BROOKS Rehabilitation

Overview of Physiatry and Spasticity Management

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Neurorehabilitation and Spasticity Management

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OBJECTIVES

- What is a physiatrist?
- The role of physical medicine and rehabilitation
- Introduction to spasticity management

Physiatry History

- Informally started as a specialty of medicine after WW I
- After WW II, public became more aware of the need for rehabilitation for those with debilitating war injuries and thousands who were disabled by polio

1947 – Physiatry is Born!

- Physicians that would treat the "whole patient" were needed to work to try to restore function after disability
- January 1947, the (now) American Board of Medical Specialties formally recognized the American Board of Physical Medicine (and Rehabilitation)…and so physiatry was born!

What is a Physiatrist?

- Physiatrist = Physical Medicine and Rehabilitation =PM&R
- Physiatrists work to restore and optimize functional ability and quality of life to those with physical and cognitive impairments and disabilities
- Goals are to maximize a patient's independence in mobility, activities of daily living(ADLs), cognition, communication, and swallow.

Conditions Physiatrists Treat

- Amputation
- Brain Injury
- Cancer
- Cerebral Palsy
- Multiple Sclerosis
- Muscular Dystrophy
- Osteoarthritis
- Parkinson's Disease
- Spasticity & Movement Disorders
- Spinal Cord Injury
- Spine Pain
- Sports-Related Injuries
- Stroke

Neurology vs Neurorehabilitation

- Neurologists focus on diagnosing and preventing new or progression of neurological diseases
- Physiatrists work to optimizing function within the diagnosis established and neurological deficits related to that diagnosis in order to minimize burden of disability and optimize quality of life
- EXAMPLE: Parkinson's Disease
  - Neurologists: diagnose and manage medications to try to minimize progression
  - Physiatrists: assess current function with regard to mobility, activities of daily living, cognition and communication and work to maintain function and optimize quality of life within the disability that is present

Foundation of Rehabilitation: Interdisciplinary Team Approach

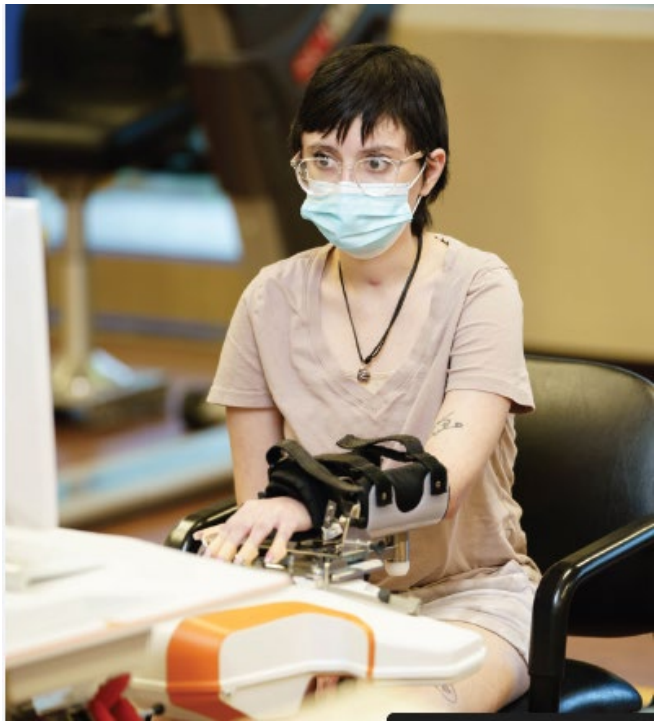
- Rehabilitation team consists of a diverse group of therapists including PT, OT, speech therapy, case management, psychology and nursing under the direction of a Rehabilitation physician
- All team members work towards the common goal of optimizing function and quality of life

Physical Therapy

- Focus on lower limb therapy
- Mobility
  - Balance and transfers
  - Mobility through walking with or without an cane or walker
  - Mobility at a wheelchair level

