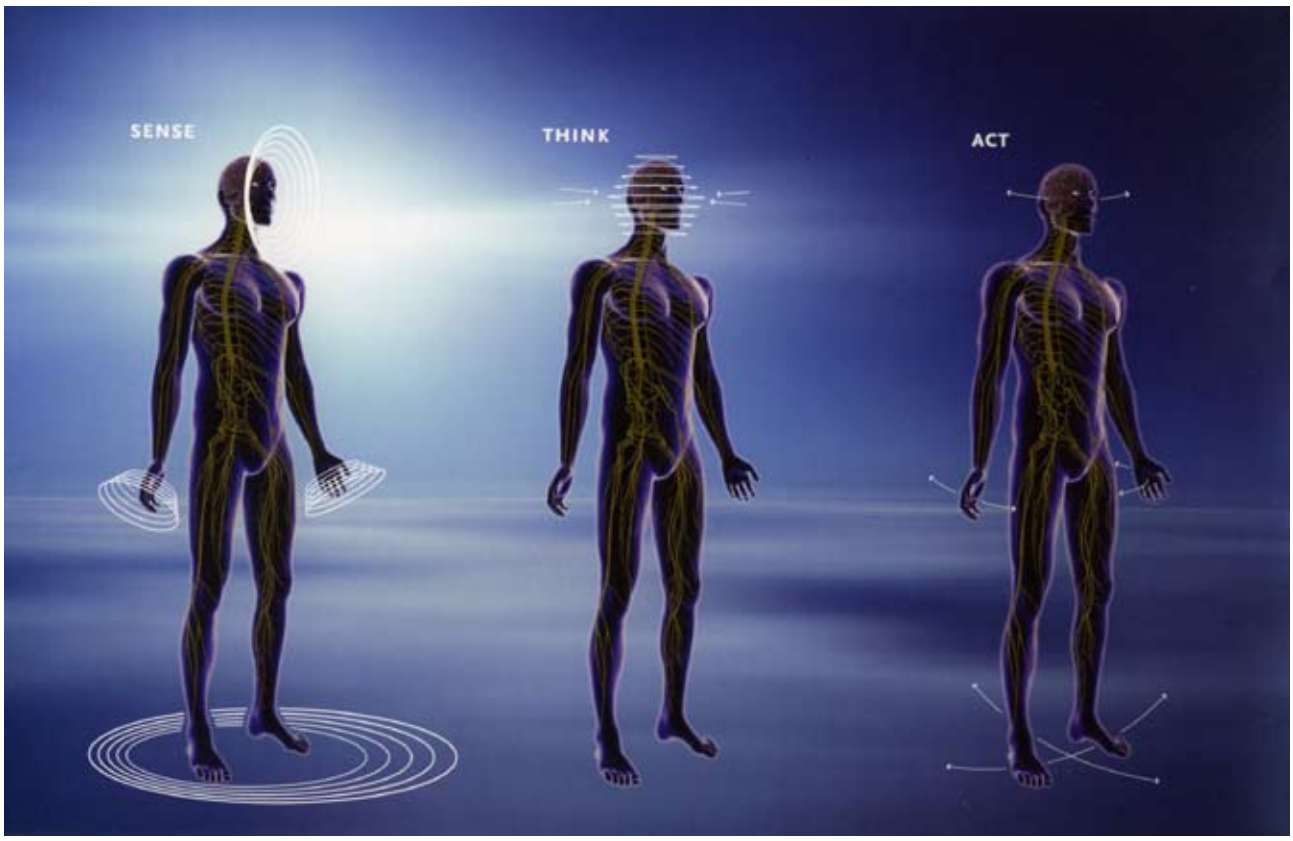
K.O.E.
ΚΕΝΤΡΟ ΟΡΘΟΠΕΔΙΚΩΝ ΕΦΑΡΜΟΓΩΝ

Perfection in Rehabilitation

www.orthocyprus.com



bionic

TECHNOLOGY BY ÖSSUR

ÖSSUR

Life Without Limitations®

Introduction

Orthocyprus (K.O.E) founded in 2006 is an Orthotic and Prosthetic centre based in Limassol, Cyprus.

