



# BIOSWING Propriomed®

The sensorimotor vibrating rod  
for prevention and therapy



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# Introduction

The everyday work and leisure time of many people is dominated by a lack of exercise and by monotonous movements. Driving a car, office work, watching television or monotonous movement sequences in industrial jobs are typical examples for this. Activities performed while sitting and standing with constantly recurring, monotonous and filigree static or dynamic movement sequences were still an exception a hundred years ago, but have become the rule nowadays. These constantly recurring motion patterns,

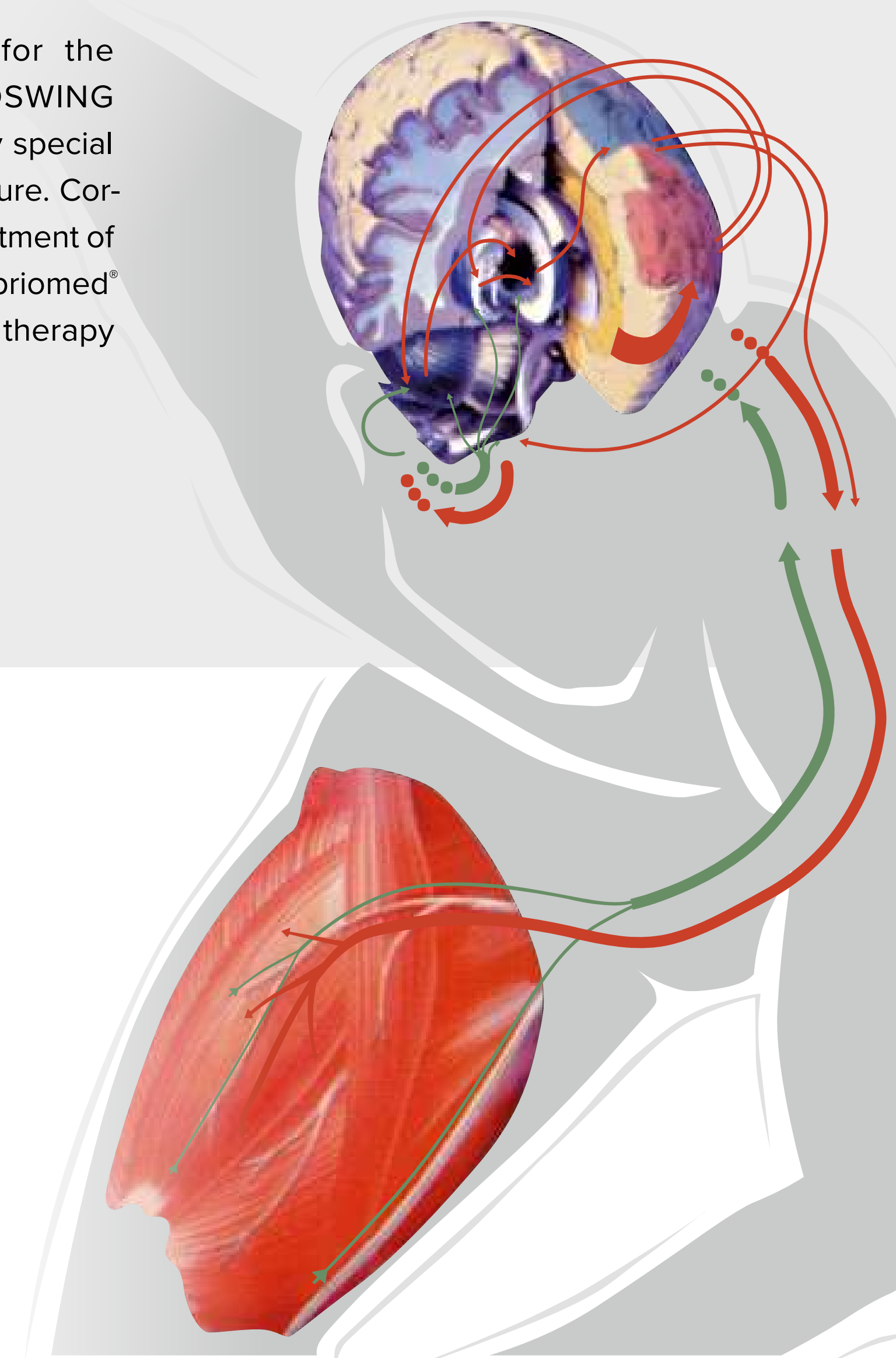
mainly in flexion and inner rotation with the corresponding mechanical and neurophysiological strains could be the cause of musculoskeletal as well as vegetative function disorders often accompanied by pain.

In the neuro-orthopaedic therapy of your patients, you must consider these faulty neuronal control and regulation processes; the therapy must not contribute further to these motion patterns.

In these therapy instructions for the therapeutic vibrating rod BIOSWING Propriomed®, we will therefore pay special attention to the best possible posture. Correct physical preparation and adjustment of your patient prior to using the Propriomed® is an essential guarantor for your therapy success!



Pain in the sense of increased nociception from the musculoskeletal system is frequently caused by function disorders of the neuromuscular system, and is not primarily the result of structural failure due to pathological changes!



# 1. The BIOSWING Propriomed®

The Propriomed® is an attenuated vibrating rod with easy-to-adjust frequency controllers. In plain words, this means that the vibration frequencies of the rod can be adapted to the neuromuscular abilities of your patients with the help of the frequency controller.

The Propriomed® consists of multi-refined spring steel which together with the attenuating elements reduces peaks at the reversal points of the swinging direction, and thus prevents excess straining of the locomotor system.

The Propriomed® was introduced to the market in 1999 as the first vibrating rod of its kind, and was intended for therapeutic use right from the start. Its development started back in 1995 in close cooperation between HAIDER BIOSWING GmbH and physical therapists as well as medical specialists.



BIOSWING Propriomed® with its characteristic attenuation elements and frequency controllers.



Frequency controllers are indispensable in therapeutic work with vibrating rods for individual application!

# 1.1 Purpose according to MDR 2017/745

## 1.1.1 Intended patient population

The BIOSWING Propriomed® is intended for children (from 6 years), adolescents (from 13 years) and adults (from 19 years).

## 1.1.2 Medical requirements and indications

The BIOSWING Propriomed® requires as a minimum the free stabilization of the upper body and head as well as the full motor and sensory functionality of at least one shoulder-arm area.

### Indications BIOSWING Propriomed®

- radical prostatectomy
- Multiple Sclerosis (MS)
- Impaired trunk muscle coordination after lumbar disc operations
- subacromial pain syndrome (periarthropatia humeroscapularis)
- Activation of the following muscles:
  - o M. rectus abdominis
  - o M. obliquus internus abdominis
  - o M. obliquus externus abdominis
  - o M. multifidus lumbalis
  - o M. longissimus
  - o M. biceps femoris
  - o M. rectus femoris

### Contraindications BIOSWING Propriomed®

- severe disturbances or damage to the vestibular apparatus
- Inflammation of the bearing or stressed joints and their soft tissue structures
- Pain of unknown cause
- neurological symptoms of unknown cause
- Spasticity of the primarily stressed or stressed muscles

## 1.1.3 User group

- The BIOSWING Propriomed® is intended for use by patients.
- The BIOSWING Propriomed® is intended for use by medical / therapeutic staff.

## 1.1.4 Intended use

### Intended place of use

- The BIOSWING Propriomed® should be used in medical-therapeutic facilities.
- The BIOSWING Propriomed® should be used in medical preventive facilities.

### Intended usage environment

The BIOSWING Propriomed® should be used if there is sufficient space (at least 4m<sup>2</sup> per user).

### Invasiveness

The product is non-invasive.

### Intended body location of the application

The device comes into contact with the intact skin on the hands.  
The BIOSWING Propriomed® should not come into contact with injured skin or mucous membranes.

### Scheduled duration and frequency

The BIOSWING Propriomed® is used for up to 30 minutes per application. Training with the device can be carried out several times a day.

