

## Guidelines for SpiroTiger<sup>®</sup> training - first steps



At rest a human's respiratory rate is approximately 20,000 breaths per day. The respiratory muscles are the only essential skeletal muscles that work day and night. During sporting activity however, these muscles can become fatigued and have a limiting effect on exercise performance. Conventional endurance training is not sufficiently effective for training the respiratory muscles. However using the SpiroTiger<sup>®</sup> allows the respiratory muscles to be selectively trained, thereby improving exercise performance.

There are three different types of **respiratory movement**: Respiratory movements of the abdomen, chest and the neck/throat/shoulder area.

**Respiratory movements of the abdomen** are controlled primarily by the diaphragm. The diaphragm is the body's major respiratory muscle and upon inhalation it contracts and pulls down inside the abdomen. This causes the abdomen to expand, allowing a large volume of air to be inhaled.

During inhalation the work of the diaphragm is supported by other muscles that raise the ribs and cause the chest to expand. This is known as **respiratory movement of chest**.

**Respiratory movements of the neck/throat/shoulder area** represent an alternative breathing mechanism and should be avoided. Such breathing movements occur when the actual respiratory muscles are overstrained and exhausted. When the shoulder and neck muscles are called upon to assist with breathing the neck area can become overstressed, causing muscle cramps there. This alternative breathing mechanism is one of the primary causes of neck problems.

The **optimum respiratory technique** comprises a combination of abdominal and chest respiratory movements. The optimum breath is initiated by the diaphragm and shortly thereafter the chest muscles come into play as well. This allows the maximum expansion and therefore ventilation of the lungs. Using the SpiroTiger<sup>®</sup> causes the breathing pattern to be exactly the same – it forces breathing. The diaphragm is the focus here and is correspondingly trained. The neck/throat/shoulder area remains loose and relaxed.

Training of the respiratory muscles is impeded or relieved depending upon the **posture** adopted. Breathing is easier in a sitting position as a result of the reduced tension in the body. In addition, breathing can be further relieved by resting on the elbows.

Breathing resistance is increased when standing as a result of the tensed postural musculature of the upper body. Resistance can be reduced by leaning against a wall using the shoulder belt, thereby relieving breathing.



## First steps with the SpiroTiger<sup>®</sup>

- Familiarise yourself with the device (assembly, operating principle)
- Understand feedback from the device

Objective: To adopt a good breathing technique  
Frequency: 3-4 training sessions per week

Initial recommendation:

Session	Duration	Respiratory rate
1	6 x 2 minutes	24
2	4 x 3 minutes	24
3	3 x 4 minutes	26
4	2 x 6 minutes	26

Initially you should always concentrate on the respiratory rate. Once you have mastered this you can then focus on depth of respiration.

Where possible try to vary your posture during the training sessions. Lean on your elbows, stand up, walk around – in this way you will be taking direct account of the different stresses caused by the changing postures.

All recommendations given here are provided as guidelines only. The results of training will progress on a very individual basis. If these guidelines prove to be too undemanding for the athlete, the duration and respiratory rate should be increased sooner. If the athlete is unable to achieve these guideline figures, he should commence with shorter intervals or a lower respiratory rate.

## Increasing training intensity

- Consolidate the breathing technique
- Increase the duration of training while maintaining the same level of stress

Objective: Create the basis for solid respiratory muscle endurance  
Frequency: 3-5 training sessions per week

Before each training session a **warm-up** is carried out:

Duration	Respiratory rate	Note
2 minutes	24 - 26	Focus on optimum breathing technique

The warm-up optimally prepares the respiratory system for the coming stress.

Recommendations for increasing intensity:

Session	Duration	Respiratory rate
5 - 10	8 - 12 minutes	26 - 32
11 - 15	10 - 15 minutes	28 - 36

If the display permanently shows , you should use a larger bag.

You will find more detailed guidelines for controlling the intensity in the supplementary sheet *SpiroTiger<sup>®</sup> - modifying the training intensity*.

## Exercises for consolidating the breathing technique

**Conscious abdominal breathing:** Brace your hands on your sides, just beneath your ribcage. Without using the SpiroTiger<sup>®</sup> breathe in such that your hands are pushed away to the outside as far as possible (this can be done while standing or sitting). Ensure that your shoulders remain relaxed. You can simplify this exercise by leaning on a wall and using the shoulder belt. Now repeat this breathing technique using the SpiroTiger<sup>®</sup>.



**Conscious chest breathing:** Wrap a rubber band (e.g. a Theraband) around your chest and hold both ends tightly together at the middle of your sternum with one hand. Hold the SpiroTiger<sup>®</sup> in your other hand. Now try to breathe in such that your chest expands as far as possible in all directions and the rubber band becomes as taut as possible. Ensure that your shoulders remain relaxed.



Now combine these two respiratory movements together to achieve the *optimum breathing technique*. The optimum breath is initiated by the diaphragm and shortly thereafter the chest muscles come into play as well.



Inhalation



Exhalation

## Intensified training

- Sport-specific stresses
- Vary the duration of training, intensity and posture

Objective: Improve the performance of the respiratory system  
 Training duration: 15 - 20 minutes  
 Frequency: 3-5 training sessions per week

Before each training session a **warm-up** is carried out:

Duration	Respiratory rate	Note
2 minutes	24 - 26	Focus on optimum breathing technique

The warm-up optimally prepares the respiratory system for the coming stress.

In order to set a target for training, the sessions must be completed at a certain intensity. The respiratory muscles must become fatigued. So that further advances can be made it is also necessary for the intensity of training to be continuously adjusted as performance increases.

You will find more detailed guidelines for controlling the intensity in the supplementary sheet *SpiroTiger® - modifying the training intensity*.

## Training-specific exercises

If the athlete is capable of training continuously for 20 minutes at different respiratory rates and has built up his respiratory muscles performance, he is ready for the next step.

For advanced users further exercises – which offer different variations – have been especially developed for use with the SpiroTiger<sup>®</sup>. These exercises are not only useful for training the respiratory muscles; they are good for improving general fitness and coordination as well. Thanks to this range of variations, training remains interesting and therefore maintains the athlete's motivation to continue using the SpiroTiger<sup>®</sup>.

You can obtain training-specific exercises directly from iddiag AG.

You will find further *SpiroTiger® training applications and variations* on the corresponding supplementary sheet.