MOTOLife

3

Assistive and passive training

CHINESPORT® ITALIA

General list of Chinesport covered topics:

Chinesport thanks all those who contribute to the development of the contents of this document.

UNI EN ISO 9001:2015
UNI EN ISO 13485:2016

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Assistive and passive training

This document is an excerpt from chapter 3 “Assistive and Passive Training”.

Motolife™ - *Introduction*

Motolife™ - *Introduction*

Motolife™ is born with the aim to improve the lifestyle quality, the health state and the psycho-physical wellbeing of all the people who have a physical or neurological impairment of the lower and upper limbs. Therefore, it is of great help for the functional recovery or for the prevention and invertion complications strictly related to the problems of mobility impairment and immobility.

It is adequate for home use or in clinics, medical offices or at therapy centers for exercising the upper and lower limbs.

In order to train with the Motolife™, users must have the condition of managing the device by themselves, after having received specific instructions by specialized personnel. Otherwise, the constant assistance of a properly trained carer is needed during the therapy sessions.

Motolife™ - *Therapeutic indications*

Benefits of the movement therapy with the use of a motorized cycle-ergometer are widely treated in several international papers. They deal mainly with the prevention or invertion of complications which are directly linked to the lack of movement and mobility and especially with the reduction of muscle spasticity, the muscle atrophy caused by immobility, the increase of specific peripheral circulation and the improvement or maintenance of the joint mobility and the slow-down of the case history of neurological pathologies such as a stroke, multiple sclerosis, Parkinson's disease, etc.

USERS

Motolife™ is ideal for users affected by palsy or limited mobility of the legs or arms, caused by:

- Neurological pathologies such as brain stroke, multiple sclerosis, Parkinson's disease, post-polio syndrome, traumatic brain injury, infantile cerebral palsy, cerebral palsy, spina bifida, paraplegia or tetraplegia;
- Orthopedic pathologies such as rheumatism, ostheoarthritis, total knee or hip endoprosthesis, injuries involving the knee joint;
- Metabolism pathologies and of the cardiovascular system (e.g. arteriosclerosis, diabetes mellitus type 2, high blood pressure, PVD, osteoporosis);
- Further therapy for patients under hemodialysis, patients affected by chronic obstructed pulmonary disease or patients with low physical strength in general;
- Circulatory problems at the legs and in the internal organs;
- Geriatric conditions or other problems which lead to the reduction of the movement capacity;

AIMS OF THE TREATMENT

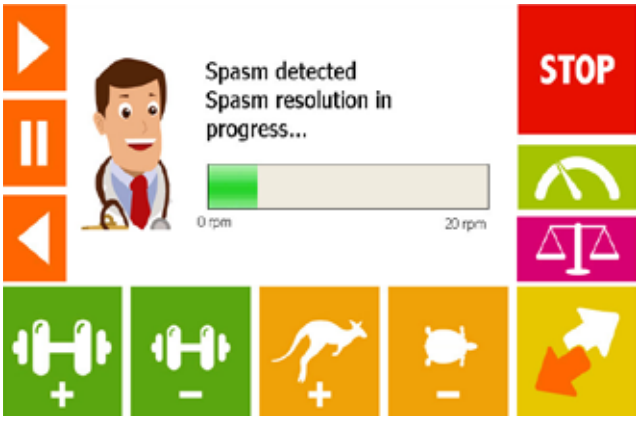
Prevent, reduce and lessen the consequences of the problems related to the loss or limit of mobility especially:

- Avoid muscle weakness;
- Reinforce muscles;
- Reduction of pain;
- Recovery of muscle tone;
- Keep and improve mobility;
- Activate or stabilize circulation;
- Increase resistance;
- Improve cognition and perception;
- Improve symmetry

Motolife™ - *The movement*

PASSIVE TRAINING

In case there is no residual motor activity for the lower limbs, Motolife™ allows to perform passive pedalling movement, in which feet and legs are moved by the motor at a speed previously set (passive kinesitherapy). When used for upper limbs, in case there is no residual motor activity, Motolife™ allows to move passively arms in a cyclic way.



SPASTICITY CONTROL

A safety control is present to detect at all times and in real time if there are any muscular spasms during therapy. The system interrupts the therapy in case a spasm is detected and inverts gradually the direction of the pedalling. The sensibility of the detection can be set to adjust the device in the best way for the user.

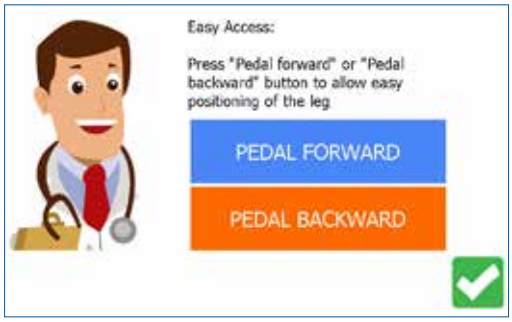
ACTIVE AND ASSISTED TRAINING

Whenever the user is capable of pedalling, even weakly, by using his or her own force, the motor offers assistance to start and maintain the motion at the pre-set speed (assisted movement). If the user is capable of overcome the motor speed and keep an autonomous pedalling Motolife™ can oppose an adjustable resistance in order to increase the muscles work and improve the cardiopulmonary efficiency (active kinesitherapy).
Switching from one mode to the other happen automatically: the on-board computer checks in real time and continuously the force exerted on the pedals, or on the handgrips, by the user and adjusts the level of assistance or resistance of the motor accordingly.

To avoid the risk of high stress over joints and musculoskeletal system, the pedalling speed with legs and arms with Motolife™ is limited to 100 RPM. Whenever the aforementioned speed is reached, the motor limits its further increase.

During passive or active therapies, it is possible to check in real time, on a display, the active work performed by the limbs (power) and the symmetry between right and left limbs which is represented graphically in a simple and intuitive way.

Motolife™ - *Main features*

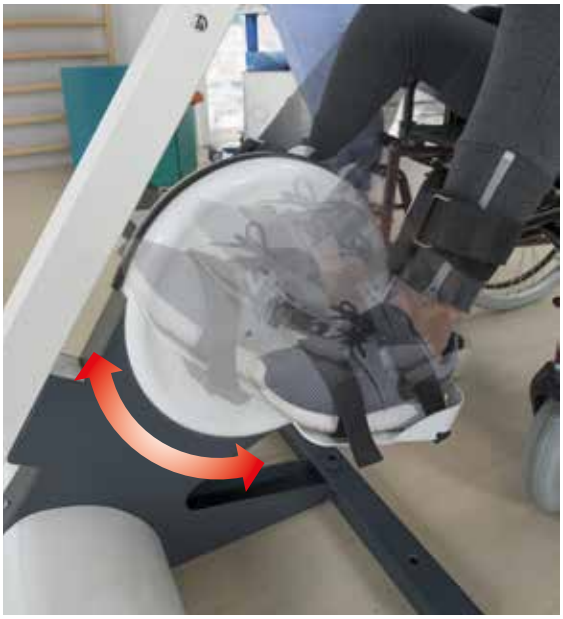


ACCESSIBILITY

The minimum requirement to use the Motolife™ is that the user is capable of keeping an upright position while sitting. It is possible to access to it while still sitting on a wheel chair or any other suitable chair, which must be very stable without castors and which does not swivel. It should have a high backrest. The arrangement of the pedals and of the arm-ergometer as well as the elements of the base have been designed to allow direct access from the patient's wheelchair without having to transfer to any other chair. A power-assisted system helps the positioning of the feet on the safety foot shells.