Occupational Therapy

- Strengthening of the upper body
- Activities of daily living
  - Household or work tasks
  - Feeding
  - Bathing
  - Dressing
  - Grooming
  - Toileting, etc…



Speech Therapists

- Swallow dysfunction
  - Assess appropriate diet consistency to minimize risk of aspiration
- Communication
- Cognition
  - Memory
  - Concentration
  - Attention
  - Problem Solving

Caregiver Training is a Goal of Rehab

- Training on safe transfers and needs for transfer equipment(ex: slide board, hoyer)
- Training on dressing, bathing, hygiene and toileting routines that are safe for patient and caregivers
- Developing a bowel and bladder routine that patient and caregivers are comfortable with that promotes continence and hygiene
- Teaching how to perform range of motion exercises, and pressure reliefs to minimize complications such as contractures and wound development

Diverse Rehabilitation Settings

- Inpatient(hospital based therapy) vs Outpatient
- Medically necessary to be inpatient?
- How much therapy can a patient tolerate/are they available for daily?

Rehabilitation Settings: Acute Inpatient Rehabilitation

- Tolerate 3 or more hours of therapy daily OR 15 hours per week
- Need for AT LEAST 2 disciplines- PT, OT, Speech Therapy
- Most intensive rehabilitation
- Patient has the *medical need* for a physiatrist to be available daily
- Needs 24 hour nursing care

Rehabilitation Settings: Skilled Nursing Facilities

- Medically necessary to be inpatient but not requiring daily physiatrist assessments/availability
- Usually 1-2 hours of PT, OT and/or SLP daily
- Limited nursing care

Rehabilitation Settings: Home Health

- Medically stable to be outpatient but with mobility or medical issues that limit their ability to leave the home
- PT, OT, and SLP home visits 2-3 times per week

Rehabilitation Settings: Outpatient Therapy

- Medically stable to be outpatient
- Mobile patients able to attend PT, OT, and SLP in an outpatient clinic/gym setting
- Usually 2-3 times per week but can be up to 5 days/week

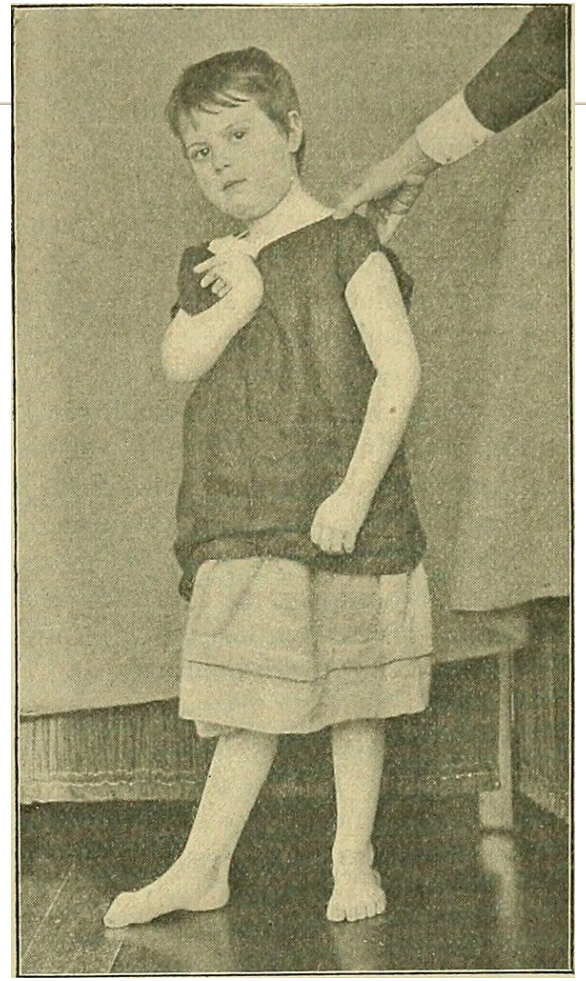
***Insurance will only pay for EITHER home health OR outpatient therapy. For example, if a patient is getting home nursing care for a wound, they can only do home therapy.

