YOUR LIMB SERVICE & PROSTHETICS

STEEL BONES

FOR ALL AMPUTEES AND THEIR FAMILIES

HS LIMB SERVICE AND PROSTHETIC INFORMATION

THIS BOOKLET IS PART OF A SERIES PRODUCED BY AMPUTEES FOR NEW AMPUTEES.

It is designed to give the necessary information needed to understand what will happen when accessing the NHS Limb Service.

Every amputee is different, so please remember not to be hard on yourself. Take things one step at a time — what works for someone else might not work for you, and that's absolutely okay. Your journey is your own, and there's no "right" way to go through it.

At the first appointment a patient will generally be seen by a specialist team of clinical staff that may include a Prosthetist, Physiotherapist, Consultant, Nurse and Occupational Therapist. Other health professionals and/or students may also be present. The team will discuss goals and devise a care plan to help the patient meet their targets.

Many factors affect whether a prosthesis will enhance independence. These include any heart or chest problems, as well as arthritis and neurological problems such as strokes. If an artificial limb is going to be fitted, the prosthetist will measure the residual limb, take other related measurements and often take a plaster cast at this stage. This may be delayed if there is still excessive swelling or unhealed areas of the stump, or if a specific interface component is required.

Different types of prostheses are available. Each prosthesis is custom built to suit an individual's needs.

NEW AMPUTEE PATIENT'S JOURNEY

The next appointment will usually be to fit the prosthesis. It generally takes 2-3 weeks between appointments, although this will vary depending on the components selected for the limb and any interim stages required.

The patient will try on the limb and take some steps, using parallel bars for support, to check comfort and function. The local amputee physiotherapist may be involved at this stage. Once any adjustments have been made, the limb is returned to the workshop for the cosmetic finish to be added. At this trial stage, the structural components of the limb will still be visible, but the finished prosthetic will have a cover on it which makes it look more like a limb. At this time, the residual limb is still likely to be swollen, so the prosthesis also tends to be larger than the remaining limb.

We advise that the prosthesis is not taken home until after the following physiotherapy session. This is so amputees can learn to walk again in a safe environment (if they are lower limb amputees) and don't develop bad habits that could be hard to eradicate once learned.

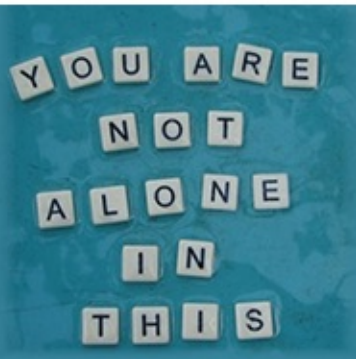
A supply of stump socks will be provided, which will then be laundered at home. A fresh sock should be used daily, or more frequently, depending on any unhealed wounds.

FITTING AND DELIVERY OF THE PROSTHESIS

During the first year following delivery of a prosthesis, regular appointments are given to review progress. The residual limb will change shape and size during this time, so the socket fit will alter. Adjustments to the prosthesis may then be required. If any other problems develop that require check-ups between these dates, the Limb Centre should be contacted for an extra appointment. Additional socks, cosmetic coverings and other minor items can be sent as required.

FOLLOW-UP APPOINTMENTS

While each Limb Centre may operate in a slightly different way, most will provide treatment and rehabilitation to amputees via a full multi-disciplinary team consisting of various healthcare professionals. Everyone's experience is different, but most patients will undergo a similar rehabilitation process and therefore be assisted by most members of the team outlined below at some stage during their rehabilitation.



BUILDING RELATIONS

YOU ARE NOT ALONE! BUILD YOUR TEAM AROUND YOU

This will include family, friends, health professionals but also other amputees and their family members. You have joined a big community ready to help one another through the toughest times.



PEOPLE

This is a general overview and not a complete list of everyone who could be of assistance, so please ask at the Limb Centre to find out who is available to help.

THE SPECIALIST NURSE

The specialist nurse works closely with consultant surgeons, the ward staff and the multi-disciplinary healthcare team involved in the care of amputees. They also liaise with the limb fitting clinic, GPs and the community teams. This central role allows them to provide information and support for amputees and their families throughout their treatment and rehabilitation, to help to coordinate and streamline the amputee's care.

This is also a time of confusion and concern for families. The nurse is available to offer support and provide information to them as well. Patients are usually confronted with a bewildering array of Consultants, nurses and other medical staff. It isn't always obvious who does what. The specialist nurse can explain which professionals will be present and what each of their roles is. Every healthcare professional, while being an expert in their own field, is also genuinely interested in the patient as a person, as well as in their welfare and progress. Hospital staff do not mind patients asking questions – in fact, they should encourage this to ensure Patients feel confident in the way forward and have the opportunity to ask any questions or express concerns or ideas.

THE CONSULTANT

The rehabilitation service is free to all NHS patients. The Consultant in clinical charge will be a consultant in rehabilitation medicine and a specialist in upper and lower limb prosthetics. A multi-disciplinary team, led by the consultant, provides a coordinated rehabilitation programme to meet the needs of the limbless person, and people with severe permanent mobility problems.