### Cleaning, disinfection and sterilization

- The BIOSWING Propriomed® is not delivered sterile and does not require any sterilization.
- The BIOSWING Propriomed® is intended for multiple use.
- The BIOSWING Propriomed® can be cleaned with a damp cotton cloth and disinfected with all surface disinfectants according to the VAH list (e.g. Schülke kodan wipes disinfectant wipes)

## 1.1.5 Claims

### Performance

- The BIOSWING Propriomed® 1 can be swung in a frequency range from 3.0 to 4.0 Hz.
- The BIOSWING Propriomed® 2 can be swung in a frequency range from 4.0 to 5.2 Hz.
- The BIOSWING Propriomed® 100 can be swung in a frequency range from 4.8 to 6.0 Hz.

### Usability and ergonomics

- The BIOSWING Propriomed® has an ergonomic, non-slip handle.
- The BIOSWING Propriomed® has damping elements for a harmonious vibration behavior without excessive load peaks at the reversal point.
- The BIOSWING Propriomed® has soft end caps for injury-free use.
- The BIOSWING Propriomed® has steplessly adjustable, non-slip frequency regulators.

### Sterility

The BIOSWING Propriomed® is not delivered sterile and does not require any sterilization.

### Benefit for the patient

- The BIOSWING Propriomed® can positively influence the rehabilitation after a radical prostatectomy [Heydenreich & Zermann 2021; Heydenreich et al. 2020; Heydenreich et al. 2018; Heydenreich & Zermann 2018 (1, 2); Heydenreich 2016 (1, 2, 3)].
- The BIOSWING Propriomed® can positively influence the course of multiple sclerosis (MS) [Belsey 2014].
- The BIOSWING Propriomed® can positively influence possible disturbed trunk muscle coordination after lumbar disc operations [Thiel 2010].
- The BIOSWING Propriomed® can have a positive effect on pain in subacromial pain syndrome (periarthropatia humeroscapularis) [Jerosch & Wüstner 2000].
- The BIOSWING Propriomed® can improve the activation of the following muscles [Tutzschke et al. 2014; Anders et al. 2008 (1, 2, 3)]:
  - o M. rectus abdominis
  - o M. obliquus internus abdominis
  - o M. obliquus externus abdominis
  - o M. multifidus lumbalis
  - o M. longissimus
  - o M. biceps femoris
  - o M. rectus femoris

### Health care benefits

Due to the benefits for the patient, relief and thus benefits for the health care system can be derived. By increasing the rehabilitation success and thus a possible shortening of the rehabilitation time, the financial burdens on the health system can be reduced.

### Disclaimer Clauses

The BIOSWING Propriomed® must not be used for the sole clinical evaluation of postural instabilities or balance disorders, but must be supplemented by appropriate clinically valid procedures.

## 1.1.6 Risks

With BIOSWING Propriomed®, side effects, complications and clinical risks are not known and are not to be expected.

## 1.1.7 Side effects

With BIOSWING Propriomed®, side effects, complications and clinical risks are not known and are not to be expected.

# 2. The BIOSWING Propriomed® models

The Propriomed® is available in three models that essentially differ in length and the associated physical characteristics:

## 2.1 The Propriomed® 1

- Rod length: 190 cm
- Weight: 975 g
- Maximum vibration amplitude: 60 cm
- Yellow colour marking



With its frequency spectrum from 3.0 to 4.0 Hz, the therapeutic beginner's rod covers the relevant frequencies for most patients undergoing neuro-orthopaedic rehabilitation. The multi-refined spring steel is 190 cm long, and the rod features two continuously adjustable frequency controllers on each end.

According to the classification (EU) 2017/745 for medical devices, Annex VIII, the Propriomed 1 is a non-active medical device of class I, according to classification rule 1.

Vibration frequencies:

Stage 1		3,0 Hz
Stage 2		3,2 Hz
Stage 3		3,4 Hz
Stage 4		3,6 Hz
Stage 5		3,8 Hz
Stage 6		4,0 Hz

## 2.2 The Propriomed® 2

Rod length: 165 cm

Weight: 920 g

Maximum vibration amplitude: 60 cm

Red colour marking



The therapeutically more demanding vibrating rod covers the relevant frequencies for patients with a good motor coordination with its frequency spectrum from 4.0 to 5.2 Hz. The multi-refined spring steel rod is 165 cm long and features two continuously adjustable frequency controllers on each end.

According to the classification (EU) 2017/745 for medical devices, Annex VIII, the Propriomed 2 is a non-active medical device of class I, according to classification rule 1.

Vibration frequencies:

Stage 1		4,0 Hz
Stage 2		4,2 Hz
Stage 3		4,4 Hz
Stage 4		4,6 Hz
Stage 5		5,0 Hz
Stage 6		5,2 Hz



## 2.3 The Propriomed® 100

Rod length: 100 cm

Weight: 550 g

Maximum vibration amplitude: 40 cm

Grey colour marking

The special vibrating rod for hand, elbow, shoulder and cervical spine rehabilitation. Designed for low vibration amplitudes with a frequency spectrum from 4.8 to 6.0 Hz, this lightweight model features a frequency controller on each side and three multi-refined spring wires wrapped around each other. This spring-wire wrapping ensures attenuated vibration behaviour through the generated friction, which allows for this model to be applied in an early stage of the rehabilitation phase. It can also be used in the rehabilitation of children thanks to its low weight and its length of only 100 cm.

According to the classification (EU) 2017/745 for medical devices, Annex VIII, the Propriomed 100 is a non-active medical device of class I, according to classification rule 1.



Vibration frequencies:

Stage 1		4,8 Hz
Stage 2		5,8 Hz
Stage 3		6,0 Hz

### 3. Function and effectiveness of the BIOSWING Propriomed®

The task of your patient is to set the Propriomed® vibrating and to keep it vibrating with as little movement of the hands and arms as possible while keeping the body stationary. The resulting physical effect principle is the creation of cyclically stimulated, controlled attenuated vibrations with defined frequencies. This forces the neuromuscular system to adapt to the rod frequencies. The neurophysiological effect is that afferent impulses with a dosed stimulus density are applied to the musculature, which leads to the stimulation of the synergistic muscle activation (“co-activation”).

A healthy and thus efficient neuromuscular system is capable of maintaining the prescribed frequencies and, in doing so, main-

tain (unconscious) control of the body at a constant vibration level. This effect is of decisive importance for any stability requirements on the locomotor system with vertical alignment of the body against gravity. The sensitivity of the motoric cybernetics can be directly optimised via the attenuation and the individually adapted inherent frequency regulation option of the rod, as well as through the self-determined amplitude.

Regular use trains the neuromuscular system in the sense that an increasing vibration frequency can be coordinated with a stable posture. This results in the optimisation of the postural system (“dynamic posture stabilisation”), and ultimately in improved performance of the locomotor system.



The correct use of the Propriomed® can result in better central motor control due to the quantitatively and qualitatively boosted afferent input.



The neuromuscular control circuit can be directly routed and/or stabilised by using the BIOSWING Propriomed®.