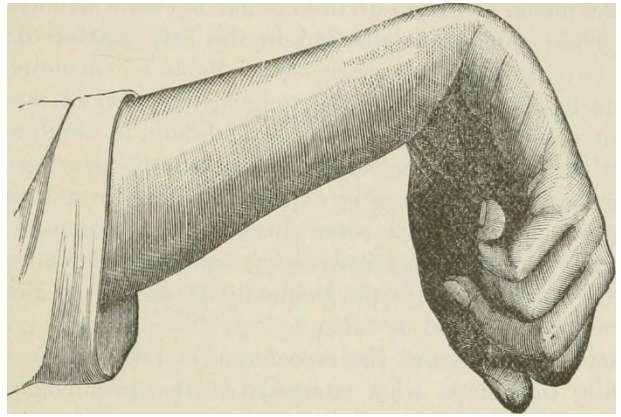
Questions?

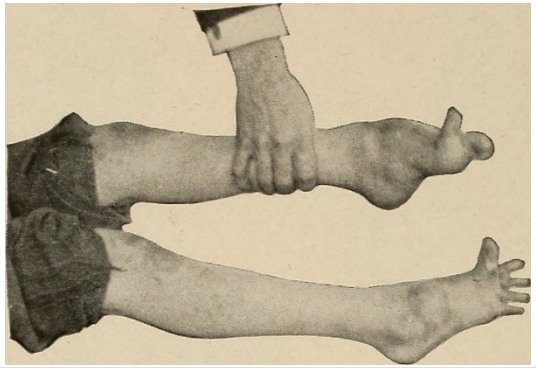
SPASTICITY MANAGEMENT

What is Spasticity?

- Spasticity is a condition that may develop after a patient has had damage to either the brain or the spinal cord.
- Patients may notice it as muscle tightness or muscle stiffness that occurs after diagnosis of:
  - Stroke
  - Brain Injury
  - Spinal Cord Injury
  - Cerebral Palsy
  - Multiple Sclerosis
  - And more…







Spasticity

- Conditions: Stroke, spinal cord injury, traumatic/non-traumatic brain injury, cerebral palsy
- Velocity dependent increase in tone (more noticeable with fast movements)
- More resistance in one direction than another when the muscle is stretched

Rigidity

- Conditions: Parkinson's, neuroleptic malignant syndrome
- Rigidity or cog wheel rigidity(tremor superimposed on muscle tightness causes intermittent increase in tone during movement)
- Does not change with velocity of movement
- Same resistance in all directions

Muscle Tightness

Spasticity

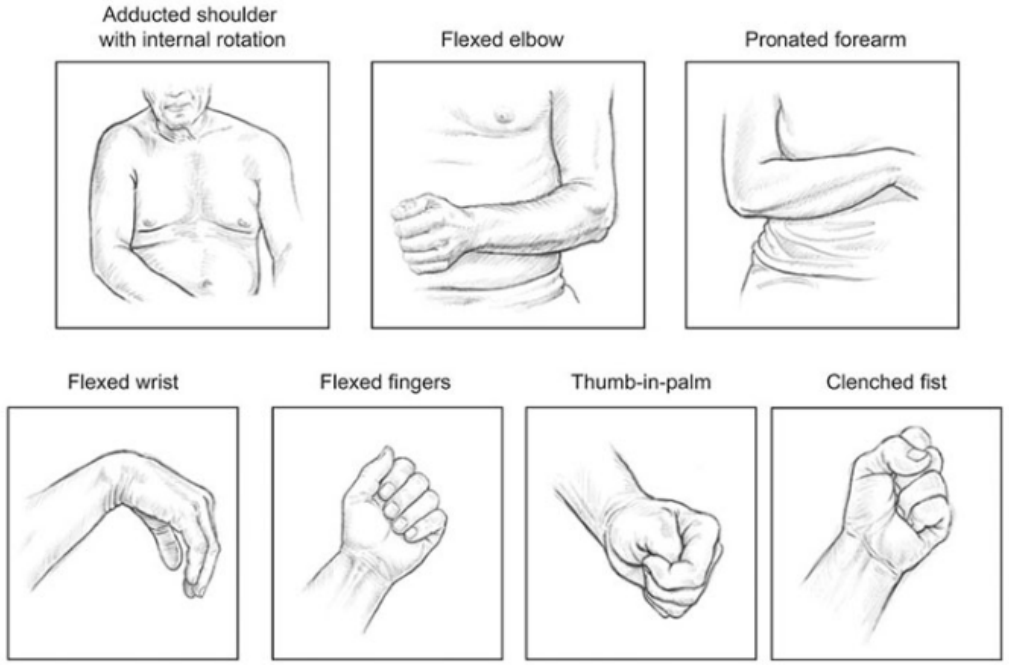
- Conditions: Stroke, spinal cord injury, traumatic/non-traumatic brain injury, cerebral palsy
- Velocity dependent increase in tone (more noticeable with fast movements)
- More resistance in one direction than another when the muscle is passively stretched