The patient, and his/her family and carers, are considered members of the team, and their views are taken into consideration. They are encouraged to participate in the treatment programme within the Centre and at home.

The Consultant may have visited the patient on the ward prior to the amputation. Upon arrival at the Centre, the Consultant will carry out a full physical examination, paying particular attention to the residual limb, or stump. They will discuss the various factors on which successful rehabilitation depends on the patient and members of their family. These will include, for example, the patient's general condition, motivation, eyesight, amputation level, and the condition of the residual limb.

Some amputees are not able to use prostheses, but most are, and the patient will be advised of the choices available and procedures involved in the supply and after care of the prosthesis.

The type of prosthesis provided, and its various components, will depend on the patient's needs, and are unique to each individual. The multi-disciplinary team will work with the patient to provide the most appropriate prosthesis in terms of function and aesthetics, and the patient will be given details of the full programme of rehabilitation that must be undertaken to achieve self-sufficiency and a good gait.

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OR CALL US ON
03333 606 930
WWW.STEELBONESUK.CO.UK

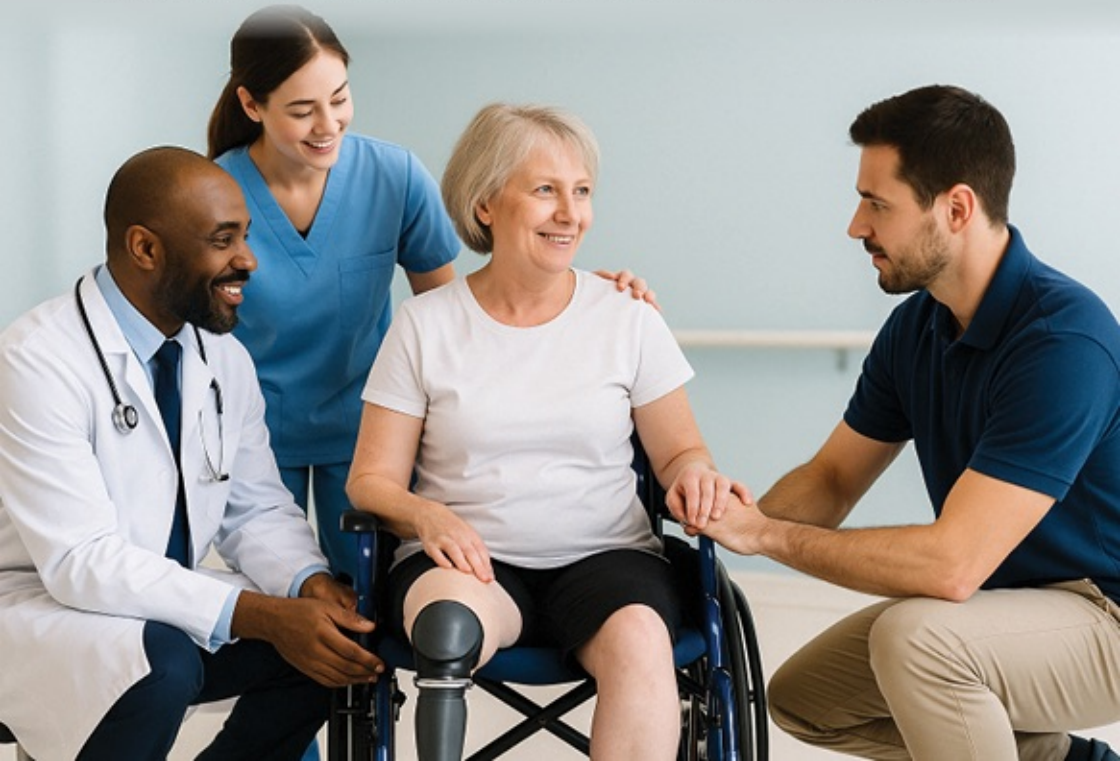
THE PHYSIOTHERAPIST

The role of the physiotherapist in the rehabilitation of a patient following amputation is to help enable the individual to achieve their maximum independence and functional ability. This depends on several factors, including the patient's pre-amputation lifestyle, expectations and medical limitations. The physiotherapist works closely with other members of the rehabilitation team to achieve the individual goals of the amputee.

If the patient's condition allows, the physiotherapist will see the patient before the amputation to explain their role and the proposed rehabilitation programme, and to answer any questions and queries the patient or his/her family may have. Often, it is not possible to see the patient before the operation, but physiotherapy begins very soon afterwards.
Treatment consists of advice and a carefully graded exercise programme to improve the patient's strength and general fitness. The patient will also be assessed for their potential to use a prosthesis and will be given specific exercises to prepare for prosthetic use.

In physiotherapy (as an in-patient or an out-patient) using an Early Walking Aid (e.g. a PAM aid) to retrain walking until the individual is ready to use a prosthesis. This is when the post-operative swelling has reduced, the wound has healed and the patient has shown they will benefit from, and are able to manage, a prosthesis.

