

A Practical Guide for Therapists

S-E-T Sling Exercise Therapy



TERAPI MASTER®

*“If my physiotherapist had not heard of S-E-T,
the Antarctica would still be a distant dream”*

S-E-T[®]



*Ann Bancroft and Liv Arnesen
were the first women to cross
Antarctica on skis. Read more at
www.yourexpedition.com*

“I have a history of low back pain. At 16 I suffered my first sports injury. In my twenties I was caught in an avalanche. After trying most therapies, there was no way around it: I needed surgery.

Shortly thereafter I suffered another disc prolapse. My physiotherapist uses S-E-T in his practice. He introduced me to TerapiMaster. I was soon pain-free.

Since I hate to train indoors, I simply started running and cycling again. My back pain returned.

I realized that without TerapiMaster and a physiotherapist expert in S-E-T to guide me, I would have never made it across the Antarctica in 2000. Training with TerapiMaster became a fixed routine.

In 94 days I skied 2,861 km, pulling 110 kilos in my sled and without experiencing any low back pain.”

Liv Arnesen

Adventurer and recovered disc prolapse patient

Both this instruction manual and the accompanying CD-ROM provide guidance in using TerapiMaster equipment and the principles of sling therapy and sling exercise. The manual is meant for therapists with physiotherapy training or an equivalent background and is intended to provide inspiration and tips for getting the most out of the possibilities S-E-T using TerapiMaster can offer.



Note: This manual does not solely make users competent to treat injuries, pain or chronic ailments. For more detailed knowledge of S-E-T (Sling Exercise Therapy), professional courses in S-E-T are recommended (see page 32 and our website www.terapi-master.com).

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1. S-E-T is renewing physiotherapy

Nordisk Terapi's vision:

- To help bring about faster and more long-lasting recovery from musculoskeletal ailments
- To make preventive and performance-enhancing training possible for ordinary people as well as elite athletes..

Nordisk Terapi seeks pioneer role in professional development, with contributions from health personnel and by making new solutions available to physiotherapists.

Founded in 1991, Nordisk Terapi AS is today a leading knowledge company in the areas of physical medicine and exercise. The S-E-T (Sling Exercise Therapy) concept is used in twenty countries.

Exercise as treatment and secondary prevention

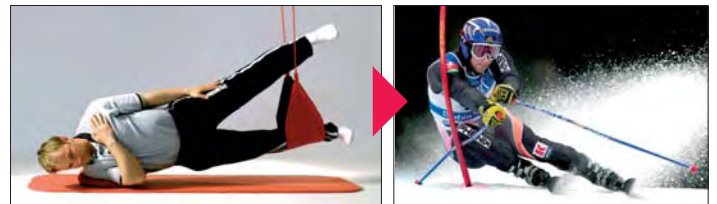
Nordisk Terapi has been at the head of the trend from passive to active treatment. The emphasis is on bridging the gap between treatment and personal exercise and developing a unifying principle for the entire rehabilitation process. The goal is to make the process more cost-effective and reduce the risk of relapse.

- S-E-T (Sling Exercise Therapy) is a new model that is helping to renew physiotherapy and greatly emphasizes on secondary prevention
- Today, TerapiMaster is used by elderly and weak patients as well as young and vigorous elite athletes. Sling exercise using TerapiMaster is a very effective way to build a strong and stable body
- Neuromuscular reactivation (Neurac) is a new treatment model that is based on S-E-T and that often provides spontaneous improvement of functioning and relief of pain, even in chronic ailments
- The S-E-T concept using TerapiMaster is under constant development on the basis of knowledge from research in physical medicine and clinical experience from physiotherapists who practice S-E-T

Products, knowledge-based materials and professional courses

Nordisk Terapi develops and markets both equipment, knowledge-based materials and professional courses. The basis is the patented TerapiMaster device. On the website www.terapi-master.com the following offerings are described:

- A series of TerapiMaster products for physiotherapy and exercise intended to provide strength, stability and motor control for the entire body
- Special products for children and elderly people
- Software for setting up individually tailored exercise programs
- Extensive guides and other materials
- A program of various professional courses in S-E-T
- S-E-T for Companies, a documented intervention model to reduce absenteeism





THE BONE AND JOINT DECADE 2000-2010

Since the early 1990s Nordisk Terapi has had the same main objectives as the “Bone and Joint Decade 2000-2010” (BJD). The purpose of the BJD is to improve the health-related quality of life of people worldwide with musculo-skeletal disorders and ailments. This international program has been endorsed by over 750 organizations in over 90 countries. Former Norwegian Prime Minister Gro Harlem Brundtland initiated the BJD on behalf of WHO.

The four main objectives of the BJD are to:

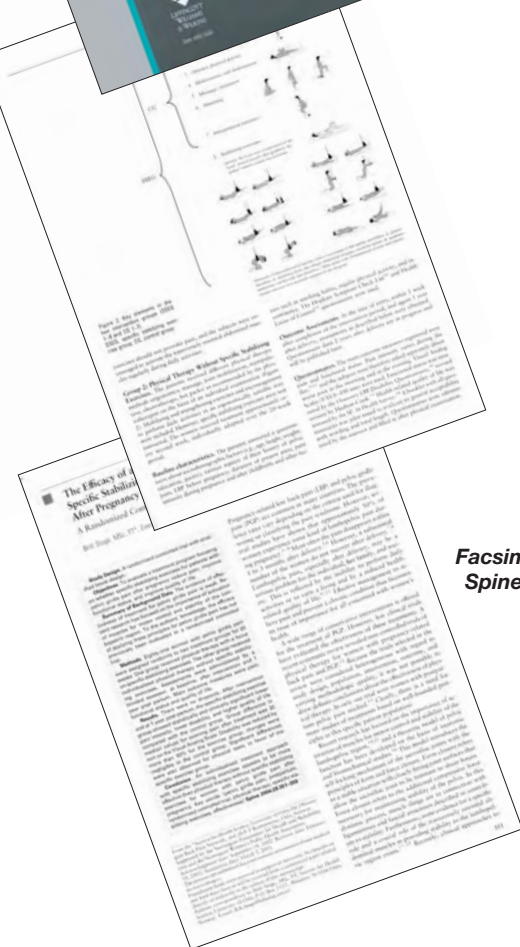
- Raise awareness of the growing burden of musculoskeletal disorders on society
- Empower patients to participate in their own care
- Promote cost-effective prevention and treatment
- Advance understanding of musculoskeletal disorders through research to improve prevention and treatment

Scientific documentation and certified therapists

Physiotherapy and the use of treatment equipment need more extensive scientific documentation. Nordisk Terapi contributes through:

- The S-E-T concept, which is based on the results of the latest research in physical medicine worldwide
- Sponsoring an extensive research program and encouraging independent professionals and institutions
- A professional network, including the group of S-E-T Course Instructors, which assists in the ongoing development and the sharing of experiences
- Certified S-E-T Course Instructors in many countries

See Chapter 5.



Facsimile of
Spine no. 4 - 2004



Therapists are encouraged to present clinical experiences that can help to refine S-E-T and to carry out research projects.

