

# 2011 Myositis Association Annual Conference



Banner Good Samaritan Rehabilitation Institute,  
Phoenix, AZ.

Neuroscience Clinics

- John Bargas, MS, PT – Northern Arizona University; Neuroscience Clinics: ALS, MS, Myositis; Stroke, Parkinson's Disease, and Neuromuscular Clinics; Outpatient Neuro.
- Diane R. Johnson, OTR/L - University of Washington; Neuroscience Clinics: ALS, MS, Myositis; Stroke, Parkinson's Disease, and Neuromuscular Clinics; Outpatient Seating Clinic (Wheelchair).

# Banner Good Samaritan Medical Center



# Our Neuroscience Clinics Team

- Dr. Levine, Nursing, Therapy (OT, PT, RT, SLP), Dietary, Social Work, Administration



# Physical Therapy and Myositis

## Part 1

The importance of exercise and types of exercises that can maintain a higher functional status while decreasing fall risk

# Quick Myositis Overview

- Idiopathic Inflammatory myopathies.
- Autoimmune/immune system generated inflammation causes muscle damage/weakness.
- Can attack systems like skin, lungs, GI system and joints, but focus today is on the muscle weakness.
- IBM—Proteins fold/cause clumps (inclusion bodies) which are toxic to muscles. Toxicity causes inflammation.

# Inclusion Body Myositis

- Most common muscle disease >50 yo and affects men > women.
- Slowly progressive, painless muscle weakness.
- Distal muscle weakness:
  - Quadriceps/thighs, drop foot, forearm flexors and hands.
  - Trunk remains strong.

# Presentation of Muscle Weakness

- Difficulty walking.
- Difficulty lifting, carrying, etc.
- Difficulty climbing stairs.
- Difficulty with all functional mobility.
- Difficulty with ADLs and IADLs.
- Impaired balance.
- Severe fatigue.



# Why is Exercise Important if a Person is Losing Muscle?

- Functional movement does not rely on one muscle or one muscle group, but many groups of muscles working together.
- A person who has lost muscle due to Myositis can complicate things by becoming sedentary. Disuse weakness and subsequent atrophy can occur.
- Fatigue, pain, and fear of causing further inflammation/weakness can easily lead to a more sedentary lifestyle.

# Why is Exercise Important if a Person is Losing Muscle?

- Each person **MUST** find the **PROPER** exercise program for them that will strengthen muscles and muscle groups **NOT** affected by their disease process, while **PROTECTING** the muscles that are affected.
- By doing this, the body will be better able to compensate for the weakness.
- A person will notice improved efficiency with essential daily activities and retain the ability to continue performing those activities **WITHOUT OVERUSE** of involved muscle/groups.

# Why is Exercise Important if a Person is Losing Muscle?

- A person who does not find the proper exercise balance will then work MUCH harder for normal everyday functional activities and will cause undue stress to involved muscle groups.
- This increases risk for injury, further inflammation due to abuse/overworking weak muscles, possible pain and additional fatigue due to the amount of effort it takes to complete functional tasks with muscles that cannot effectively tolerate gravitational forces acting on one's body.

# Risks of Exercise

- There's no evidence showing that exercise causes additional inflammation in IBM, Polymyositis, and Dermatomyositis. Some studies suggest that sustained exercise program of >7 weeks can actually decrease inflammation.
- If one is experiencing an inflammatory exacerbation, they should most likely wait until medication begins to control the exacerbation before starting their exercise program.

# Risks of Exercise

- Protect weaker areas so to not strain them during exercise. Joints that are not stabilized well can become injured when one muscle group dominates the motion.
- “Overdoing it”
  - When people commit to a new exercise program they are passionate and run the risk of overdoing it.
  - Energy conservation.
  - How do you know if you’ve done too much?
  - “Daily Energy Packet”.

# What is PROPER Exercise?

## **Gently work involved muscles:**

- PROM, AAROM, AROM and light resistance (open chain? closed chain?).
- Allow adequate time to adapt to your program (4-12 weeks).
- When exercise become easier and you feel better without as much fatigue you can then add additional load to your exercise.
- If exercise does not get easier, you end up feeling fatigued but recover by the next morning, then you might be at your ideal intensity level.

In other words, this is the level of exercise that optimizes compensatory muscle efficiency and strength and maximizes your ability to function at a higher level each and every day.

# What is PROPER Exercise?

## **Gently work involved muscles:**

- Recovery to take up to 2-3 days during the first 2 weeks of a new exercise program, BUT after that you should feel recovered from your exercise either the same day or latest by the next morning. If not, you may be overdoing it.
- Protect/support involved muscles through proper positioning during the exercise.
- If fatigue is severe and protecting limbs/joints/muscles on land based exercise machines is difficult, consider:
  - Splinting equipment
  - Aquatic based exercise.

