

Using the Michelangelo Hand in practice

Therapy and rehabilitation



Quality for life



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Training helps – training to help

The goal of every prosthetic fitting is to restore lost capacities to the best possible extent. In addition to an optimal orthopaedic fitting, targeted training and therapy are especially vital in helping a user realise the full potential of their prosthesis.

This is why Ottobock has developed a wide range of therapy concepts and materials. We want these to provide you as a therapist with sustained

support for your work during training with and without the prosthesis. After all, the success of a prosthetic fitting is measured first and foremost by how well a user can manage their prosthesis in everyday situations – whether at work or in their free time.

This brochure will serve you as a guide as you set up the prosthesis and perform the exercises with the user.

A natural grip

The functionality of the Michelangelo Hand

Michelangelo Hand

The Michelangelo Hand features complex gripping kinematics, a natural appearance and low weight. It is the heart of the new Ottobock prosthesis system.

Main drive

The main drive of the Michelangelo Hand is responsible for the gripping movements and gripping force. Actively driven elements are the thumb, index finger and middle finger while the ring finger and little finger passively follow the other fingers.



Soft fingertips

The fingers of the Michelangelo Hand are based on a natural hand down to the details. For a natural effect, they are made from a combination of softer and harder materials.

Separately movable thumb

The thumb drive permits electronic positioning. Rotating the thumb outward creates a wide Open Palm, so that additional movement options are possible.

Flexible wrist joint

With the lock button, the user can make adjustments to the wrist joint mode: flexible or rigid mode can be selected as desired.

Flat oval wrist joint

The oval hand adapter looks very natural. Flexion and extension (bending and stretching) are based on the relaxed wrist (flexible mode).

Release buttons on both sides

By simultaneously pressing the release buttons, the Michelangelo Hand can be removed from the socket.



AxonRotation – active or passive rotation

The Michelangelo Hand is combined with passive or active rotation. In the case of passive rotation, the hand is positioned by the healthy hand. With Active Rotation, the user can rotate the Michelangelo Hand to the inside and outside via myosignals.

Unique functionality

Thanks to four movable fingers and a thumb that can be positioned separately using muscle signals, the Michelangelo Hand offers innovative, never-before-seen gripping kinematics. With the flexible wrist joint mode, the various gripping modes and hand positions plus active inward and outward rotation, compensating movements are reduced to a minimum. Natural motion patterns are possible and all work processes are made considerably easier.

Natural design

The Michelangelo Hand features an impressive natural design. The fingers are made of both soft and hard materials. Their details, like those of the flat, oval hand adapter, are based on nature as a model. Prosthetic gloves for daily use are available to the user in different tones as well as a translucent and a black version. The design has already received numerous awards – the 2011 German Design Award, Selected, as well as the 2011 red dot product design award.

The big plus

The Michelangelo Hand together with the AxonRotation is a milestone in prosthetic fittings. Thanks to its special product characteristics, it offers users a whole new level of freedom of movement for their everyday life, work and free time. These new product features are identified with a red “plus” in the following sections.

Be sure to point out these new functions to the user and integrate them into the prosthesis training.



reddot design award
winner 2011

Notes regarding use

You will find basic information about the use of the Michelangelo Hand in the sections that follow.

Charging the battery

To charge the battery, the charging plug is connected to the charging receptacle with the help of an integrated magnet. The special contour of the receptacle and plug ensures that the two components are aligned quickly and easily. LEDs indicate the status of the charger and the current battery capacity.

LED display for the current battery charge level

In order to display the battery capacity, briefly press the charging receptacle button (for less than one second): the LED display will light up and indicate the current battery capacity by colour.

Switching on and off

To turn on and off, briefly press the charging receptacle button (approximately one second). Two short signals are emitted to confirm that it has been turned on; the LED display lights up briefly. An audible signal will confirm that it has been turned off.

Activating the Bluetooth® function

When the prosthesis is turned off and the charging receptacle button is pressed for more than four seconds, the prosthesis Bluetooth® function will be activated: the LED display will flash blue.

Opening the prosthesis in an emergency

To open the prosthesis in an emergency, press the charging receptacle button for approximately seven seconds. The button should be pressed and held until the hand opens and the prosthesis turns off.

Connecting /disconnecting the gripping component to/from the socket

- Disconnecting the gripping component from the socket: turn off the prosthesis; push both release buttons on the wrist joint simultaneously
- Connecting the gripping component to the socket: slide the gripping component onto the socket (locks automatically)

Care instructions

- Cleaning the inner socket: use DermaClean and a damp cloth
- Care and cleaning of the glove: regular cleaning with water and soap is usually sufficient to remove small amounts of dirt and keep the prosthetic glove clean. Heavier soiling can usually be removed with Ottobock special cleaner (640F12). (Further information: see the instructions for use)

Storage

The user should ensure that the hand is always opened prior to storage.

Active Rotation of the Michelangelo Hand

The Active Rotation feature is equipped with modern, proportional control so it is sensitive and functions exactly with the muscle signals. Proportional control is possible for both movements, the gripping function of the Michelangelo Hand and the turning movement of the rotation feature. Rotation assists users in numerous bimanual (two-handed) activities in everyday life and at work. With the flexible wrist joint mode of the AxonWrist, the various grip types of the Michelangelo Hand and with the active AxonRotation, compensating body movements are reduced to a minimum.

Automatic Neutral Position

When the hand is not holding an object and the user relaxes the myosignal, the hand automatically turns to a relaxed, Neutral Position with the active AxonRotation. The user therefore automatically knows what the starting position is. This reduces the concentration required while gripping and makes controlling the prosthesis more intuitive.