2. The TerapiMaster equipment and how to use it

2.1. TERAPIMASTER EQUIPMENT



10018
TerapiMaster
Professional



12042
Narrow sling



12043
Wide sling



12037
Split sling



12011
Weight set



12045
Elastic cord, low resistance



12046
Elastic cord, high resistance



12044 - Rope, 60 cm



12063 - Rope, 30 cm

13004 - Rope release



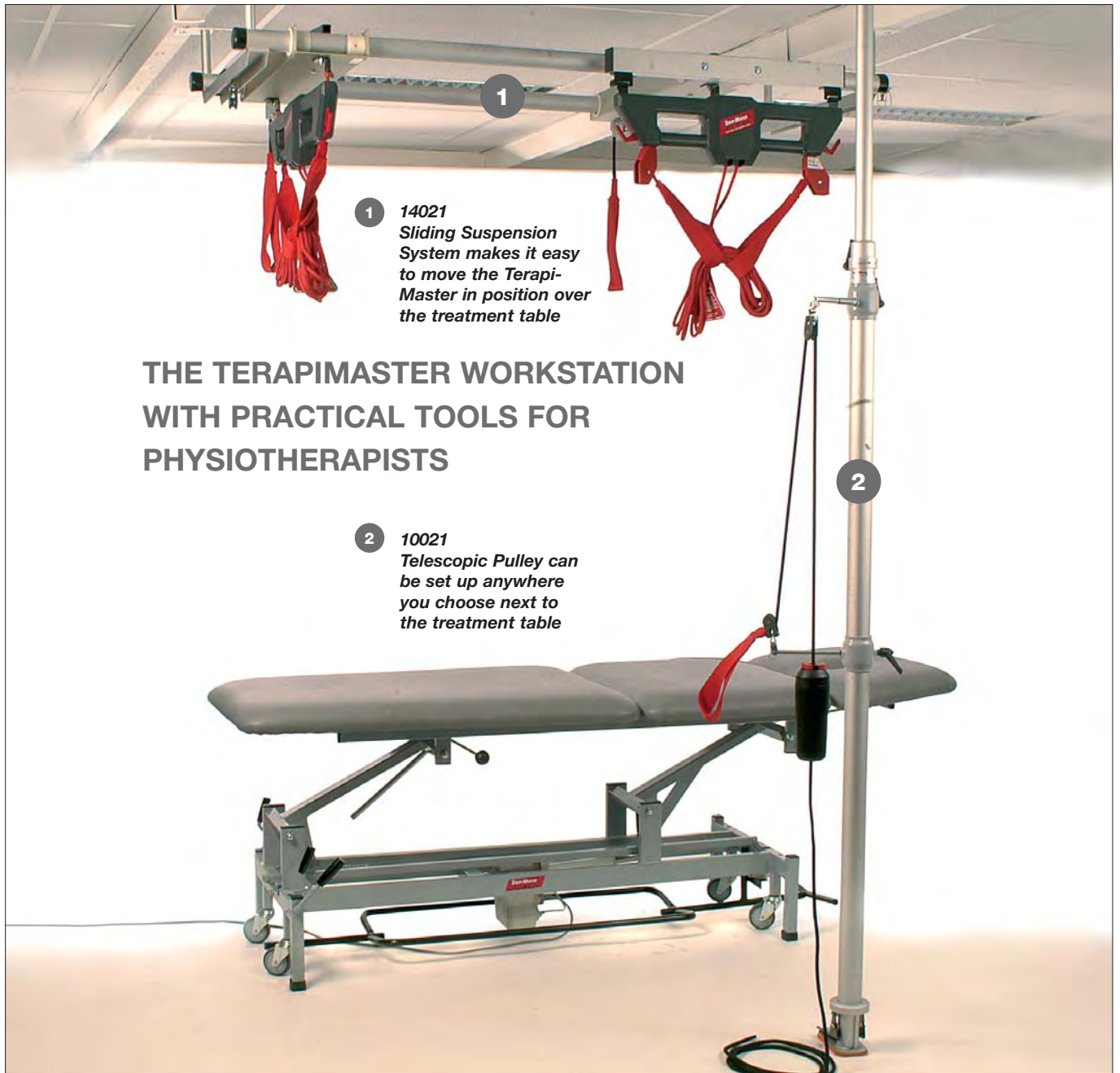
12041 - Rope, 5 m

13005 - Rope clip



10001
TerapiMaster
Basic

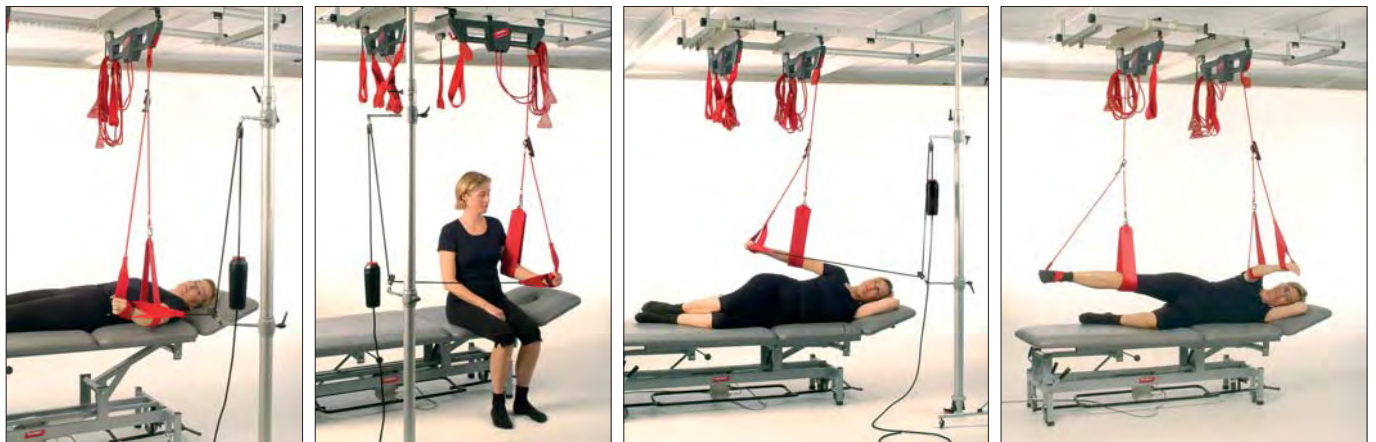




1 14021
Sliding Suspension System makes it easy to move the Terapi-Master in position over the treatment table

THE TERAPIMASTER WORKSTATION WITH PRACTICAL TOOLS FOR PHYSIOTHERAPISTS

2 10021
Telescopic Pulley can be set up anywhere you choose next to the treatment table



Examples of the use of the TerapiMaster workstation, with one or two devices and the Telescopic Pulley



The Sliding Suspension System over the treatment table simplifies and improves the workstation for the therapist. Several TerapiMaster devices can be mounted in the same system.

2.2. TERAPIMASTER SUSPENSION SYSTEMS

- 1 **14057**
Order additional legs
to achieve the ideal
suspension height



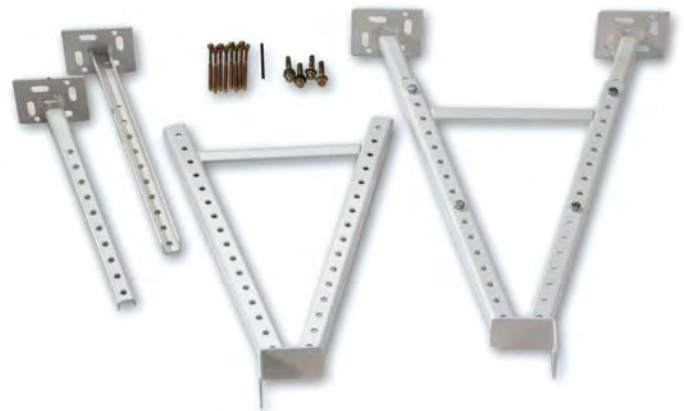
- 2 **12008**
Castor, for the Sliding
Suspension System,
provides minimal fricti-
on for rotation exerci-
ses



- 14013**
Standard suspension brackets



- 14003**
Ceiling
suspension



- 14004-14007**
Ceiling suspension in various lengths, adjustable to
fit high ceilings. Ideal ceiling height: 240-250 cm from
suspension system to the floor.
(Pictures of the suspension systems are on page
2.2.3 of the product catalog)



All ceiling suspension systems can be
adapted to lowered ceilings.

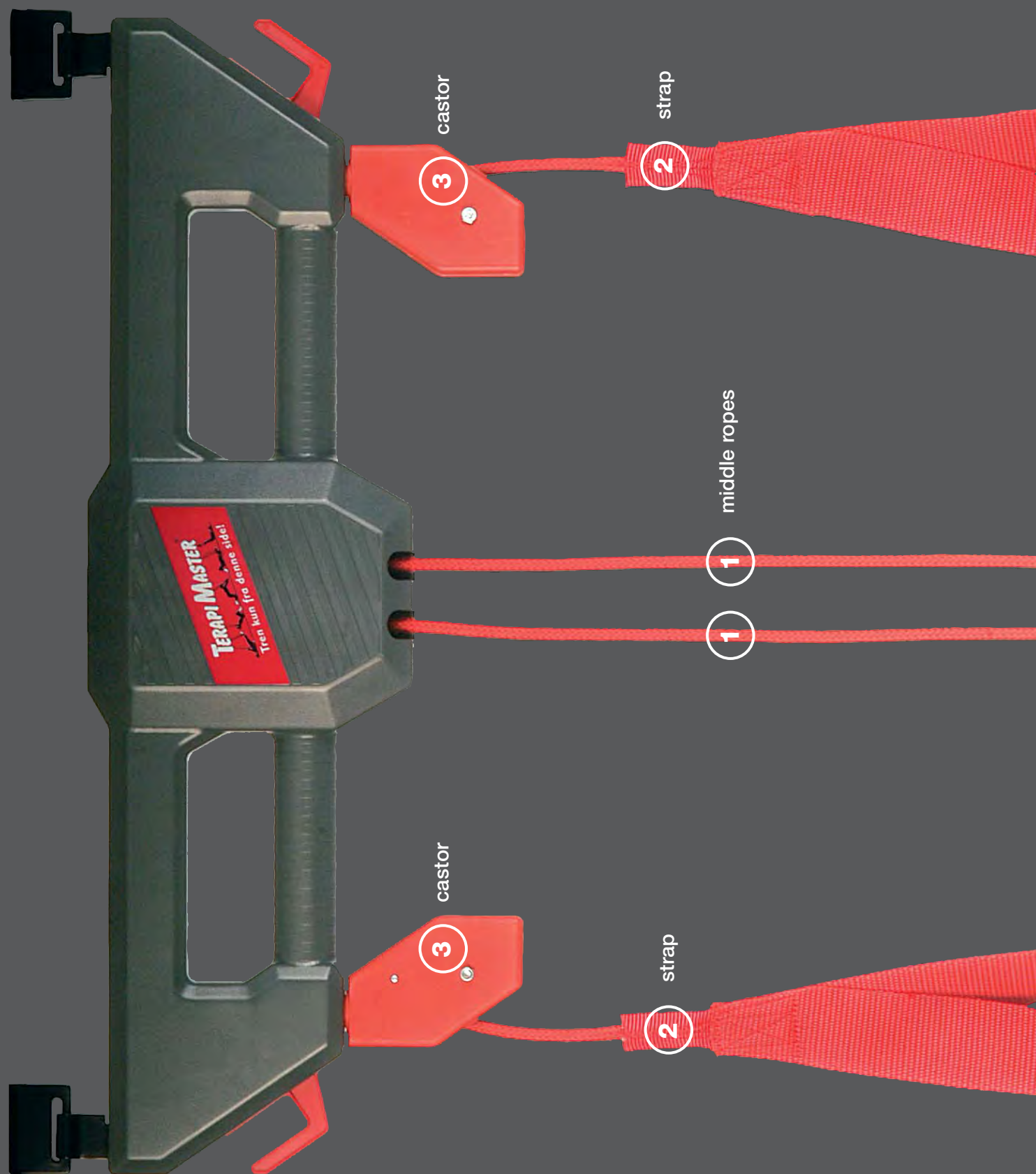
For other possibilities, see the product catalog or www.terapimaster.com

2.3. TERAPI MASTER PRAXIS EXERCISE SOFTWARE

An indispensable tool for simplifying the therapist's workday and getting the most out of treatment and exercises using the TerapiMaster. Studies and experience show that written and illustrated exercise programs provide security for patients and lead to increased compliance.

