25-04-2019 MOHM - Week 11 Notes S. Tarun Prasad

Excessive knee extension:-
→ Slight flexion for shock absorption during loading is lost
→ People who have quadriceps paralysis following poliomyelitis
→ Also caused by anatomical length discrepancy

Excessive knee flexion:-
→ Flexion contracture in the knees
→ Spasticity in the hamstrings prevent full extension
→ Normal plantarflexion in LR causes stability problem

Inadequate dorsiflexion control:-
→ Initial contact → dorsiflexion prevents foot slap.
→ Swing → dorsiflexion helps the foot clear the ground

Abnormal foot contact:-

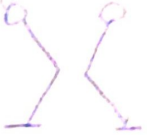
Talipes Calcaneus:-
* Deformity where forefoot is in extreme dorsiflexion
* This causes spasticity in anterior tibial muscle and weakness in triceps
* Forefoot doesn't take the weight
* Results in decrease of stance phase duration and thereby in the swing phase of opposite side
* The stride length increases in an overall sense

Talipes Equinus:-
* Forefoot is in plantarflexion
* Spasticity in triceps or weakness in dorsiflexion
* In severe cases heal never touches the ground
* GRF is anterior to the knee and causes hyperextension in the knee

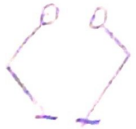
Foot Deformities with excessive medial / lateral contact :-
→ Talipes Equinovarus :-
* Inverted foot when load is borne by outer border of forefoot
* Insufficient Push Off
→ Problems with triceps, achilles tendon or pain in the forefoot.

Abnormal Walking Base :

Valgus knee → Because of lateral trunk bending
→ Because of abducted hips.



Varus knee → Narrow base because of foot adduction deformity.



→ Causes scissoring gait. → Seen in cerebral palsy

Assistive devices for mobility :-
→ Prosthesis → Replacement for missing limb
→ Orthosis → Supporting devices to compensate leg pathologies
→ Exoskeleton → To augment performance

Lower limb Amputation :
Caused by
→ Vascular disease
→ Accidents
→ Cancerous Tumours
→ Congenital causes

Below knee amputation: → transtibial
Above knee amputation → transfemoral

Prosthetic foot; - Solid Ankle Cushion Heel

Role of lower limb prosthesis :-
→ Provides stability in standing and while walking
→ Shock absorption
→ Enable forward motion of leg to prepare for next st
→ Assist in push off.
→ Control pendular swing
→ Adjust to different walking speed
→ Reduce effort needed to walk.
→ Restore independence
→ Cater to other special needs.