THE STRUCTURE

The metal structure of the Motolife™, onto which are fixed the motors, the transmissions, the pedals and the handgrips, has been designed to be balanced and resistant to the stress of active pedalling with arms and legs or by eventually muscular spasticity. The broad base and the levelling rubber feet give the structure the best stability on any kind of horizontal floor.



ELECTRONIC FLYWHEEL EFFECT

An electronic flywheel effect has been considered and included to reduce the weight and size of the cycle arm-ergometer and to make it easy to move it around. The continuity of the movement is not assured by a flywheel as in the stationary bicycle, but by a torque effect which is electronically generated in real time by the motor.

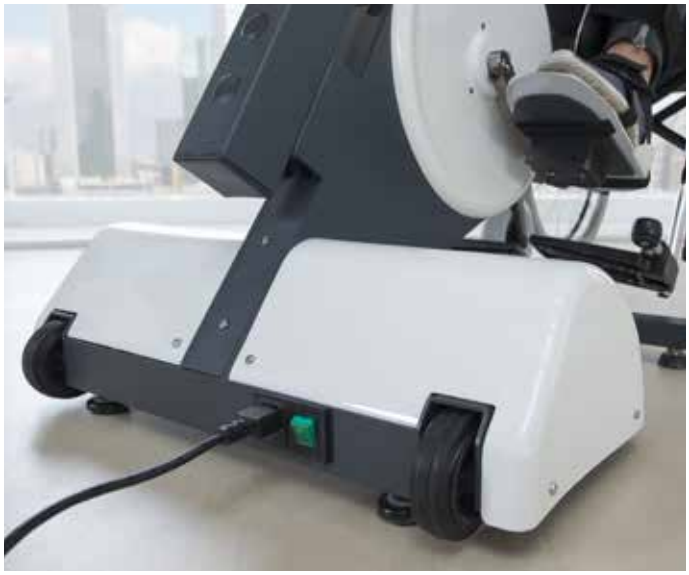
Motolife™ - *Main features*

THE DISPLAY

The big full-color touchscreen display (7”), allows to keep the progress of the exercise under control at all times,with clear and detailed information and it is used to set the parameters of the therapy quickly, by means of big buttons. The buttons are highlighted with different colors for their different functions as well as pictograms for an easier understanding. The colors are vivid but not too bright in order to avoid eye strain.

SAFETY FOOT SHELLS

To allow the use of the device by patients with zero or reduced motility of the feet, the pedals are made with a shell shape which ensures the holding of the foot at the back and side part. The feet are also fixed to the pedals by two velcro straps. Dimensions: W 14 cm x D 28 cm x H 10 cm



INDOOR TRANSFERS

Motolife™ includes a couple of castors with a rubber coating and a large handlebar for easily transferring the device indoors. The large handlebar, in case of the leg model, is also a support for the hands during the therapy.

Motolife™ - *The adjustments*

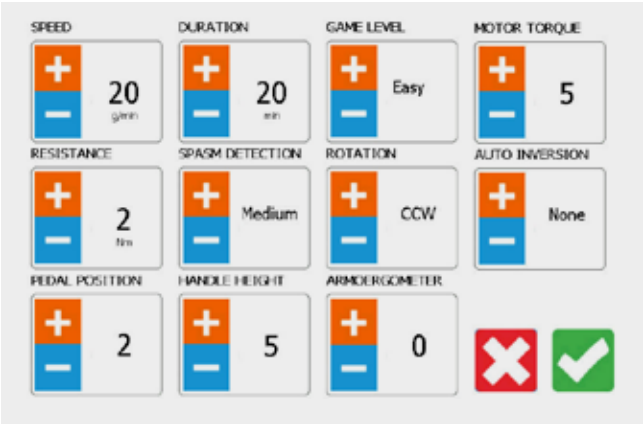
Motolife™ has been tested by physiotherapists and rehabilitation specialists to check its characteristics and functionality, with a special eye for usability and safety. The possibility to adapt Motolife™ to persons of various height and body shapes has been very positive.

HEIGHT OF THE STRUCTURE

The handlebar is adjustable in height, with a total range of 22,5 cm in 10 steps, the arm-ergometer can be adjusted in height from a minimum of 90 cm to a maximum of 109 cm from the floor, to make its use more comfortable. The adjusting mechanism works with a blocking star-shaped knob and a *"loose then pull"*, to ensure safety and repeatability. The lifting is aided by a gas spring which reduces to a minimum the effort for the adjustment.

DEPTH OF THE ARM-ERGOMETER

The arm-ergometer can be adjusted in depth, with a total range of 12,5 cm in 6 steps. This ergonomic adjustment gives more flexibility to the user according to the intended movement that should to be done with the upper limbs. Furthermore, during leg training sessions, the arm-ergometer can be completely pushed backwards to avoid hindering the movement.

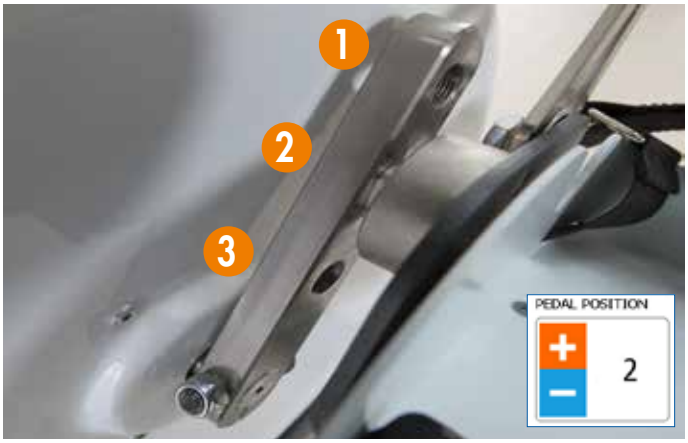


INDIVIDUAL SETTINGS STORAGE

All the working parameters can be adjusted from the therapy settings panel. Because the Motolife™ runs a multiuser software, for each account the settings are kept in a database and can be restored subsequently. Also the parameters regarding the settings of the depth of the arm-ergometer, pedal position, etc. can be stored by using the settings panel and can be restored by the user subsequently.

TILTING DISPLAY

The display support can be tilted even up to a horizontal position. This allows a perfect visibility at any light condition and the possibility for the therapist to set the parameters without the need of having to bend down.



PEDAL POSITION

According the user's ergonomic measurements and to the therapy needs, it is possible to adjust the pedal radius by three sizes: 5 cm, 8,5 cm and 12 cm. For each user the established position can be stored in the settings of the legs therapy and it can be recalled subsequently.

