

8.3 Therapeutic Exercises on the Mat

The selection of **mat exercises during therapy** follows the objectives of the relevant phase of rehabilitation (► Sect. 7.2). Corrections received during an exercise session should be consolidated with exercises at home.

❗ The selection of mat exercises corresponds to the character of the respective phase of rehabilitation.

■ Rehabilitation Phase I

Objectives Dissociation, static stability.

Mat Exercises (► Overview 8.2)

■ Overview 8.2 Mat Exercises for Rehabilitation Phase I

Exercises	Chapter
Pre-Pilates Exercises	► Sect. 5.1
Breathing	► Sect. 5.1.1
Shoulder Drops	► Sect. 5.1.3
Dead Bug	► Sect. 5.1.5
Book Opening	► Sect. 5.1.10
Side Kick Series	► Sect. 5.1.11
Quadruped	► Sect. 5.1.18

■ Rehabilitation Phase II

Objectives Supported mobility, mobility in a single movement plane.

Mat Exercises (► Overview 8.3)

■ Overview 8.3 Mat Exercises for Rehabilitation Phase II

Exercise	Chapter
Hundred (modified)	► Sect. 5.2.1
Pelvic Clock	► Sect. 5.1.2
Chest Lift	► Sect. 5.1.4
Single Leg Stretch	► Sect. 5.2.6
Single Leg Circles	► Sect. 5.2.4
Single Leg Kick	► Sect. 5.2.13
Swimming (modified)	► Sect. 5.2.15

■ Rehabilitation Phase III

Objectives Dynamic stability, mobility in multiple planes.

Mat Exercises (► Overview 8.4)

■ Overview 8.4 Mat Exercises for Rehabilitation Phase III

Exercise	Chapter
Side to Side	► Sect. 5.1.6
Bridging	► Sect. 5.1.7
Assisted Roll Up/Roll Down	► Sect. 5.1.9
Side Lift	► Sect. 5.1.12
Spine Stretch I	► Sect. 5.1.13
Mermaid I	► Sect. 5.1.14
Scarecrow	► Sect. 5.1.15
Swan	► Sect. 5.1.16
Dart	► Sect. 5.1.17
Standing Roll Down	► Sect. 5.1.19
Standing Balance	► Sect. 5.1.20
Hundred	► Sect. 5.2.1
Criss-Cross	► Sect. 5.2.7
Bridging II	► Sect. 5.2.8
Mermaid II	► Sect. 5.2.9
Spine Stretch II	► Sect. 5.2.10
Spine Twist	► Sect. 5.2.11
Swan Dive	► Sect. 5.2.12
Side Kick Series	► Sect. 5.1.14
Leg Pull Front	► Sect. 5.2.16
Side Bend	► Sect. 5.2.17

■ Rehabilitation Phase IV

Objectives Integration.

All exercises can be intensified, by **alterations** to:

- Tempo
- Movement path
- Lever length
- Base of support
- Instruction

That is, all exercises from the first three phases of rehabilitation can be made more difficult in Phase IV, and three new exercises have been added.

Mat Exercises (► Overview 8.5)

■ Overview 8.5 Mat Exercises for Rehabilitation Phase IV

Exercise	Chapter
Roll Up	► Sect. 5.2.2
Rolling Like a Ball	► Sect. 5.2.5
Standing Single Leg Balance	► Sect. 5.2.18

■ Table 8.16 Comparison: equipment vs. mat

	Mat exercises	Pilates equipment	Conventional training equipment
Resistance	Gravity	Steel springs	Weights
Orientation	Open	Guided	More difficult
Character	Complex	Assistive/active	Active/resistance
Learning effect	Challenging	Measured	Low

8.4 Aspects of Training

8.4.1 Comparison: Equipment vs. Mat

The fundamental difference between exercises with and without equipment is the ability to add **resistance**. Resistance provides sufficient stimuli to the muscles, resulting in increased strength. Some conventional training equipment also allows for the development of strength in an eccentric direction, with a lengthening stimulus, in addition to concentric development.

For designing an **exercise session on the mat**, the options include:

- Orientation in space
- Acting force of gravity
- Exercise choreography

The main difference between **Pilates equipment** and conventional training equipment is that it can be used to support a **learning process**.