- Thorough explanation of each exercise with text and two illustrations
- Exercises are systematically constructed and arranged. Elements, progressions and protocols make it easy to select, edit and print individualized programs
- Sorting criteria include
 - exercises in open and closed kinetic chain
 - stability training
 - sensorimotor function
- TerapiMaster Praxis 2 is compatible with all of PhysioTools' more than 30 different collections, which include several thousand exercises
- Patient archive that stores the patient's earlier exercise programs
- Saved exercise programs can be updated easily by using the progression system
- TerapiMaster Praxis 2 may be installed in a network.





10018
TerapiMaster
Professional



2.4. CORRECT USE OF TERAPIMASTER

The straps must always be adjusted from the front side of the device. The front and back are clearly marked. The warning signs attached to the ends of the ropes have important information about adjusting the straps. It is particularly important to learn to release and lower the straps from a reclining position. Once they are locked, the ropes will never give way or slide.

Correct use of the straps

The user's hands/feet should be inserted into the strap from the "back side" where the opening is narrower, in the same way as in the strap of a ski pole. The strap should cradle the user's hands/feet comfortably (see illustrations).

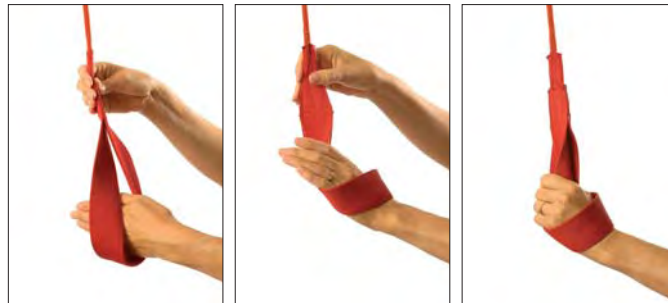
To be able to use the TerapiMaster effectively, you should practice releasing, raising, lowering and locking the straps from both a standing and reclining position.

Releasing, adjusting the ropes and correctly using the straps

The principles for releasing and locking the ropes apply in all positions: standing, sitting or reclining. The function of the straps is to suspend the arms or legs. The straps hang from the ropes that come out from the ends of the device. The ropes that come out from the middle of the device are called the middle ropes.



Putting your hand in the strap:



Putting your foot in the strap:



ADJUSTING THE STRAPS WHILE STANDING

1 Releasing and lowering the straps.

(a) Stand in front of the device, holding the middle ropes in one hand and the straps in the other. (b) Gently pull the middle ropes straight down until they loosen and then toward you. (c) Holding the ropes taut, pull the straps straight down to the desired height (do not jerk them – gentle movements work best).



2 Locking the straps.

Let the middle ropes go so that they hang straight down, and the straps will lock when a load is placed on them.



3 Raising the straps.

(a) Pull the middle ropes straight down until the straps are at the desired height. (b) The straps will lock when a load is placed on them.



ADJUSTING THE STRAPS FROM A RECLINING POSITION

4 Raising the straps

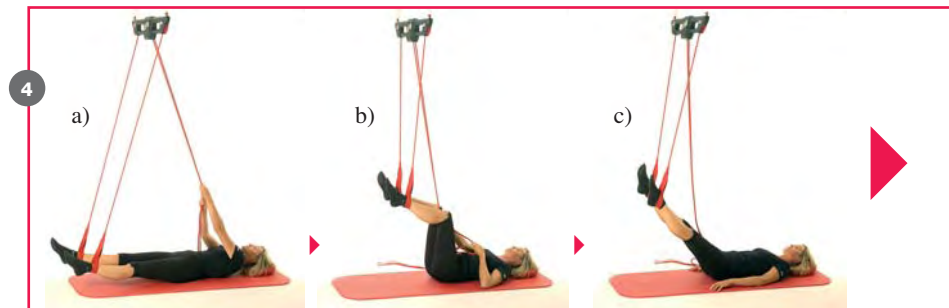
(a) Pull the middle ropes straight down until the straps reach the desired height. (b) Gather the ropes by bending your knees and pushing your arms toward your feet. (c) Let the middle ropes go and the straps will lock when a load is placed on them.

5 Releasing and lowering the straps

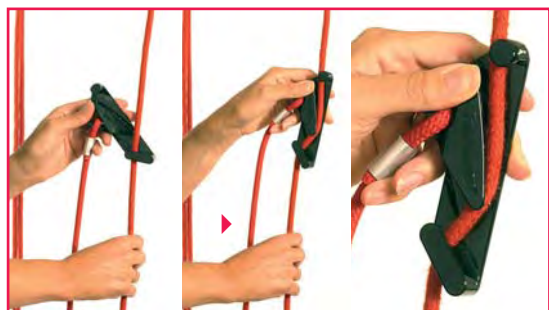
(a) Pull the middle ropes straight down until your legs are raised slightly. (b) Keeping the ropes taut, pull them toward your head and lower your legs to the desired height.

6 Locking the straps

(a) Gather the ropes by bending your knees and pushing your arms toward your feet. (b) Let the middle ropes go and the straps will lock when a load is placed on them.



SUSPENDING SLINGS USING ROPES OR ELASTIC CORDS



Note: The cleat should be threaded like this.

For better support when treating patients or exercising, the TerapiMaster system also includes a number of different slings plus ropes and elastic cords.

The slings are fitted with rings to make it easy to switch between various ropes and elastic cords. Simply hook the rope or elastic cord desired to the sling.

Then hook the cleats of the sling onto the ropes with the straps. First thread the rope over the lower hook and move the cleat up or down to the correct height. Then thread the rope behind the upper hook and the sling is locked.

For later adjustments, take the rope out of the upper hook. Adjust the height and thread the rope back behind the hook again.

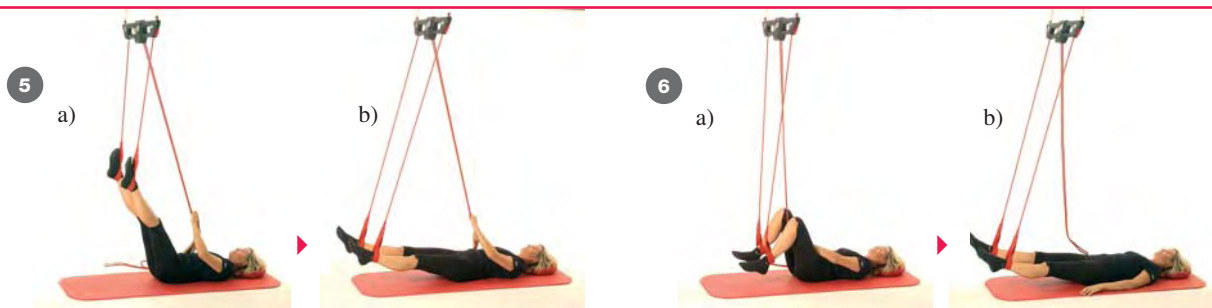
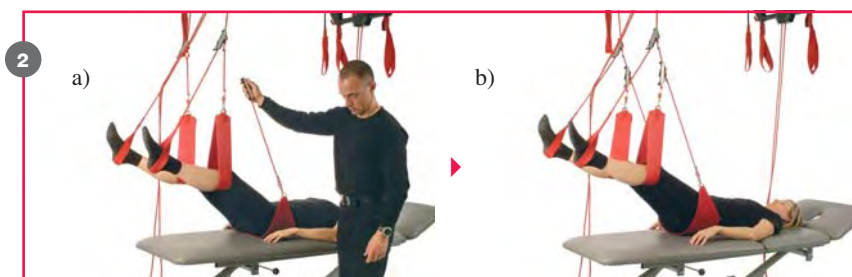
EXAMPLE OF ADAPTATION OF THE SLINGS WITH THE PATIENT IN A RECLINING POSITION

Lower the straps to the support surface. Hook two narrow slings onto the ropes as shown above, and adjust the slings so that the bottoms of the slings are at the same height as the bottoms of the straps.

- 1 (a) Once the legs have been placed into the slings and straps as shown and the legs are raised to the desired height, (b) the knees become bent at the desired angle for relaxation exercises or gluteal raises.



- 2 (a) Place the wide sling under the patient's hips on the support surface. Hook the cleats of the wide sling onto the ropes of the narrow slings. (b) If necessary, adjust the cleats afterward so that all the slings are at the correct height in relation to one another.



PROGRESSION

The difficulty level of the exercises can be changed by:

- Changing one's position relative to the center of the device. **1 2**
- Changing the length of the ropes. **3**
- Changing the distance from the placement of the straps or sling to the joint. **4**
- The wide sling can provide comfortable support by reducing the load. **5**
- Using accessories. Placing the shoulders on a TerapiMaster Balance puts increased demands on stability. **6**



USING THE ROPE RELEASE AND WEIGHTS

Rope release

Stand in front of the device at an angle. Release the middle ropes from the locks by pulling them straight down until they loosen. Hold the ropes taut with one and with the other push the rope release behind the ropes and into the holes at the bottom of the TerapiMaster. The ropes will now move freely.

Attaching weights to the ropes

Weights are easy to attach to the middle ropes by using the built-in lock system. Find the correct height for the weights. Hold the rope taut. Take the weight in your other hand and press the rope into the slot of the weight cylinder, first at the bottom **1** and then at the top. Then pull the weight straight down along the rope by giving it a gentle tug, **2** and it will fasten immediately. Then twist the red lock on top of the weight.

3 4 Select the total weight desired by attaching one or more weights to the same rope.



Use the rope release to free the ropes from the rope locks in the TerapiMaster.



USING THE CASTORS ON TERAPIMASTER PROFESSIONAL



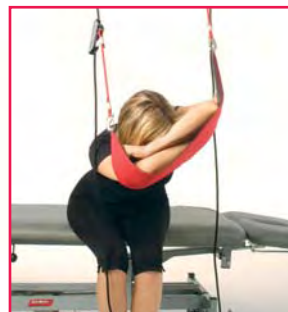
Position the castors and thread the black rope over them as illustrated. The rope can now move freely and the desired sling can be attached to the rope ends.