HANDLE POSITION

In the legs and arms version it is possible to adjust also the handgrip position in two different radius sizes:
7 cm and 10 cm. The established position can be stored for each user in the settings of the arms therapy and it can be recalled subsequently.

Motolife™ - *The software*

The software is multi-user, and allows to create, modify and delete different user profiles. The settings are stored for each user in a database and they can be recalled when a given account is selected. The user account stores the settings of the therapy, both for legs and arms. It also keeps a record of all the training sessions for each account.

- The Start/Stop buttons of the therapy have great visibility, they are asy to understand and they are easy to reach, both by the patient and by the caregiver.
- Motolife™ is easy to use at home thanks to its friendly user interface with simple and big buttons, large and colorful icons and a very bright display.
- The setting panel for adjust therapy details and for adjust safety parameters (e.g. spasticity control) are easily accessible and easy to understand.

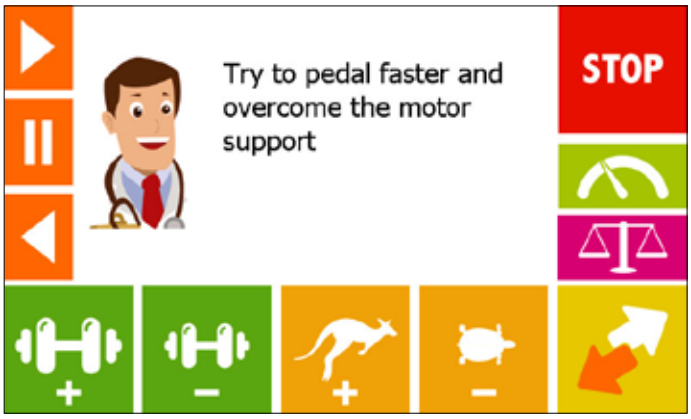
EASY DATA ANALYSIS

By inserting an USB key in the port on the right side of the display it is possible to export data in a text file, in comma separated values (CSV). Such file can be easily imported into an excel file to study the results.

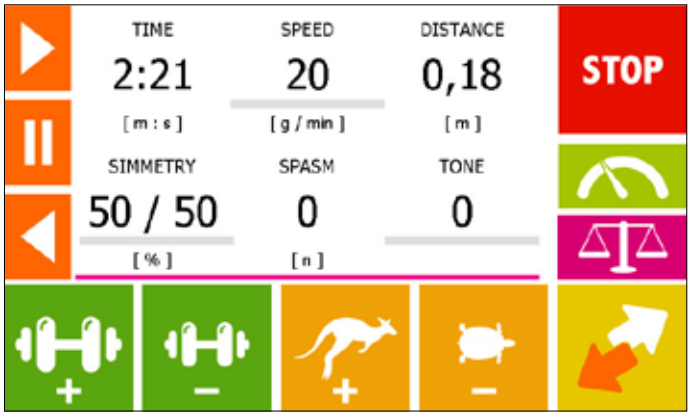
Motolife™ - *The software*

Made in Italy

The software has been designed to be easy to use and with the aim to involve the user in order to keep him focused on the training, and give the feeling of always taken care. The colorful interface and the detailed information, as well as the games, keep a high ratio of interest by the users of Motolife™.



The colorful and easy to use interface keeps the user's attention focused by means of sliding screens which show all the details of the training and aim at improving the exercise by using encouraging sentences which change according to the progress of the session. It is possible to understand in real time the balance between active and passive therapies, having a clear view of the involved key parameters.



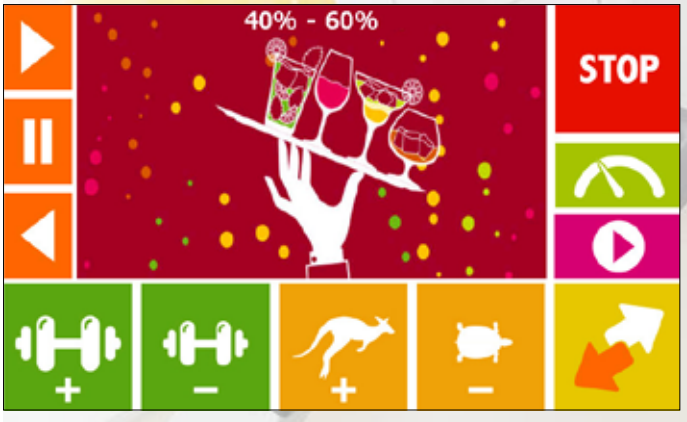
The sliding speed of the screens can be set from the settings panel. During a training session it is also possible to use the side sliding buttons to move forward, backward or block the screens.

Motolife™ - *The software*

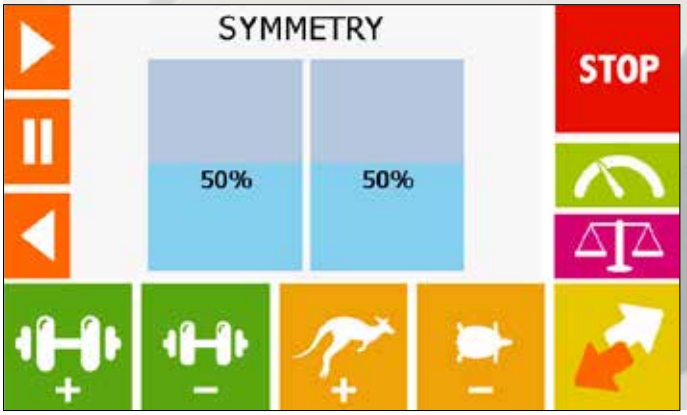
MOTIVATING SOFTWARE

Game-therapy: three different game-therapies with biofeedback are present to improve the involvement of the patient, increasing his commitment during the treatment.

The game related to the pedalling speed shows a ride along a city street. According to the speed of the pedalling the ride becomes faster or slower.



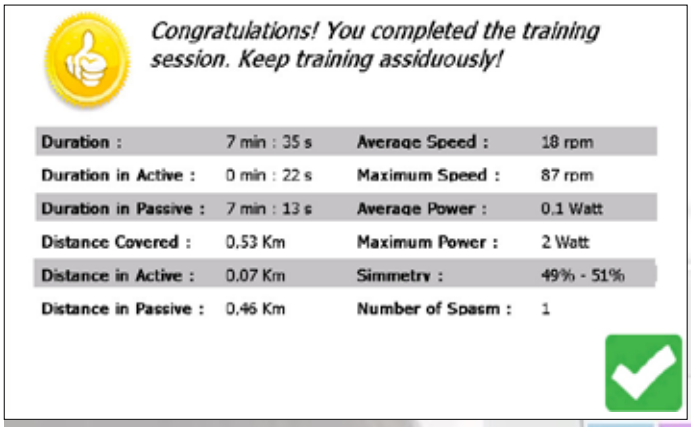
The first game related to symmetry requires balancing a tray and allows the user to be directly involved in the improvement of the balance between both limbs.



The second game related to the symmetry is represented by two colored bars. It improves the involvement of the patient to improve the symmetry of the pedalling.