Hand positions

Lateral Mode



Lateral Pinch

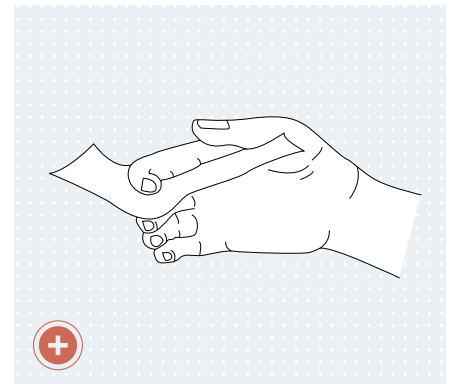
The thumb moves laterally to the index finger so the user can grip flat items from the side.



Lateral Power Grip

The thumb moves laterally to the index finger so the user can grip objects of medium size from the side.

Lateral Mode + Opposition Mode



Finger abduction /adduction

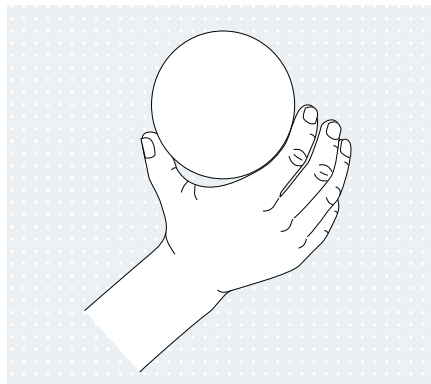
Finger adduction takes place when closing the hand. This allows the user to grasp a flat object (<3 mm) between the fingers. Abduction takes place automatically when opening the hand.

Opposition Mode



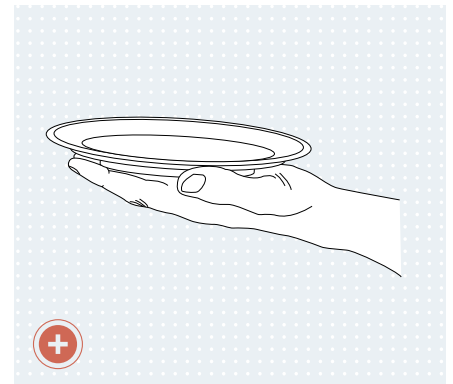
Tripod Pinch

The thumb, middle finger and index finger form a three-point support – so the user can hold small objects securely.



Opposition Power Grip

The opening width allows the user to hold objects with a large diameter.



Open Palm

In the open hand position, the thumb is at a far palmar location: the user achieves a flat hand position.

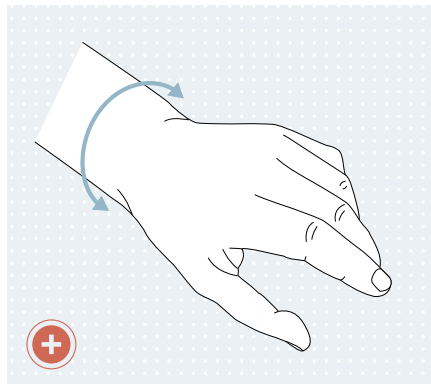
Neutral Mode



Neutral Position

Rest position with a natural, relaxed appearance.

Rotation Mode



Rotation Mode

With Active Rotation, the wrist joint can be rotated without assistance from the other hand.

All around care with Michelangelo

Ongoing support for the user is crucial for the successful use of the Michelangelo Hand. Cooperation between all participants is vital: the doctor, therapist, technician, the user as well as the people they interact with. Teamwork is the key!

The focus of this brochure is on rehabilitation. Successfully completing the preceding steps in the fitting process is a prerequisite.

The sequence and the specific steps for prosthesis training are described in greater detail below.



Therapy

Therapeutic measures then follow with the purpose of preparing the user for a prosthetic fitting.



Assessment

A personal interview and thorough physical examination are carried out at the beginning of a fitting.



Continuous control

The fitting team maintains ongoing contact with the user.



Fitting recommendation

The user learns which prosthesis is most suitable for them, and what personal objectives can be pursued.



Taking measurements

The prosthetist takes the user's body measurements and makes a plaster cast.



Production

In the next step, the custom prosthesis is fabricated for the user.



Trial fitting

During the trial fitting, the prosthetist adapts the prosthesis to the individual needs of the user.



Rehabilitation

Here the user learns how to correctly handle the prosthesis in daily life.



Quality control

In the rehabilitation team, the user discusses to what extent they are able to handle the prosthesis.

Physical Training







Rehabilitation starts here

Harmonising prosthesis training with the wishes, needs and personal situation of the respective user is absolutely essential for overall success. The following aspects play a crucial role:

Cause of the amputation, initial or subsequent fitting, unilateral or bilateral fitting, social environment, occupation, interests and hobbies – as well as motivation and mental condition at the outset in particular. In order to achieve the best possible fitting result, consult with the interdisciplinary team and – if possible – also involve family members. Before training actually starts, a detailed diagnosis is required; general and specific information about the affected side of the body should be requested and subsequently verified.

Anamnesis and diagnosis

General information about the person	Body weight, body size, date of birth, dominant hand, occupation, recreational activities, environment, locomotion, etc.
Information on the affected side	Unilateral or bilateral, amputation level, residual limb length, etc.
General state of health	Heart disease, circulatory disorders, cancer, dizziness, allergies, pain and other complaints, other diseases, limitations of functionality, devices, medications etc.
State of health on the affected side	Amputation or congenital deformity (dysmelia), pain, phantom pain, residual limb load bearing capacity, sensitivity, soft tissue coverage, scarring, joint diagnosis, contractures, muscle status, volume, etc.
Abnormalities of the contralateral side	Pain, sensory disturbances, skin condition, joint diagnosis, muscle status, etc.