By this time, the physiotherapist will know the patient well and so will be able to advise the rehabilitation team and the patient, thereby contributing to the decision about prosthetic use and what type would suit the individual best.



Rehabilitation then continues with the physiotherapist teaching the amputee how to walk with the prosthesis and how to get the most out of it. Many Limb Centres offer a maintenance programme to make sure the user remains fit and able to use the prosthesis effectively. It is important to remember that an amputee's rate of progress, and their final functional outcome, will be determined by The Occupation Therapist (OT).

THE OCCUPATIONAL THERAPIST

(OTs) work closely with physiotherapists and specialise in helping patients tackle many aspects of independent living, some of which might initially be difficult or embarrassing, and which they may want to do on their own in the future.

The OT will initially work with a patient on the ward (they usually wear dark green trousers and a white tunic) and then in the Occupational Therapy Department within the hospital or Limb Centre, where patients can practice everyday activities with a view to being discharged.

The aim is to encourage personal independence, with and without prosthetics, and activities might include:

- Dressing practice: If a patient has trouble balancing, it might be difficult for them to get dressed. The OT will show them how to get dressed safely and advise on suitable clothing
- Personal care: This includes regaining independence when washing, getting in and out of the bath, and on and off the toilet
- Kitchen practice: If necessary, the OT will help to develop or regain independence, and make sure a patient can cope in the kitchen, starting with making a hot drink and progressing to preparing a meal
- Upper limb strength: The OT may carry out specific activities to strengthen the arms/upper limbs, to make manoeuvring a wheelchair and wheelchair transfers easier
- Wheelchair use (lower limb amputees):If appropriate, the OT will order a suitable wheelchair and cushion. This is normally ordered as early as possible to allow a degree of personal independence in mobility soon after the operation
- Home visit assessment: To help with any practical problems a patient may have when returning home, a home visit may be arranged in advance of discharge. The OT will note logistical and structural issues, and will work out practical solutions with the patient such as installing ramps and rails, or widening doors for wheelchair access.

An assessment will be made for the provision of equipment (e.g. for bathroom or kitchen use) which could be introduced into the home to make life easier.

Upper limb use: Occupational therapists also work with arm amputees. In hospital, they help patients regain their independence and solve practical problems, and provide them with exercises to increase the dexterity of the remaining hand, especially if the dominant hand has been lost. The patient may be advised on aids to help them. Before discharge, a home visit may be carried out to ensure the patient will be able to manage safely and independently.

General rehabilitation: The OT from the hospital, Limb Centre or community may continue the patient's rehab as an out-patient after their discharge from hospital to help them plan for the future. This could take the form of further help to develop independence, giving advice on driving, resuming and developing hobbies/interests, and helping to 'live with' (increasing tolerance to and use of) the prosthesis. At the Limb Centre, it is usually the OT who will teach the patient how to use the prosthesis. Occupational therapists also work in Social Services and specialise in the home environment. They will oversee any required housing adaptations. If circumstances change at home it may be these OTs who help to find solutions.

THE PROSTHETIST

A vital member of the rehabilitation team whose views and expectations are very important. They will discuss (along with other members of the rehabilitation team) a patient's past activities and future goals to give a realistic expectation of what the patient will be able to achieve with a prosthesis. In the case of young children, the parent/s or carer/s are active members of the rehabilitation team.

Following initial examination of the residual limb (or stump) and discussions with members of the rehabilitation team, the prosthetist will formulate a prescription for the fabrication of a prosthesis. They will then take relevant measurements and a plaster cast of the residual limb so the 'socket' can be fabricated.

The socket is the part of the prosthesis that fits onto the residual limb and, as such, needs to be an accurate fit. It is prudent to note that no matter how good a socket fits, it can in no way be called comfortable. The prosthetist will endeavour to make it tolerable. (Think of a bicycle saddle which, when used for the first few times, can be challenging to use for anything other than a short period but, with increased use, can become bearable).

After a patient has been cast and measured for a prosthesis, they will be given an appointment for a fitting At the fitting stage, the prosthesis is constructed without a cosmetic covering. This enables the prosthetist to adjust the settings of the prosthesis to suit individual needs. It is at this stage that the patient will take their first steps. During this time, the prosthesis will need to be dynamically aligned and adjusted to the correct height, while the socket will be assessed for accuracy of fit.

Once the prosthetist is satisfied with all these parameters, the prosthesis may be finished there and then with soft foam or a temporary cosmesis (an aesthetic covering that makes the prosthesis look more natural), or the patient may be given a delivery appointment. Once the prosthesis has been 'delivered', physiotherapy will be arranged for gait (walking) training. During the first few weeks and months, the residual limb will be swollen. This will reduce over time, causing the socket to loosen, requiring adjustment.