*Neck rotation
- from side to side*

Rotation of the back is achieved by using a wide sling, which is attached to the rope that runs through the castors

Rotate from side to side



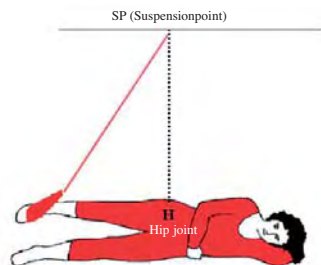
2.5. PRINCIPLES FOR USING SLINGS AND ELASTIC CORDS

Placement of the suspension point

During treatment or exercise using TerapiMaster, the straps and slings provide support for one or more body parts and counteract the force of gravity. The sling's suspension point (SP), where the rope comes out of the TerapiMaster, is the fulcrum for the movement. This means that, in order to place the joint correctly relative to the suspension point, the rope from the TerapiMaster is used as a plumb line. The placement of the suspension point and the length of the rope affect the shape of the path of movement and the degree of compression/decompression in the joint.

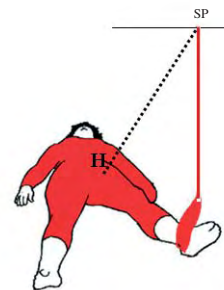
Axial suspension

- Flat path of movement on the horizontal plane.
- Movement in both directions without the effect of gravity.
- Slight compression in the joint (depending on the rope's length).



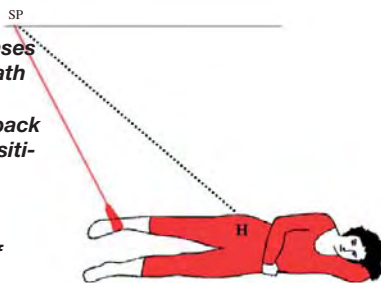
Lateral suspension

- Negative weight in movement toward the suspension point.
- Increased resistance in movement away from the suspension point.
- Oblique plane of movement leads to combined movements.



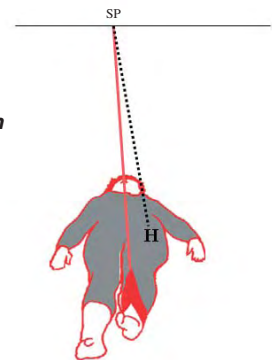
Caudal suspension

- Concave path of movement.
- Resistance increases throughout the path of movement.
- Negative weight back to the starting position.
- Decompression effect in the joint.
- Reduced range of movement.



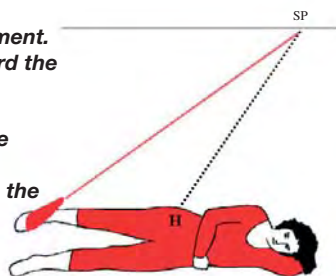
Medial suspension

- Negative weight in movement toward the suspension point.
- Increased resistance in movement away from the suspension point.
- Oblique plane of movement leads to combined movements.



Cranial suspension

- Convex path of movement.
- Negative weight toward the ends of the path of movement.
- Resistance back to the starting position.
- Compression effect in the joint.
- Increased range of movement.



Use of elastic cords

During exercises that involve raising parts of the body or bearing the weight of the body, the patient can get help to perform movements and improve their quality by using elastic cords on the slings. Elastic cords on the slings provide negative weight or reduced resistance when raising parts of the body. Elastic cords can also be used to perform exercises with resistance throughout the entire path of movement.



3. TerapiMaster and sling exercise

3.1. HERE'S WHY TERAPIMASTER IS EFFECTIVE

TerapiMaster is an effective physiotherapy tool. It is a simple, reasonably priced and very flexible device that is more versatile than any other physiotherapeutic equipment.

Offers numerous forms of treatment

In addition to training for strength, stability and muscular control, TerapiMaster facilitates and simplifies numerous forms of treatment. Techniques for stretching, traction, taking off load, relaxation and manual mobilization are made easier with the aid of TerapiMaster.

Easy to adapt treatment to the patient's needs

With a few flicks of the wrist, straps and the various slings can be adjusted to the treatment situation at hand. The load is adjusted using the progression system. See Chapter 2.

Relieves the therapist and safe for the patient

Health care professionals have a physically demanding workday and are often subject to strain injuries. TerapiMaster provides a secure support for the part of the body to be treated, functioning as "the therapist's helping hand". This protects therapists from overstraining themselves.

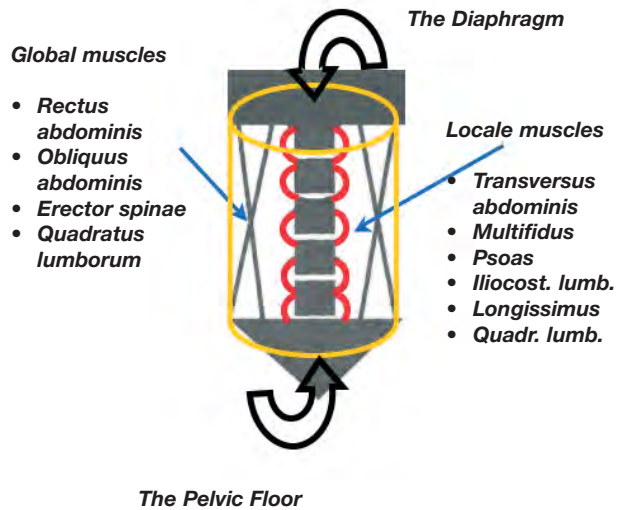
"The Helping hand principle"

TerapiMaster:

- frees the therapist's hands
- reduces the therapist's burden
- provides added relaxation and relief to the patient
- makes it easier to get the patient into a pain-free position



Stabilizing the low back

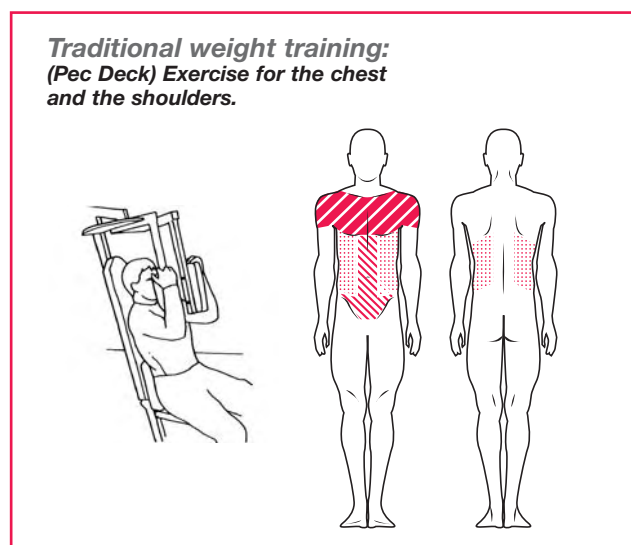
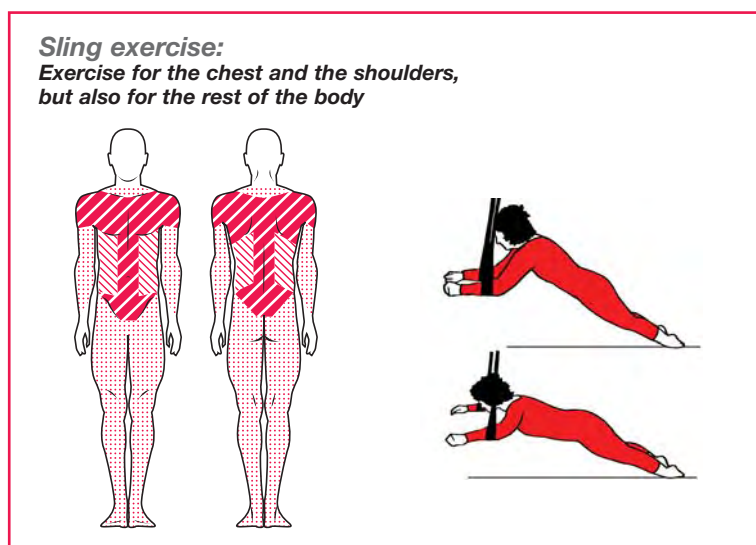


3.2. HERE'S WHY SLING EXERCISE IS EFFECTIVE

Recent research shows that the ability to stabilize the joints is of crucial importance for proper functioning. Exercises for strength, stability and muscular control are considered to be vital for improving performance, preventing musculoskeletal ailments and for speedier rehabilitation from injuries. The use of TerapiMaster put into a system through the S-E-T concept is deemed by many to be the most important innovation in physiotherapy and exercise over the past ten years.

This is what makes sling exercise with TerapiMaster effective:

- TerapiMaster's straps and slings create an unstable base of support. This increases the demands on stability and muscular control and provides effective neuromuscular training
- The patient can easily train his or her entire body using the same device
- All exercises can be easily graded to the desired load level using the progression ladder principle. Experiencing their own progress - step by step - motivates patients.
- Closed kinetic chain exercises using TerapiMaster place heavy demands on dynamic stability around the joints, and the muscles have to work together more than with other kinds of exercise
- Patients are more easily motivated to do the exercises on their own at home. Just a couple of exercises done in 10-20 minutes, 2-3 times a week, will give most people very good results.



Heavy load



Moderate



Light



None/very light

We recommend that therapists test the principles of sling exercise on themselves. Only then will they understand how treatment and exercise feel to the patient.

4. S-E-T (Sling Exercise Therapy)

treatment and exercise using TerapiMaster

4.1. S-E-T - THE SYSTEMIZED USE OF TERAPIMASTER

From clinical experience and research since the beginning of the 1990s, physiotherapists and doctors have systematized the use of TerapiMaster. Introduced in 1998, S-E-T (Sling Exercise Therapy) is an active approach to treatment and exercise. S-E-T covers the entire course of treatment from initial examination to the attainment of lasting improvement. Secondary prevention is vital for maintaining improved functioning and for reducing the risk of recurring ailments. Sling exercise is also used to improve the performance of fitness enthusiasts and elite athletes alike.