## 4. Vibration properties of the BIOSWING Propriomed®

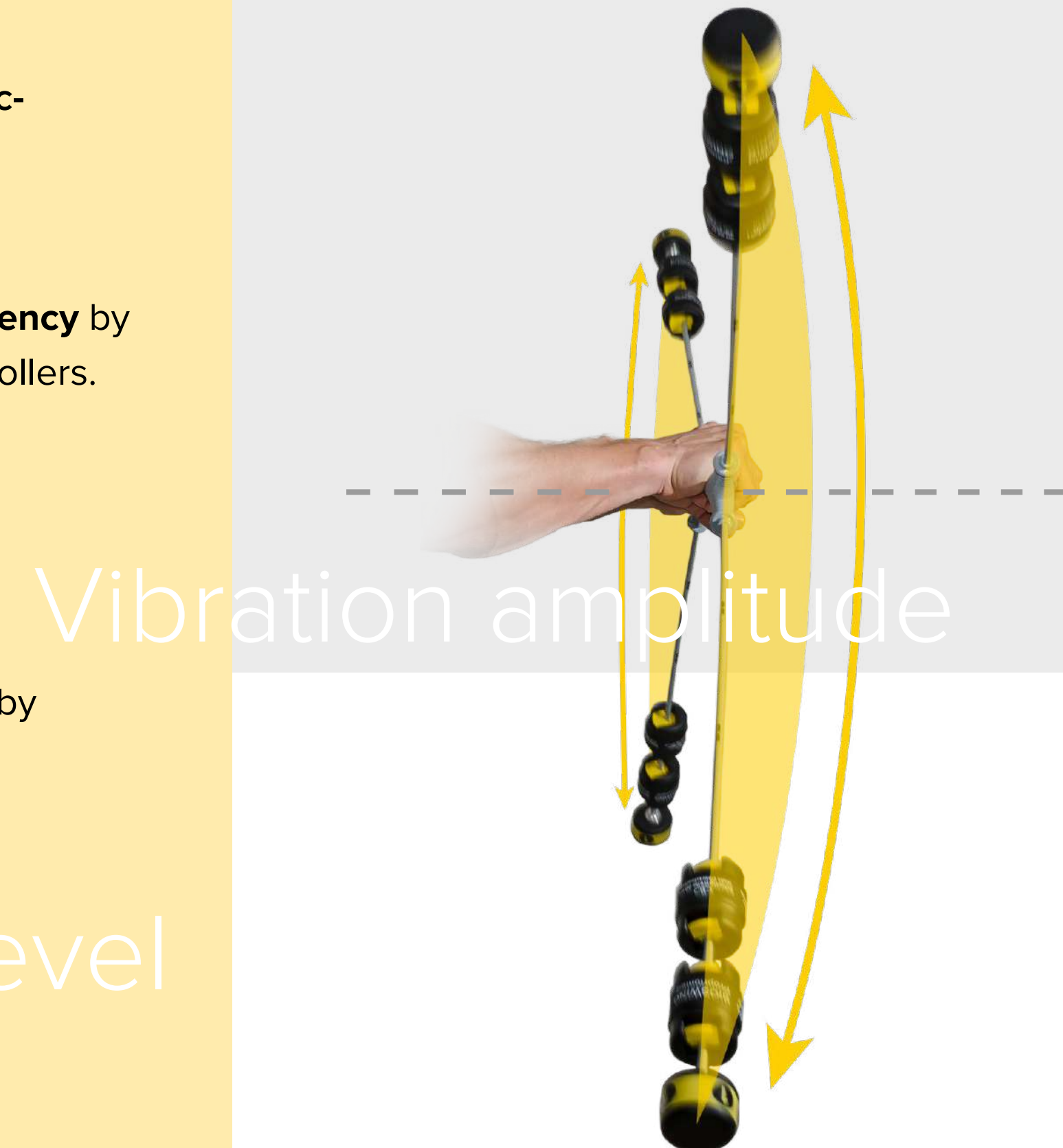
The Propriomed® is characterised by soft and harmonic vibration behaviour. This is guaranteed by the multi-refined and coated spring steel together with the two attenuation elements that are connected to the grip. This “attenuated” vibration behaviour is important in neuro-orthopaedic therapy to avoid load peaks at the reversal points of the vibration direction.



In principle, three physical characteristics can influence the effectiveness of the Propriomed®:

1. Changing the **vibration frequency** by adjusting the frequency controllers.
2. Changing the **vibration amplitude** by means of varying load transmission strengths.
3. Changing the **vibration level** by adjusting the load direction.

Vibration level



# 4.1 Changing the vibration frequency

The vibration frequency with which the Propriomed® can be induced to vibrate can be varied with manually adjustable frequency controllers between 3.0 and 6.0 Hz, depending on the device. The closer the frequency controllers are slid towards the grip, the higher the vibration frequency of the rod and the higher the neuromuscular demand for the exercising person.

This allows individually adapted, continuous dosing in prevention and therapy. The continuously and duolaterally adjustable frequency also allows an asymmetric setting (right ≠ left).

The vibration stages	The rod frequencies			
	Propriomed	1	2	100
Stage 1		3,0 Hz	4,0 Hz	4,8 Hz
Stage 2		3,2 Hz	4,2 Hz	
Stage 3		3,4 Hz	4,4 Hz	
Stage 4		3,6 Hz	4,6 Hz	5,8 Hz
Stage 5		3,8 Hz	5,0 Hz	
Stage 6		4,0 Hz	5,2 Hz	6,0 Hz



The higher the vibration frequency, the more demanding the exercise!

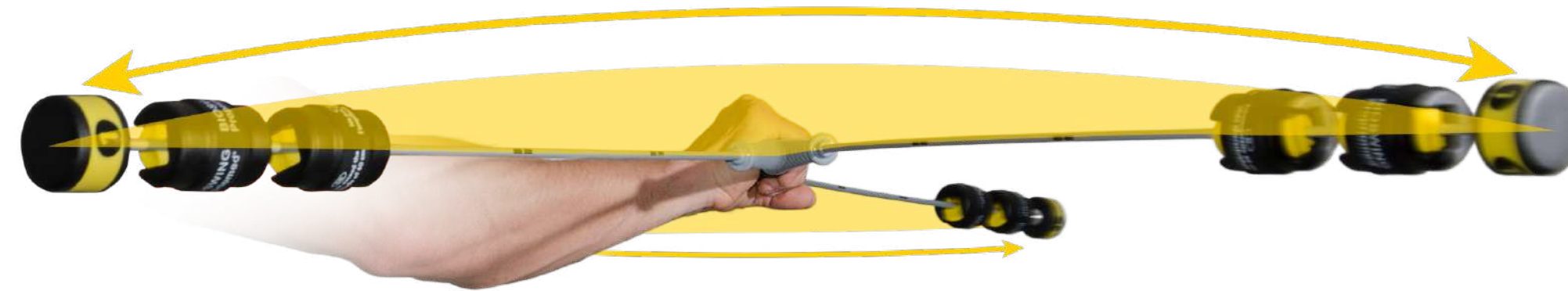


The frequency controllers can be continuously adjusted by simply pressing together the PU-coated tensioning springs. The markings on the spring wires allow you to assess the symmetry of the settings.

## 4.2 Changing the vibration amplitude

The vibration amplitude with which the Propriomed® is vibrated depends on the force exerted on the rod. This force that is applied to the rod must in turn be exerted again to stabilise and to withstand the force reflected by the rod. The higher the vibration amplitude, the larger the force that must be applied to the rod and the larger the required power increase to stabilise the body.

		Rod length	Weight	max. vibration amplitude
Propriomed 100		100 cm	550 g	40 cm
Propriomed 2		165 cm	920 g	60 cm
Propriomed 1		190 cm	975 g	60 cm



The maximum vibration amplitude of the respective rod should not be exceeded, because this may impair the service life of your Propriomed®.



The higher the vibration amplitude, the more demanding the exercise!

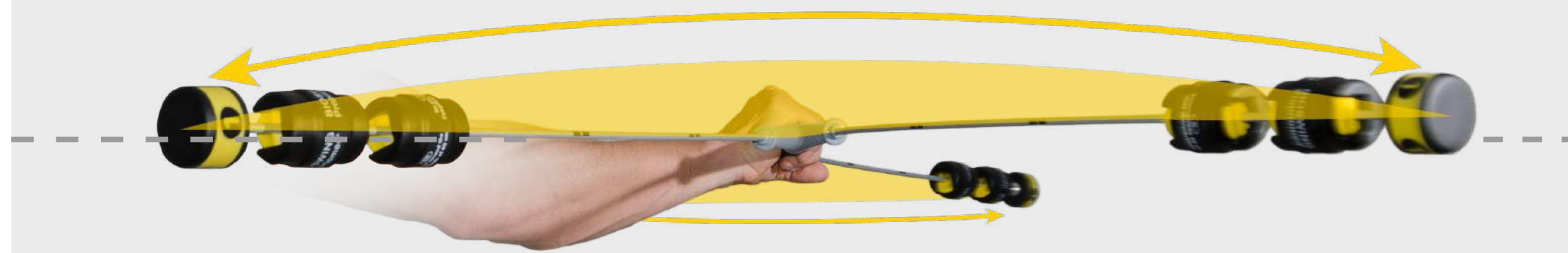
## 4.3 Changing the vibration level

The vibration level in which the Propriomed® is vibrated depends on the direction of the force exerted on the rod. In principle, we distinguish between two vibration levels (see fig.), whose alignment orients itself on the forearm(s) of the exercising person.