The main activity of the centre is to rehabilitate people with problems related to mobility and ambulation. We supply professional services and equipment such as orthoses, prostheses and other mobility devices/aids associated with specialist therapy.

Orthocyprus has established very good cooperation over the years with the leading manufacturing companies in Europe such as; Otto Bock, Ossur, RSL Steeper, Be-Bionic, Fior and Gents, AFT International, North Sea Plastics and Prolution.

Orthocyprus has a well equipped workshop which is used to manufacture and customise high quality devices to meet the patient's needs. These range from simple orthotic insoles, through to spinal braces and high tech prosthesis including, myo-electric and bionic technology.

Our Vision is to take Orthocyprus into the future by means of:

- **Helping Patients with rehabilitation and improve quality of life**
- **To create permanent and lasting relationships with our Patients/Clients**
- **To constantly improve the quality and standards of our services**

And above all,

- **TO ALWAYS KEEP OUR PROMISES**

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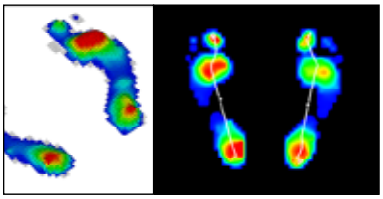
Custom made Orthotics

Orthotics (foot supports) insoles

Orthotics / foot supports are specially designed shoe inserts, which help to restore the natural position of your foot. The type of orthotic we need depends on the type of foot we have, how the foot is changing position and what shoes we wear.

By careful selection and design of the correct orthotic the foot is able to return to its natural position and function. This will prevent damaging changes in other joints, muscles and ligaments, and reduce foot pain.



Custom made Shoes

Manufacturing any kind of shoes according to the indication of the doctors.

Scoliosis

From Greek: scoliosis meaning from skolios, "crooked" is a medical condition in which a person's spine is curved from side to side.

Although it is a complex three-dimensional deformity, on an X-ray, viewed from the rear, the spine of an individual with scoliosis may look more like an "S" or a "C" than a straight line. Scoliosis is typically classified as either congenital (caused by vertebral anomalies present at birth), idiopathic (cause unknown, sub classified as infantile, juvenile, adolescent, or adult, according to when onset occurred), or neuromuscular (having developed as a secondary symptom of another condition, such as spina bifida, cerebral palsy, spinal muscular atrophy, or physical trauma).

Custom made braces

In General, Braces are devices worn externally on the body to assist with the stability of a joint or reduce the physical stresses which the individual's environment can sometimes place on their body.

Custom made braces involve taking specific measurements (casting) of the patient, and fabricating a brace which fits that patient specifically. Usually because of the nature of their fabrication, there is a higher cost associated with custom made braces.

We can manufacture all types of braces to our patients, depending on the needs as assessed by their doctor or their Physiotherapist.

- Upper limb braces
- Spinal braces
- Hip braces
- Kafo braces
- Knee braces
- Afo braces
- Athletes masks

Kafo Braces

Orthotics is the use of braces and splints (orthoses) to biomechanically assist in supporting and stabilizing parts of the body affected by paralyzed and/or weak muscles. Orthotics, grouped by a description of the area in which they provide support, are usually divided into three categories: lower extremity, upper extremity, and spinal. An orthotic device designed to support the whole lower extremity is called a knee-ankle-foot orthosis (KAFO).

Today's braces are often constructed of lightweight plastics and metals with fixed (locked) and/or free (movable) joints, not of leather and steel. The referring physician prescribes the general type of orthosis, including core components such as fixed or movable joints, or metal or plastic fabrication. The physician also includes the diagnosis and the functional goals of the orthosis. The orthotist fabricates a design based on the prescription, including information from a gait analysis and information about the individual's home, work status, and physical activities.