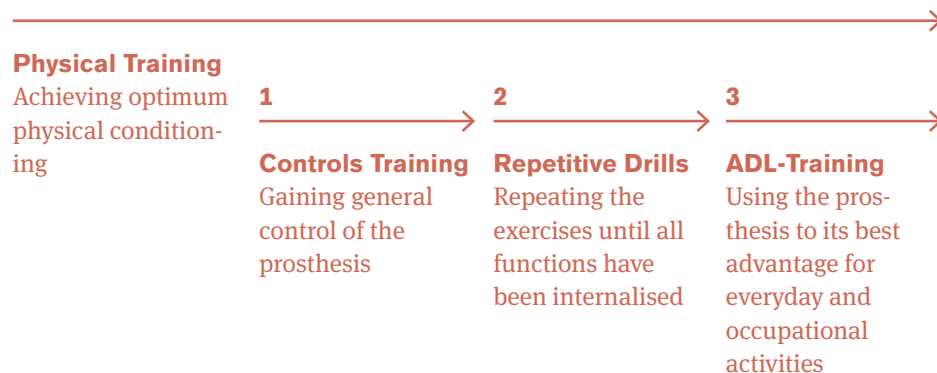


Professional prosthesis training in three phases for success

For optimum results, prosthesis training is divided into three phases that build on each other. In each phase, you should practise with the prosthesis user and motivate them to train independently until they feel confident and are able to use the Michelangelo Hand reliably.

It is important to begin the training units with simple exercises, only transferring to applications for everyday life gradually. Focus on experiencing success! This prevents the user from demanding too much of themselves and getting frustrated.

Physical training should take place before, during and after the prosthetic fitting.



Finding the right way: training principles

The patient's optimal mental and physical condition is an important prerequisite for prosthesis training. Incorporating work, hobbies and personal interests is helpful in order to tailor prosthesis training to their needs – for the successful use of the Michelangelo Hand and overall rehabilitation.



Training recommendations

Based on scientific findings, training with myoelectric prostheses should be carried out systematically, building step-by-step. Below you will find important training recommendations that will help you train the user in the controlled and precise management of the prosthesis both quickly and easily.

Initial positions

It is best to begin the exercises in a sitting position. To increase the level of difficulty, have the user perform the exercises in a standing position, then while walking, and finally while walking on uneven surfaces.

Support

The user can initially support the prosthetic arm on a table or in their lap.

Axes and planes

Get the user to complete the exercises in various axes and planes: first close to the body and far away from the body, with or without crossing the centre of the body and at various heights – overhead, at the sides of the body or close to the ground.

Visual verification

At first the user completes the exercises with visual verification (the user looks at the prosthetic hand). Then let the user know that the training goal is to complete the exercises with as little visual verification as possible (“automatic” gripping and releasing – without looking).

Gripping strength control

Controlling gripping strength whilst grasping and releasing objects of different consistencies is difficult with a prosthesis because of the lack of sensory feedback. Training to improve gripping strength control takes considerably longer than gripping objects and should be a component of every training unit. Guide the user gradually through the training:

1. Indirect gripping: An object is passed from the healthy hand to the prosthesis hand and vice versa. The sensory information regarding the object (surface, consistency, elasticity, ...) gained in this exercise leads to easier and better signal control and allocation of the prosthesis' gripping strength.

2. Direct gripping: When directly gripping the objects used in step 1, i.e. picking them up with the prosthesis, the user is missing the advance sensory information. With direct gripping, the user practises closing the prosthesis correctly and positioning it precisely, independent of the object's characteristics.

Gripping speed

As training progresses, encourage the user to complete familiar exercises with a grip force and speed adapted to the respective situation and object.

Coordination

Good signal control is evident the more quickly gripping changes can be made (e.g. shorter time between opening and letting go of an object) and the more fluidly the movement is performed (e.g. simultaneously extending the arm and opening the prosthesis).

Training in repetitive blocks of exercises

Combined movement exercises are trained in repetitive blocks. If the user can already perform these exercises easily, vary them to suit their needs.

Physical Training



Building the basics

Trunk stability is a key factor for prosthesis control. Physical training before, during and after the prosthetic fitting prevents secondary problems, boosts self-confidence and improves the user's perception of their body. Physical training should begin even before the prosthetic fitting, as preparation, and should then continue with the

prosthesis after the fitting. Always observe the following factors during physical training:

- User posture
- Coordination and balance
- Strengthening the muscles

User posture

Assist the user in avoiding compensatory movements. Work with the user during all exercises in order to consistently maintain a physiological body posture (which is also the most relaxed). Instruct the user to check their own posture as often as possible with the help of this information – as well as with a mirror. Over time the user will increasingly get a better feel for this and heighten their self-awareness. This helps achieve a relaxed, comfortable body posture more easily so it gradually becomes a matter of course:

- a) Is the body posture upright?
- b) Is the body weight distributed evenly between both legs?
- c) Is the spine rotated as little as possible or not at all?
- d) Are both shoulders at the same height?

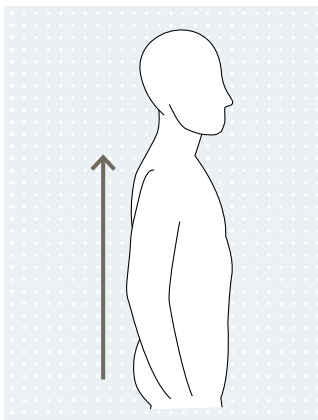
Coordination and balance

The human body attempts to compensate for the missing weight of an amputated arm. As a therapist you know that wearing a prosthesis changes the body pattern again, and this can also affect balance.

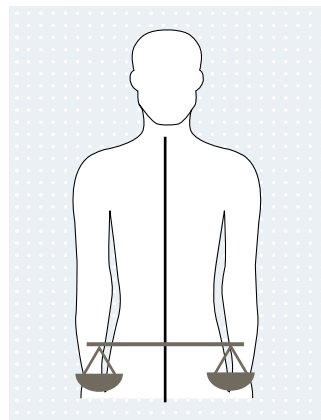
The user's physical balance is improved through coordinative exercises, during which you support the user. Exercises on uneven surfaces and training with the balance board are particularly well suited for this purpose.