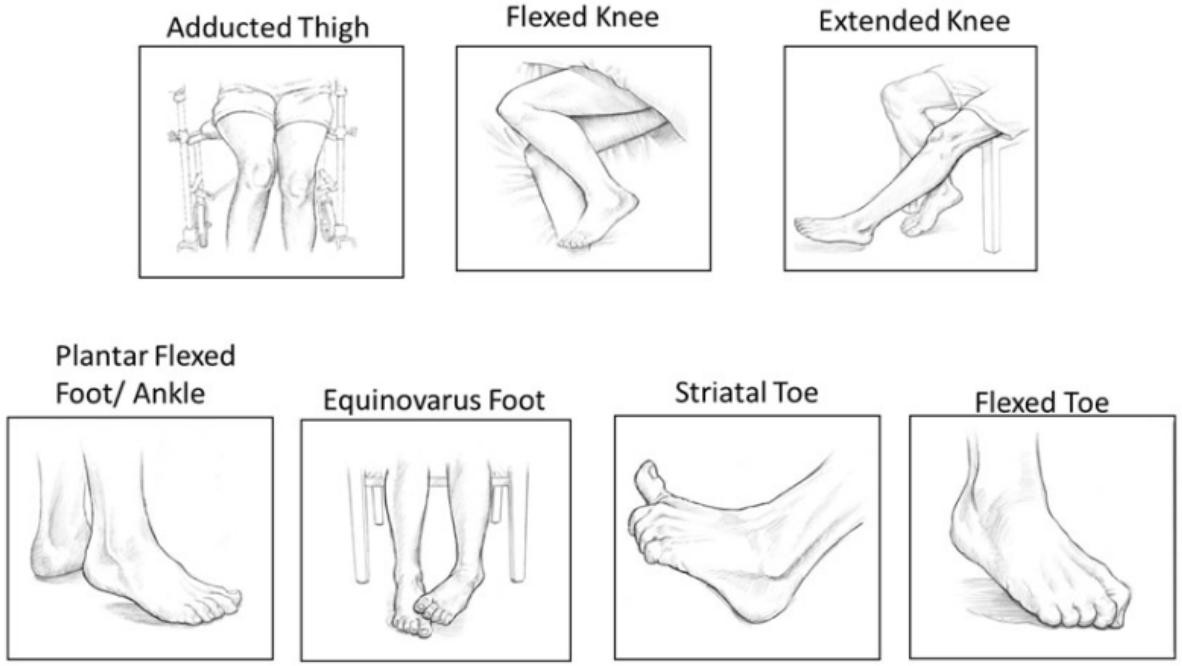
Muscle Tightness

Rigidity

- Conditions: Parkinson's, neuroleptic malignant syndrome
- Rigidity or cog wheel rigidity(tremor superimposed on muscle tightness causes intermittent increase in tone during movement)
- Does not change with velocity of movement
- Same resistance in all directions