Having to use a brace should not be viewed as defeat, but as making a lifestyle change that will provide added stability and safer, more efficient, and less painful mobility, thus enhancing continued independence.

Scoliosis Bracing

Bracing is normally done when the patient has bone growth remaining and is, in general, implemented to hold the curve and prevent it from progressing to the point where surgery is recommended.
Braces are sometimes prescribed for adults to relieve pain related to scoliosis. Bracing involves fitting the patient with a device that covers the torso; in some cases, it extends to the neck.

The most commonly used brace is a Boston brace (DBB), a corset-like appliance that fits from armpits to hips and is custom-made from fiberglass or plastic. It is sometimes worn 22–23 hours a day, depending on the doctor's prescription, and applies pressure on the curves in the spine.
The effectiveness of the brace depends not only on brace design and orthotists skill but on patient compliance and amount of wear per day. The typical use of braces is for idiopathic curves that are not grave enough to warrant surgery, but they may also be used to prevent the progression of more severe curves in young children, to buy the child time to grow before performing surgery, which would prevent further growth in the part of the spine affected.

Prosthetics - Lower limb

Reason for amputation

There are several reasons why an amputation is required; your doctor will explain the reason(s) why you need an amputation. Some of these reasons are:

1. Due to disease of the blood vessels where the arteries become narrowed, thus limiting the blood supply to the legs and feet.
2. Circulation problems or severe infection due to complications of diabetes.
3. As a result of an accident or injury
4. Tumors
5. Problems with a baby's development before birth.

In many cases, prior to amputation, the limb may have caused serious problems of infection and pain, and been a threat to life.

Levels of amputation

There are several levels of amputation, which a surgeon can perform. The level of amputation will depend of the state of your circulation and surrounding tissues. The most common levels are;

- Hip disarticulation (through the hip joint)
- Transfemoral (above the knee)
- Knee disarticulation (through the knee joint)
- Transtibial (below the knee)
- Ankle Disarticulation

At the first available opportunity you will be given an appointment to see us at the prosthetic clinic. At this appointment we will assess the way in which we can maximize your rehabilitation. This can vary from wheelchair independence to using prosthesis. Many factors need to be considered: Your state of health (including heart and chest problems, neurological problems and arthritis) your aims, rehabilitation progress and the benefits and difficulties of using an artificial limb.
We will also discuss with you the choice of prosthesis, the procedure and plan for making your first prosthesis.

Casting and Measuring

Before your artificial limb can be made, the prosthetist will take some a plaster cast. Casting involves wrapping wet plaster bandages around your stump to create a mould. This is used to make a socket into which your residual limb (stump) will fit. Measurements of your residual limb and other leg/arm will also be taken.

Fitting

The next appointment will be for the fitting of your artificial limb with a diagnostic socket. The prosthetist will ask you to try your artificial limb on to check the fit and comfort. Some adjustments may be required. As the artificial limb has not been finished it can look quite strange at this stage. When both you and prosthetist are satisfied that the socket is comfortable, the artificial limb will be returned to the workshop so that it can be made ready for you take home.

After your amputation, your stump is likely to be quite swollen, so do not be disappointed if your first artificial limb is larger in size than your other limb. The next socket is likely to be smaller as your stump heals and the swelling reduces.

You will be given help to put it on and be asked to walk between parallel bars to check it is comfortable. The prosthetist will be able to answer any questions you may have regarding your new artificial limb

