

AIDS AND APPLIANCES – WHAT ARE THEY AND HOW TO PRESCRIBE THEM APPROPRIATELY

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Before prescribing any aids and appliances, patient's physical function, cognitive function and the patient's environment must be assessed and analysed.

Most of these devices can be purchased off the shelf from vendors selling rehabilitation equipment, and there are others that can be custom-made to suit the patients with specific physical limitations or needs e.g. hand splint, ankle-foot-orthosis, body jacket etc.

WHEEL-CHAIR

A wheel-chair is usually prescribed to a patient with poor mobility/ balance or exercise tolerance.

The different types of wheel-chair are:-

- a) **Standard wheel-chair without detachable features**
 - κ This is suitable for patients who need minimal assistance in transferring. Not user friendly as the arm/leg rests often get in the way during transfer of the patient
- b) **Standard wheel-chair with detachable arm-rests & leg rests**
 - κ This type is usually recommended, particularly for patients who have poor mobility or is totally dependent, as the transfer of the patient in and out of it is made easier since the arm/leg rests of the side of transfer can be removed during the transfer
- c) **Standard wheel-chair with elevating leg-rests**
 - κ Suitable for patients with lower limb orthopaedic problem

d) **Reclining wheel-chair**

- κ For sub-acute patients with postural hypotension or poor head control

e) **One arm drive wheel-chair**

- κ Suitable for the hemiplegic patient who is not likely to walk again. The patient must be cognitively intact in order to be able to manoeuvre the wheel-chair

There are other types of wheel-chairs for patients with special needs e.g. those for cerebral palsied children and patients with head injury, and the light weight wheel-chairs, mainly used by the younger disabled who engage in sporting activities.



Reclining wheel-chair and one-arm drive wheel-chair

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WALKING AIDS

Before choosing a walking aid for a patient, the following needs to be assessed.

- κ Muscle strength in all limbs
- κ Any sensory loss especially in the feet and hands
- κ Any visual impairment
- κ The general health and medical conditions of the patient
- κ The patient's ability to balance
- κ The patient's weight
- κ The patient's cognitive status/age
- κ The patient's safety awareness
- κ The patient's pre-morbid ambulatory status.

Walking aids should be firm and well-made, neither too light nor too heavy. They should have adjustable legs and should have soft and comfortable hand grips that do not cause blisters, cramped fingers and nerve tension. The rubber tip should be ample so as to prevent the stick from sliding on the ground.

TYPES OF WALKING AIDS

Fore-arm walker or rollator

For patients with poor trunk control/ poor standing balance – Usually for dense stroke patients to try out walking ability in a rehabilitation setting – Not prescribed for home use.

Walking Frame – Folding or non-folding

Folding ones are preferred as they can be folded flat for storage and easier transportation, especially in a car. Most frames come with adjustable legs. The patient must be able to hold the frame with the unaffected hand as well as the affected hand. They are suitable for patients with:-

- κ weak legs especially the elderly patient



Walking Frame – Folding or Non-Folding.

following a prolonged illness or recovering from general surgeries or the obese patients

- κ poor balance
- κ pain in the lower limbs e.g. OA knees/hips
- κ unsteady gait
- κ elderly patients who need to do partial weight bearing following fractures of the lower limbs or after orthopaedic surgeries e.g. cervical/ lumbar laminectomy, high tibial osteotomy, total hip/knee replacements.

Quad-stick

Either broad based or narrow based. Narrow-based ones are for patients who are more steady and do not require much assistance. They are also more appropriate for stair climbing. For both, the patients must have one hand with a good grip.



Narrow-base Quad Stick and Broad-base Quad Stick.

Axillary crutches

For patients who require only 1 or 2 points of support. Can be modified with a fore-arm attachment for a patient who also has an upper limb fracture. When using the axillary crutches, the top ends of the crutches should be placed about 2 finger width below the armpits so as to prevent compression of the nerves in the axilla region, the most common problem being a **radial nerve palsy**.

Elbow crutches

Preferably for more stable patients who require one/two points of support. The upper supports should be placed just below the elbow joints.

Point-stick or walking stick

For patients who require minimal walking aid support.