REPORT

The results, the exercise outcomes and the setting parameters of each session are stored in the database on the device to make it easier for doctors to access them. This helps to check the on-going of the home therapy or its clinical use. It also allows a better control of the progress of the therapy.



At the end of every training session, all the key parameters are listed and divided between active and passive therapy.

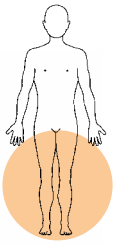
Furthermore, it is possible, from the main screen, to access to the log sessions to view the progress over the time of each parameter.

The Motolife™ database, besides to record the parameters of the therapy for each user, it also allows to export data of all the sessions performed in a given period of time.

Motolife™ - *The models*

AR20011 MOTOLIFE BASIC

The device can be qualified as motorized stationary cycle-ergometer for the movement of the lower limbs. It includes a computerized control system which allows to perform a cycling exercise by pedalling with the lower limbs from a sitting and semi-reclined position. It is possible to access the device while sitting in the patient's own wheel chair. The device is made mainly by a metal structure for the frame which contains the motor for the lower limbs. The frame is also the support for the computer unit with a touch screen display from which it is possible to manage all the functions. It is also the support for the large handlebar for support and transport. In the case there is no residual motor activity for the lower limbs, Motolife™ allows a passive pedalling motion, in which the feet and the legs are passively pulled by the motor at a given pre-set speed (passive kinesitherapy). Motolife™ is suitable for home use as well as for clinics, medical offices and other institutions and it is adequate for passive, assisted or active kinesitherapy. It can adapt itself automatically and in real time to the conditions of the user.
Dimensions: W 52 x D 56 ÷ 70 x H 80 ÷ 100 cm; Weight: 48 kg



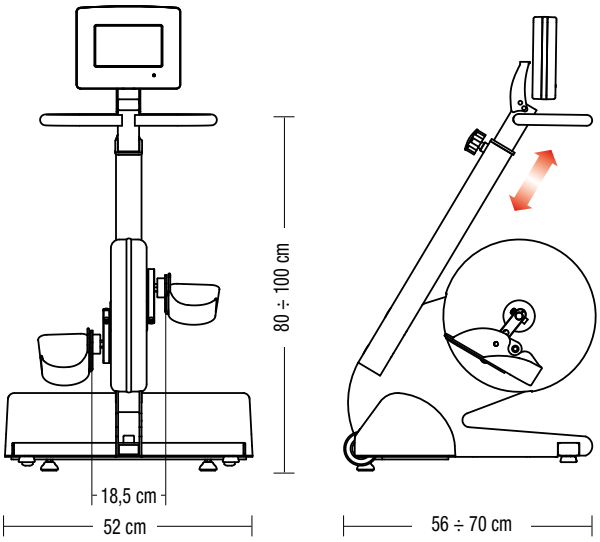
The belts have an adjustable hook anchoring to the structure of the chair.

ACCESSORIES:

AC1076 BELT RETRACTOR
AC1077 EXTRA BELTS
AC1078 LEG SUPPORTS
AC1079 PEDALS FOR CHILDREN
AC1240 ELASTIC STRAPS
AC1241 SOFT INSOLES

CE 0476

TECHNICAL DATA		
User inferface		7'' Colored display with touchscreen
Movement therapy		active, assistive, passive
Resistence levels		20 levels, 2-20 N / m
Standard passive motor speed		60 RPM (Rotation per minute)
Motor speed for Parkinson		100 RPM upon specific request
Max active pedal speed		100 RPM
Motor unit		1
Power supply	Europe	220-240V ~/50-60Hz - 0,83A
	USA, Canada	110-120V ~/50-60Hz - 1,6A
Medical device class		II a
Frame height adjustment		min 90 cm / max 109 cm
Tilt display adjustment		0 - 90°
Pedal radius		3 different positions
Use modality		on wheelchair / other suitable chair
Easy transferring		included 2 castors w/rubber coating
Spasticity control function		3 control levels / Inversion of rotation
Motivating training		Gaming / biofeedback
Individual data storage		Setting parameters and final outcomes
Software update / Data export		by USB key at home



ASSISTIVE AND PASSIVE TRAINING

AR20012 MOTOLIFE EVO

This is a cycle-ergometer for movement therapy of the upper and lower limbs. This model's main feature is the arm-ergometer which features a second stand-alone motor for the movement of the upper limbs. This device provides the possibility of a cycling exercise by pedalling with the lower or upper limbs from a sitting and semi-reclined position. It is possible to access the device while sitting in the patient's own wheel chair. In this model for exercising legs and arms, the structure holds also the arm-ergometer with its motor and handlebar, as well as the motor for the exercise of the lower limbs. When doing the exercises with the upper limbs, if there is no residual motor activity, Motolife™ allows a passive pedalling motion for the arms. Whenever the user is capable of pedalling, even weakly with his or her own muscle strength the motor will provide assistance to start and maintain the motion at a pre-set speed (assisted movement). If the user is capable of reaching a higher speed than the one set the motor will create an adjustable resistance which can be set in order to improve the work of the muscles and the cardiopulmonary efficiency (active kinesitherapy).
Dimensions: W 52 x D 76 ÷ 90 x H 105 ÷ 125 cm; Weight: 56 kg

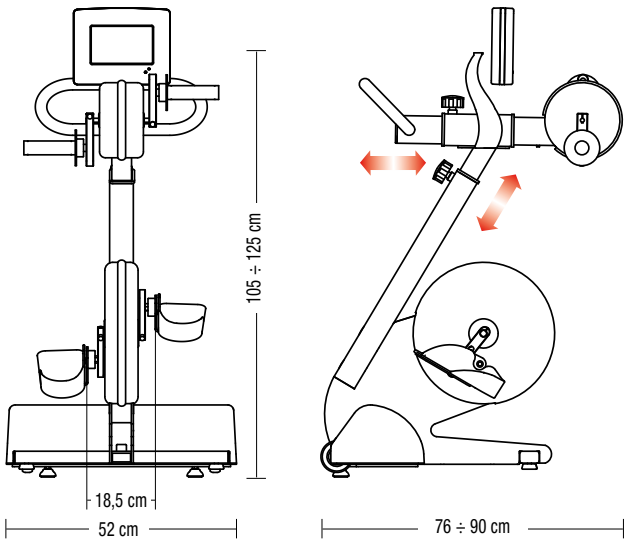
Keeping the patient safely anchored onto the handgrip.

