

ORG J - LOWER EXTREMITY SERIAL CASTING PROTOCOL

PURPOSE: To describe appropriate conservative Physical Therapy (PT) therapeutic intervention for patients, aged 0- 21 years old, requiring serial casting to increase joint range of motion (ROM).

GENERAL DEFINITION:

A therapeutic intervention designed to increase joint ROM through a series of positional casting to apply a low load stretch to muscles over an extended period of time.

SETTING: Casting/splinting room in OT or PT department. Or PT gym with high/low mat table and sink in same room.

EQUIPMENT/SUPPLIES:

- AquaCast Liner
- Rigid fiberglass
- Cast saw
- Scissors
- Cast Spreader
- Cast shoe (if needed)
- Heel wedges
- Velcro
- Stockinette * (for night splint, bivalve casts)
- Cotton padding * (for night splint, bivalve casts)

PROFESSIONAL USERS:

- Licensed physical therapists
- Licensed physical therapy assistants

REQUIRED QUALIFICATIONS AND TRAINING:

- Participate in continuing education course for serial casting and/or specialty training
- Participate in mentoring program (observation; supervision)
- AquaCast Inservice
- Observation with Pediatric Rehab Medicine in SPU
- And review at least one of the manuals/references on serial casting as available:

PT includes:

- Blackmore, A.M., et. Al. A Systematic review of the effects of casting on equinus in children with cerebral palsy: an evidence report of the AACPDM. Developmental Medicine & Child Neurology, 2007, 49:781-790.
- Evidence-Based Care Guideline for Management of Serial Casting in Children, Cincinnati Children's Hospital Medical Center, 2009.
- Legs and feet-A Review of Musculoskeletal Assessment Procedures for Children and Adults; video by Beverly Cusick, PT, MS; 2000
- Serial Casting to Restore Soft Tissue Extensibility in the Ankle and Foot; Beverly Cusick, PT, MS; 2000
- Progressive Casting and Splinting for Lower Extremity Deformities in Children with Neuromotor Dysfunction; Beverly Cusick, PT, MS; 1990. Rev. 05/16

SAFETY AND HEALTH PRECAUTIONS:

- Universal precautions should be used for treatment of all patients.
- When utilizing the cast saw, for removal of plaster or rigid casting material, clinician will carefully follow manufacturer's instructions.
- Gloves should be worn for cast application.
- If using utility knife, review equipment competency before using.

DRESS CODE:

- Therapist should protect clothing through donning scrubs or gown.
- Patients will wear comfortable clothing allowing exposure of body part to be casted.
- Cast shoes may be required and supplied to patient as necessary for lower extremity casting (acquired through CD prior to casting).

PATIENT DIAGNOSTIC GROUP:

- Patient with ROM deficit identified by physician as requiring serial casting as the treatment of choice.
- S/p Botox injections prior to referral.
- S/p muscle or fascial lengthening procedure prior to referral

CONTRAINDICATIONS:

- Lack of patient's, guardian's or primary physician's informed consent.
- If there is no passive extensibility of the shortened tissues past the first point of resistance, fixed contracture
- Bony restriction, hard end feel
- Painful, arthritic joints
- Rigidity
- Uncontrolled hypertension
- Uncontrolled intracranial pressure
- Recent incidents of autonomic hyperreflexia
- Medical instability requiring access to the vascular system for monitoring vital signs and administering medications
- Impaired circulation, demonstrated by low skin temperature, trophic changes, significant or fluctuating edema and/or faint, distal pulse on extremity to be casted.
- Heterotopic ossification; stretching inflamed tissues may exacerbate the condition.
- Unhealed fractures or recent fracture at extremity to be casted.
- Open wounds: impaired skin integrity

PRECAUTIONS:

- Allergies or history of skin reactions to casting materials
- Decreased bone density at extremity to be casted
- Severe extensor posturing following near death by drowning
- Decreased sensation
- Poor communication
- Confirmed fracture healing
- Excessive sweating
- Sensory issues

- Poor compliance with cast wear

REFERRAL PROCEDURES:

- A prescription must be received from the physician indicating:
 - Serial casting to specified body part(s). Rev. 05/16
 - Duration of casting
 - If there has been a Botox injection: date and to what specified site(s)
 - Frequency of cast change (optional -If not specified follow guidelines below)
 - Functional goals specified (optional - If not specified follow guidelines below)
- An additional prescription will be required for orthotics or bracing S/P casting series (requested at same time as referral for casting).
- Outpatient PT Evaluation will be performed to assess the below components and establish a plan of care. Serial casting should be listed under recommended skilled techniques.
- Site OA will obtain authorization for specific “serial casting” intervention prior to initiating treatment.