The patient may be taught how to make up for volume loss by adding additional stump socks. During the first 12 to 18 months, the residual limb will change in shape and volume, which will require regular adjustments by the prosthetist. If the change in volume/size is too great for adjustment, the patient may need to be recast for another prosthetic socket.

OTHER RESOURCES

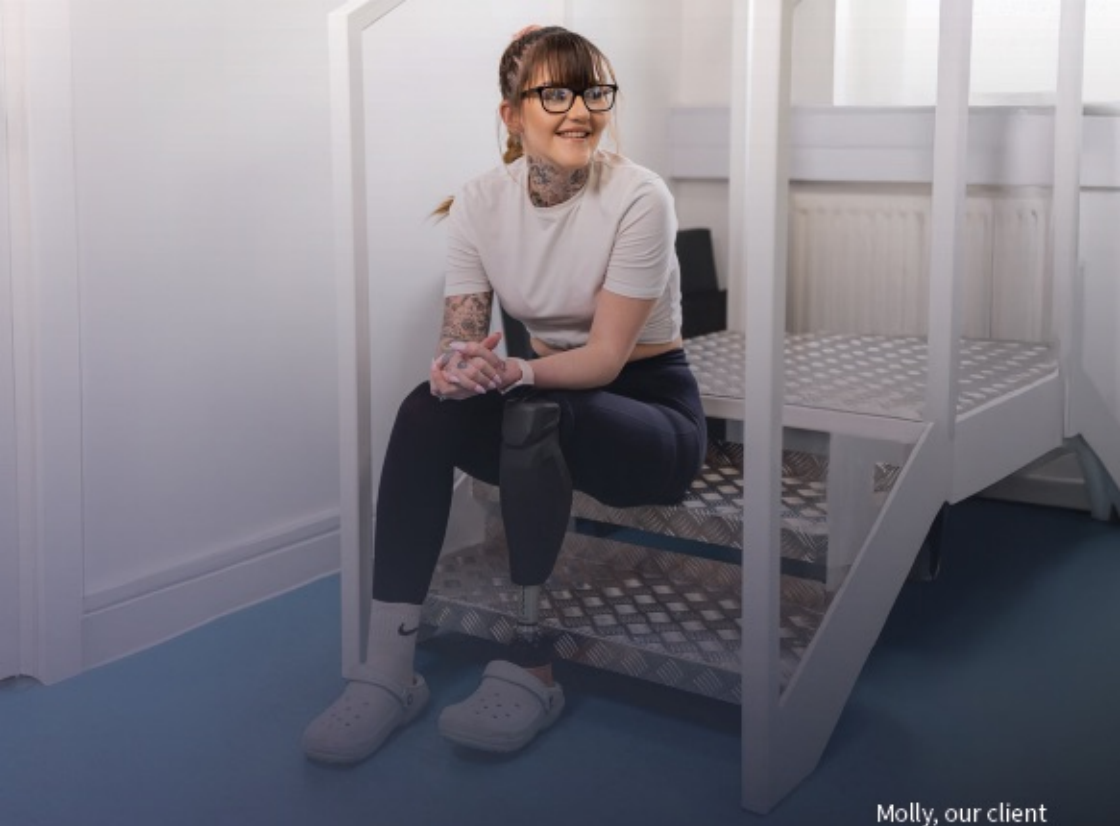
Charities and Voluntary groups support: **www.limblosslimbdifference.co.uk**

NHS Amputation information: **www.nhs.uk/conditions/amputation/**

MOVAO App has fitness modules for Amputees.

Steel Bones Presents the Amputee Podcast – search for it wherever you listen to your podcasts.

LIMB LOSS
AWARENESS
---MONTH---
APRIL



Molly, our client

Helping you adapt and thrive

Losing a limb is life-changing, but it doesn't mean you can't continue doing what you love. Our legal experts are committed to getting you access to the care, rehabilitation and compensation you need.

We'll help you to **imagine** what's possible, so nothing feels impossible.

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A COMMUNITY OF SUPPORT

Many organizations exist to help amputees, their families, and friends. They offer a range of support, from direct assistance to connecting you with others who have similar experiences.

STEEL BONES
This charity was created by amputees and their families for the amputee community. Their mission is to empower amputees and their families to live life to the fullest by providing direct support and working with trusted partners.

LIMBLESS ASSOCIATION
They believe no amputee needs to cope alone. They provide useful, easy-to-access information, advice, and support, and connect amputees, their families, and carers.

BLESMA
An Armed Forces charity that assists serving and ex-Service men and women who have suffered life-changing limb loss or the loss of use of a limb, an eye, or sight.

LIMBPOWER
Supports amputees, individuals with limb differences, and their families to bridge the gap between hospital rehabilitation and community engagement to rebuild lives and improve physical, social, and mental well-being.

DAY ONE TRAUMA
This organization helps and provides support to anyone affected by major physical trauma to rebuild their life, from day one for as long as it takes.

REACH
They are a volunteer-led charity with branches across the UK and a sister organization in Ireland, helping families and young people with upper limb differences connect, learn, and support each other, from birth through to adulthood.