Prosthetics - Lower limb

Silicone Cosmeses

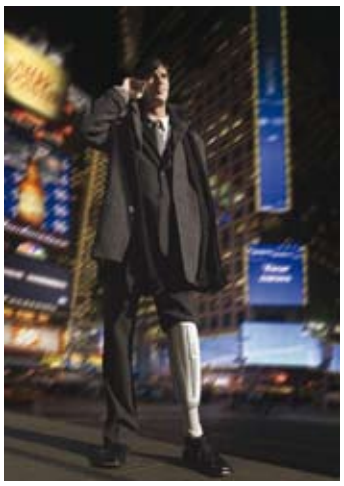
Prosthesis can be covered or left uncovered depending on your choice. If covered, a foam type material will be used to create shape to match the remaining side as close as possible. Over the foam shape will be another layer. This can be as simple as a nylon or vinyl stocking, or an 'off the shelf skin like cover, or an individually made high definition cover showing freckles, veins and hair. These cosmetic covers are more life like but rarely look exactly the same as your own limb. It is worth noting that covers add weight to your prosthesis and will not change in different situations like you own skin, such as tanning.

Lower Limb -Feet

There is a huge range of different foot and ankle systems. Some are best for indoor walking and some for outdoor. Some will suite short distances and others are for greater distances and sport. Feet with a better response to weight loading, those with a 'bit of spring' can help you use your muscles better. Like the knees, a higher degree of function often comes with an increased weight of the unit. In both cases the quality of the socket suspension becomes very important.

Very few feet are adjustable for different heel heights of shoe. You should stick to shoes of similar heel heights, keeping to a similar difference between heel and sole. Your prosthetist will advise you of how to adapt footwear to suit your prosthesis.

Buy shoes to fit your OWN foot and not for the prosthesis. The prosthetic foot can be fitted/ changed to suit.



Lower Limb -Knees

There are different knee types that are appropriate for different individuals;

- A simple locked knee -this locks straight when walking and is unlocked by hand to sit down, or
- Free knees -these will bend when you swing them. They do not have a lock as such but will remain stable when the body weight is applied when you stand on it. No free knee is completely safe but by making sure that it is correctly aligned and that you know how it works, risks of falling can be minimised.

Stairs, Slopes and sitting -some knees can bend when you stand on them to lower you down a slope, stair or into a sitting position. In general terms, the more functional features that a knee joint has the heavier it is.

Prosthetics - Lower limb

Sockets

Every socket is made individually to fit a person. Measurements and possibly a cast will be taken of the residual limb, also known as 'stump'. Sockets can be made of different materials and need to be strong enough to withstand the forces created during waking on the prosthesis. They must also protect the skin, bone and tissues encased within.

The prosthetist will endeavour to ensure that the pressure through the socket is applied to skin areas that can tolerate pressure and that sensitive areas are off-loaded. It will still take time for the skin and other tissue such as muscle and bone, to build up the tolerance to weight bear through the socket. For upper limb prostheses, the skin needs to be able to tolerate the suspended weight of the limb.

If the socket fits snugly, it will be comfortable and you will be able to use your muscles more effectively. This will enable you to control the prosthesis better.

Suspensions

The socket will be held on by a type of suspension. This can be in the form of a liner with a mechanical lock or 'suction' created by a sleeve. Sometimes other or supplementary mechanisms such as a belt, harness or elasticated stocking will be used.

The Technology behind the success of the RHEO KNEE®

Sensors constantly monitor the weight of the user and the angle between knee and thigh, providing real-time information about the speed and movement of the prosthesis, as well as ground reaction forces and any bending movements.

An onboard computer, or microcontroller, processes the sensor data while simultaneously tracking an historical backlog of gait patterns. It instructs the actuator control unit to respond immediately, according to the circumstances it has detected.

The actuator acts as a brake, varying its resistance to angular motion for a natural, appropriate response – from firm and unyielding support when standing, to light, free movement when turning a corner or walking in confined spaces.

SENSE

Sensor Technology

Integrated angle and force sensors deliver important information about the dynamic behaviour of the user, which artificial intelligence (AI) in the microcontroller uses to determine ground conditions – whether the user is on stairs, a slope, or level ground, for example. Any long-term change in measured force may indicate a change of load (eg user has picked up a suitcase) or a change in alignment (eg change of heel height).