PT EVALUATION: (used from Cincinnati Children’s Hospital, Evidence-Based Care Guideline for Management of Serial Casting in Children)

- Refer to Rehabilitation Services Policy, title “Clinical Assessments/Screenings”
- History
 - Botox injection sites and dates
 - Allergies/skin sensitivities
 - Past Casting/orthotics history
- Pain Screen
- Range of Motion
 - AROM
 - PROM (R1/R2)
- Muscle Tone
 - Ashworth Scale
- Strength
- Physical Findings
 - Soft tissue integrity/mobility
- Posture, musculoskeletal alignment
- Functional Skills → Gross Motor Function Classification System (GMFCS)
 - Observational Gait Scale (OGS), if appropriate
- Patient/Family Education
- Plan and Recommendations
 - Additional PT Services for functional strengthening in ambulatory patients as needed
 - Orthotics (night AFO’s/splints, knee immobilizers on case by case basis)
 - Follow-up with referring Pediatric Rehab Medicine Team in 1month following casting

ANTICIPATED GOALS:

- Improve passive range of motion (PROM)
- Improve active passive motion (AROM)
 - Improve dynamic alignment of posture
- Improve static alignment of posture
- Improve functional performance

- Improve tissue extensibility

TREATMENT GUIDELINES:

- Minimum of 1 session per week (7-10days); duration as specified by script (4-6 weeks)
- Casting sessions require a minimum of 60 minutes to re-assess and cast. This session length can vary according to location and type of cast
 - Patient must be able to tolerate cast wear as determined by clinical observation of skin integrity between casting series.
- Interventions: fiberglass cast and aquacast liner
- Position: prone or supine
- Use “timed out” procedure to verify correct extremity to be casted
- Perform casting technique on selected extremity per procedure using above supplies.
- Utilize rehab aide when available.

DOCUMENTATION:

- Use Outpatient PT Spasticity Evaluation, pre-completed note for report, in Cerner
- Use Outpatient PT Treatment Note Powerform in Cerner
- During weekly Casting Appointments perform the following:
 - o Pain Screen
 - o Range of Motion, (Active, Passive- R1/R2)
 - o Muscle Tone
 - o Strength
 - o Physical Findings (including skin condition)
 - o Posture o Functional skills (GMFCS, OGS, if appropriate)
- Each session also document: the type of cast fabricated, patient/family education performed, plan/recommendations
- Goal status should be updated after each casting.
- Charging: Follow PT Charge Guidelines for Serial Casting (New Patient or Patients receiving ongoing PT at an ORG J center)
 - o For treatment: PT Short Leg Casting, Cerner code- 2303, CPT code- 29405. Cost \$704.
 - o Please note the above CPT refers to 1 extremity.

FUNCTIONAL OUTCOMES:

- Increased independence in functional mobility
- Improved performance in gross and/or fine motor skills.
- Improved performance in leisure activities.
- Improved range of motion
 - o Passive ankle dorsiflexion of at least 5-10 degrees
 - o Improved tolerance to passive manual stretch of extremity
 - o Improved fit of Ankle foot orthotics for positioning during sitting, standing or ambulation

DISCHARGE CRITERIA:

- Patient meets criteria established in Rehabilitation Services policy #02 005, titled “Discharge and Follow-Up Criteria.”
- Passive ankle dorsiflexion ROM of 5-10 degrees.

FOLLOW-UP CRITERIA:

- Coordination of Care with primary PT if patient is being seen by another therapist at ORG J. Communicate follow-up recommendations using multidisciplinary interaction section of the electronic outpatient PT treatment note.
- If patient is being discharged from OT or PT services, follow the criteria set forth in Rehabilitation Services policy #02 005, titled "Discharge, Follow-Up, and Readmission for Outpatient Rehabilitative Services."
- Complete discharge section of electronic treatment note if patient is not being treated in ongoing PT.

REFERENCES:

Blackmore, A.M., et. Al. A Systematic review of the effects of casting on equinus in children with cerebral palsy: an evidence report of the AACPDM.

Developmental Medicine & Child Neurology, 2007, 49:781-790.

Evidence-Based Care Guideline for Management of Serial Casting in Children, Cincinnati Children's Hospital Medical Center, 2009. Cusick, B., (2000).

Serial Casting to Restore Soft Tissue Extensibility in the Ankle and Foot. Legs and feet-A Review of Musculoskeletal Assessment Procedures for Children and Adults; video by Beverly Cusick, PT, MS; 2000

Progressive Casting and Splinting for Lower Extremity Deformities in Children with Neuromotor Dysfunction; Beverly Cusick, PT, MS; 1990.