Common Patterns of Spasticity





https://neurorehabilitation.com.au/spasticity-management/

What Patients Say to Describe Spasticity

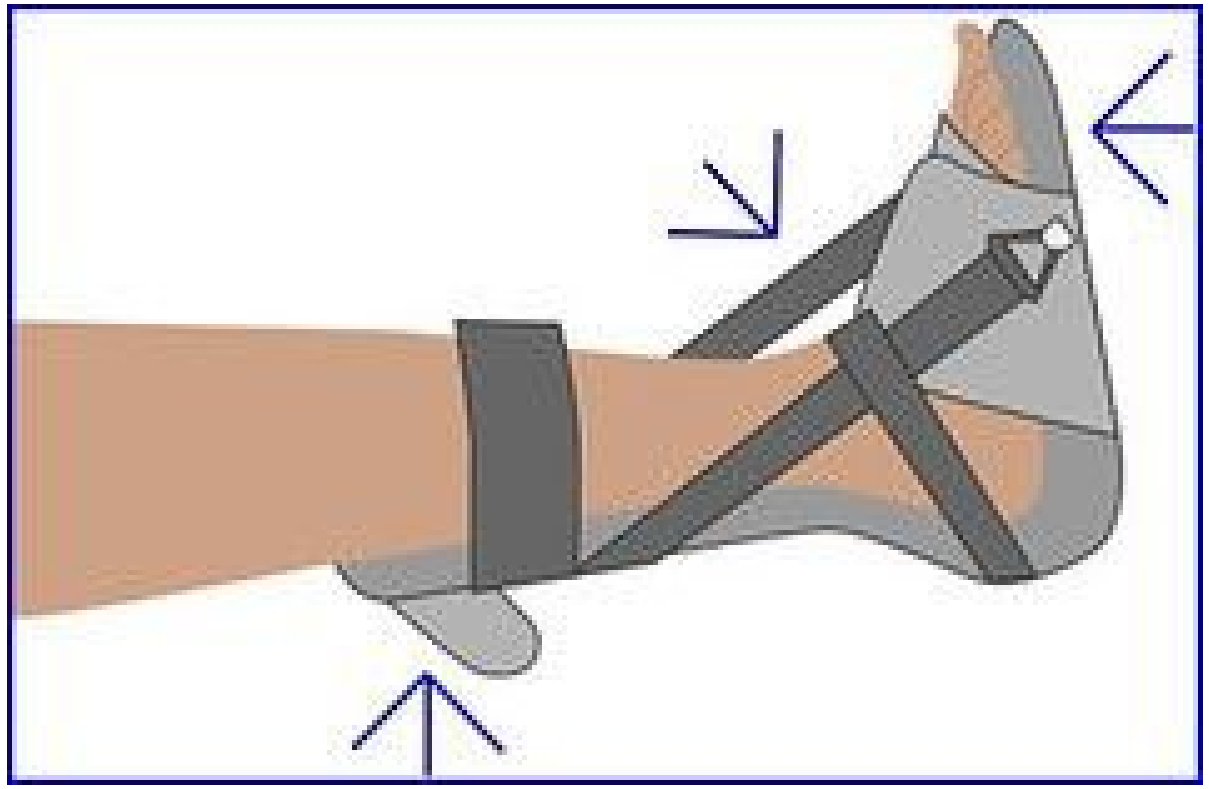
- “My toes curling bothers me”
- “I can’t get my thumb out of my hand”
- “My legs keep crossing”
- “They hear me coming when I walk”
- “My brace is rubbing because my foot turns in so much”

How do we manage spasticity?

- Therapy
- Stretching
- Bracing, casting
- Medications- muscle relaxants
- Botulinum toxins
- Intrathecal Baclofen Pumps
- Surgical tendon lengthening
- And more…

Bracing

Bracing



Medications

Several medications are available to help with spasticity, the most common of which is baclofen.