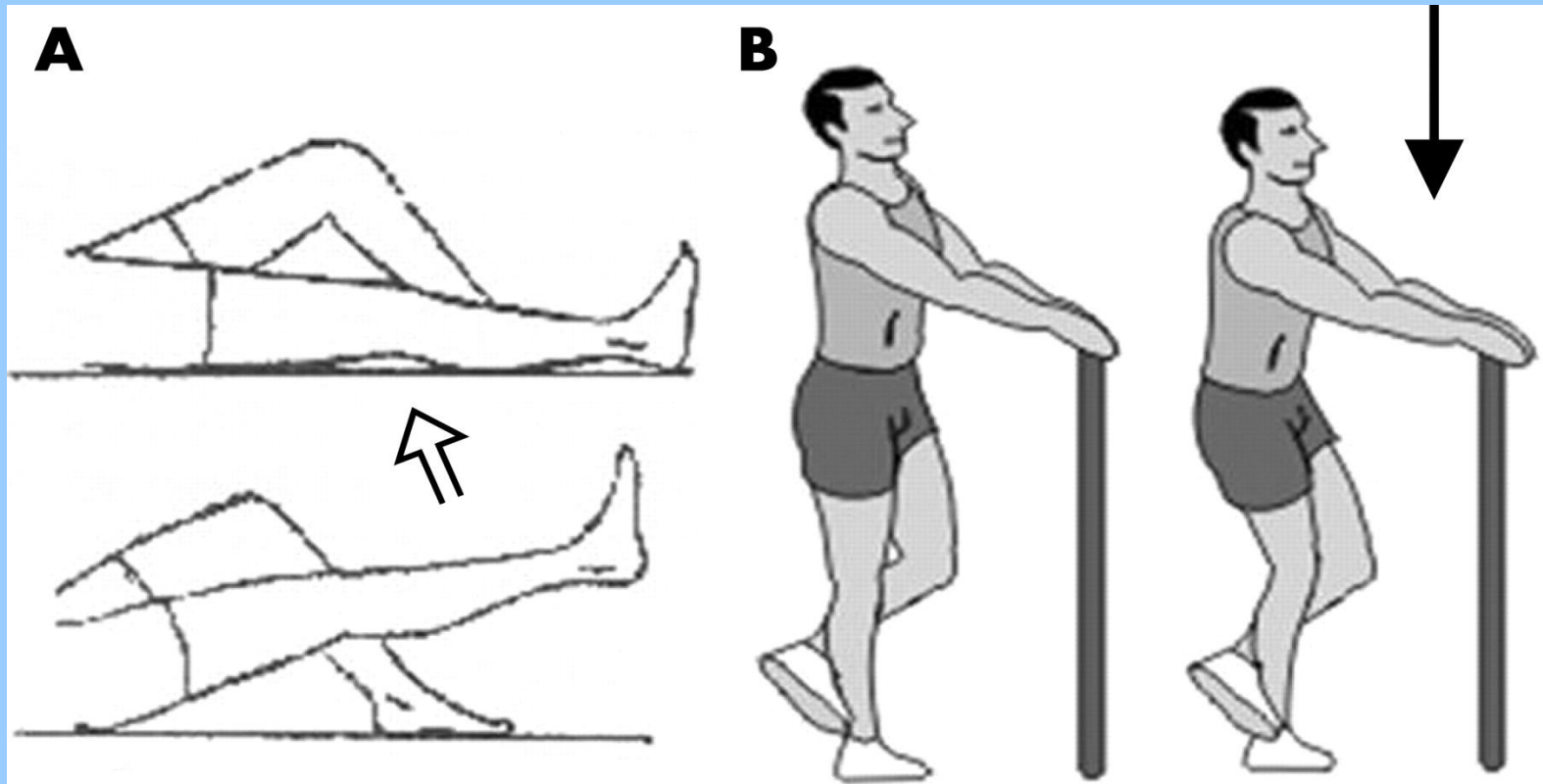
# Examples of Land Based Exercises

- Open chain = usually feet are not planted to the ground and part of a total body functional movement. These exercises tend to isolate specific muscle groups.
  - Usually expend less total energy, but can cause isolated fatigue
- Closed Chain = Feet planted on the ground and exercise is functional, and involves multiple muscle groups.
  - Uses more total energy which can lead to more overall fatigue BUT these are also the exercises which improve functional mobility, walking and balance the most.