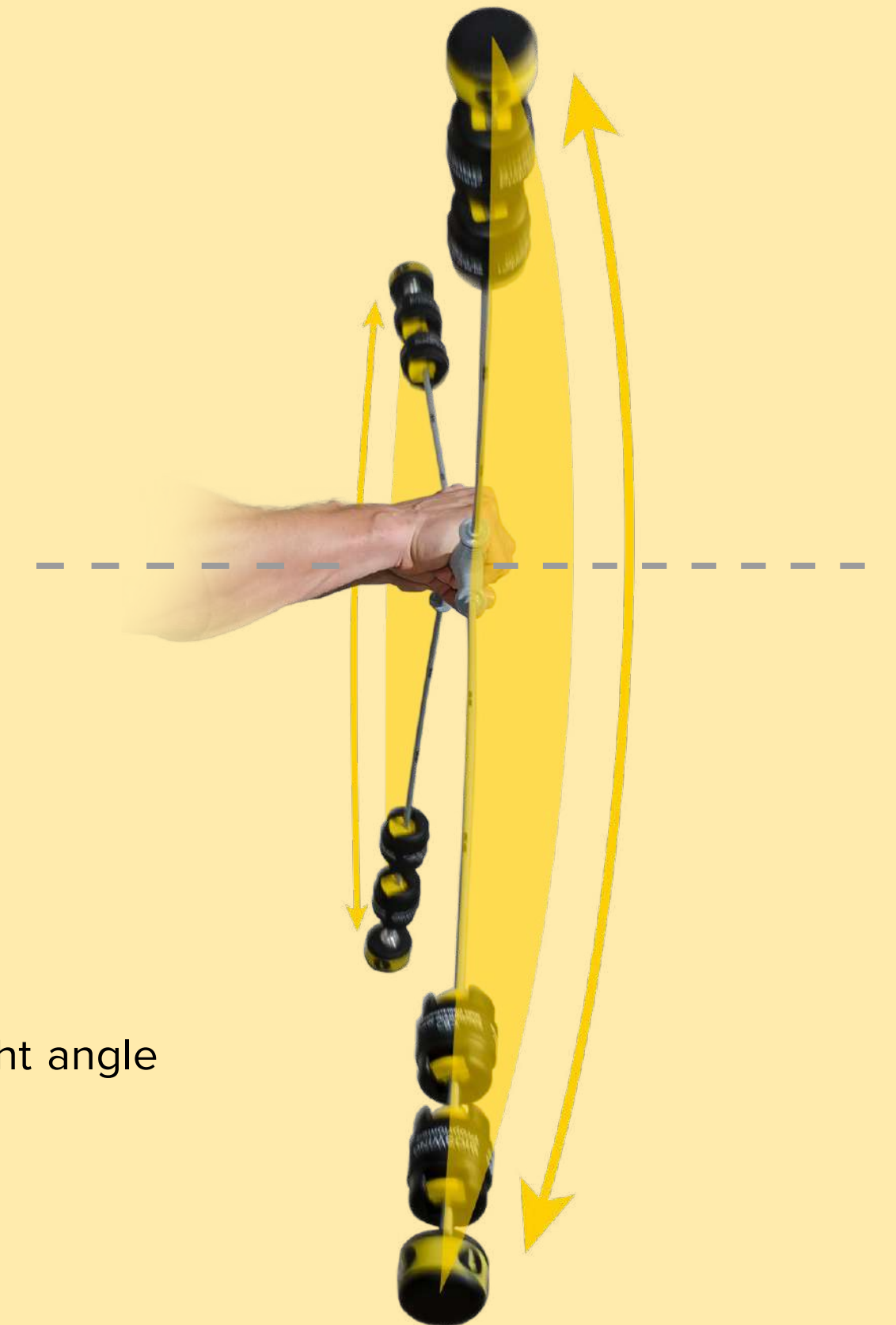
Exercises on vibration level 2 are more demanding than exercises on vibration level 1!

### Vibration level 1



The Propriomed® is vibrated as an extension of the forearm(s).

### Vibration level 2



The Propriomed® is vibrated at a right angle to the forearm(s).

# 5. General information about performing the exercises

The Propriomed® is a handheld mobile device. This allows a large variety of exercises for numerous medical indications. There are many possibilities to change the demand level ([see Sec. 7 on exercise methodology](#)). It is decisive that you observe the indications and contraindications that apply to your patients. In the scope of this

therapy instruction manual, we can therefore only introduce you to three essential basic exercises for use of the Propriomed® with load-stable patients. The targeted and promising therapeutic use of the Propriomed® can only be implemented on the basis of your creativity regarding exercises coupled with your expertise.

- According to its intended purpose, the Propriomed should only be used in medical-therapeutic or medical-preventive facilities.
- Only use the Propriomed® if there is enough space!
- Your patients should be rested and load-stable!
- Your patients should always exercise without shoes!
- First train the best possible general posture of your patients before using the device for the first time ([see Section 5.1](#))!
- Observe the Indications, contraindications and termination criteria for working with the Propriomed®!
- Select the frequency and the vibration amplitude in such a way that the head and the girdle regions can be kept steady at all times!

## Evidence-based indications:

- Radical prostatectomy
- Multiple sclerosis (MS)
- Impaired trunk muscle coordination after lumbar disc operations
- Subacromial pain syndrome (periarthropatia humeroscapularis)
- Activation of the following muscles:
  - M. rectus abdominis
  - M. obliquus internus abdominis
  - M. obliquus externus abdominis
  - M. multifidus lumbalis
  - M. longissimus
  - M. biceps femoris
  - M. rectus femoris

### Attention!

- Diffuse pain
- Inflammation
- Acute injuries
- Arterial hypertension
- Diffuse symptoms (above all vegetative/neurological)

### Contraindications

- Severe disorders or damage to the vestibular apparatus
- Inflammation of the load-bearing or stressed joints and their soft tissue structures
- Pain of unknown cause
- Neurological symptoms of unknown cause
- Spasticity of the primarily stressed or stressed muscles

### Criteria for termination

- Developing pain
- Co-movement of the girdle regions and/or the head (excess frequency and/or excess vibration amplitude!)
- Deflective movements/wrong motion patterns (e.g. increasing shoulder elevation)
- The Propriomed® cannot be maintained in rhythmic vibration
- Muscle cramps
- Reaching the individual maximum exercise time (reference time 15 sec.)



Your expertise and therapeutic attentiveness is especially required when working with a freely oscillating therapy device like the Propriomed®! Therefore, according to its intended use, the Propriomed is intended for use by medical / therapeutic staff.



# 5.1 Best possible general posture

To ensure the effectiveness and specificity of the respective basic exercises as well as that of all exercises with the Propriomed® based on these, it is important to exercise the best possible indication-dependent general posture of your patients while observing any counterindications. This both contributes to

preventing excess strain on passive structures and allows optimum activation of the postural system. The best general posture in a two-legged stance and modified in a one-leg stance is characterised by an initially conscious alignment of the following body segments:



The sensorimotor system can only be controlled “species-appropriately” on the basis of the best possible general posture!

## Head:

- The head is located on the erect thorax with a corresponding decrease of the cervical spine lordosis and with an anterior-posterior neutral position in slight inclination.
- The patient is looking straight ahead, eyes slightly downcast.

## Legs:

- The frontal leg axes are adjusted in the physiological support line (centres of hip, knee and upper ankle joint).
- The knee joints are actively stabilised (“active lock”), especially with genu recurvatum.
- In a one-legged stance, the non-supporting leg is lifted approximately 10 cm off the ground, the lower leg remains vertical, and the foot is dorsiflexed.