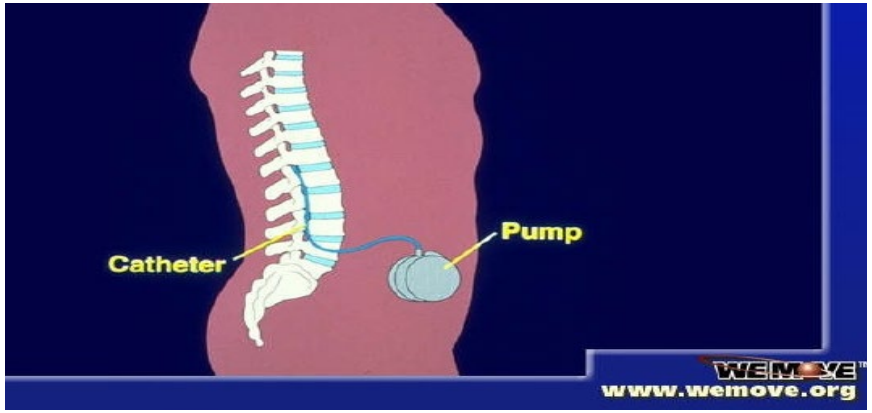
Your medical team may suggest one or a combination of these medications and discuss with you the potential risks and benefits.

Botulinum Toxin

- Develop a muscle dosing plan based on functional history and physical
- Gradual onset
- Lasts about 2.5-3 months
- Have to wait 3 months between doses
- Risks: higher doses can lead to weakness
- Medically indicated and FDA approved, usually covered by insurance after prior authorization

Intrathecal Baclofen Pumps

- Medication pumps are surgically implanted just under the skin, usually in the abdominal region
- Benefits:
  - Targeted delivery of the muscle relaxant baclofen
  - More flexibility and effectiveness of the dosing for spasticity management without some of the sedating side effects that oral baclofen can sometimes cause
  - Goal is to improve spasticity management and wean off oral muscle relaxants
- Will need pump refills every few months
- Intrathecal baclofen trial prior to surgical implantation
- Can be used in combination with botulinum toxin



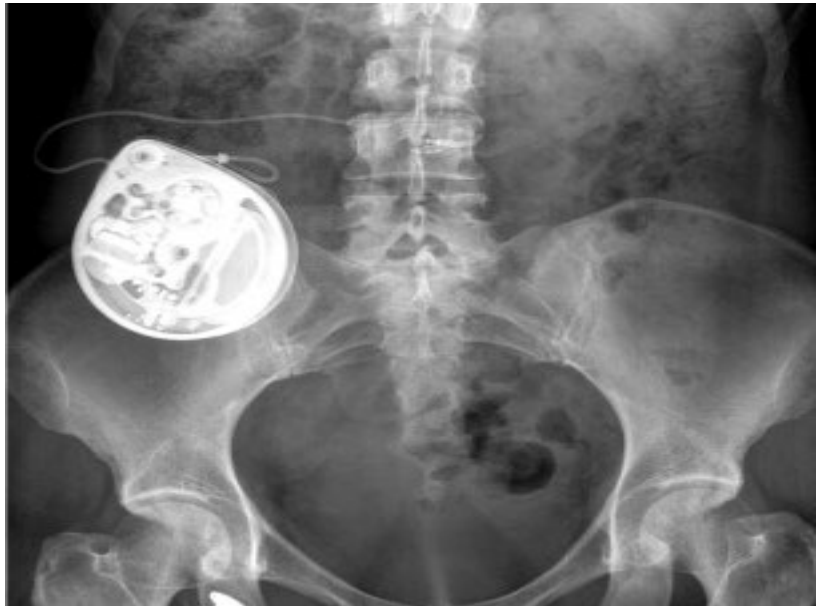


Image: https://www.obstetanesthesia.com/cms/attachment/2002744525/2009831544/gr1.jpg

How Does This Help?

- Mobility
- Active and Passive ROM
- Transfers
- ADLs
- Easier to open the hand to clean or cut nails
- Easier to relax the legs for hygienic cleaning
- Improve foot catching
- Improve toe curling

Questions?

Thank you.