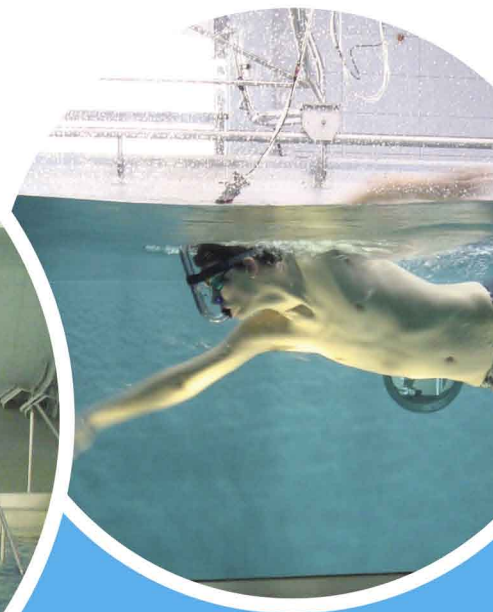


Streaming Water



New ways in rehabilitation,
for fitness and wellness, in training



Streaming Water

The Keyword for: efficient rehabilitation; health sport with optimal results

Exercise therapy in water has established itself in many rehabilitation clinics in Germany. It has become an essential part of the treatment concepts in the field of medical exercise therapy and rehabilitation sports activities.

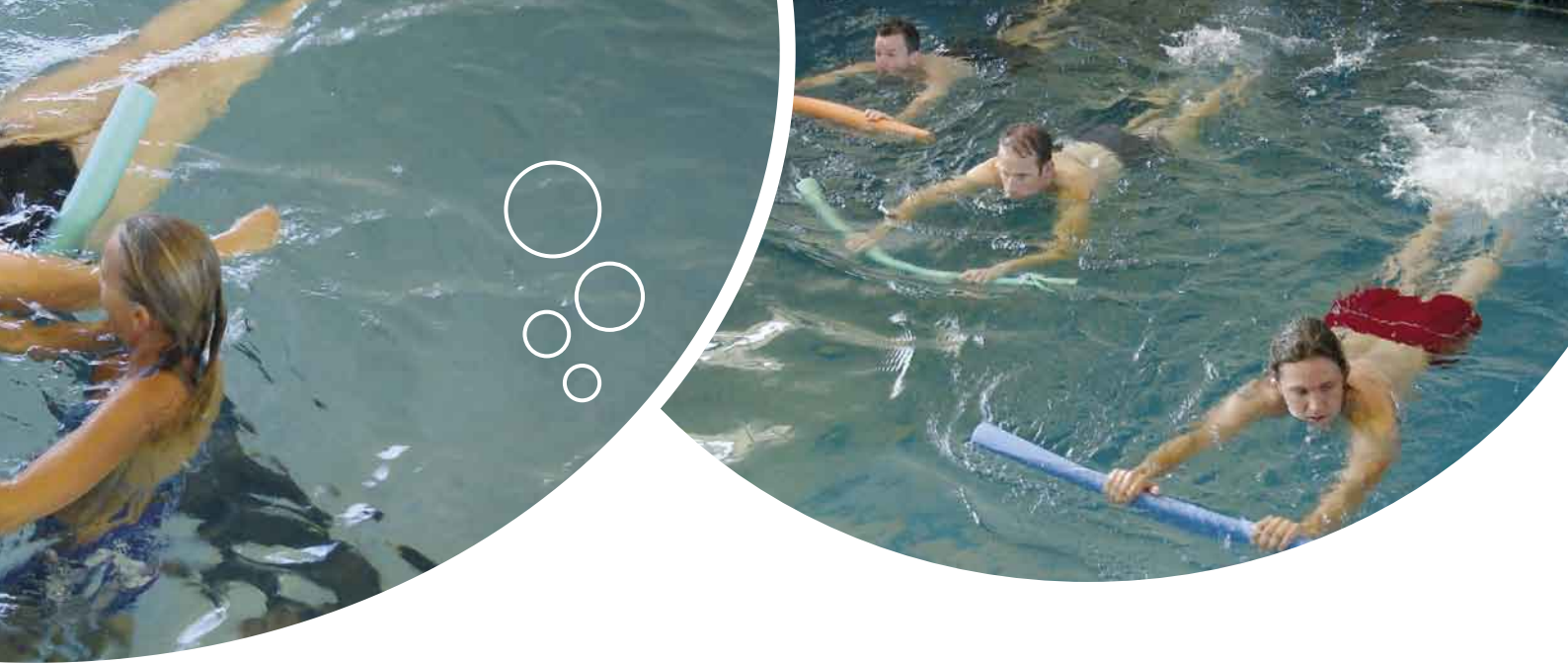
In spite of its remarkable success it can be assumed that the favourable effects in the organism caused by water are by far not yet exhausted and cannot be opened up in stagnant water.