Whilst increased strength and flexibility are also objectives, they are primarily fulfilled through the training of **inter- and intramuscular coordination**.

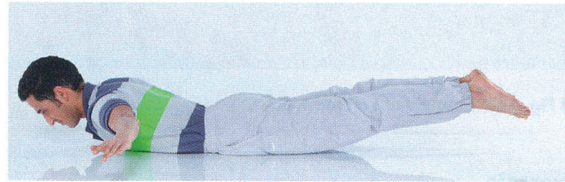
The **assistive** use of Pilates equipment supports the transfer of learning and training effects, between the mat, equipment and functional daily life. The Pilates equipment can be used for **strength training against resistance**, but without neglecting the fundamental principles of Pilates training.

Ideally **mat exercises for home** should be instructed during every training session, usually toward the end of the hour. The benefits of the exercises are consolidated, and the client/patient can prepare for increasingly challenging exercises, during the next session.

■ Table 8.16 summarizes the comparison equipment vs. mat.

8.4.2 Movement in Muscle Chains

Important biomechanical changes can be made to a movement, by adjusting the relationship of the body to the supporting surface and gravity. To understand these changes, a few important concepts are introduced below.



■ Fig. 8.61 Example of an open chain

■ Open Chain (■ Fig. 8.61)

❗ A movement in which the movement path is not connected to a solid surface at the distal end is referred to as an open chain.

Biomechanically, the center of movement is not connected with a solid base, and therefore depends on itself for stabilization and execution of the movement. The motion is usually more exhausting and unstable. An open chain is typical of certain movement sequences and joint functions.

Example Open Chain

- Throwing a ball or
- Swinging the leg when walking.

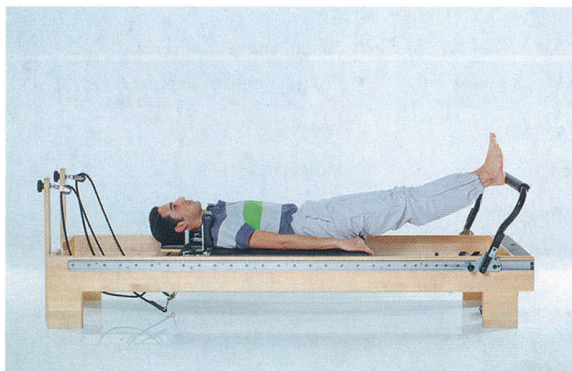
These movements are stabilized by structures nearer to the trunk.

If the structures nearer to the trunk are not adequately stabilized, deviations from the ideal line of movement can arise, resulting in inaccurate movements and nonphysiological loading of the passive structures.

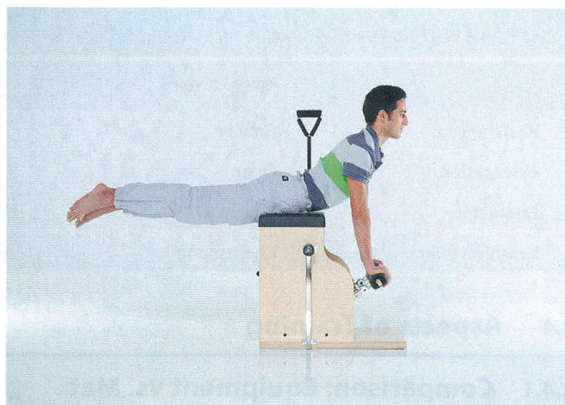
■ Closed Chain (■ Fig. 8.62)

❗ In a closed chain, the active structures (muscles) benefit from the stability of a supporting surface.

The movement lever is connected with a stable base, at the distal end of the movement path. The resulting bridging activity is characterized by stability, and co-contraction of multiple muscle groups.



■ Fig. 8.62 Example of a closed chain



■ Fig. 8.63 Example of a pseudo-closed chain

Example

Closed Chain

- Footwork on the reformer or
- A simple standing squat.

■ Pseudo-closed Chain (■ Fig. 8.63)

- ❗ In a pseudo-closed chain the moving lever has contact with a surface, which is also moving. However, movement takes place in defined planes, providing partial stabilization.

Example

Pseudo-closed Chain

- Leg Pump, seated on the Chair or
- Cycling, with the feet connected to the pedals which move in a fixed path.