S-E-T builds on a general foundation in physiotherapy. There are today separate professional courses in S-E-T in the following areas: Musculoskeletal ailments, children, elderly and company health care.

The idea behind S-E-T treatment and exercise

Chronic musculoskeletal ailments are characterized by:

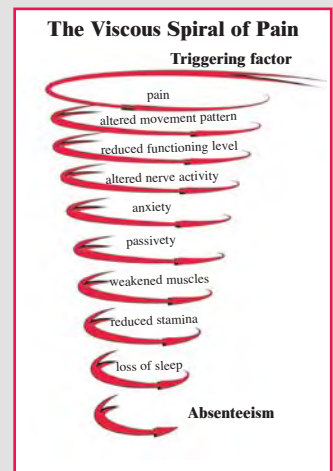
- Diminished local stabilization
- Diminished sensorimotor function
- Diminished muscular strength
- Diminished muscular endurance
- Diminished cardio-vascular function
- Muscle atrophy

Passive approaches do not address these problems, but can pave the way for starting active treatment and exercise using the S-E-T concept.

The goal of S-E-T treatment and exercise

The idea of S-E-T treatment and exercise is to try to systematically regain or improve functioning when functioning is diminished. This treatment model is especially suited to improve “local” stabilization, sensorimotor function **1** and guided home exercise that can contribute to lasting improvement. **3 4 5** A new treatment technique within S-E-T, Neurac (Neuromuscular reactivation), has clinically proved to provide rapid recovery even from chronic musculoskeletal ailments. The explanation appears to be the reactivation of deep stabilizing muscles. **2**

The description of S-E-T is divided into the elements that make up the process, from examination to lasting improvement, and the treatment principles employed.



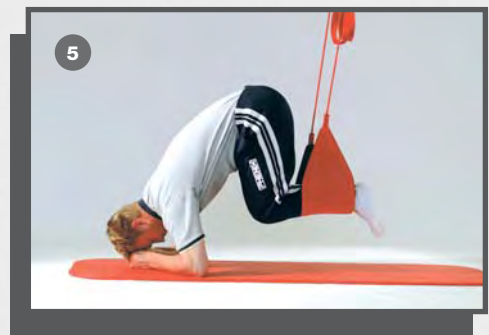
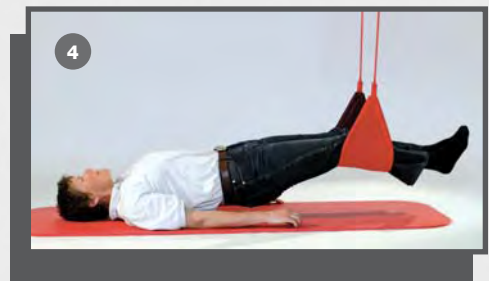
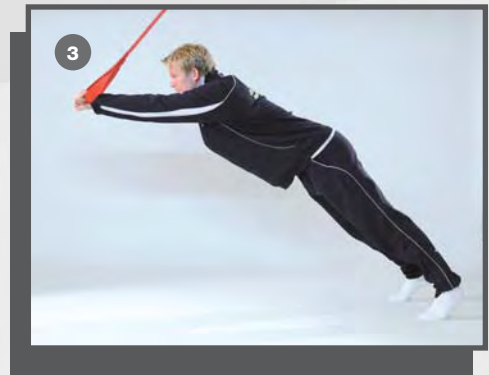


Active treatment using TerapiMaster.

EXAMPLES OF S-E-T TREATMENT AND EXERCISE



Treating the neck, which here is being placed in the correct position.



These individuals have been trained to perform the exercises on their own, for instance at the clinic or at home.

4.2. ELEMENTS OF THE S-E-T TREATMENT PROCESS

Individualized exercise programs using TerapiMaster Praxis



TerapiMaster Praxis is a software containing 180 basic exercises, which can be performed in a progression system. Each basic exercise has from two to ten levels where the load is gradually increased. The exercises are sorted by part of the body and the movement to be performed. Protocols have also been assembled, which are recommended exercise regimens for various training needs. Once the personal exercise program is set up and edited, it is printed out for the user. The printout enables the patient to do the exercises either at the clinic or at home by following the individualized exercise program with illustrations and explanations.

Active treatment

Examination and diagnosis according to the “weak link principle”



After an initial examination of physical functioning, the “weak link principle” is used. The systematic examination using TerapiMaster is meant to find a muscle or muscle group that is too weak to perform its part of the work when functioning together with other muscles in an activity.

- 1 Testing is done in a closed kinetic chain using TerapiMaster to uncover the weaknesses.
- 2 Then, individual muscles/muscle groups can be tested in an open kinetic chain for a more detailed evaluation.



- 3 Once a “weak link” has been identified, the muscle/muscle group should be exercised in an open kinetic chain until it can work in interaction with other muscles in a closed chain.
- 4 At as an early stage as possible, a “weak link” should be introduced to an exercise in a closed kinetic chain. With S-E-T using TerapiMaster, this is possible thanks to the opportunity to grade the exercises down to a minimal load.

Recent discoveries indicate that, in some cases, exercising in an open kinetic chain can be omitted. A new S-E-T method called Neurac (Neuromuscular reactivation) focuses on inducing a neuromuscular stimulus of the deep stabilizing muscles. In many situations a spontaneous improvement is attained. See page 27.

Guided exercise in the clinic



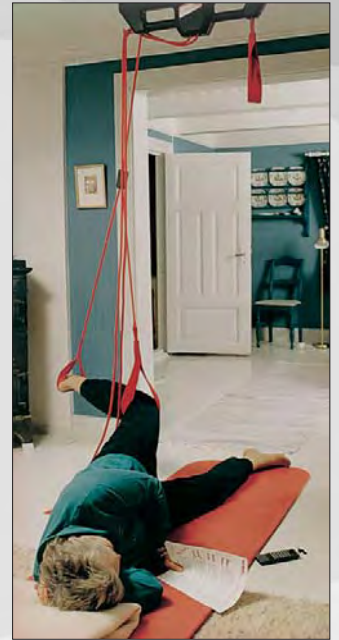
Patients are motivated and guided as they progress.

Group exercise



Following simple instructions, many people can perform the same exercise, but at different load levels, depending on how far each has come in their rehabilitation. Group exercise can provide an extra dimension to exercising, regardless of age or ability level.

Home exercise following a TerapiMaster Praxis exercise program



TerapiMaster can easily be suspended for a workout session and taken down after use. To achieve continuity it is important to have it readily accessible. To ensure that the user carries out the agreed training program, follow-up over time is recommended in which the exercises in the program are adjusted as the user progresses. "Step-by-step" progress provides extra motivation to keep on training. Experience and studies show that 6-12 months' follow-up provides a high level of compliance, even after follow-up has ended. Good habits have been established.

To learn all about the S-E-T techniques that can be used in treating patients, S-E-T courses are essential. The emphasis is also on guiding patients to take responsibility for their own health. S-E-T courses are constantly being updated on the basis of clinical experience and research results.

See the courses, page 32 and www.terapimaster.com

4.3. S-E-T TREATMENT PRINCIPLES

The treatment principles of S-E-T can be divided into traditional sling therapy and sling exercise with neuromuscular reactivation (Neurac). Sling exercise is based on a new understanding of the stabilizing muscles combined with the flexibility of TerapiMaster. Traditional sling therapy is also easier to provide using TerapiMaster, thanks to its ease of adjustment and load capacity.

TRADITIONAL SLING THERAPY

NOTE: *It is essential that therapists have tried the TerapiMaster exercises on themselves, something emphasized at S-E-T courses. Only then will they have a deeper understanding of how the principles work and how to tailor an exercise to an individual user's level with simple adjustments.*



Relaxation/relief

The slings are adjusted to achieve a suitable position and, thus, relief.



Traction and stretching

With the weight of the body supported in the sling, the therapist or patient can perform traction or stretching with optimum force in the desired direction.



Mobilization/ mobility training

Following guidance, users can perform mobility exercises in the sling system on their own. When the force of gravity is eliminated/reduced, patients feel they are in control and can move their joints and muscles to the limits, gradually stretching even farther. Mobility training in slings also provides relief to the therapist.



Strength training in an open chain

Focus on training individual muscles/muscle groups (agonists/synergists). The distal segment of the body is free to move and does not bear the weight of the body during the exercise. The part of the body being trained can be moved with the assistance of only a few muscles.

SLING EXERCISES WHERE TERAPIMASTER OPENS UP NEW POSSIBILITIES using an adapted weight load and instability in a closed kinetic chain.

Strength training in a closed kinetic chain

The focus is on function training where several muscles are recruited in a closed chain and the muscles work together as the exercise is being performed. Training in a closed kinetic chain is defined by having the distal segment fixed and bearing all or some of the weight of the body. This achieves more compression in the joints along with dynamic stabilization and the activation of agonists, antagonists and synergists.



Stabilizing exercises

Recent studies indicate that certain muscles have a very special stabilizing function. These muscles are called “local” muscles, are near the joints and are considered to be important for joint stability, whereas “global” muscles perform the movement. Injuries to the musculoskeletal system can alter these mechanisms, leading to lasting impairment in functioning. TerapiMaster, applied in the S-E-T concept, shows good results in affecting the deep stabilization system.



Sensorimotor training

Proper neuromuscular control is essential for maintaining a normal level of functioning. Chronic complaints affect sensorimotor function. The effectiveness of training neuromuscular control on the lower extremities is well documented. Recent studies indicate that this kind of training is also important for the back, neck and shoulders. Sensorimotor training is a key element of the S-E-T concept. Instability is achieved in TerapiMaster’s slings. In addition, air-filled rubber cushions, thick rubber mats and tilting boards are used.