Streaming water increases the effects, it is the basic precondition for recording the performance and establishing substantiated workload criteria.

According to the needs of the customers the Technical Centre develops

and builds complete facilities for streaming water, it also drafts exercise programmes, trains their therapists and submits proposals for performance testing.





Reasons why streaming water provides a push in efficiency:

- The water velocity can be varied and is exactly reproducible.
- During the entire exercise time the whole body benefits from well dosed massages.
- Exercising with, against and across to the current results in a better awareness of one's body and the development of precise motor abilities.

The hydrostatic and the dynamic qualities of water linked with variable water velocities and the resulting variable water pressure make it possible to apply physical exercises for differentiated medical indications.

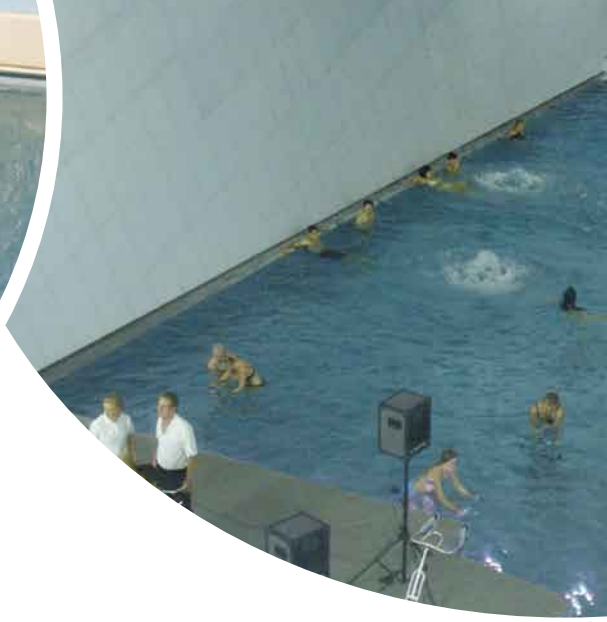
In the field of health sport the focus is on the development of general fit-

ness, endurance and strength. This can be done with a lot of fun.

A particular advantage is the option of individual workload control.

A large number of aids, including some very simple ones, help to distribute the workload effectively in the flowing water.





Promote health, have Fun, feel better!

The technical solutions applied are own special high-tech developments of the Leipzig Technical Centre and its partners. The water circulates mainly vertically. Axial pumps with a diameter of 0.5 m - 2.0 m accelerate the water to the desired velocity which can be freely chosen.

All components of the facility are optimally adjusted to the different demands on precision, velocity, ener-

gy consumption and working conditions. Flumes can be delivered in a compact design as a complete ready-to-use facility, as a unique facility for special requirements or as high-performance facilities for canoe / kayak and competitive swimming.

The Technical Centre's latest development is a plastic pool made from polypropylene that is used as a compact flume.

Outstanding water flow properties combined with simple handling, long operational life and an excellent price-performance ratio are convincing arguments that are important for smaller facilities for physiotherapy, fitness, swimming, triathlon and for private customers.

The flumes can be run by simple manual control or with automatic program-and computer-control.





The majority of the population knows: health requires movement. Many young and elderly people try to reach higher fitness in order to manage everyday life. To improve one's health by exercising and having fun raises the spirits and results in an optimistic attitude.

Especially due to its intense massage effects streaming water is more valuable than stagnant water.