ACCESSORIES:

AC1076 BELT RETRACTOR
AC1077 EXTRA BELTS
AC1078 LEG SUPPORTS
AC1079 PEDALS FOR CHILDREN
AC1080 WRISTBANDS FOR GRIP
AC1081 THERAPY GRIP ARMRESTS
AC1234 VERTICAL GRIP
AC1240 ELASTIC STRAPS
AC1241 SOFT INSOLES

CE 0476

TECHNICAL DATA		
User inferface		7'' Colored display with touchscreen
Movement therapy		active, assistive, passive
Resistence levels	Lower limbs	20 levels, 2-20 N / m
	Upper limbs	2 - 8 N / m
Standard passive motor speed		60 RPM (Rotation per minute)
Motor speed for Parkinson		100 RPM upon specific request
Max active pedal speed		100 RPM
Motor unit		2 / alternative use
Power supply	Europe	220-240V ~/50-60Hz - 0,83A
	USA, Canada	110-120V ~/50-60Hz - 1,6A
Medical device class		II a
Frame height adjustment		min 90 cm / max 109 cm
Arm-ergometer depth adjustment		range of 12,5 cm in 6 pitches
Tilt display adjustment		0 - 90°
Handle radius / Pedal radius		2 different positions / 3 positions
Use modality		on wheelchair / other suitable chair
Easy transferring		included 2 castors w/rubber coating
Spasticity control function		3 control levels / Inversion of rotation
Motivating training		Gaming / biofeedback
Individual data storage		Setting parameters and final outcomes
Software update / Data export		by USB key at home

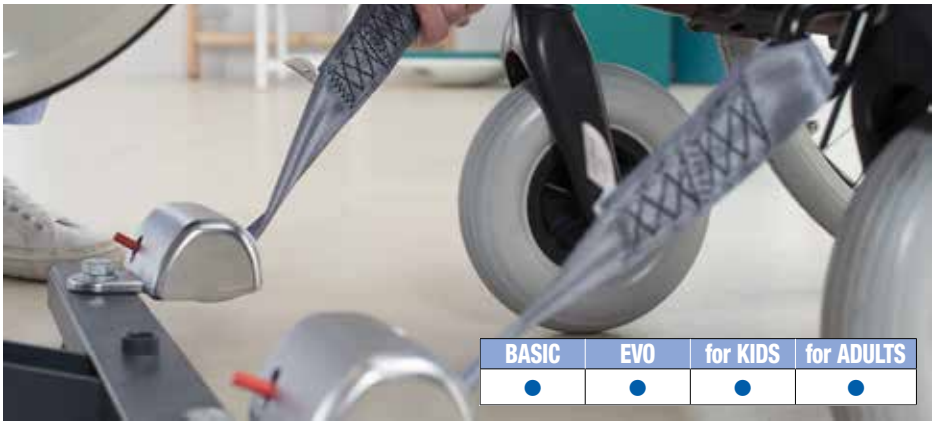


Motolife™ - *Accessories*

FOR ANCHORING THE WHEELCHAIR

AC1076 TIP-UP PROTECTION

To fasten the wheelchair on Motolife™, avoiding it to move from place or tipping up during therapy. The retractable belts have an adjustable hook anchoring to the structure of the chair. (two pieces)



BASIC	EVO	for KIDS	for ADULTS
●	●	●	●

AC1077 EXTRA BELTS

These are useful to fasten the device onto a wheelchair to avoid movements or tipping up, recommendable to save the structure of the chair from scratching. (two pieces)

BASIC	EVO	for KIDS	for ADULTS
●	●	●	●

FOR THE LOWER LIMBS

AC1078 LEG SUPPORTS

To allow the use by people with leg adduction or abduction problems keeping them safely anchored onto the pedals. The padded support elements are adjustable in height. (two pieces)

BASIC	EVO	for KIDS	for ADULTS
●	●	●	●

FOR THE LOWER LIMBS

AC1240 ELASTIC STRAPS

If the patient has orthopedic footwear or other shoes of big dimensions, instead of the standard straps, it is possible to order elastic straps to make possible the needed stabilization of feet on the pedals. (two pieces)

Standard straps

Elastic straps

BASIC	EVO	for KIDS	for ADULTS
●	●	●	●

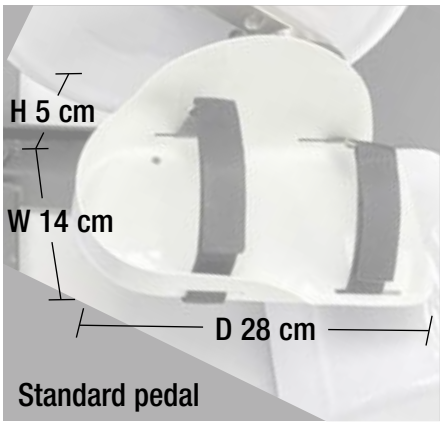
AC1241 SOFT INSOLES

It is possible that at home or in assisted residence the user prefers an employment of the Motolife™ without footwear. In this case it is possible to apply soft soles for a greater comfort. (two pieces)

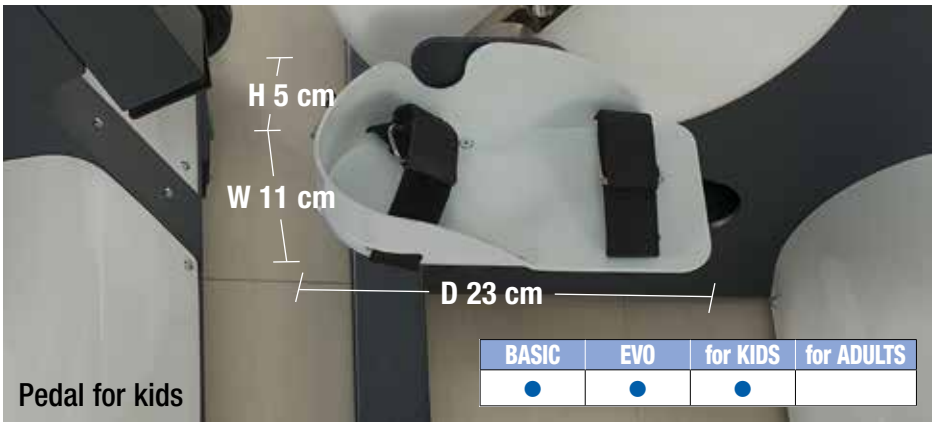
BASIC	EVO	for KIDS	for ADULTS
●	●	●	●

AC1079 SHOE PEDALS FOR CHILDREN

Allows the use by children or short-height people due to the use of a smaller and less deep foot shell which keeps the pedal position closer to the user. Dimensions: W 11 cm x D 23 cm x H 5 cm. (two pieces)



Standard pedal



Pedal for kids

BASIC	EVO	for KIDS	for ADULTS
●	●	●	

FOR THE UPPER LIMBS

AC1080 WRISTBANDS FOR GRIP

Allows training also for the people who have little or no hand-grip force, keeping the patient safely anchored onto the handgrip. The wristbands are in a universal size. (two pieces).