Neuromuscular reactivation (Neurac)

A recently developed S-E-T method is called Neurac, which stands for neuromuscular reactivation. Clinical experience shows that in many situations it has been possible to achieve a spontaneous improvement in the neuromuscular control of the deep stabilizing muscles and thus, muscular functioning. This is based on exercises performed in a closed kinetic chain, with as heavy a load as the patient can manage, with maximum instability and without inducing pain. Individual fine-tuning of the exercises and instability in the TerapiMaster slings is crucial for the result. Studies on the Neurac method are now being performed scientifically. The advanced S-E-T courses provide an introduction to the Neurac method. Studies have shown that the flow of signals to the muscles increases considerably when the exercises are performed on an unstable support surface (ref. 17 and 18 on page 36)

At an early stage, the emphasis is on low-graded isometric contractions. Gradually the holding time is increased rather than the weight load. Several recent studies document the effectiveness of low-graded training of the transversus abdominis in patients with back pain. Gradually exercises are introduced that activate the “global” muscles, for both stabilization and mobility.

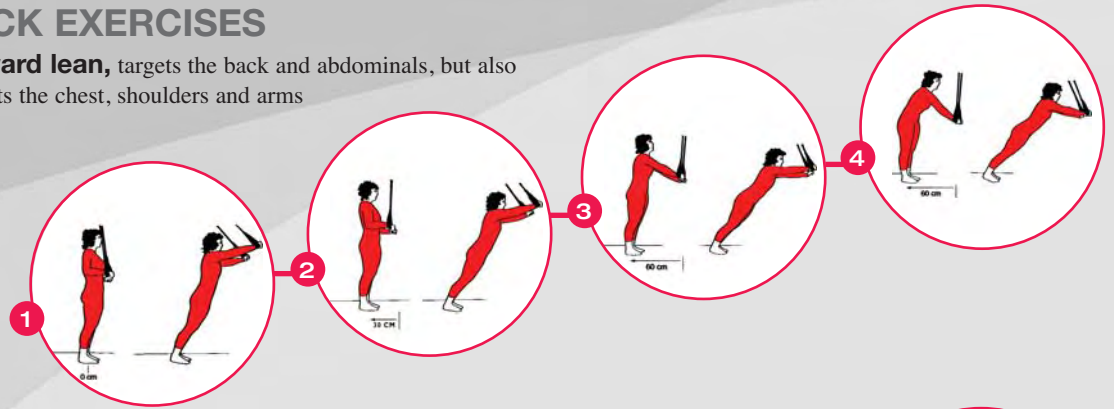
4.4. SAMPLE PROGRESSION LADDERS

One of the primary advantages of S-E-T are the many possibilities for adapting the load of each exercise. TerapiMaster Praxis computer software contains descriptions of 182 exercises with progression ladders. Each exercise has from 2 to 10 load levels. This makes TerapiMaster Praxis the best tool for getting the most out of the S-E-T system, whether it is for treatment and exercise in clinics or for adapting exercises for training at home.

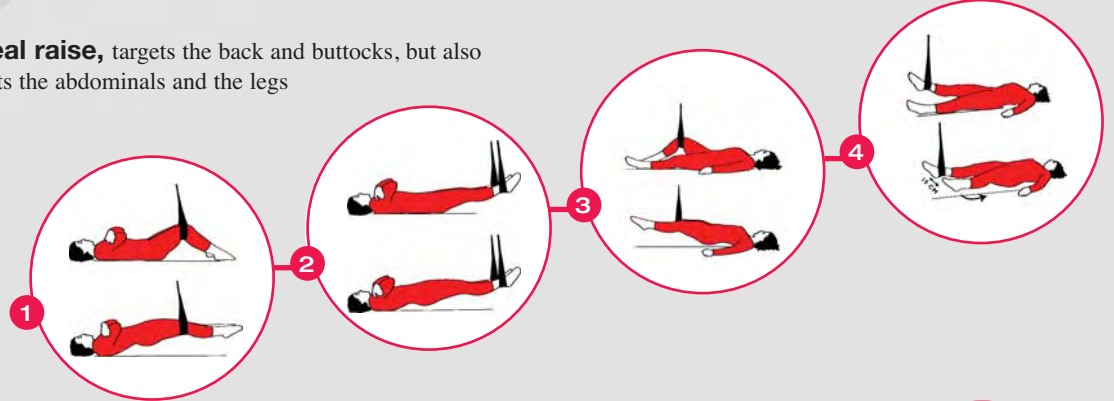
Here is only a sample of such progressions for various parts of the body as illustrated by TerapiMaster Praxis:

BACK EXERCISES

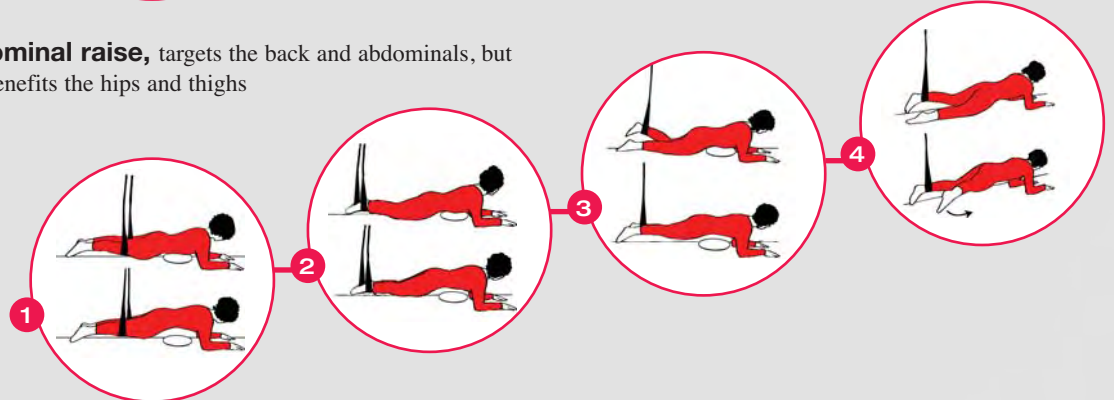
Forward lean, targets the back and abdominals, but also benefits the chest, shoulders and arms



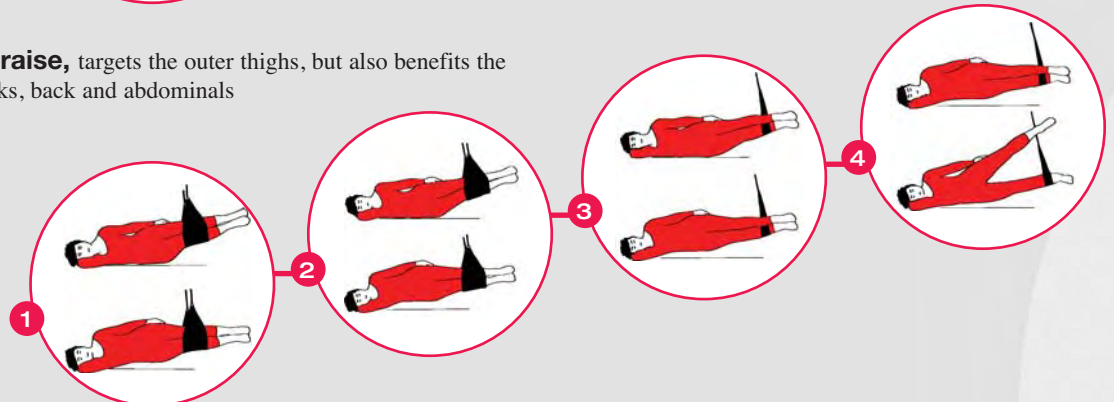
Gluteal raise, targets the back and buttocks, but also benefits the abdominals and the legs



Abdominal raise, targets the back and abdominals, but also benefits the hips and thighs

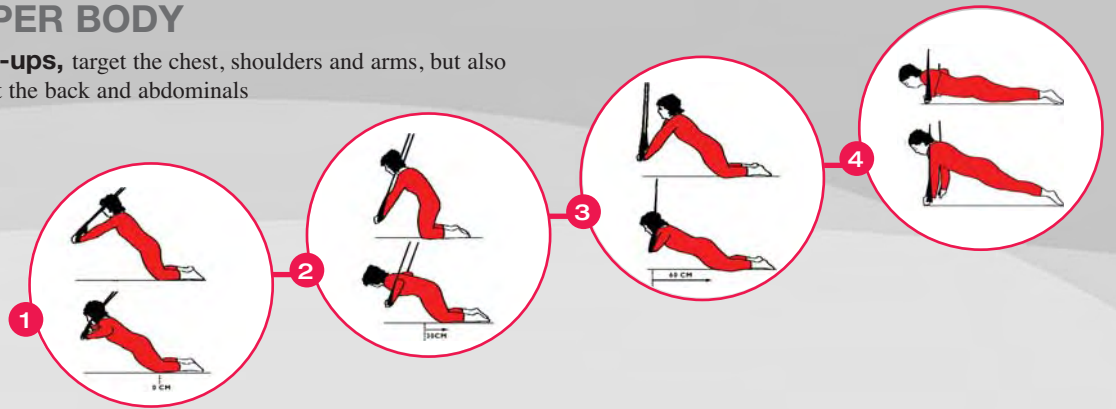


Side raise, targets the outer thighs, but also benefits the buttocks, back and abdominals

