## Physical Therapy Practice Guidelines for Persons with Bleeding Disorders:

# Muscle Bleed

*Except Iliopsoas-Refer to specific iliopsoas guidelines*

The following practice guidelines were developed through the consensus of the therapists that work with patients with bleeding disorders and edited by the National Hemophilia Foundation's Physical Therapy Working Group. The information contained in the practice guidelines is not intended in any way to be used as primary medical advice or to replace medical advice. They are intended to guide the physical therapist caring for individuals with bleeding disorders in the important factors and elements of quality care.

## Causes

- Muscle Strain
- Muscle Tears
- Contusion/Trauma
- Fractures
- Spontaneous/Idiopathic

## Signs and Symptoms

- Muscle guarding in shortened position
- Swelling/edema
- Hematoma
- Heat/Erythema
- Pain
- Skin changes (color, bruising)
- Decreased strength/muscle inhibition
- Movement asymmetry
- Peds: decline in developmental milestones/motor patterns
- Neurovascular compromise
- Limited weight bearing
- Decreased ROM in associated joints
- **POC- MSKUS** is recommended for muscle bleed detection (if available)

## Differential Diagnosis

- Fracture
- Tumor
- Soft tissue injury
- DVT/blood clot
- Joint bleed
- Internal derangement/AV malformation

## Complications

- Myositis Ossificans Traumatica/Heterotopic Ossification
- Pseudotumor
- Compartment Syndrome

## PT Intervention

**Acute Stage:** pain present at rest and with all activity

- MSKUS, if available in clinic, can be used to monitor/track hematoma resorption, retraction, healing, and detect re-bleeding longitudinally.
- Factor replacement per medical team orders, consider prophylaxis prior to PT
- Avoid use of affected muscle
- Do **NOT** use elastic bandage/compression with presence of neurovascular signs/symptoms

| LOWER EXTREMITY | UPPER EXTREMITY |
|---|---|
| ● No active movement until bleeding stops<br>● Non-weight bearing until bleeding stops<br>● Splinting if needed to limit activity<br>● Consider bed rest for severe bleed<br>● Opposite limb ROM<br>● Ice/elevation<br>● TENS | ● Immobilization<br>● Rest in position of comfort<br>● No active movement until bleed stopped<br>● Ice/elevation<br>● Splint/slings when indicated<br>● TENS |

**Subacute Stage:** Activities of Daily Living (ADLs) do not increase pain from baseline level

- Factor correction per medical team orders, consider prophylaxis prior to PT

| LOWER EXTREMITY | UPPER EXTREMITY |
|---|---|
| ● Splinting and assistive device to limit activity<br>● Progress to TTWB without pain<br>● Isometric/AAROM without pain<br>● Positioning: progress to increased muscle length without pain<br>● Continue to do therapeutic exercise with uninvolved side; avoid ballistic loading<br>● TENS | ● Progress to unrestricted lifting/use for ADLs<br>● Same as LE<br>● Same as LE<br>● Same as LE<br>● Same as LE<br>● Same as LE |

**Chronic Stage:** Pain-free with ADLs

- Factor correction per medical team orders, consider prophylaxis prior to PT

| LOWER EXTREMITY | UPPER EXTREMITY |
|---|---|
| ● Progress to FWB, wean assistive device<br>● Pain-free stretching<br>● Continue positional stretch/avoid over-stretch<br>● Progress to AROM/PRE<br>● Caution to prevent excess muscle loading<br>● Teach patient to avoid overstretching<br>● Re-eval by PT, consider outpatient PT referral<br>● Address any compensatory shortening problems | ● Progress to unrestricted lifting/use for ADLs<br>● Same as LE<br>● Same as LE<br>● Same as LE<br>● Same as LE<br>● Same as LE<br>● Same as LE |

## Treatment Considerations

- Electric stimulation
- Sport specific muscle stretch and exercise
- Work closely with hematologist for adequate factor coverage
- Education on activity modification and management
- Kinesiotape®
- Gentle manual therapy and soft tissue mobilization techniques
- Treatment duration will vary based on individual patient needs and may require longer healing/repair time than what is expected for individuals without bleeding disorders

## Precautions/Contraindications

- Inhibitor patients: Please contact the physical therapist at your regional Hemophilia Treatment Center (HTC)
- For more information regarding these complex patients.
- Splinting – monitoring for neurovascular compromise
- Caution with use of compression of affected muscle
- Use of heat modalities and thermal application of ultrasound (pulsed non-thermal settings are recommended): refer to MASAC Guideline #130
- Must have full, pain-free ROM and strength before safe return to sports.

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