## Torso:

- The thorax is erected via the sternum and the thoracic spine is in physiological kyphosis.
- The shoulder blades are actively stabilised in their physiological position at the dorsal thorax. Here, pay special attention to the caudal position of the scapula (spina scapulae max. at the height of Th3) and an angulus inferior that does not protrude from the thorax.

## Pelvis:

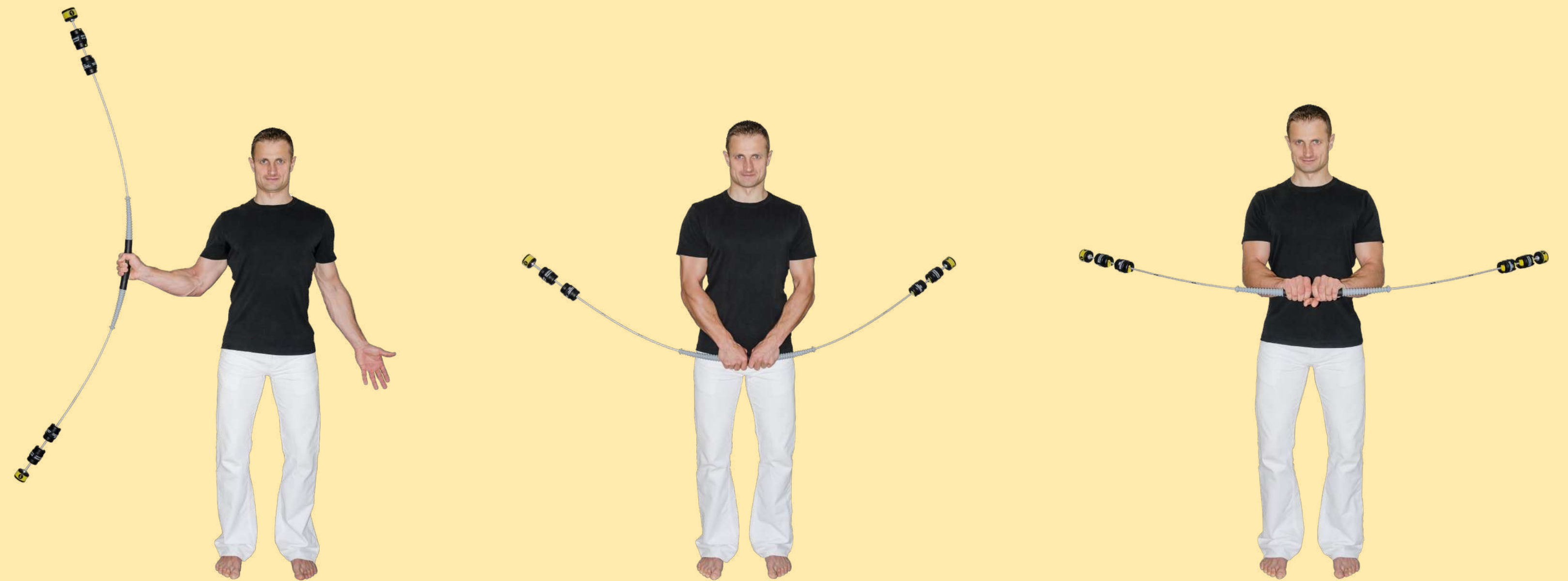
- The pelvis is sagittal in neutral position (pelvic tilt angle 5°-6°) and forms the basis of a physiological lumbar spine lordosis with the stably erected thorax.
- In a one-legged stance, the pelvis remains stable in the frontal plane, does not tilt towards the non-supporting leg side, and is not lifted on the non-supporting leg side.

## Feet:

- The patient assumes a step-wide stance (approximately 5-13 cm distance between both heel centres).
- The anatomic longitudinal foot axis is rotated outwards by approx. 7°.
- The load on the foot is borne to approximately 60% on the heel.
- The arches of the foot are actively “raised” (e.g. “short foot” acc. to Janda, spiral dynamics® acc. to Larsen).

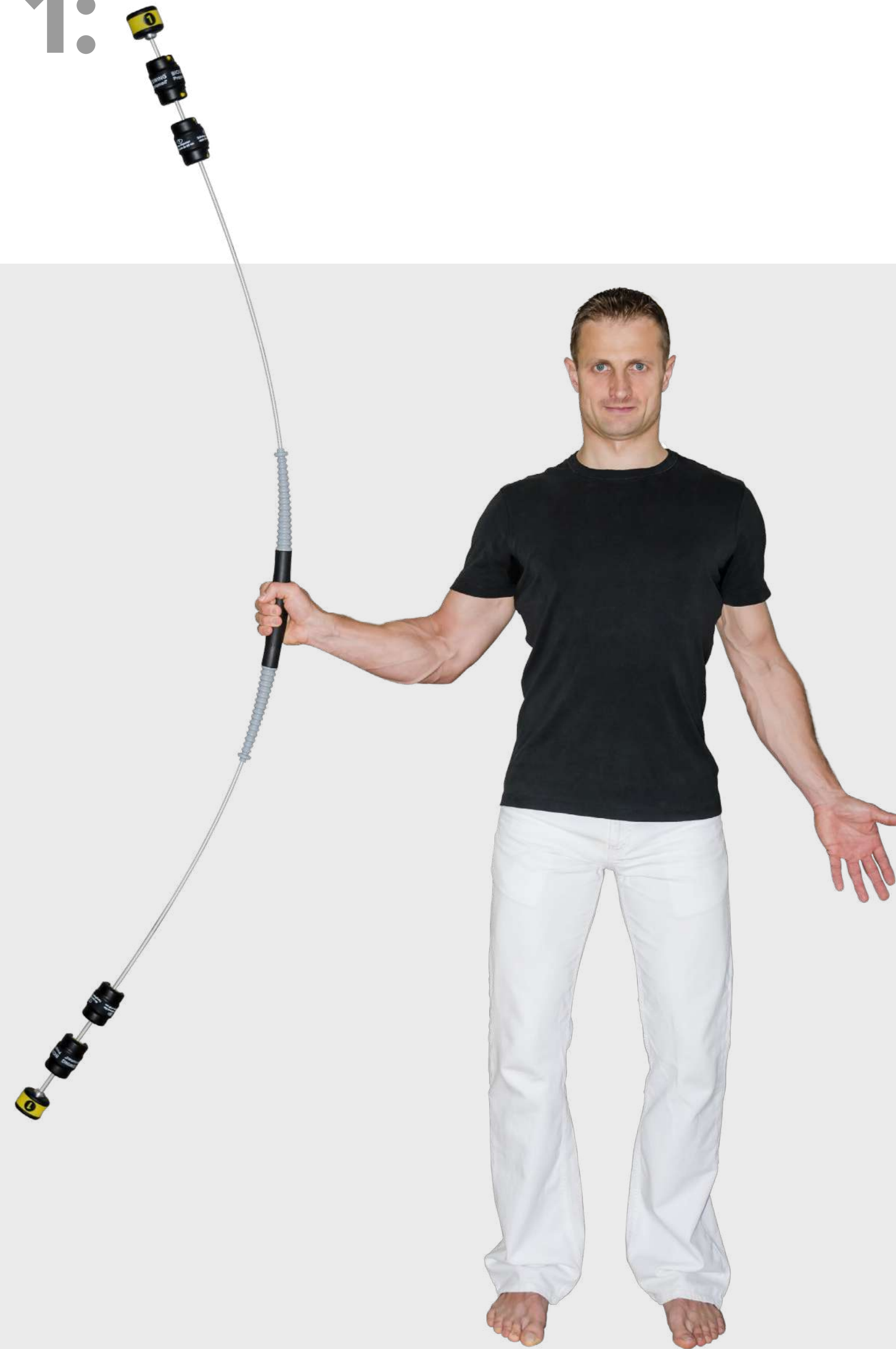
# 6. The basic exercises

As already mentioned in [Section 5](#) and explained in [Section 7](#), the Propriomed® offers a large variety of exercises. It is vital that you observe the indications and contraindications that apply to your patients. The targeted and promising therapeutic use of the Propriomed® can only be implemented on the basis of your creativity regarding exercises coupled with your expertise. We will introduce you to the three essential basic exercises for use of the Propriomed® on the patient.