THINK

Artificial Intelligence

As fast as the microprocessor receives these signals from the sensors, it performs a series of rapid calculations and determines the appropriate amount of knee resistance (braking) at any given moment. The AI can also recognize unexpected gait patterns, counteracting such movements effectively and helping to prevent a stumble and fall. From the very first step, the RHEO KNEE is building a ‘library’ of information, maintaining hard facts, old response measurements and the latest set of parameters from the sensors. This fast accumulating knowledge means that each new movement reflects the user’s walking profile more closely than before.

ACT

Active Motion

Instructed by the microprocessor, the actuator delivers an exceptionally fast and smooth response. The knee’s name derives from magnetorheological fluid, which works in conjunction with a series of blades to create a braking force. When a magnetic field is applied, minute iron particles within the fluid become aligned, creating ‘chains’ that in effect increase the fluid’s viscosity. The blades are there to cut through the fluid, a smooth and easy motion when there is no magnetism, but a much tougher job when a magnetic field is applied.

Prosthetics - Upper limb

The movement and function of the arm and hand are very complex and extremely difficult to replicate with prosthetic components.

Elbow, wrist and finger joints can be moved into bent or straight positions manually, by body harnesses or by using external power that is activated by using electrical signals from muscles. In some cases this can be a combination of these systems.
Once in position, objects can be gripped or stabilised so that tasks can be carried out.

Custom made Silicone

Over recent years, the demand for an appropriate cosmetic finish to a prosthesis has become increasingly important to limb amputation patients. Traditionally, function has been the key focus, however it is reasonable to request a limb prosthesis that looks like a limb!!

A comprehensive range of custom silicone products, representing some of the very best custom prosthetics available.

Each item is sculpted by hand to meet individual requirements and ensure a very realistic appearance.

Patients are individually measured, cast and colour-matched at a local centre, this information is then sent to our fabrication facility for manufacture. Delivery takes approximately four to six weeks.

Custom Silicone products can be produced to suit nearly all requirements - from individual digits, full and partial hands, partial feet, upper and lower limb covers as well as cosmetic restorations for burns and tissue loss.

We make:

- individual fingers and toes
- partial feet
- lower limb covers
- partial hands
- upper limb covers
- custom liners
- cosmetic restorations

Myo Electric Hands

A comprehensive range of electric products, from hands and wrists through to myoelectric shoulder units and powered elbows to accomodate all levels of amputation.

These products are supported by control systems and power supplies, which provide the user with the optimum method of operation. All system components are fitted with shape-coded plugs and sockets. These features eliminate the need for specialist wiring skills in the clinical facility.

The smallest of our electric hands is called the SCAMP and is suitable for infants between six months and six years old. The hand is lightweight, durable and provides a secure grip without exerting an excessive pinch.

Bionic

Featuring individual motors for each digit the hand moves and grips in a natural and coordinated way, providing compliant and conformable grips around complex shapes.

A choice of 14 functional grip patterns / hand positions can be achieved with 10 available by direct selection, and a further 4 that can be substituted wirelessly using bebalance programming software. New grips include precision grip, pinch grip, mouse grip – to operate a computer mouse, and trigger grip – to operate a trigger-activated handheld household device such as a hairdryer.

On-board microprocessors constantly monitor the positions of the fingers so that grip sequences are accurate every time. The hand electronics can sense if a gripped item is slipping and automatically tighten the grip to maintain a secure and safe hold.

Cosmesis for the bebionic hand is completed with our silicone glove. Available in 19 skin shades, the gloves include our unique TrueFinish™ micro pigmentation for additional depth and realism.

A custom silicone glove is now also available for bebionic hands with each glove individually sculpted by hand to produce a very realistic appearance and feel. Spectromatch™, our unique color matching system, electronically measures skin tone to ensure a near perfect match to individual skin shades and is a far superior color matching process than traditional swatches.

be in touch
be bionic

ÖSSUR

Life Without Limitations®

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TECHNOLOGY BY ÖSSUR

RSLSTEEPER
Listening to you, working with you

bebionic

orthoeurope

LTI
Liberating Technologies, Inc

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