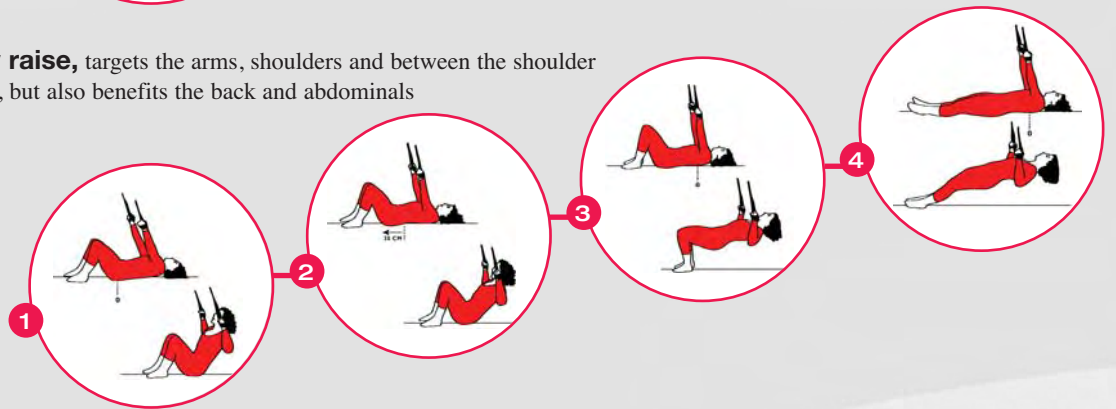


UPPER BODY

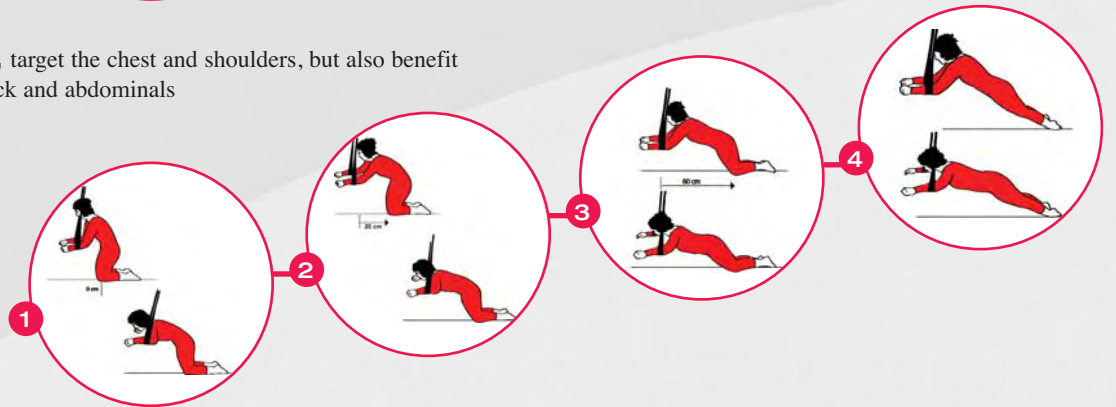
Push-ups, target the chest, shoulders and arms, but also benefit the back and abdominals



Body raise, targets the arms, shoulders and between the shoulder blades, but also benefits the back and abdominals

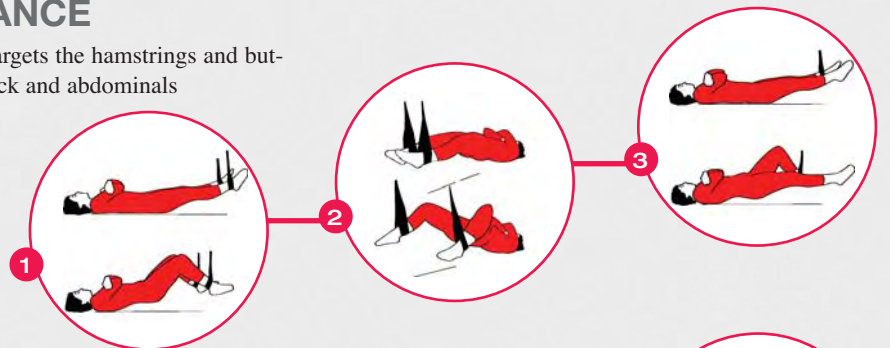


Flies, target the chest and shoulders, but also benefit the back and abdominals

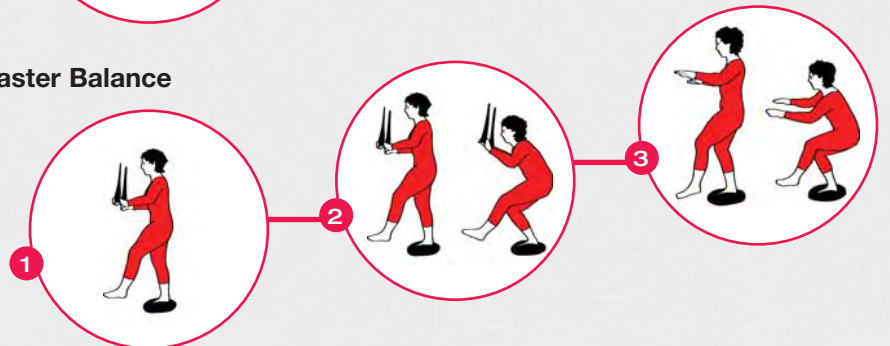


LEGS AND BALANCE

Reclining knee bend, targets the hamstrings and buttocks, but also benefits the back and abdominals



Standing on a TerapiMaster Balance



4.5. S-E-T IN ALL REHABILITATION SETTINGS

TerapiMaster is compact, lightweight and does not take up floor space. It can be used anywhere physical therapy or exercise takes place, in hospitals and nursing homes, in rehab centers, physiotherapy clinics, exercise rooms and at home. The exercises the patients are taught can be performed wherever patients are to be treated or exercise on their own. The red rope of the TerapiMaster is the thread that runs through the rehabilitation process and in preventive exercise.



4.6. GROUP EXERCISE USING TERAPIMASTER

Sling exercise using TerapiMaster is well suited to group exercise. Following simple instructions, several people can perform the same exercise, but at their own load level, depending on how far they have come in their rehabilitation. The social aspects of exercising in a group, combined with simple and effective exercises using TerapiMaster, provide high-quality treatment to several patients simultaneously.

Group exercise using TerapiMaster may be organized in several ways. Groups can be divided by part of the body (back group), particular diagnoses (Mb. Parkinson's group) or functional level (fitness group). Individualizing exercises also makes it possible to have more diverse groups.

Advantages of group exercise using TerapiMaster

- The effectiveness of sling training is documented
 - simple exercises that work
 - effective even with short sessions
- Effective treatment of several patients simultaneously
- Motivating and creates a group dynamic
- TerapiMaster saves space
 - the entire body can be exercised using a single device
 - does not take up floor space when not in use
- Broad range of exercises that can be adapted to anyone from very weak patients to elite athletes
- Each exercise can be easily adapted to the user's level according to the progression ladder principle

Guidelines for distance between the devices

TerapiMaster devices can be installed in various patterns in an exercise room to facilitate group exercises. They can be hung in a horseshoe with space for the instructor in the middle, or next to one another in rows.

There should be a certain distance between the devices in the exercise room to prevent users from bumping into each other. The recommendations are based on the standard distance of 60 cm between joists in the ceiling where the TerapiMaster devices are mounted. The dimensions can be reduced somewhat, if you are installing the devices on a concrete ceiling.

- 180 cm from the wall to the front side of the device
- 120 cm from the wall to the side of the device
- 180 cm from device to device suspended next to one another in a line
- 240 cm device to device suspended behind one another in a row



4.7. S-E-T COURSE STRUCTURE

A series of courses in S-E-T has been prepared to provide therapists with the knowledge they need to make the most of the potential in the S-E-T concept. Courses are taught by certified instructors with the same level of expertise in all countries where TerapiMaster is marketed.

The courses are continuously being updated in step with experience and new research, and new courses are in development. The courses contain a thorough review of theory and practical training on one's own and others' bodies. The Advanced Course, Level 2, also contains patient examination and treatment. Ongoing work to combine users' experience and the results of research means that participants will always find something new and exciting for their practices at S-E-T courses.

The S-E-T course series is structured identically from country to country, even though some courses are not yet available everywhere. See our English website for more information about instructors and courses.

S-E-T Basic Course

Provides a basic introduction in Sling Exercise Therapy (S-E-T) and is the basis for further training in the S-E-T concept. Includes practice on participant's own body.

- Duration: 1 day

S-E-T Advanced, Level 1

A comprehensive theoretical review of principles of preventive treatment and exercise for musculoskeletal ailments using the S-E-T concept. Comprehensive practical review, introduction to function testing according to the "weak link principle", training in open and closed kinetic chains, training stability and sensorimotor function and grading exercises according to the progression ladder principle. Introduction to neuromuscular reactivation of the deep stabilization musculature (Neurac).

- Divided into 2-L (lumbar, spine, pelvis and lower extremities) and 2-U (neck, shoulders and upper extremities)
- Builds on the S-E-T Basic Course and the practical use of TerapiMaster
- Duration: 2 days (16 hours) each for 1-L and 1-U

S-E-T Advanced, Level 2

S-E-T is constantly evolving. New approaches to treating chronic ailments open up exciting perspectives. You will learn about these at the S-E-T Level 2 courses, where we do hands-on work with patients. Training in diagnosing and grading exercises, as well as considering relevant progression ladders. Further review of neuromuscular reactivation (Neurac) techniques. Practical updates and reviews of clinical tests.

- Divided into 2-L (lumbar, spine, pelvis and lower extremities) and 2-U (neck, shoulders and upper extremities)
- Builds on S-E-T Advanced, Level 1
- Duration: 2 days (16 hours) each for 2-L and 2-U.

S-E-T Senior

The course gives participants ideas for the all-round use of TerapiMaster for older users. As an aid in prevention, treatment and exercise, individually and in groups, and as relief for patient and therapist alike. Case-oriented practical sessions and instruction with patients.

- Duration: 1 day/2 days
- Prerequisite: practical experience in the use of TerapiMaster



S-E-T Kids

The course provides training in how the equipment can be used practically in early intervention, play-like stimulation and interdisciplinary collaboration. Emphasis is on sharing experiences and practical case-related work.

- Duration: 1 day
- Prerequisite: practical experience in the use of TerapiMaster

S-E-T in company healthcare

The course provides a thorough review of the elements of the “S-E-T for companies” intervention package. Based on a proven intervention model for the use of S-E-T in company health services, with documented reductions in absenteeism and increased employee quality of life.