OPEN BIONICS FOUNDATION
They are an upper limb and below-elbow limb difference charity.
They believe that having four limbs is a human right and work tirelessly to provide funding for people who may find it difficult to obtain such prosthetics without some support. The Foundation is funded entirely by donations from members of the public and business and is governed by an independent board of trustees.

LIMBO FOUNDATION
Their aim is to support children with a limb difference and their families. This could be simply chatting in their closed group, linking people with others in the same situation, and providing the opportunity for their children to meet other children with limb differences at activity days and parties to realize that they are not alone

FINDING YOUR FEET
They support families affected by amputation or limb absence through a range of sporting initiatives and social inclusion projects designed to positively affect both physical and mental well-being. Isolation is a huge problem for many amputees; it has been proven that quality of life and even life expectancy are greatly reduced without social inclusion.

GLOSSARY OF AMPUTEE TERMS & THINGS YOU MIGHT HEAR IN THE HOSPITAL & COMMUNITY

thoughtfully written by amputees

STEEL BONES

FOR ALL AMPUTEES AND THEIR FAMILIES

LEARNING THE LINGO

If you're new to the amputee world, it can be daunting trying to keep up with all the 'lingo'.

Here's some of the common words and abbreviations you might see or hear when you first have your amputation.

AMPUTATION TERMS

AE: (above-the-elbow) A specific level of amputation—aka transhumeral of upper arm bone.

AFO: Ankle-Foot Orthosis; device that encompasses the lower leg and foot.

AK: (above-the-knee) A specific level of amputation—also known as transfemoral.

HIP DISARTICULATION (HD): Amputation which removes the leg at the hip joint, leaving the pelvis intact.

HP (HEMIPELVECTOMY): Similar in scope to the hip disarticulation, the HP also removes approximately half of the pelvis.

KD: Knee disarticulation. Amputation through the knee joint.

BK: Below Knee (Again R or L could be added depending on which side your amputation is on).

BAK: Bilateral above knee. Also referred to as Bilateral transfemoral or above knee (AK).

BE: (below-the-elbow) A specific level of amputation—aka transradial or bones between wrist and elbow.

BI-LATERAL AMP: Someone who has both legs amputated.

BK: (below-the-knee) A specific level of amputation—aka transtibial or bones between ankle and knee.

TRANSFEMORAL (TF): Amputation above the knee (Through the femur bone)

TRANSMETASATAL (TM): Amputation through the metatarsal foot bones. (Partial foot amputation)

TRANSTIBIAL (TT): Amputation below the knee (Through the tibia and fibula bones)

TRANSHUMERAL: Amputation above the elbow (Through the humerus bone)

UPPER EXTREMITY: Upper limb

VASCULAR AMPUTATION: Amputation surgery performed as a result of impaired circulation of blood through the blood vessels of the limb.

OSSEOINTEGRATION: The growth action and adhesive nature of bone tissue with titanium, which allows an individual to have a prosthesis attached so as to become part of their body's own structure. The process was developed by Professor Ingvar Bränemark of Sweden in the 1950's and is commonly used in dentistry and metacarpo-phalangeal (MCP) joint replacement in the hand.

DYSVASCULAR AMPUTATION: The word is used to denote amputations that are caused or acquired from poor vascular status of a limb (i.e., ischemia). The prefix dys is Greek in origin and means abnormal, difficult, impaired or bad.

FOREQUARTER AMPUTATION: An amputation of the arm, shoulder, clavicle, and scapula. SD (shoulder disarticulation): An amputation through the shoulder joint.

CONGENITAL AMPUTEE: Individual born missing a limb(s). Technically, these individuals are not Amputees, but are considered to be "Limb Deficient."

CONGENITAL ANOMALY: A birth malformation such as an absent or poorly developed limb. (See amelia and phocomelia).

CONGENITAL DEFICIENCY: Condition present at birth, when all or part of a limb fails to develop normally.

SYMES AMPUTATION: An amputation through the ankle joint that retains the fatty heel pad portion and is intended to provide cushioning for end weight bearing.

DISARTICULATION: This is when the amputation is through a joint. Most commonly the hip or knee.

ISPO: International Society for Prosthetics and Orthotics (ISPO) has worked to develop the prosthetics and orthotics sector worldwide since its inception in the 1970s.

OCCUPATIONAL THERAPY (OT): The teaching of how to perform activities of daily living as independently as possible, or how to maximize independence in the case of disability.

PROSTHETIST, PROSTHETIC, PROSTHESIS...

These 3 words often have people confused! Your prosthetist is the person who fits you with the prosthesis. And as an amputee writing this, I still find the difference between Prosthetic and Prosthesis confusing! Technically a Prosthetic refers to the formal process of creating the limb. Prosthesis is the end product made to replace your missing limb. From experience, most amputees would refer to their new leg as their prosthetic, however, your prosthetist is more likely to refer to it as a prosthesis. Clear as mud!