Strengthening the muscles

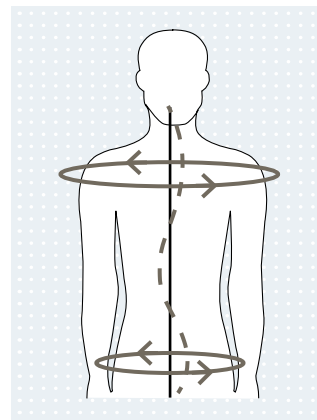
Exercises to strengthen the trunk muscles can, for example, be completed with a flexible strap (Theraband). Regular and long-term training is very important in all cases in order to achieve sustained success. Motivate the user to build up endurance with the exercises – and to participate in sports as well.



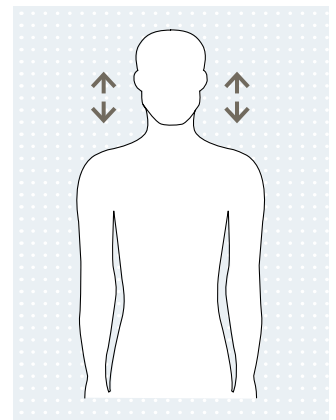
a) Upright, straight posture



b) Balanced stance

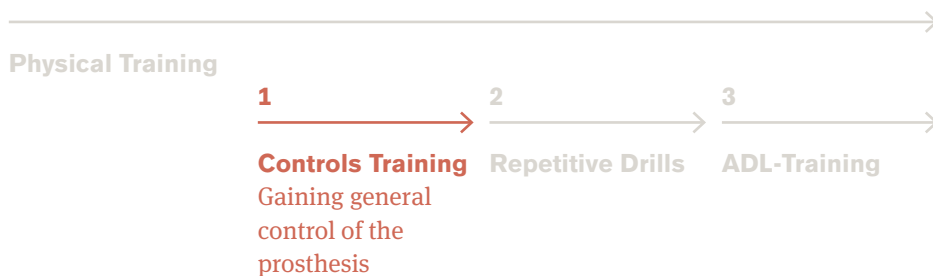
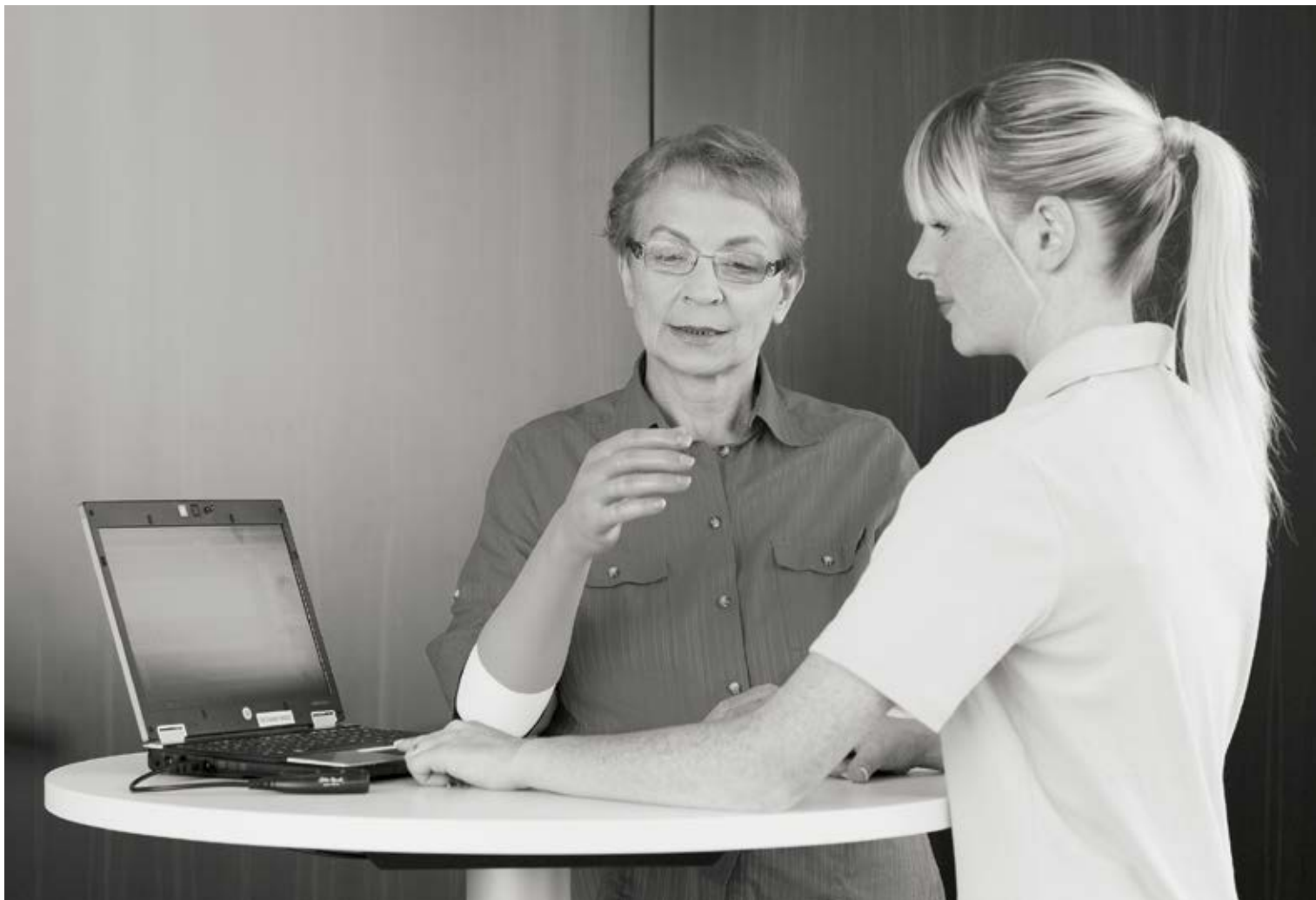


c) Avoid rotation of the upper body and spine



d) Shoulders at the same height (avoid raising)

1. Controls Training



Gaining control

In controls training, you first familiarise the user with the passive functions and neutral mode. Then you help the user in learning the active modes and their functions (through instructions, without objects at this point).