# 6.1 Basic exercise 1:

## Outer arm rotation



Please direct your attention to the following substeps. First perform the exercise yourself before you instruct your patients. If necessary, adapt the exercise to your patients with respect to their indications and contraindications.

### Posture

To achieve the desired therapeutic effect, it is necessary to observe the notes on establishing the best possible general posture as described in [5.1](#).

# Basic exercise 1

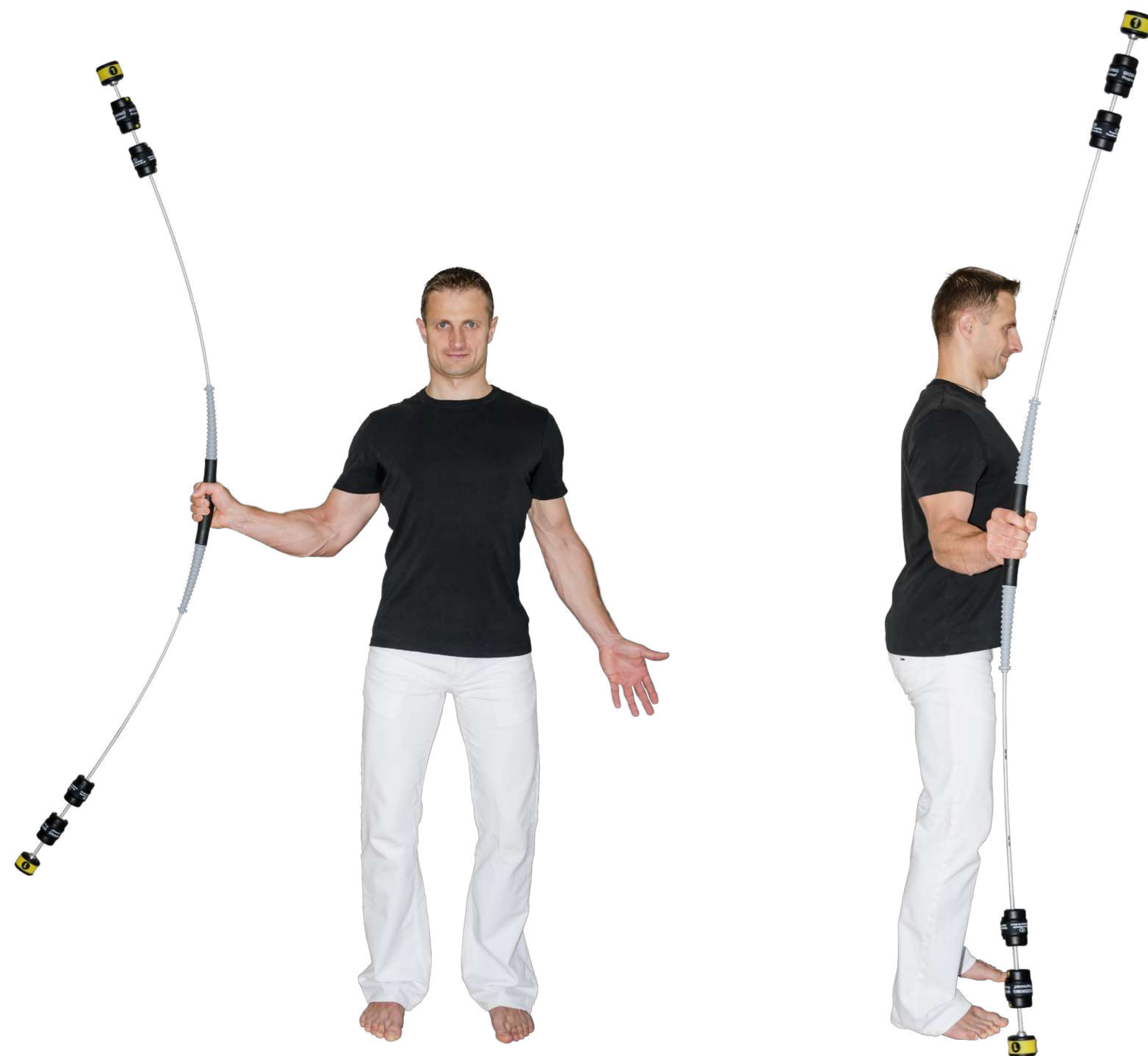
## Performance

### Grip type and positioning of the Propriomed®

- Single-handed grip
- The Propriomed® is held in the exercising hand vertically at the side of the body with the elbow at a right angle.
- The arm on the exercising side is rotated maximally outward in the shoulder joint (without involvement of the spine) in the pain-free region.
- The arm on the opposite side is stretched out and rotated outwards so that the palm points forward. The fingers are maximally stretched and spread.

Impulse transfer by briefly extending and retracting the hand as an extension of the forearm (vibration level 1).

Starting position and calm posture remain unchanged during exercising.



## Strain parameters

- Exercise time:  
5 - 15 sec./repetition
- Exercise repetitions:  
5 - 10/side, alternating
- Break time:  
10 seconds

## Additional conscious exercises

- Motoric: Vertical tossing of a ball with the free hand.
- Cognitive: Calculating in rows of numbers.

## 6.2 Basic exercise 2:

### Vertical swinging with both hands



Please direct your attention to the following substeps. First perform the exercise yourself before you instruct your patients. If necessary, adapt the exercise to your patients with respect to their indications and contraindications.

#### Posture

To achieve the desired therapeutic effect, it is necessary to observe the notes on establishing the best possible general posture as described in [5.1](#).

# Basic exercise 2

## Performance

### Grip type and positioning of the Propriomed®

- Two-handed grip/hands next to each other
- The Propriomed® is held at pelvic height with slightly angled “actively hanging” arms.
- The upper body with the shoulder girdle resting on it remains erect!



Impulse transfer through short cranio-caudal impulses of the hands (vibration level 1).

Starting position and calm posture remain unchanged during exercising.

## Strain parameters

- Exercise time:  
5 - 15 sec./repetition
- Exercise repetitions:  
5 - 10
- Break time:  
10 seconds

## Additional conscious exercises

- Cognitive: Calculating in rows of numbers.

## 6.3 Basic exercise 3:

### Horizontal swinging with both hands



Please direct your attention to the following substeps. First perform the exercise yourself before you instruct your patients. If necessary, adapt the exercise to your patients with respect to their indications and contraindications.

#### Posture

To achieve the desired therapeutic effect, it is necessary to observe the notes on establishing the best possible general posture as described in [5.1](#).



# Basic exercise 3

## Performance

### Grip type and positioning of the Propriomed®

- Two-handed grip/hands next to each other
- The Propriomed® is held at the height of the belly button with elbows bent by approx. 70° - 80°.
- The upper body with the shoulder girdle resting on it remains erect!



Impulse transfer through short anterior-posterior impulses of the hands (vibration level 1).

Starting position and calm posture remain unchanged during exercising.

## Strain parameters

- Exercise time:  
5 - 15 sec./repetition
- Exercise repetitions:  
5 - 10
- Break time:  
10 seconds

## Additional conscious exercises

- Cognitive: Calculating in rows of numbers.

# 7. The exercise methodology in modules

The selection of exercises with the Propriomed® is immensely large. This is why it is even more important to use this device that is to be moved freely in space methodically and in accordance with the indication. The methodical approach “from the simple to the complex” principally applies.

However, the question is: which “simple” exercise should we start with, and how do I make the exercise more complex? The BIOSWING® methodology framework is an

essential aid here. It is divided into six methodology modules (level 1), which represent the large “adjusting screws” of the training variants. Each methodology module contains small “adjusting screws” (level 2) with which the individual modules can be varied from simple to complex (level 3). This methodology framework is the exercise basis for using the Propriomed® in therapy. Now it is up to you as a therapist to create the right compilation and dosage for your patient.