PHYSIO THERAPY:

A rehabilitative therapy that is concerned with a patient's gross motor activities such as transfers, gait training, and how to function/mobilize with or without a prosthesis.

PSYCHIATRIST:

A doctor of rehabilitation medicine who specializes in the comprehensive management of patients with impairments and disabilities arising from neuromuscular, musculoskeletal, and vascular disorders.

PHYSICAL THERAPY (PT):

A rehabilitative therapy that is concerned with a patient's gross motor activities such as transfers, gait training, and how to function/mobilize with or without a prosthesis. Physical therapy can overlap with Occupational Therapy and Prosthetist prosthetic training. Therapies can include putting prosthesis on and taking off, ply sock management, care, cleaning of the prosthesis; balance, strength, dexterity, gait training for stairs, ramps and uneven surfaces and recreational activities such as riding a bicycle or running.

EQUIPMENT

PPAM: Pneumatic Post Amputation Mobility Aid is an inflatable device (not a prosthesis) that is used by some physiotherapists as part of the rehabilitation programme prior to prosthetic rehabilitation bumper: Rubber like, polymer based devices that are available in varying degrees of density, depending on an amputee's desired level of stiffness in a prosthetic knee or heel. As with other prosthetic componentry, basic maintenance or replacement may be required as a result of wear and tear.

PISTONING:

When a liner stretches so that the stump elongates – or the vertical motion of a residual limb inside a prosthetic socket check or test.

SOCKET: A temporary socket, often transparent, made over the plaster model to aid in obtaining proper fit and alignment for patient specific function of a prosthesis. alignment: Position of the prosthetic socket in relation to the components and body weight line. Alignment can be adjusted to accommodate patient specific needs.

AMBULATION: The action of walking or moving. For lower extremity amputees, rehabilitation is primarily concerned with helping the patient achieve proper gait and/or ambulation.

SPLIT HOOKS:
Terminal devices with two hook-shaped fingers operated through the action of harness and cable systems.

STANCE CONTROL KNEE:
These prosthetic knee joints typically offer a weight-activating friction brake that locks the knee into place during pivotal points of ambulation, offering stability and balance where needed.

DESENSITIZATION:
To reduce or remove any form of sensitivity in the residual limb by massaging, tapping, applying heat or cold or applying vibration. donning and doffing: Putting on and taking off a prosthesis.

DORSIFLEXION: Pointing the toe/foot upward, toward the body.

ENDOSKELETAL PROSTHESIS:
A prosthesis built using modular adjustable componentry housed inside a soft, cosmetic covering.

FUNCTIONAL PROSTHESIS:
Designed with the primary goal of controlling an individual's anatomical function, such as providing support or stability or assisting ambulation.

GAIT: A manner of walking that is specific to each individual.

GAIT TRAINING:
Part of ambulatory rehabilitation, or learning how to walk with your prosthesis or prostheses. Initial training is provided by prosthetist and later physical and occupational therapists for strength, coordination, balance, endurance and patient specific needs.

LINER (ROLL-ON LINER):
Suspension method used to hold the prosthesis to the residual limb and to provide additional comfort and protection for the residual limb. Roll-on liners can also accommodate some volumetric changes in the residual limb. These liners may be made of silicon, pelite, or gel substances.

MANUAL LOCKING:
User controlled mechanism to lock a device into a position; such as a manual locking prosthetic knee in complete extension (straight) to prevent buckling and falls.

MEDIAL:
Motion of a body part toward the center plane of the body. microprocessor-controlled knee: These devices are often equipped with an onboard computer and sensors that detects full extension of the knee and automatically adjusts the swing phase of ambulation, allowing for a more natural gait.

MODULAR PROSTHESIS:
An artificial limb assembled from components or modules usually of the endoskeletal type, where the supporting member (pylon) may have a cosmetic covering (cosmesis) shaped and finished to resemble the natural limb.

MULTIAXIS FOOT:
The multi-rotational axis allows for inversion and eversion of the foot, and it is effective for walking on uneven surfaces.

MYOELECTRICS: Basically, this is muscle electronics. It is a technology used mainly in upper extremity prosthetics to control the prosthesis via muscle contraction using electrical signals from the muscles to power the prosthesis.

ENDOSKELETAL PROSTHESIS:
A prosthesis built to imitate the movements and functional capabilities of the human skeleton, with all parts and componentry housed inside a soft, cosmetic covering.

ENERGY STORING FOOT:
A prosthetic foot designed with a flexible heel. The heel stores energy when weight is applied to it and releases this energy when weight is transferred to the other foot.

EXOSKELETAL PROSTHESIS:
A prosthesis made of a hard, hollow outer shell designed for weight bearing. It is a fully functional, complete prosthesis unoccupied with cosmetic concern.

ASSISTIVE/ADAPTIVE EQUIPMENT:
Devices that assist in activities or mobility (i.e., wheelchair ramps, hand bars/rails, car and home modifications, canes, crutches, walkers, adaptive utensils and other similar devices). Devices that assist in performance or mobility, including ramps and bars, changes in furniture heights, environmental control units and specially designed devices.