You can also begin this training unit with the AxonSoft software. The goal of controls training is for the user to learn how to precisely control and efficiently use the Michelangelo Hand (this means that the user gains “control” of the prosthesis).

Training prerequisites

Before the actual start of training, you should provide the user with basic information about the new prosthesis. Familiarise the user with donning and doffing the prosthesis, turning the system on and off, the energy supply and the charging process. The myo-test to evaluate the EMG signals on the residual limb is a fundamental prerequisite to individually tailor the hand program and switching mode to the respective user.

1.1 Training the passive functions

Objective

Gaining general control – through exercises without objects

Recommendation

Position

Begin exercises in a sitting position, then continue while standing.

Methods

The user copies the movements of the therapist.

Check

Avoid compensating movements and mechanisms.

Duration

30 minutes per therapy unit, at least one unit each day.

Flexion an extension

The wrist joint offers mechanical flexion/extension and unlimited rotation. Starting from the Neutral Position, the joint can be flexed approximately 75 degrees with five ratchet positions, while extension is approximately 45 degrees with three ratchet positions.

Flexible mode of the wrist joint

Flexible mode simulates the natural movement characteristics of a relaxed wrist joint. This mode is selected by pushing and holding the lock button until it engages. Now the joint can be moved without engaging at the ratchet positions. Pushing the button again terminates flexible mode and the wrist joint engages at the next available ratchet position in rigid mode.

Rigid mode of the wrist joint

If the lock button is only pressed lightly and not to the stop, the user can bring the wrist joint to the desired locking position. Upon releasing the lock button, the wrist joint engages at the next available position. The most important training goal is for the user to be able to use the flexible and rigid modes of the Michelangelo Hand depending on the situation – in other words, to have no problems using the flexible wrist joint and the locking mechanism of the wrist joint for everyday tasks.

Rotation

The Michelangelo Hand can also be rotated manually by 360 degrees – with no limitations. For rotation, the user can select from and switch between 24 ratchet positions spaced every 15 degrees.

1.2 Training the active functions

Recommendation

Modes

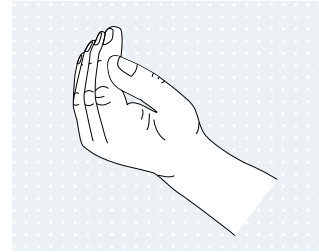
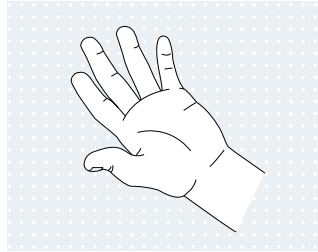
Start training in Lateral Mode, followed by Opposition Mode (especially important for experienced users)

Tip

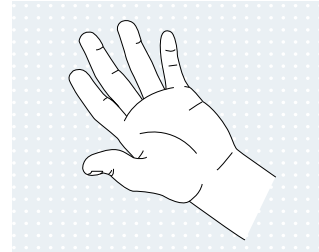
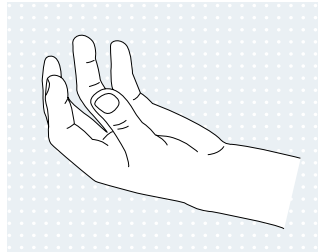
Deactivate neutral mode in AxonSoft at the outset

1.2.1 Training Lateral Mode

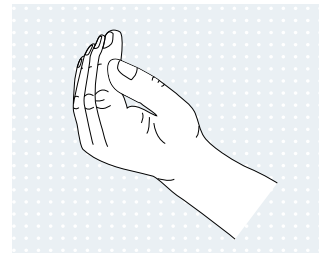
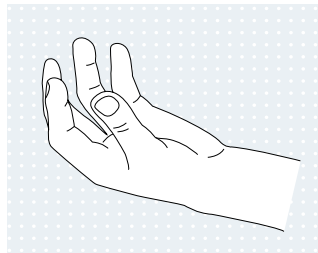
10 repetitions each



Fully opening and fully closing the hand at maximum speed



Half opening the hand, then fully opening the hand, at low speed



Half closing the hand, then fully closing the hand, at low speed

This is followed by combining various tasks.

1.2.2 Training Opposition Mode

Recommendation

It is possible to switch modes in the software with a click of the mouse – without the user having to actively do so.

Tasks (same as for Lateral Mode)

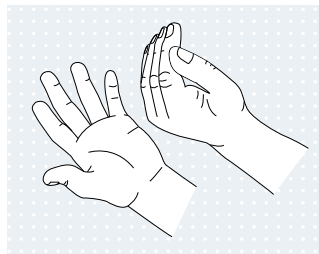
10 repetitions each

1.2.3 Training switching between modes

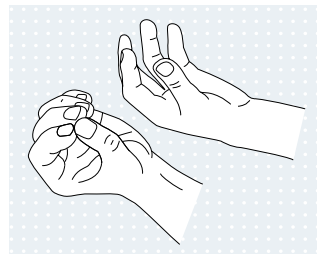
Switching between Lateral Mode, Opposition Mode and Active Rotation

Tasks and situations

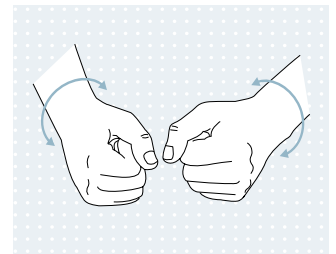
Start in Lateral Mode and then switch to Opposition Mode or Active Rotation



Opening and closing in Lateral Mode



Opening and closing in Opposition Mode



Rotation in pronation and supination

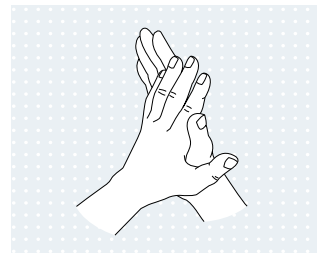
This is followed by various combinations of modes, initial positions and speeds.