MEASURING THE HEIGHT OF A WALKING AID

When a walking aid is prescribed, the height of the walking aid is important in helping the patient walk properly. The height of the walking aid should

be measured with the patient wearing shoes and in a standing position. The measurement is taken from the tip of the walking aid to the floor. The walking aid must be placed level with the patient's wrist while the patient stands with his arms straight and close by his side (as shown in the diagram on the next page). At the correct height, the walking aid should allow the patient to slightly bend his elbow when he walks.

ASSISTIVE DEVICES FOR PERFORMING ACTIVITIES OF DAILY LIVING

Restoration of functional skills can be achieved through therapeutic application of assistive devices. With the prescription of selected orthotic and prosthetic devices or adaptive equipment, many patients with limited physical performance can be helped to regain some independence in self-care or mobility.



Axillary Crutch with Fore Arm Attachment.



Measuring the height of a walking aid.

Listed below are some of the commonly prescribed appliances:-

- a) Commode chair (static or mobile) – A static commode chair can be used by the bedside during the night and also when the patient is taking a shower. A mobile one is useful for easy transportation of the patient to and from the toilet, provided accessibility is good e.g. bathroom kerb, door width etc.
- b) Shower chair
- c) Grab bar – Usually installed onto the bathroom and/or toilet wall at a height of 33" to 34" from the floor. An 18 inch length is preferred. A grab bar is recommended for safety and for the patient to hold onto when he sits or stands, and when he does lower body dressing
- d) Raised toilet seat (with or without arm rests) – Toilet seats without arm rests are recommended only for patients with good sitting balance

- e) Long dressing stick, shoe horn/comb with long handle – For patients with limitation of movement in the limbs or spine when attempting to do some simple self care activities independently
- f) Long reacher – For patients with limitation of movement in the limbs or spine to get things placed beyond their reach, and for patients with hip fracture to prevent them bending the affected hip >90/80 degrees when reaching for things on the ground
- g) Utensil with enlarged holder – Useful for patients with weak or poor hand grip.

Some splints can be specially fabricated for patients to prevent the onset of contractures, to immobilize a painful joint, to prevent further injury, to immobilize a fractured limb or to assist in mobility/function.



Reacher.

The following are some such splints:-

- a) Cock-up splint for the wrist and hand to reduce spasticity, pain e.g. patients suffering from carpal tunnel syndrome
- b) Kleinert's splint for patient who has had a flexor tendon repair
- c) Dynamic hand splint for patient with a radial nerve palsy
- d) Fingers splint
- e) Fore-arm support splint
- f) Neck collar
- g) Body jacket
- h) Ankle foot orthosis – To support an unstable ankle or a dropped foot
- i) Stump support for amputees
- j) Stump shrinkers
- k) Lumbar corsets – To give support to patients with compression fractures of the spine during sitting/standing/walking.
- l) Shoulder cuff sling – To support a weak or subluxed shoulder joint e.g. a hemiplegic shoulder. Refer to diagram below.



Shoulder Cuff Sling. The above splints can be custom-made by Occupational Therapists trained in splint making.

Questions

1. A walking frame would be used by the following except:
 - a. Patient with poor balance
 - b. Patient with proprioceptive loss in the lower limbs
 - c. Patient with pain in the knees due to OA
 - d. Patient with a recent stroke with a dense left hemiplegia
 - e. Patient with mild weakness in both lower limbs.
2. The different types of wheelchairs would include the following except:
 - a. Reclining
 - b. One-arm drive
 - c. Light-weight
 - d. Removable arm rest
 - e. Adjustable height.
3. The following can be used for walking an amputee with a prosthesis fitted:
 - a. Elbow crutches
 - b. Axillary crutches
 - c. Walking frame
 - d. Wheelchair
 - e. Quadstick
 - f. All of the following.
4. Various orthosis can be used for the following except
 - a. pain relief
 - b. immobilize the joint
 - c. improve function
 - d. prevent contractures
 - e. correct deformity
 - f. reduce oedema.
5. Physical therapy for pain from arthritis would include the following except:
 - a. heat therapy
 - b. ultrasound
 - c. TENS
 - d. Passive movement
 - e. Shortwave.