C-LEG: The Otto Bock C-Leg features a swing and stance phase control system that senses weight bearing and positioning to provide the knee's microprocessor information about the amputee's gait, thus promoting smoother ambulation. The outer shell houses a hydraulic cylinder, microchip, and rechargeable battery. The first of what is now of many computerized prosthetic knees. Another computerized prosthetic knee is Ossur's Rheo.

STOCKINETTE: Tubular open-ended cotton or nylon material.

SUPERCONDULAR SUSPENSION: A method of holding on a prosthesis by clamping on the bony prominence above a joint, called "Condyles".

COSMESIS: The outer, aesthetic covering of a prosthesis, usually made of foam or a rubber like material. Foam cosmeses are almost always covered by a cosmetic stocking. Used to describe the outer, aesthetic covering of a prosthesis.

SHUTTLE LOCK (PIN LOCK): A mechanism that has a locking pin attached to the distal end of the liner, which locks or suspends the residual limb into the socket.

SUCTION LINER: This liner holds the prosthetic in place by forcing air out of the socket through a one-way valve when putting the prosthetic on. A button is then used to let the air back in when you want to remove it.
Liners are the base layer which goes on your residual limb. They act as a suspension system which is used to hold your prosthetic in place and provide additional comfort and protection of the residual limb when walking. These liners are often made of a silicon, pelite, or gel substance and there are different styles depending on your level of amputation.

FOAM COVER: Some people prefer to have the metal pole (shank) of the prosthetic covered over. This is usually done using a foam cover to make the body of the prosthetic more 'leg shaped'.

PISTONING (OR MILKING): Refers to the residual limb slipping up and down inside the prosthetic socket like a "piston", most obvious while walking. Suspension Sleeve are sometimes used by below knee amputees. They go over the socket and roll up your thigh. They are another way of creating suction to hold the prosthetic in place.

STUBBIES: Used by double amputees. They are shortened prosthetics which are helpful for people to learn to walk, without the fear or falling from a higher height.

Cambridgeshire & Peterborough
Integrated Care System
Recipient of the NHS Cambridgeshire & Peterborough Health Inequalities Challenge Prize 2023

DID YOU KNOW?

AMPUTEES USE 10-40% MORE ENERGY than non-amputees during walking, depending on their prosthetic and fitness level.

FACTORS AFFECTING ENERGY USE:

Prosthetic Quality: Advanced prosthetics can reduce energy demands but not eliminate the difference.

Rehabilitation: Proper gait training and muscle conditioning help minimize energy inefficiency.

Terrain and Activities: Walking on uneven surfaces or inclines increases the energy needed.

ABOVE-KNEE AMPUTATION (TRANSFEMORAL): Energy use increases significantly, with amputees requiring 60-100% more energy than fully limbed individuals due to the loss of both the knee joint and surrounding muscle function.

BILATERAL AMPUTEES (BOTH LEGS): Energy expenditure can be 200% or more compared to non-amputees. This is due to the higher demand on remaining muscles and the mechanics of using two prosthetic limbs.

A HALF-STONE WEIGHT CHANGE (7 LBS/3.2 KG) SIGNIFICANTLY IMPACTS AMPUTEES:

Prosthetic Fit: Weight changes affect the comfort and functionality of prosthetics, requiring adjustments.

Balance: Alters stability and energy usage, making mobility harder.

Joint Health: Increased weight stresses joints; weight loss relieves it.

Psychological Impact: Influences confidence and body image.

Overall Health: Stable weight supports cardiovascular health and rehabilitation. Maintaining a consistent weight is key for comfort, mobility, and long-term well-being.

70-80% OF SENSORY **INPUT FROM THE** BODY IS PROCESSED **THROUGH** OUR HANDS

SHRINKER: A shrinker sock (also sometimes known as Juzo Compression Stocking) is made of elastic material and designed to help control swelling of the residual limb or o shrink it in preparation for a prosthetic fitting.

SOCKET: The socket is the part of the prosthesis where you put your residual limb into. The socket is made of plastic and is designed to fit your residual limb as comfortably as possible.

SUSPENSION: Systems are designed to hold the socket on the stump. There are various designs including; pelvic bands, belts and liners. Each system has its own advantages and disadvantages. Individual preference will also be considered when choosing a particular suspension system for the prosthesis.

NUDGE CONTROL: A mechanical switch that operates one or more joints of the prosthesis.

NYLON SHEATH: A sock interface worn close to the skin on the residual limb to add comfort and deter perspiration.

OUTER PROTECTIVE COVER: A cover that goes over a custom shaped cover often that is flesh toned to match patient's skin tone that is used to protect the prosthetic components from the elements or moisture. Covers can be made of different materials such as fabric or silicone.

PARTIAL SUCTION: Usually refers to the socket of an AK prosthesis that has been modified to allow the wearing of prosthetic socks.