1.2.4 Training neutral mode

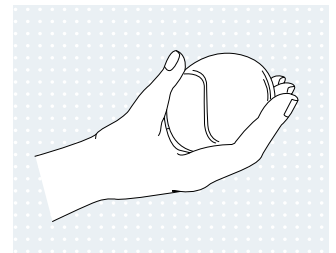
Neutral mode has to be reactivated in the software



Shaking hands, waving, patting on the back etc.



Clapping the hands



Offering something held in the opened hand

Has the goal been reached?

- 90–100% control over the prosthesis achieved.
- Are compensating movements and mechanisms minimised?

2. Repetitive Drills



Gaining confidence

In this phase, the user practises gripping and releasing various objects in different planes and axes. Lateral Mode comprises entirely new functions for the hand positions and should be selected as the standard mode.

When choosing the objects, be sure to select the greatest possible variety in terms of size, shape, surface characteristics and resistance. The user has to practise and repeat the exercises many times in order to internalise the functions and control of the Michelangelo Hand.

2.1 Training the various modes and hand positions

Objective

Confidently gripping and releasing various objects in different modes and hand positions

Recommendation

Objects/materials

Start with heavy, large, solid objects (no adjustment of gripping force required), then switch to smaller, lighter, softer objects

Check

Watch for compensating movements and mechanisms!

Hand positions

The Lateral Power Grip and Lateral Pinch offer the greatest benefits for the user!

Advantage

Consciously use Active Rotation and the flexible wrist joint to prevent compensating movements

Duration

One to several hours per day

Tip

Functional games that require the frequent repetition of certain movement patterns, e.g. solitaire or memory



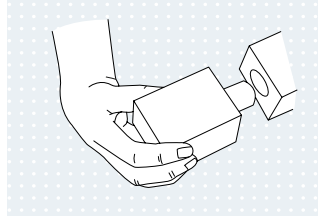
Make sure the user is consciously using Active Rotation during the ADLs described below

Has the goal been reached?

- Has the user understood the functions of the Michelangelo Hand, and is the user able to execute them 90–100 %?
- Are compensating movements and mechanisms minimised?

Tasks

Gripping and releasing various objects in different modes and hand positions. Then while consciously using Active Rotation.



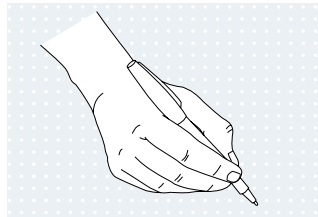
Building blocks

Various sizes and shapes



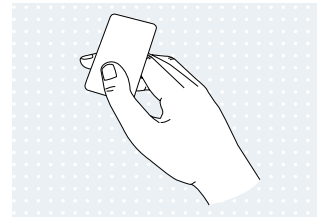
Full water bottle

Gripping a solid object with a larger diameter
→ controlled gripping force



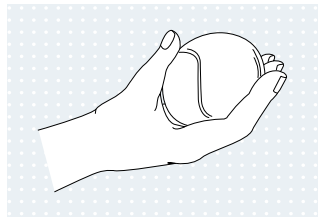
Pencils and pens

Small diameter with smooth surface
→ precise gripping



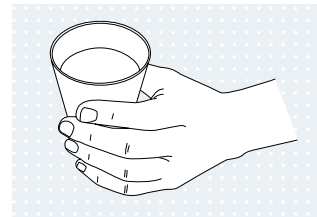
Playing cards, credit cards

Flat object with smooth surface
→ precise gripping



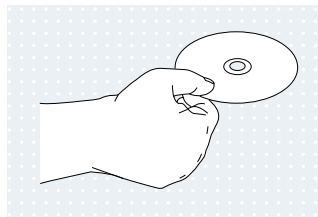
Soft ball

Yielding object
→ adjustment of gripping force



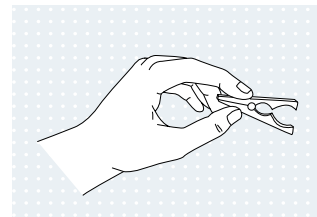
Cup

Delicate material
→ adjustment of gripping force



CD

Flat object
→ precise gripping



Clothes pegs

Tip: therapy clips with different spring force (manufacturer from the USA)

3. ADL-Training: Activities of Daily Living



Learning for everyday life

ADL stands for “activities of daily living”. In the course of ADL training, the therapist and the user should discuss which activities and exercises are most important to the user in their private and

work environments. Be sure to take the wishes and needs of the user into account when establishing the training programme. Begin with three to five activities.

Objective

The user is able to use the prosthesis confidently and to best advantage in everyday life. They achieve maximum autonomy and independence.

Recommendation

Objects and materials

Choose training objects according to the individual work and home situation of the user.

Three new tasks / training units

The exercises should be repeated at home. Increase the daily duration of use for the prosthesis up to full integration in everyday life.



Make sure the user is consciously using Active Rotation during the ADLs described below

Motivation counts

Motivate the user to repeat the exercises independently as “homework” – with objects used in daily life. Build on this foundation with the next exercises in the subsequent therapy session. Add another three activities to the programme.

The personal motivation of the user and the corresponding experiences of success play a crucial role in the training progress. Always ensure that the exercises meet the needs of the user and their personal situation – during leisure activities and sports (social component) as well.

There is no single right solution for training and implementing the exercises. The user can always choose from several options. They can decide which mode and which hand position are best suited for the respective situation. Select unilateral as well as bilateral exercises in order to develop the coordination of both hands. During bilateral activities, pay particular attention to whether Active Rotation is being adequately used.