BASIC	EVO	for KIDS	for ADULTS
	●	●	●

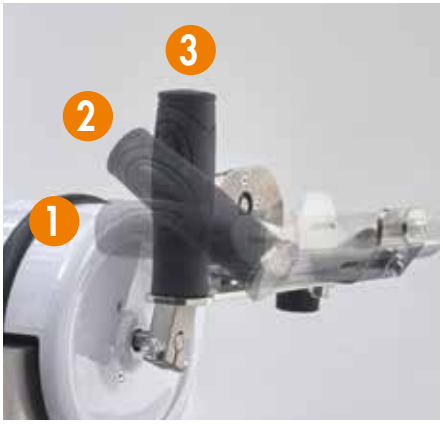
AC1234 VERTICAL GRIP

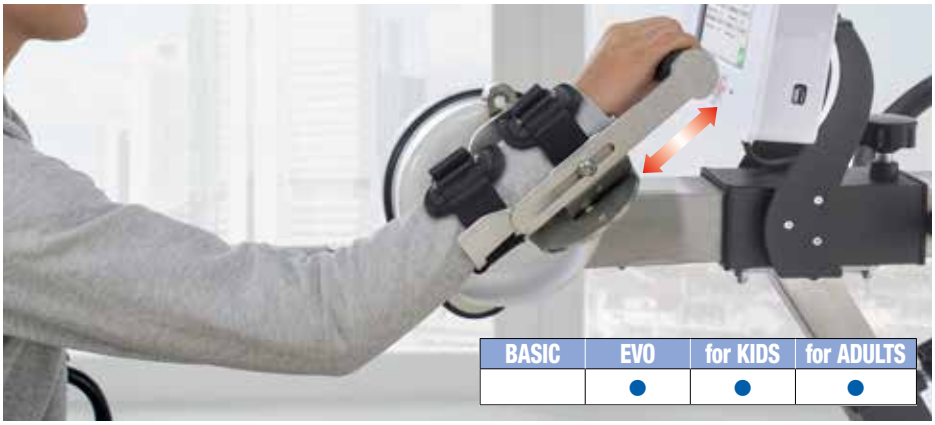
The vertical handle offers a variant of grip to that horizontal supplied as standard. This accessory may result indispensable in relation to a specific patient. (two pieces)

BASIC	EVO	for KIDS	for ADULTS
	●	●	●

AC1081 THERAPY GRIP ARMRESTS

Whenever the use of the wristband may not be enough, the armrest hold and anchor the whole forearm to allow a correct training of the upper limbs even to tetraplegic patients. The terminal handle of this support can be set in three different fixed positions, ie for a horizontal, vertical or 45 ° grip. (two pieces)





BASIC	EVO	for KIDS	for ADULTS
	●	●	●

Insights

into the effectiveness of the movement therapy with Motolife™

Insights into the effectiveness of the movement therapy

The loss of the functionality of the upper and/or lower limbs as a result of any neurological pathology (e.g. stroke, spinal cord injury, multiple sclerosis, cerebral palsy, Parkinson's disease), by orthopedic pathologies, by heart pathologies, by an accident or by age, may imply a partial or total loss (according to the degree and of the thoroughness of the injury) of the capability of keeping standing straight, of moving around or of the ability to hold and use everyday objects (for feeding, for personal self care).

The therapeutic objective at which we aim, i.e. the recovery of the movement and motion ability as close as possible to a healthy person's ability, is still considerably distant in spite of the amount of efforts invested on this topic so far.

Nevertheless, although the results obtained on the field of the motion recovery can still be unsatisfactory for the most serious cases, aerobic exercises carried out regularly have proven to produce excellent results when preventing and treating the serious effects caused by the lack of movement of the limbs.
It is important to keep in mind that muscles have the function not only of moving the joints in counter gravity but they are also important for their physiological effect of "pump" for the circulatory system.

After hospital discharge, generally, patients affected by serious motion problems (paralysis) lead a sedentary lifestyle in a wheelchair or do not perform any type of physical activity. Therefore, important degenerative consequences can manifest: at the beginning, a loss of weight but a subsequent obesity and a reduction of the levels of HDL cholesterol, muscle atrophy, osteoporosis, fractures, joint contractions, breathing problems, reduction of the cardiopulmonary condition, deafferentation chronic pain, edema in the paralyzed limbs, pressure ulcers, spasticity, phlebothrombosis, recurrent urinary tract infections, erectile dysfunction and several other secondary medical complications, which carry along a depression and a sense of insatisfaction for the training done as well as for the results obtained in acute phase and in the chronic phase, poor life prospect and improvements which hinder the social reintegration of patients and burden the medical and social costs.

Even in less serious cases such as for patients who have been prescribed immobility after surgery or an accident, for those who are bed ridden due to prescription or due to the age, immobility has always negative consequences (deconditioning) on several body systems: musculoskeletal, cardiovascular, metabolic, endocrine, respiratory, genito-urinary, gastrointestinal, skin and emotional.

According to what has been described above, it is recommendable to do proper exercises with the paralyzed limbs in order to prevent or revert the severe problems caused by immobility.

Benefits of movement therapy with the use of a motorized cycle ergometer are widely treated in several international papers. They deal mainly with the prevention or revert of the complications which are directly linked to the lack of movement and mobility and especially to the reduction of muscle spasticity, the revert of muscle atrophy caused by immobility, the increase of specific peripheral circulation and the improvement or maintenance of the joint mobility and the slowing-down of the pathological pictures of neurological pathologies such as a stroke, multiple sclerosis, Parkinson's disease, etc.

Benefits of movement therapy with motor assisted cycle arm-ergometer are documented by several papers.

Post-Stroke rehabilitation or Brain Trauma

A stroke implies major changes in the lifestyle of those affected by it: hemiparesis makes the usual movements difficult while performing everyday activities and compromises the person's self-reliance. While rehabilitating from a stroke, movement therapy with a motor assisted cycle ergometer, both for upper and lower limbs has proven to be very helpful. It is particularly of great aid for relearning the type of movements which were lost with the stroke: strength and resistance are trained at the same time as well as coordination. Also the muscle spasticity is reduced. Specifically:

- *Improves muscle strength and resistance*
- *Reduces muscle spasticity*
- *Brings muscle tone back to normal*
- *Improves coordination and movement abilities*
- *Improves balance and gait*
- *Reduces contractures and improves the range of joint articulation*
- *Reduces pain in the case of complex regional pain syndrome*
- *Stimulates the cardiovascular system and improves peripheral circulation*
- *Activates metabolism*
- *Reduces fluid retention*
- *Improves the stability of the trunk*
- *Improves cognition and the general psychophysical state of the patient*

Multiple Sclerosi

Clinical trials demonstrate that therapy with motor-assisted cycle ergometer improves the quality of the lifestyle of the patients affected by multiple sclerosis: the symptoms of this pathology can be reduced and its course can be slowed down by a mild and specifically programmed physical activity. Joints must be exercised often in order to keep the range of movement. In particular:

- *Improves muscle strength and resistance*
- *Reduces muscle spasticity*
- *Brings muscle tone back to normal*
- *Improves coordination and movement abilities*
- *Improves the articulation range*
- *Stimulates the cardiovascular system*
- *Stimulates the immune system*
- *Improves cognition and the general psychophysical state of the patient*
- *Improves independence and helps patients in social reintegration*

Parkinson's disease

Parkinson's disease is one of the commonest degenerative pathologies of the nervous system in the elder. It is possible to slow down the effects of the pathology if the right therapy is used and thus stay independent as longer as possible. Physical exercise can provide also psychological benefits and contribute to a sense of well-being with a positive impact in lifestyle quality. Especially:

- *Favours mobility*
- *Reduces tremor and bradykinesia*
- *Makes the muscular tone regular and reduces muscle rigidity*
- *Improves cognition and emotional state*
- *Stimulates the cardiovascular and metabolic systems*
- *Improves independence while doing everyday activities*

Paraplegia

Spinal injury and paralysis as its consequence is an important traumatic event which is most of the times irreversible and which brings along major changes for the lifestyle of the patient and his or her relatives. The main objectives of exercise rehabilitation are in this case to get the patient back to an active and independent everyday lifestyle. In the case of incomplete paraplegia, early exercise rehabilitation can help the patient to relearn the movements that were lost. In the case of complete palsy, though, the movement therapy helps to keep the muscles, tendons and joints healthy. It also helps to maintain metabolic, cardiopulmonary, circulatory and immune functions. Especially:

- *Reduces contractures and improves the range of joint articulation*
- *In the case of incomplete palsy, improves the strength, resistance and muscle coordination; it also helps motor relearning*
- *Stimulates the cardiopulmonary conditioning*
- *Activates metabolism*
- *Favours digestion and the functions of the intestine and bladder*
- *Reduces fluid retention*
- *Improves peripheral circulation*
- *Reduces the possibility of pressure ulcers*
- *Improves the stability of the trunk*
- *Improves the general psychological and emotional state of the patient*

Cerebral palsy

Patients with infantile cerebral palsy and spastic palsy can train muscles specifically. Passive physical exercise, assisted by a motor helps to reduce spasticity. Regular and frequent exercises with the motorized cycle ergometer can contribute to the relearning of complex movements and reinforce the physical and mental wellbeing of patients. Especially:

- *Favours the regulation (avoids the diminishing) of the muscle tone and improves the range of joint movement*
- *Favours the relearning of complex movements and coordination even with children*
- *Improves balance in a standing position and gait symmetry*
- *Improves independence for everyday activities*
- *Increases the patient's motivation for everyday training*
- *Improves the efficiency of the movement and implies a saving of resources*
- *Reduces the duration of therapy*

Orthopedic Rehabilitation

Whenever doing physical exercise becomes difficult due to rheumatic, arthritic pain or arthritis or after an orthopedic trauma, the use of the motorized cycle ergometer in kinetic therapy helps prevent irreversible damages caused by immobility and also to keep joints and muscles healthy. Furthermore, it has proven to be useful for the rehabilitation of the hip adductor muscles of the muscles of the shoulder and the arms, as well as serving as a balance for the work of the muscles of the quadriceps in a post-surgery phase. Especially:

- *Slows down the degeneration of articular cartilage*
- *Stimulates the articular metabolism*
- *Reduces the contractures and helps in muscle rehabilitation*
- *Improves balance in the use of the muscles*
- *Favours mobility*
- *Stimulates the cardiopulmonary system*
- *Stimulates the mind*

Cardiopulmonary conditioning, Hypertension and Peripheral circulation

In case of hypertension, doing physical exercise with the motorized cycle ergometer can help reduce in a natural way the blood pressure and help to a reconditioning of the cardiopulmonary system. At the same time, the increasing age has as a consequence the loss of blood vessel elasticity. The consequences are frequent circulatory problems. Thinner and partially obstructed veins do not carry enough blood, and therefore the oxygen and nutrients that reach the muscles are less. By doing physical exercise regularly, either with the use of one's one muscle force or aided passively by a motor, it is possible to favour peripheral circulation. Doing physical exercise regularly is the best way to be physically and mentally fit, even for the elderly. Movement therapy with the aid of a motorized cycle ergometer ensures a moderate type of exercise using the capacity left without overloading the musculoskeletal and cardiopulmonary systems. Especially:

- *Helps to maintain and improve mobility*
- *Improves gait performance (speed, safety, stress)*
- *Improves balance*
- *Improves independence for everyday activities*
- *Stimulates the cardiopulmonary system*
- *Even in the cases of age dementia (Alzheimer) this therapy has proven effective to favour physical exercise at home and help independence for everyday activities.*

Movement Rehabilitation in geriatrics

Doing physical exercise regularly is the best way to be physically and mentally fit, even for the elderly. Movement therapy with the aid of a motorized cycle ergometer ensures a moderate type of exercise using the capacity left without overloading the musculoskeletal and cardiopulmonary systems. Especially:

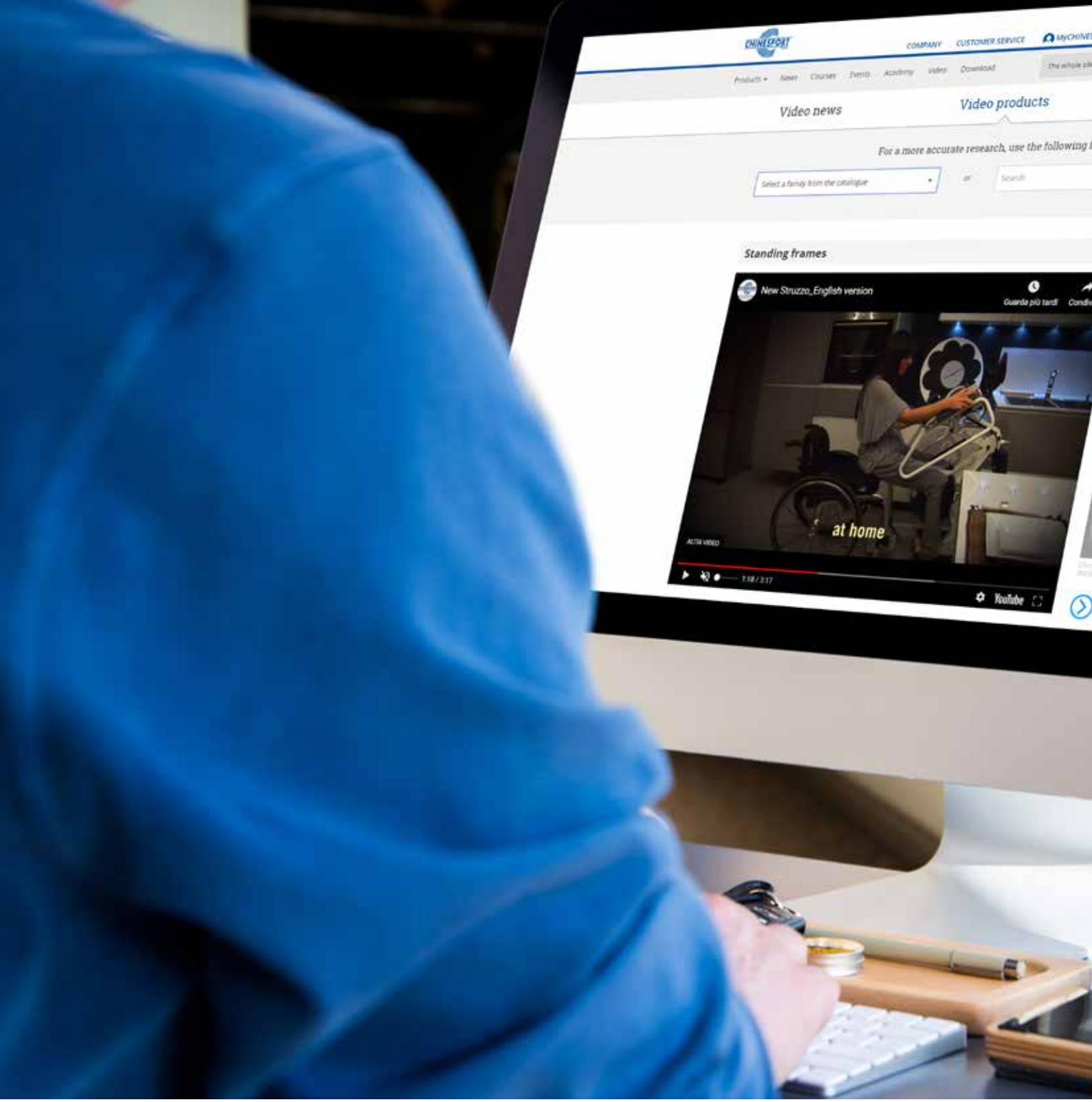
- *Helps to maintain and improve mobility*
- *Improves gait performance (speed, safety, stress)*
- *Improves balance*
- *Improves independence for everyday activities*
- *Stimulates the cardiopulmonary system*
- *Even in the cases of age dementia (Alzheimer) this therapy has proven effective to favour physical exercise at home and help independence for everyday activities.*