SOCK: Wool or cotton sock worn over residual limb to provide volume adjustment to maintain total contact between the socket interface and residual limb.

LOWER EXTREMITY: Lower limb

RESIDUAL LIMB: The remaining part of the limb after amputation (the stump)

MEDICAL TERMS

Nerve decompression is a surgical or non-surgical technique used to alleviate pressure on a nerve that may be damaged or impaired due to swelling, trauma, scar tissue, or anatomical constraints (such as tight fascia or bone structures).

BONE SPURS: an abnormal outgrowth of bone that typically forms in response to pressure, friction, or stress over time, often due to conditions like arthritis, joint degeneration, or after injury.

BURSURS: a small, fluid-filled sac that acts as a cushion between bones, tendons, muscles, and skin to reduce friction and allow smooth movement.

NEUROMA: is an abnormal growth or thickening of nerve tissue, often caused when the end of a cut nerve forms a tangled mass during healing. Instead of reconnecting to its original pathway, the nerve endings misfire — which can cause pain, tingling, or burning sensations.

TMR SURGERY: stands for Targeted Muscle Reinnervation — a surgical procedure that reassigns nerves that once controlled the amputated limb to remaining muscles in the residual limb.

CRPS: a condition where the nervous system overreacts to an injury or trauma, causing persistent, severe, and often burning pain that is disproportionate to the original injury.

BODY BALANCE: refers to your body's capacity to stay upright and steady, whether you're standing, walking, or shifting positions. It involves a combination of muscle control, joint stability, sensory input, and brain coordination.

ACUPUNCTURE: An ancient Asian mode of therapy used to cure disease or relieve pain; the process employs long, thin needles that are inserted into the body at specific points.

NEUROPATHY: An abnormal and usually degenerative state of the nervous system or nerve that can lead to loss of feeling in the feet or other extremities, especially in the diabetic patient.

PHANTOM PAIN: Painful sensations, usually moderate, that originate in the amputated portion of the limb.

PHANTOM SENSATION: This is the feeling that the missing body part is still there. It may involve uncomfortable but not necessarily painful sensations such as burning, tingling and/or itching.

PLANTAR: The bottom section or sole of the foot.
plantarflexion: When the toe/foot is pointing down, like pushing the gas pedal down, away from the median plane of the body.

POSTERIOR: The back side of the body or part in question, i.e., posterior knee or patellar region.

PREHENSION: The primary functions of the hand, i.e., to hold, grasp, or pinch.
pressure points: Contact against skin or residual limb that produces pressure, sheer, torsion or other forces that lead to tissue injuries. Pressure points need to be addressed to avoid skin irritation such as rubbing or blocked pores or hair follicles or more serious pressure bursas, sores, and ulcers.

REHABILITATION: The process of restoring a person who has been debilitated by a disease or injury to a normal, functional life.

RESIDUAL LIMB: The portion of the arm or leg remaining after an amputation, sometimes referred to as a residuum or the archaic term stump.
stance Flexion: Mimics normal knee flexion at heel strike.

TENS UNIT (TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION): The units are small, battery powered, and weigh only a few ounces. Electrodes are placed on the skin near the area of pain and are attached to the TENS unit. The idea is to disrupt the pain signal so that the pain is no longer felt.

TERMINAL DEVICES: Devices attached to the wrist unit of an upper extremity prosthesis that provide some aspect of normal hand function, i.e., grasp, release, etc.

TES BELT: A neoprene or Lycra suspension system for an AK prosthesis, which has a ring that the prosthesis slides into. The neoprene belt attaches around your waist by Velcro/hook and loop fastener. It is used to provide added suspension and/or control rotation.

TELEMEDICINE: Doctor office appointment via HIPAA compliant communication such as video chat that fulfills insurance provider's face to face visit requirement.

THERAPEUTIC CUSTOM SHOE: A shoe designed and fabricated to address an individual's medical condition. A therapeutic custom shoe is made over a modified positive model of an individual's foot and can be either custom-molded or custom-made.

THERAPEUTIC RECREATION: This mode of rehabilitation provides instruction in returning to leisure activities.

CARBON FIBER: Non-stretch carbon fabric used to reinforce lightweight composite resin structures, such as prosthetic components and socket

ECG: Electro-Cardiograph, recording of the electrical activity of the heart

EDEMA: Swelling of the tissues (also spelled oedema)

ENDO: Inside (as in: Endoskeletal Prosthesis – one with internal supporting structures)

EXO: Outside (as in: Exoskeletal Prosthesis – one with external rigid fiberglass structure)

GAIT TRAINING: Learning to walk with a prosthesis
Interface – Inner surface of socket, or portion of prosthesis closest to the skin

ACUPUNCTURE: An ancient Asian mode of therapy used to cure disease or relieve pain; the process employs long, thin needles that are inserted into the body at specific points.

ALTERNATIVE THERAPY: A treatment that is used in place of or in conjunction with traditional medicine (i.e., acupuncture, yoga and Tens units).

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