Sequence of the exercises

For easier orientation, the ADL training exercises in this brochure are grouped by the various modes and hand positions offered by the Michelangelo Hand. In the course of training with the user, you can combine the exercises in any desired sequence. Ideally the user will assign them to the everyday situations and activities that are relevant for them (dressing, eating and drinking, workplace activities such as using a keyboard, leisure time, personal hygiene, etc.). The degree of difficulty should be increased from simple exercises (folding a towel) to more demanding tasks (preparing meals).



We have compiled a training DVD with additional practical exercises for **users**, allowing them to independently explore the material in greater depth. The user receives this DVD with the Michelangelo Hand.

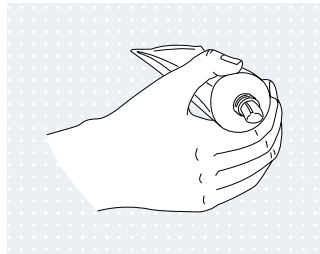
Therapists receive the training DVD as part of the Ottobock certification process.

3.1 Lateral Mode

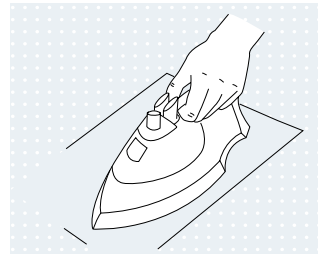
Lateral Power Grip, Lateral Pinch, finger abduction/adduction

Lateral Power Grip

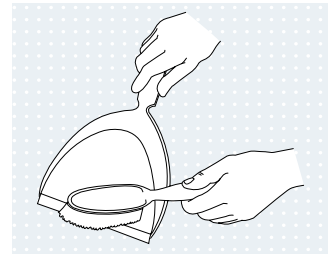
The thumb moves laterally to the index finger so that objects of moderate size are gripped sideways.



Holding toothpaste



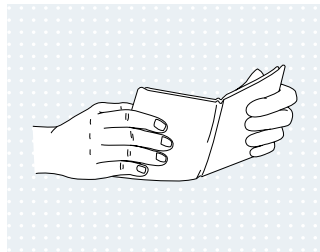
Ironing clothes



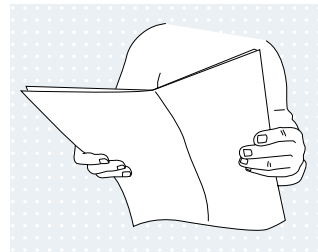
Using a hand broom and dustpan

Lateral Pinch

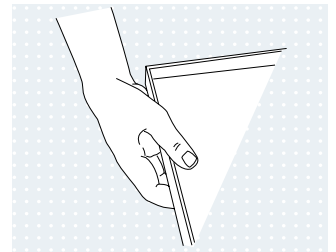
The thumb moves laterally to the index finger so that flat items are gripped from the side.



Holding a wallet




Reading a newspaper

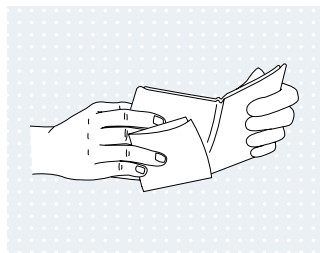


Holding and carrying a tray

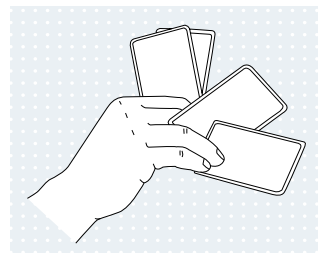
Finger abduction/adduction

Spreading the fingers allows several flat, thin objects to be held between the fingers.

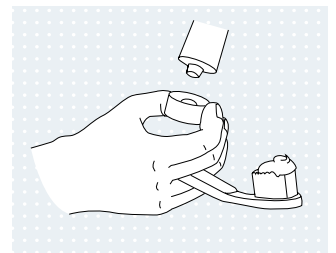
 Finger abduction/adduction is also possible in Opposition Mode!



Holding banknotes



Using a credit or business card



Holding a toothbrush and toothpaste

3.2 Opposition Mode

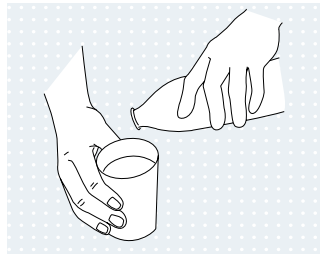
Opposition Power Grip, Tripod Pinch, Open Palm and finger abduction/adduction

Recommendation

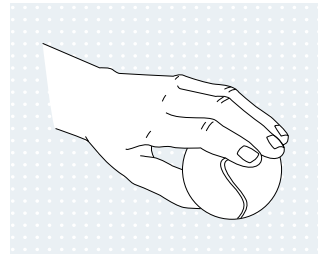
The prosthetic hand is almost always used to secure the object.

Opposition Power Grip

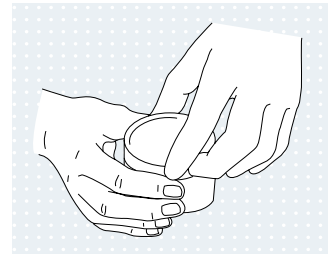
The opening width allows the user to hold objects with a large diameter.



Opening a bottle and holding a glass



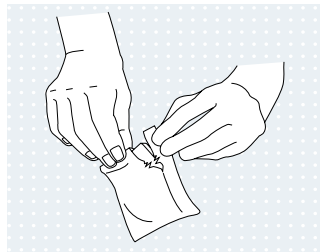
Grasping and holding a tennis ball



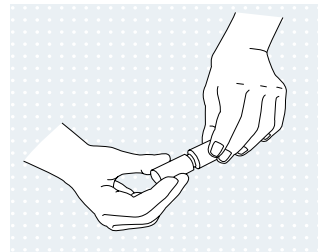
Opening and holding a cream container

Tripod Pinch

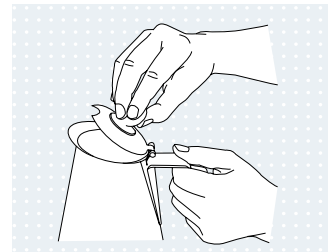
The thumb, middle finger and index finger form a three-point support to hold small objects securely.