Psycological Benefits

Several beneficial effects can be obtained as a result of movement therapy also considering the patient's psychological aspect and concerning the release of the dopamine. Various patients who have participated in a training program have reported to feel stronger, more energetic, less tired and experience a higher sensation of wellbeing and therefore the movement therapy is capable of improving mood disturbances and improve the perception of one's own state of health for the physically impaired. Furthermore, aerobic exercise favours a greater quantity of oxygen for the brain with its consequential improvement for the cognitive capacities.

Motolife™ *Appendix II - Therapeutic pathways*

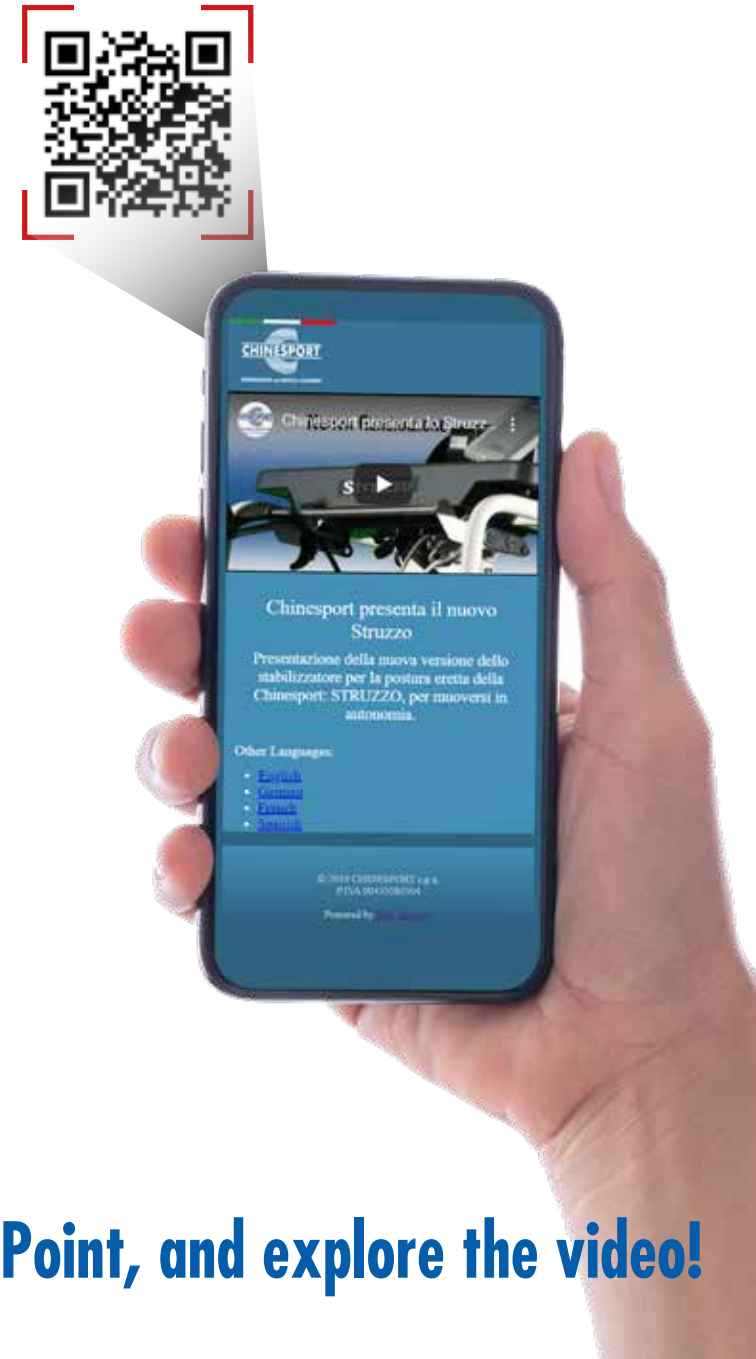
We Chinesport are specialized also in devices to regain gradually a standing position and a mobility in such a condition. So further benefits can be achieved from using the Motolife in combination with such equipment and for therapeutic pathways more effective.



Chinesport, just a click away

Chinesport's website has also been designed and set up for those using mobile phones or iPads, not necessarily because they are out-and-about or travelling, but because they wish to know more about it while using our catalogue or other documentation. We are constantly involved in publishing new detailed information, photos (now even bigger), videos and multimedia files that are worth sharing.

FOR INDEPENDENT LIFE - The Struzzo product enables the user to transfer quickly, without help from a carer. Once the upright position is achieved, it will be possible to perform everyday activities and move on a flat surface. It's easy to get close enough to worktops to make use of them. Learning a technique that suits the user's physical conditions enables to perform a variety of tasks, reducing the need for career involvement.



Point, and explore the video!

Chinesport is based in Udine, Italy, between the Alps and Venice. For over 40 years we have been dedicated to healthy posture for healthy movement. The root of our company name refers to the Italian word “chinesiterapia”, or movement therapy. We strongly believe and adhere to “movement culture” as a way to prevent and cure injury and disease.

Today we are a global leader in developing and manufacturing rehabilitation equipment and assistive devices. We have excellent and long-standing business relationships in almost 80 countries worldwide. The Chinesport general product catalogue contains over 1.000 innovative, high-quality products. New catalogue editions that include the latest product innovations and trends are regularly published. Our own medical-scientific training and educational program is continuously expanding and caters for all specialised rehabilitation fields. As an organisation, we have been working with a certified quality management system and in compliance with international ISO 9001 and ISO 13485 standards since 1998.

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