-trainee-ratio larger than 1to1 or 1to2 is therefore out of the question.

EMS Training (Electro Muscle Stimulation) is one to the top trends in the German fitness market and has now established itself as a very time-efficient method for improving physical fitness, for improving performance and health. Quite more so than in the abovementioned sports, the safety aspect plays a significance role in EMS training, leading to a decisive, additional responsibility of the trainer. Because a significant part of the strain is achieved by intensive, electrical muscle stimulation, the trainer's task is not only to ensure the correct execution of the exercises: The intensity of the electrostimulation must always be adapted to the individual resilience of the athlete and must be reduced immediately if necessary. So the trainer must not only set the stimulus individually and purposefully, but he must also be able to reduce the voltage for each individual athlete or to switch off the device at any time. This is the only way to ensure that an endangering overload – which can be quickly generated during EMS training – can be ruled out with certainty. This is the main reason why sports scientists and EMS experts make a negative assessment for application of EMS training as Group Training.

For some time now, scientists from the Cologne Sporthochschule and the universities of Kaiserslautern and Erlangen-Nuremberg have been working on safety standards for EMS training. As the result of a consensus event with representatives of science, training and equipment manufacturers guidelines have been drafted that should always be taken into account when using EMS. In addition to technical aspects, these mainly focus on the quantitative ratio of trainer per trainee which allows a safe and effective training. Since the load, which is configured individually, requires greater care intensity in order to ensure the safety and effectiveness of the training, the experts agree that a ratio of 1to2 must not be

exceeded. In summary, the most important rules for the safe and effective application of EMS training are as follows:

- The training must always be accompanied by a trained trainer. The latter is aware of the content of the directive and can implement it accordingly.
- A trainer can train a maximum of 2 people at the same time with EMS.
- The interval between two training sessions should be at least 4 days.

The guidelines have been widely accepted by the major fitness associations in Germany. As the Employers' Association of German Fitness and Health Facilities (DSSV) states: "As a top association as well as Europe's largest employers' association in the fitness industry, DSSV recognizes the recommendations listed as an important instrument for consumer safety and recommends compliance with the directives for all consumers, manufacturers and student trainers."

Professor Wolfgang Kemmler, Research Director for Medical Physics at the University of Erlangen-Nuremberg, explains the recent discussion on EMS safety: "The question of the supervision ratio for electromyostimulation is answered differently by a variety of providers. Approaches that go beyond our suggestion ratio of a maximum of one athlete per coach argue with "standardized exercise protocols", which are intended to relieve the supervisor and thus allow exercise with significantly more people at the same time. We, as a scientific research institution, regard this approach as very critical from several points of view. Namely, this "standardized approach" always refers only to the physical exercise performed. However, a video-supported motion specification is only of limited use to ensure correct execution. Rather, it requires accurate movement control and correction of the experienced and licensed supervisor to ensure effectiveness and safety."

In the case of EMS training, not only the correct execution of the exercises is important, but above all an appropriate training load must be set that does not overwhelm or even harm the athlete. Correction of intensity of each athletes load must be available for the trainer at any moment. According to Prof. Kemmler, this is what makes intensive supervision of the EMS training necessary and rules out offering EMS as a group training:

"The issue of intensity control is clearly more relevant than physical exercise per se. In this case, a very individual supervision ratio and a very close interaction between the trainer and the trainee is imperative to ensure the best stimulation possible. It comes as no surprise that the best results can be generated through 1to1 or 1to2 supervision. This is mainly a matter of safety!"

What Kemmlers' recommendation specifically points out is that EMS training is safe as long as it is based on the recommended quality standard, which also serves the providers by preventing accidents and thus protecting the reputation of this innovative training form. A practical, correct understanding of the EMS training as a 1to1 or 1to2 personal training thus ensures the sustainability of the reputation of the EMS market and, by extension, the reputation of the fitness and studio industry. "Recently, the reputation of the whole-body EMS training had been damaged by improper use, which in some countries even led to a temporary ban. Due to considerable efforts, EMS is now rehabilitated as a safe and effective training technology. It would be fatal if, by inadequate application, this reputation would now be damaged again, with a more sustainable effect."