Opening a cereal bar



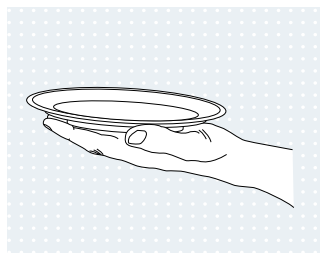
Using lip balm



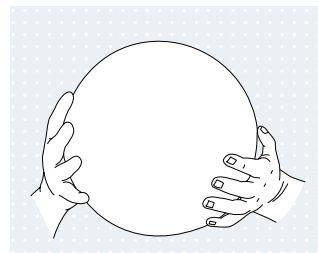
Lifting the lid off a pot

Open Palm

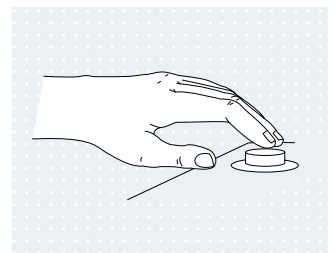
In the open hand position, the thumb is spread away from the palm so that a flat hand position is achieved.



Carrying a plate



Holding a large ball with both hands



Pressing a button

3.3 Active Rotation

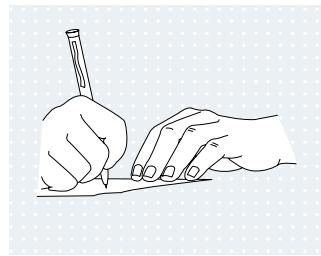
Active Rotation

It is possible to switch to Active Rotation from every hand position. This allows activities to be carried out more quickly and precisely.

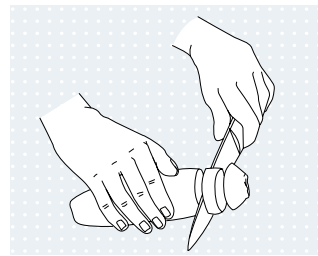
3.4 Neutral Mode

Neutral Position

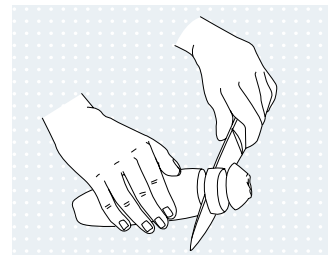
Natural, physiological appearance in the rest position.



Holding a piece of paper while writing



Holding bread or vegetables while cutting



Putting on clothes/a jacket

New freedom of movement

Is the user familiar with all ADL exercises? Keep motivating the user to gradually integrate the training units into everyday situations: at work, at home and during leisure activities. Your support and motivation count! It is important for every user to become acquainted with all of the ADL exercises – and therefore all movement possibilities of the Michelangelo Hand. This allows the user to decide which of them are most important for their daily life. These exercises and training units will surely be used more than others.

Always allow the user to practise the ADL exercises as long and intensively as is beneficial – so that the user is motivated to also continue training on their own. Experiencing success is important!

Through this process, the “exercises” soon become entirely natural movement patterns that get progressively easier for the user. With your help, the user will become more independent and gain new freedom of movement with the Michelangelo Hand.

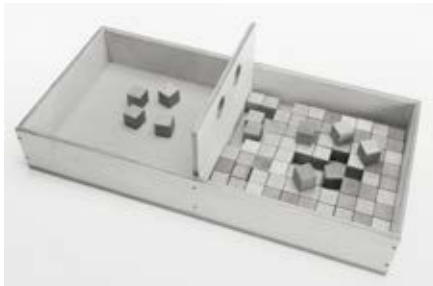
Has the goal been reached?

- Is the user applying the prosthesis to full advantage during activities of daily living (optimum benefit)?
- Has the user achieved maximum autonomy and independence?



Measuring results, enjoying success

The various tests can be used at any time in order to document the training progress and the successes achieved by the user. Such documentation rewards the user and encourages them to continue training consistently. Examples of such tests:



Box and blocks test

A motor function test for the upper limbs: the test task for the user is to move as many blocks as possible from one compartment in the box to the other compartment in 60 seconds.



Clothes peg relocation test

For the clothes peg test, you need the “Rolyan Graded Pinch Exerciser”: How quickly can the user move three therapy clips from the horizontal to the vertical rod?



SHAP Test

For the “Southampton Hand Assessment Procedure”, you need the SHAP kit equipped with eight abstract objects and 14 objects for ADLs (activities of daily living). How long does it take the user to complete certain exercises? This measures the user’s efficiency in using the prosthesis.

Another standardised test method is the **ACMC** test (**A**ssessment of **C**apacity for **M**yoelectric **C**ontrol), which was developed by Liselotte Norling Hermansson and Helen Lindner. The user is observed by means of video monitoring while completing an activity with both hands and the user’s handling of the myoelectric arm prosthesis is evaluated (www.acmc.se).

Follow up regularly

Stay in touch with the user. Follow up regularly, check the prosthesis settings and conduct tests to measure the user’s successes over the long term and to ensure that they are satisfied.



Transition to daily life

The Michelangelo Hand features a wide range of functionality. However, the most important thing is that the user feels safe while using it and gradually learns to use the hand positions and movement patterns to the best possible advantage. Once they have reached a certain level of proficiency, users can practise independently at home.

By doing so, they quickly gain even more confidence in using the Michelangelo Hand. In addition to therapeutic support in the training units, practical exercises are also available on DVD. This can accelerate the users' ability to participate in life more actively and naturally – both at work and during leisure activities.



For further information, please visit the Michelangelo microsite:

www.living-with-michelangelo.com