The course material consists of presentation tools with videos, instructional material aimed at employees and a separate battery of tests and manuals.

- Duration: 2 days (16 hours)
- The course builds on S-E-T Advanced, Level 1, and requires practical experience in the use of TerapiMaster

Other courses

Special courses based on clinical experience and the results of recent research can be arranged with specialists in treating various diagnoses.

5. Scientific documentation

5.1. RESEARCH AND RESEARCH RESULTS

Studies on the use of TerapiMaster and S-E-T

- “An individualized treatment approach with specific stabilizing exercises appears to be more effective than physical therapy without specific stabilizing exercises for women with pelvic girdle pain after pregnancy.”

“After treatment, the specific exercise group showed clinically and statistically significantly lower pain intensity, lower disability, higher quality of life and better improvements on physical tests compared with the control group.”

Stuge B., MSc, Lærum E., PhD, Kirkesola G., Vøllestad N., PhD, Spine, 2004; 29 (4): 351-359. The Efficacy of a Treatment Program Focusing on Specific Stabilizing Exercises for Pelvic Girdle Pain after Pregnancy. A Randomized Controlled Trial.

- “The significant differences between the groups persisted with continued low levels of pain and disability in the specific stabilizing exercise group two years after delivery.”

Britt Stuge, MSc, PT, Marit Bragelien Veierød, PhD, Even Lærum, PhD and Nina Vøllestad, PhD, Spine, 2004; 29 (10): 197-203.

The Efficacy of a Treatment Program Focusing on Specific Stabilizing Exercises for Pelvic Girdle Pain After Pregnancy. A Two-Year Follow-up of a Randomized Clinical Trial.

- “The study found that relaxation exercises and physical training combined with interviews and follow-up/guidance can reduce total absenteeism significantly for employees with strain ailments.”

Moe K., Thom E. Fysioterapeuten, 2000; Fagekstra 14: 16-19. Effekten av regelmessig trening på sykefravær. Resultater fra en intervensjonsstudie (The efficacy of regular training on absenteeism. Results from an intervention study).

- “The study found that relaxation exercises and professionally guided physical training and follow-up was able to significantly reduce absenteeism.”

Moe K., Thom E. Tidsskr Nor Lægeforen, 1997; 29: 4258-61. Muskel-og skjelettproblemer og fysisk aktivitet (Musculoskeletal problems and physical activity).

- “S-E-T is a new concept developed over a long time with a holistic approach to treating injuries and chronic ailments.”

Kirkesola G. Fysioterapeuten, 2000; 12: 9-16. Sling Exercise Therapy – S-E-T.

- “Both exercise programs reduced absenteeism significantly (75-80%).”

Ljunggren A.E., Weber H., Kogstad O., Thom E., Kirkesola G. Spine 1997. Effect of Exercise on Sick Leave Due to Low Back Pain.



Studies of specific stabilizing exercises

- “A specific exercise treatment approach appears more effective than other commonly prescribed conservative treatment programs in patients with chronically symptomatic spondylolysis or spondylolisthesis.”

O’ Sullivan P.B., Phytty, D.M.G., Twomey L.T., Allison G.T. Spine; 1997; 22 (24): 2959-2967.
Evaluation of Specific Stabilizing Exercises in the Treatment of Chronic Low Back Pain With Radiologic Diagnosis of Spondylolysis or Spondylolisthesis.

- “Long-term results suggest that specific exercise therapy in addition to medical management and resumption of normal activity may be more effective in reducing low back pain recurrences than medical management and normal activity alone.”

Hides J.A., Jull G.A., Richardson C.A. Spine, 2001; 26 (11): 243-248.
Long Term Effects of Specific Stabilizing Exercises for First-Episode Low Back Pain.

Studies of sensorimotor function and related training

- “The authors found that reestablishing sensorimotor control should contain the following four elements: dynamic stabilization of the particular joint, rehabilitation of the joint’s sensory motor function, reactive neuromuscular effect and training in functional movement patterns.”

Lephart S.M., Fu F.H. et al. Human Kinetics. Introduction xxii. 2000
Proprioception and Neuromuscular Control in Joint Stability.

- “The authors found that patients with chronic cervical pain could improve this by undergoing a sensorimotor training program.”

Revel M., Andre-Deshays C., Minguet M. Arch Phys Med Rehab, 1994; 75: 895-899.
Cervicocephalic Kinesthetic Sensibility in Patients with Cervical Pain.

Studies of compliance

- “Patients receiving additional written and illustrated instructions had a significantly higher mean compliance (77.4%) compared to the group who received verbal instruction alone (38.1%).”

A.G. Schneiders, M. Zusman, K.P. Singer. Manual Therapy, 1998; 3(3), 147-152.
Exercise Therapy Compliance in Acute Low Back Pain Patients.

5.2. REFERENCES AND RELEVANT LITERATURE

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Specific stability exercises

15. Hides, Jull, Richardson: Long-term effects of specific stabilizing exercises for first-episode low back pain. *Spine*, 2001; 26: E243-8.
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Other

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Read this before beginning to use TerapiMaster. The utmost care has been taken to ensure the safety of the construction of the system as well as in the preparation of the instructions and exercises. Nevertheless, incorrect installation and use may cause serious injury.

6. Installation, safety and liability

6.1. SAFETY AND LIABILITY

Safe ceiling installation

TerapiMaster is intended to be suspended from the brackets in the box, from extensions for extra high ceilings or from a Sliding Suspension System, which can be adjusted to all ceiling heights. The device and suspension systems are so solidly constructed that they can be used safely no matter the user's body weight, if the user follows the instructions and performs the recommended tests. Instructions for installation are found in the packages and in this instruction manual.

We recommend that therapists themselves exercise in the TerapiMaster to become confident with its use and to feel the effect of the exercises on their own bodies. Adjusting the straps and slings is very easy once you learn the technique. For detailed information on the correct use, see page 13 of this instruction manual.



You will find important information on locking and adjusting the straps on the warning signs!

WARNING!



Do not start treatment and exercise before the suspension system has been tested for safety by performing the "jump test." Incorrect installation can cause the ceiling fitting to break while in use. Always exercise from the front side of the device.



Exercising from the wrong side and exercising before you are confident about how to adjust the straps from a reclining position may make it difficult to lower your legs.



Do not start exercising until you have learned how to adjust the ropes by locking and releasing them. It is particularly important to avoid raising your legs from a reclining position before you are confident about how to release the ropes from the rope locks and lower your legs again.



Do not let children play with the device unsupervised.



Use the original screws/bolts only

As the manufacturer and supplier, Nordisk Terapi AS cannot be held responsible for the installation of the device, as that is out of the company's control.

Nordisk Terapi AS denies any liability for accidents due to incorrect installation and incorrect use in accordance with these instructions.

6.2. INSTALLATION

Proper placement of TerapiMaster

Find a suitable place where there is plenty of room to exercise with TerapiMaster (preferably one body length in all directions). Note: Taking TerapiMaster down after use is easy, so the device can be moved between alternative locations or taken down when not in use.

Ceiling height

The standard suspension brackets that come with the device are suited to ceiling heights of between 220 and 260 cm. For higher ceilings, contact your dealer or Nordisk Terapi AS to order an installation set for high ceilings. State the ceiling height and ceiling material.

Wooden ceilings

Equipment: Drill for using the enclosed Allen key or a 4 mm Allen wrench.

- Make sure you are installing the brackets in the ceiling joists and not just in panels or wallboard.
- Mark off two points exactly 60 cm apart (standard distance between joists) and screw in the two brackets with one screw in each bracket. Use the 100 mm wood screws and the enclosed Allen key. Note: Use the same round hole in both brackets on account of the distance between the brackets.
- Check that the brackets have been mounted at the correct distance by hanging up the device. Then install screw number two in each of the brackets.
- The screws can be screwed in using a drill without drilling a screw hole. Oil, wax or soap on the screws makes it easier to screw them in. If screw holes are necessary, a 3.5 mm bit is recommended.

Concrete ceilings

Equipment: Drill with an 8 mm masonry bit and 13 mm open-end wrench.

- Make sure that the ceiling is concrete and not made of a porous material with a poor load capacity.
- Mark off two points exactly 60 cm apart and drill two holes 40 mm deep with an 8 mm masonry bit.
- Push or pound in the 8x50 mm expansion bolts (avoid hitting the nut so as not to damage the threads).
- Thread the brackets through the oval hole, adjust the distance between the brackets and tighten the bolts.

Porous ceilings

Do not install TerapiMaster in lightweight aerated concrete (Ytong, Siporex or Leca) ceilings using the above-mentioned procedures. Contact your dealer or Nordisk Terapi AS to order a special installation set for porous ceilings.

Other suspension systems

If you have a lowered ceiling or ceiling panels, contact your dealer or Nordisk Terapi AS to order an installation set for lowered ceilings. Other special suspension systems facilitate installation on the side of rafters/beams and above door openings, on walls, where the brackets can be swung out, etc. For assistance, contact your dealer or Nordisk Terapi.

Hang up the TerapiMaster device as illustrated. If the brackets do not line up with the fittings on the TerapiMaster when installing on a concrete ceiling, loosen the bolts and adjust the brackets.

See separate instructions for suspension of a Sliding Suspension System.



The photo illustrates the jump test.

Testing the load capacity and installation/jump test

If you followed the instructions for installation, only one test remains before TerapiMaster can be used safely:

Lower the straps to approx. 10 cm above floor level. Put your foot in one strap and jump up and down, using your full body weight. Repeat the test on the other strap. You have now tested that each installation point can tolerate a load far exceeding your body weight. TerapiMaster is ready to be used for treatment and exercise. If at a later time you are uncertain about the mounting, repeat the test.

If you are in doubt about the mounting, contact your dealer or Nordisk Terapi AS.



**Strength, stability and sensorimotor
function for the entire body**

TERAPI MASTER[®]

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