## Exercise methodology

Rod module	Vibration frequency	1. Vibration stage 1 2. to 6th vibration stage
	Vibration amplitude	1. Small amplitude 2. Large amplitude
	Vibrating behaviour	1. Symmetric 2. Asymmetric
	Height at which the rod is held	1. Sterno-symphysal 2. Sternal 3. Suprasternal
	Vibration level	1. Vibration level 1 2. Vibration level 2
	Spatial motion	1. Without path 2. With path
	Spatial levels	1. One level 2. Two levels 3. Three levels
	Number of rods	1. One rod 2. Two rods
Floor module	Status	1. Both legs 2. One leg
	Support surface	1. Size 2. Alignment
	Base	1. Stable 2. Unstable/labile
Body module	Type of grip	1. Both hands 2. One hand
	Arm position	1. Bent 2. Stretched
	Posture	1. Optimally erected 2. Optimally bent
	Spatial position of body	1. Vertical 2. Vertical-horizontal 3. Horizontal
	Spatial motion	1. Without path 2. With path
Control module	External control	1. Visual 2. Tactile 3. Verbal
	Self-control	1. Visual 2. Tactile
Time module	Individual exercise	1. <15 sec. 2. >15 sec.
	Exercise breaks	1. 5 to 10 sec. 2. <5 sec.
	Exercise repetitions	1. 1 - 5 individual Exercise(s) 2. 5 -10 individual Exercise(s)
	Training cycle	1. < 15 min. 2. > 15 min.
Resistance module	Resistance progression	1. Linear 2. Progressive
	Resistance level	1. Low 2. High
	Resistance behaviour	1. Symmetric 2. Asymmetric

# 7.1 Exemplary applications of the BIOSWING® methodology framework

Let's take the [basic exercise 3 “Horizontal swinging with both hands”](#) for example.



This exercise is represented in the BIOSWING® methodology framework for a beginner with therapeutic supervision as shown in the following graphic:

(As we do not work with additional resistances in this basic exercise, the resistance module is not filled in.)

Rod module	Vibration frequency	1. Vibration stage 1 2. 10 to 6th vibration stage
	Vibration amplitude	1. Small amplitude 2. Large amplitude
	Vibrating behaviour	1. Symmetric 2. Asymmetric
	Height at which the rod is held	1. Sterno-symphysal 2. Sternal 3. Suprasternal
	Vibration level	1. Vibration level 1 2. Vibration level 2
	Spatial motion	1. Without path 2. With path
	Spatial levels	1. One level 2. Two levels 3. Three levels
	Number of rods	1. One rod 2. Two rods
Floor module	Status	1. Both legs 2. One leg
	Support surface	1. Size 2. Alignment
	Base	1. Stable 2. Unstable/labile
Body module	Type of grip	1. Both hands 2. One hand
	Arm position	1. Bent 2. Stretched
	Posture	1. Optimally erected 2. Optimally bent
	Spatial position of body	1. Vertical 2. Vertical-horizontal 3. Horizontal
	Spatial motion	1. Without path 2. With path
Control module	External control	1. Visual 2. Tactile 3. Verbal
	Self-control	1. Visual 2. Tactile
Time module	Individual exercise	1. <15 sec. 2. >15 sec.
	Exercise breaks	1. 5 bis 10 sec. 2. <5 sec.
	Exercise repetitions	1. 1 - 5 individual Xercise(s) 2. 5 -10 individual Xercise(s)
	Training cycle	1. < 15 min. 2. > 15 min.
Resistance module	Resistance progression	1. Linear 2. Progressive
	Resistance level	1. Low 2. High
	Resistance behaviour	1. Symmetric 2. Asymmetric

Rod module	Vibration frequency	1. Oscillation stage 1 2. to 6th vibration stage
	Vibration amplitude	1. Small amplitude 2. Large amplitude
	Vibrating behaviour	1. Symmetric 2. Asymmetric
	Height at which the rod is held	1. Sterno-symphysal 2. Sternal 3. Suprasternal
	Vibration level	1. Vibration level 1 2. Vibration level 2
	Spatial motion	1. Without path 2. With path
	Spatial levels	1. One level 2. Two levels 3. Three levels
	Number of rods	1. One rod 2. Two rods
Floor module	Status	1. Both legs 2. One leg
	Support surface	1. Size 2. Alignment
	Base	1. Stable 2. Unstable/labile
Body module	Type of grip	1. Both hands 2. One hand
	Arm position	1. Bent 2. Stretched
	Posture	1. Optimally erected 2. Optimally bent
	Spatial position of body	1. Vertical 2. Vertical-horizontal 3. Horizontal
	Spatial motion	1. Without path 2. With path
Control module	External control	1. Visual 2. Tactile 3. Verbal
	Self-control	1. Visual 2. Tactile
Time module	Individual exercise	1. <15 sec. 2. >15 sec.
	Exercise breaks	1. 5 to 10 sec. 2. <5 sec.
	Exercise repetitions	1. 1 - 5 individual Xercise(s) 2. 5 -10 individual Xercise(s)
	Training cycle	1. < 15 min. 2. > 15 min.

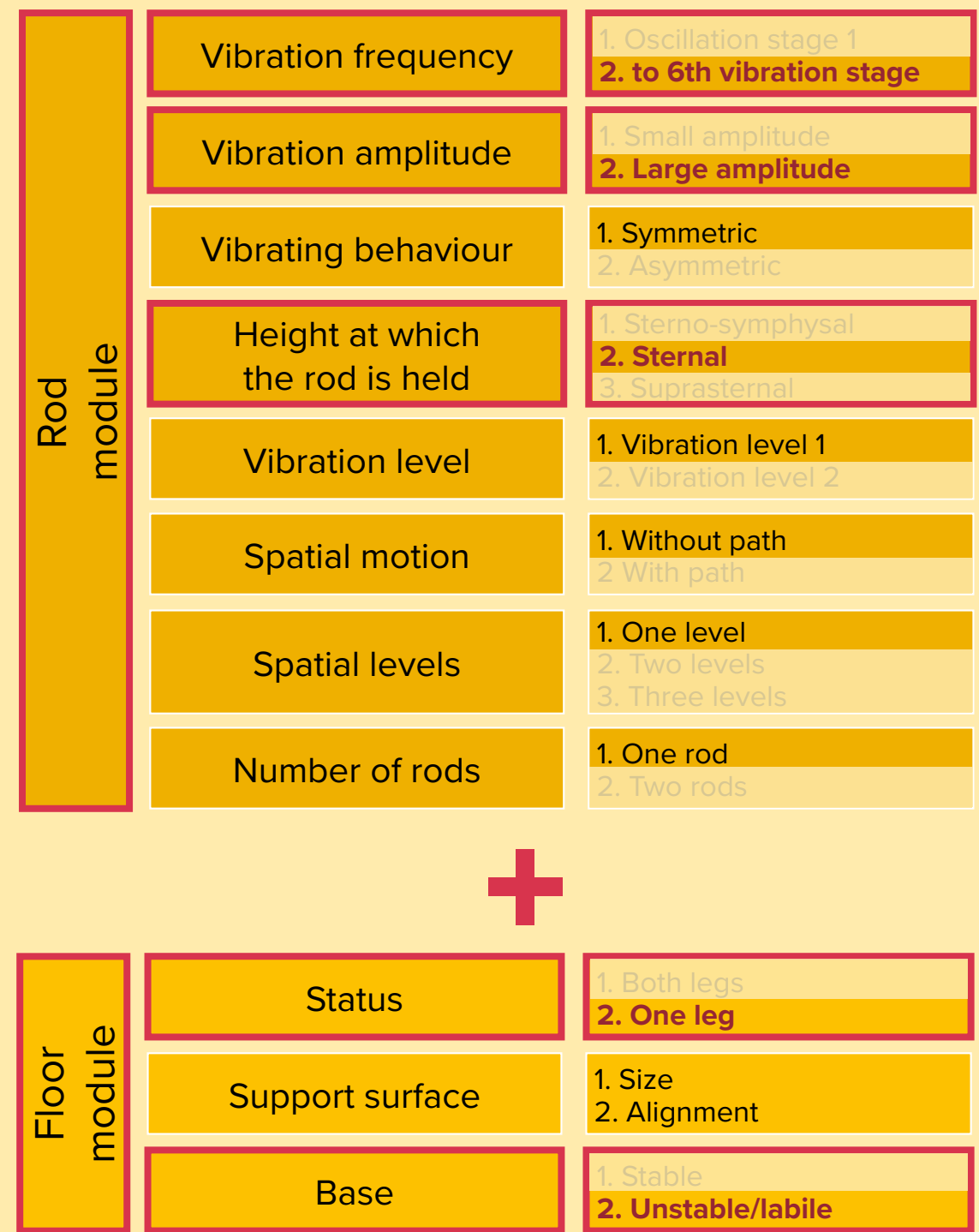
To change the demand level of basic exercise 3, make one or several changes in the third level depending on the abilities of your patient. For example, adjust the rod module as follows:

Rod module	Vibration frequency	1. Vibration stage 1 2. to 6th vibration stage
	Vibration amplitude	1. Small amplitude 2. Large amplitude
	Vibrating behaviour	1. Symmetric 2. Asymmetric
	Height at which the rod is held	1. Sterno-symphysal 2. <b>Sternal</b> 3. Suprasternal
	Vibration level	1. Vibration level 1 2. Vibration level 2
	Spatial motion	1. Without path 2. With path
	Spatial levels	1. One level 2. Two levels 3. Three levels
	Number of rods	1. One rod 2. Two rods

The demand level has now been significantly increased for your patient by “twisting three adjusting screws”: The Propriomed® is held higher, which means increased stabilisation in the shoulder girdle and the entire torso. Frequency and amplitude have increased, which demands increased neuromuscular coordination on the frequency level and increased power delivery. The modified exercise now looks as follows:



If you want to further increase the demand level for your patient, simply use another module from the first level. Let's make exemplary changes to the floor module:



The exercise, which is now complex with the rod and floor module, now looks as follows:



# Conclusion

The BIOSWING® methodology offers valuable assistance in defining the demand level for your therapy with the BIOSWING Pro-priomed®. Only change the demand level (level 3) for your patients to a degree that corresponds to the performance level under consideration of any contraindications.

! The methodical principle “from the simple to the complex” applies here, meaning the complexity should not be increased until the patient has mastered the exercise!

# 8. Objectification of the quality of movement

The MicroSwing® measuring system allows you to objectively assess the vibration quality and quantity of the Propriomed® with your patients. MicroSwing® has been specially developed for use with the BIO-SWING® therapy systems.

The software and hardware of the MicroSwing® measuring system comprise a highly sensitive measuring unit. It allows you to easily record, evaluate and assess the accelerations and thus the vibrating behaviour of the Propriomed®. This medical product comprises open measuring programs and standardised tests for the indirect quantitative and qualitative assessment of your

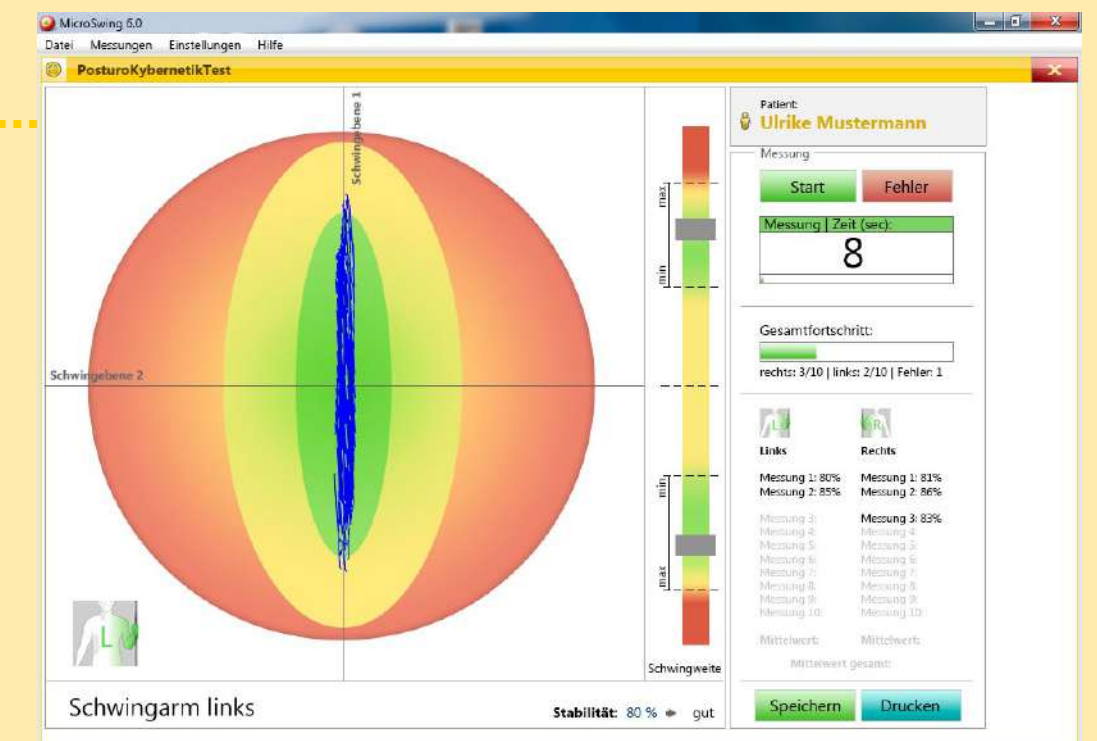
patients' central motor system coordination capacity. The software interface has a clear and logical structure. It is designed for intuitive use, which is confirmed by its large acceptance in clinical application, amongst other things. Selection menus allow individual composition of different parameters – geared towards your patients. The easy export function for the saved data enables further data processing, e.g. in all standard statistics programs. MicroSwing® not only enables the indirect objective analysis of the actual state of your patient coordinated by the central motor system, but also allows optimum feedback training thanks to real-time displays.



The measuring position of the MicroSwing® measuring system when linked to the Propriomed® 1.



The objective display of the therapy advancements of your patient is indispensable when it comes to proving the effectiveness of the therapy!



Software of the MicroSwing® measuring system. Besides the open measuring program (left fig.), in which you can implement your own measuring methodology and/or give your patients realtime feedback of the vibration quality, the Propriomed® PosturoCyberneticsTest (fig. above) provides you with a standardised measuring method.

# 9. Storage, complementary care and safety

To ensure a long service life of your Propriomed®, we recommend hanging storage of the vibrating rods on specially designed suspension racks. These are available as wall mounts for up to four Propriomed®, or as a lockable rack on wheels for up to 20 Propriomed®. Alternatively, the Propriomed® can also be stored in its screw-locked protective tube.

Please note that the level of safety of the device can only be kept if it is checked regularly for damage, wear and completeness. Defective or missing parts must be immediately replaced or supplemented by original parts from the manufacturer. In case of deficiency, the device can be up to repair no longer be used.



Optimum suspended storage of the BIOSWING Propriomed® on the wall mounts designed for this purpose and/or in the lockable wheel rack that holds 20.



For the safety of your patients and also for your own safety, all BIOSWING Propriomed® models are according to the classification (EU) 2017/745 for medical devices, Annex VIII, non-active medical devices of class I, according to classification rule 13. (EU). Accordingly, all models feature eudermic and anti-allergenic materials. All Propriomed models can be cleaned with a damp cotton cloth and disinfected with all surface disinfectants according to the VAH list (e.g. Schülke kodan wipes disinfectant wipes).



# Legal data

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**Note: All serious incidents that have occurred in connection with the product must be reported to the manufacturer and the competent authority of the Member State in which the user and / or patient is established.**

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**2nd revised edition from May 25th, 2021.**

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For further information about HAIDER BIOSWING® therapy systems, the BIOSWING® seminar offers as well as current study results, please visit [www.bioswing.de/therapiesysteme](http://www.bioswing.de/therapiesysteme).