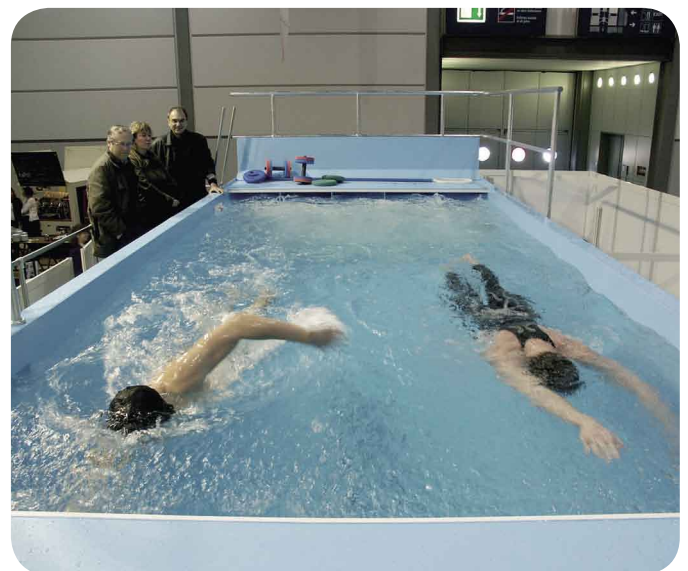
Flumes can become special fitness centres, if they offer carefully selected assisting devices. Effort and rest are applied in combination and increase the feeling of wellbeing.

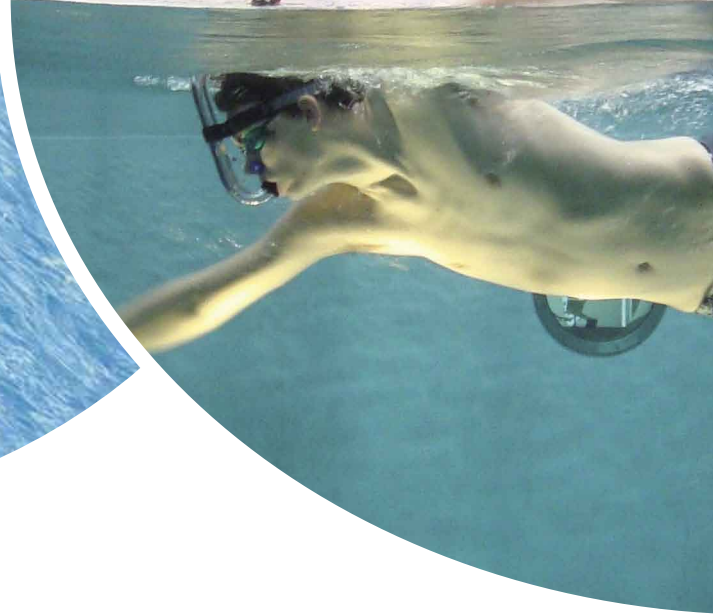
In the water there is almost no risk of falling or being injured. Thus, a safe way of exercising is opened to the senior generation.

Ever more attractive public pools are designed and built for action and

fun. Streaming water is a great favourite there.

Combined with wave-producing installations, different massage jets, water falls, bubble showers and others it may be great fun!





Flume training and performance, testing for swimmers and competitors in triathlon and pentathlon

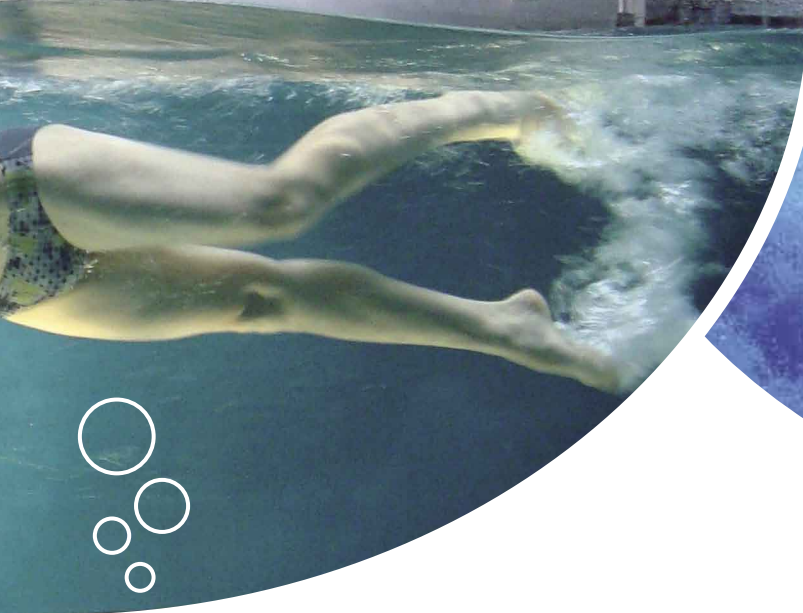
For more than 30 years elite swimmers have appreciated training and performance testing in pools with streaming water.

However, the small number of such facilities and sports scientists experienced in working with them means, that only few athletes can design and control their training programme in such a way as to achieve their desired competition performance at the right moment.

The special feature in flume training is to set a defined velocity for the swimmers, which they have to tackle. The water velocity can be altered in tiny steps down to a minimum of 0.02 m/s. It can be exactly reproduced ever and ever again.

In particular for long-standing top-class swimmers this is of great value in order to attain a systematic increase in workload and to overcome speed barriers.





The external force demands extremely high mental efforts. This implies that only highly motivated athletes will benefit in an optimal way from this modern technology.

Water velocities are continuously adjustable from 0.01 - 2.50 m/s. The highest possible velocity for male swimmers is about 2 sec and for female swimmers about 4 sec above the current 50-m-freestyle world record. All ability complexes from maximum speed up to long-term endurance may be efficiently trained.

Slight increases in velocity as they are needed for the finish can be produced in 2 - 3 sec.

There is no other more appropriate means than the flume to practise swimming skills. With every stroke the swimmer receives feedback on the effect of his/her movements. If the



propulsive elements prevail the swimmer can keep up his/her position in the pool.

If braking elements predominate he/she will be driven back with every movement. Swimmers with a good feeling for their movements quickly realise which technical details they must change in order to achieve the required performance.



Streaming Water:

More success in training; improve performances;
use modern technology

The training facility for canoe / kayak at Potsdam is the only flume for competitors in canoe / kayak flatwater racing in the world. Fulfilling all requirements of modern training on a scientific basis it offers excellent conditions for performance testing and immediate feedback to the test chairman and the athletes during exercise.

Competitors in canoe /kayak flatwater racing who made use of the advantages of the flume were able to continuously improve their performance at competitions. Numerous medals at Olympic Games and World Championships were won by athletes who regularly trained in streaming water and had their performance parameters systematically tested and checked.





The most successful female competitor in canoe / kayak flatwater racing in the world for the past 20 years - Birgit Fischer - has made use of this facility to control her training programme.

It is of crucial importance that the desired target performance and the prognostic performance can be programmed for different parts of the competition distance.

For the start and the finish other structures of the sports technique are needed and must be connected with the ability to pull more powerful than during mid-race. Start and finish must therefore be intensively trained.

For this purpose special qualities of will power have to be developed. Under ergometer conditions (= external force) and with the continuous

feedback during exercise this can be easier achieved than in free water.

Naturally streaming water is the basis for training and competition in canoe / kayak slalom racing and rafting. Constantly changing conditions make it hard to assess the performance. On the contrary, regulated streaming water makes it possible to alter the workload in a purposeful way and to objectively determine important parameters of the performance.

Variable obstacles that can be put into the course or removed even during the exercise are "high-tech conditions" to improve concentration and reaction.

Variable water velocities complete the possibilities for challenging high-performance training and competitions.



Swimming for active recovery and fort he development of new bases of the performance

In many countries of the world equestrian sports become more and more professional. This also applies to the camel race sport in the Arab world.

Compared to the sports activities of human beings the performances of animals have barely improved for decades. The human attitude towards big animals has remained unchanged for long periods. Fortunately, lately swimming became possible for the animals in some institutes and training centres.

Mainly this is used to cool down the animals and relax their muscles after heavy exercise. In the water channel the intensity of the workload cannot be influenced by the staff. In stagnant water there are no sufficient

conditions for performance testing. The use of containers often caused skin diseases due to the lack of hygiene and harmed the animals.

The use of swimming as a means to improve and to objectively assess the





performance during exercise requires adjustable and reproducible water velocities.

At the same time the animal must be able to move freely and safely. Safety means for the animal to go into and out of the water without danger. If exercising must be stopped, a lifting platform ensures that the animal is quickly taken out of the water.

A further factor is the water hygiene. A modern water treatment facility necessarily belongs to the standard equipment. It is a must especially during rehabilitation after injuries or disease.

To achieve good training performances in streaming water it is important to encourage the ambition of the animals. This is possible by systematically increasing the water velocity.

Due to the infinitely variable water velocities high-quality performance testing can be set up. Via large screens immediate feedback on important parameters can be provided to the test chairman.





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