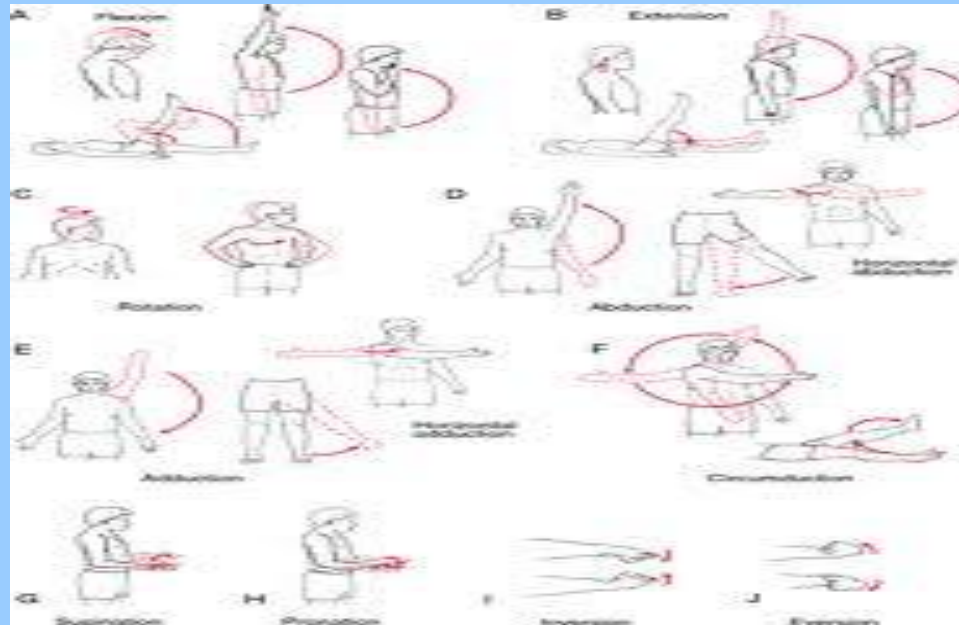


# Examples of Land Based Exercises

- open and closed chain



# Active Range of Motion (AROM) is a Form of an Open Chain Exercise

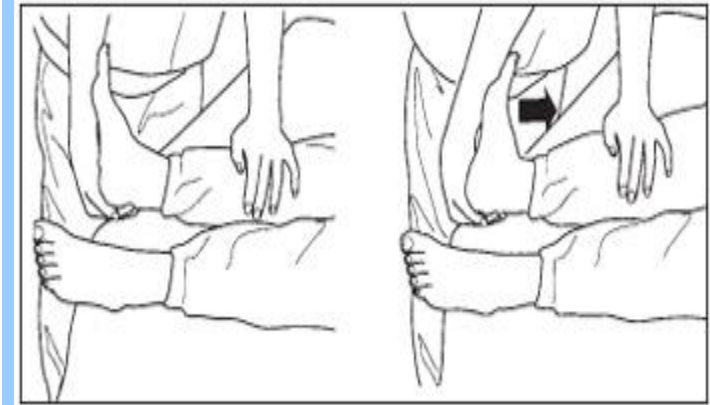
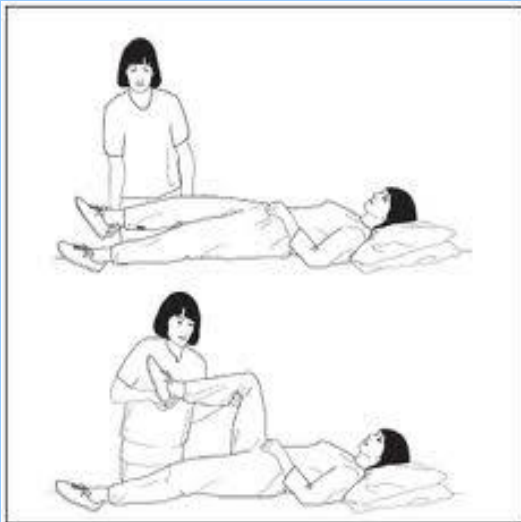
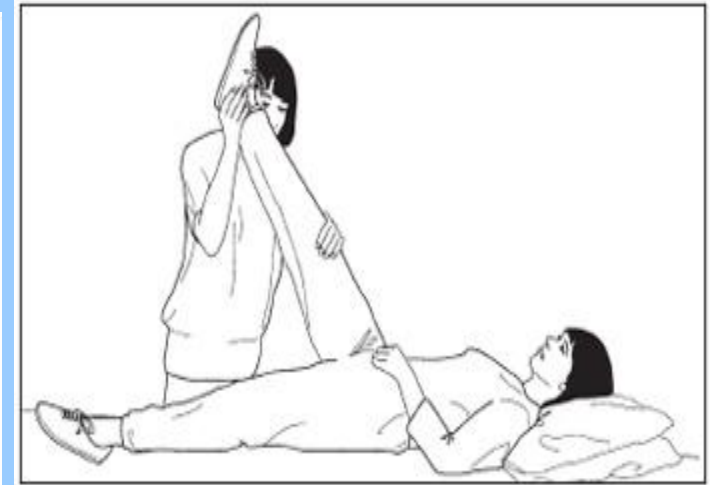
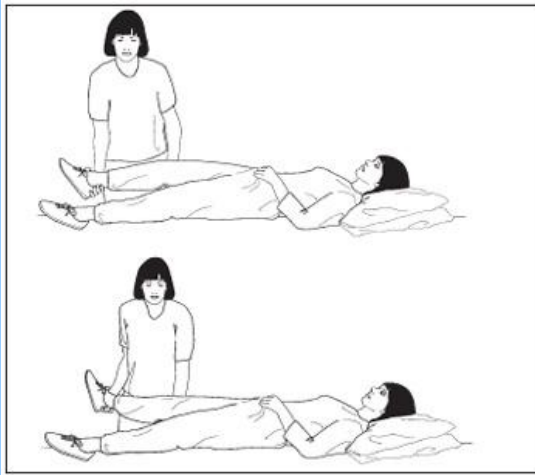


# Passive Range of Motion (PROM) and Active Assistive Range of Motion (AAROM) is another Form of an Open Chain Exercise

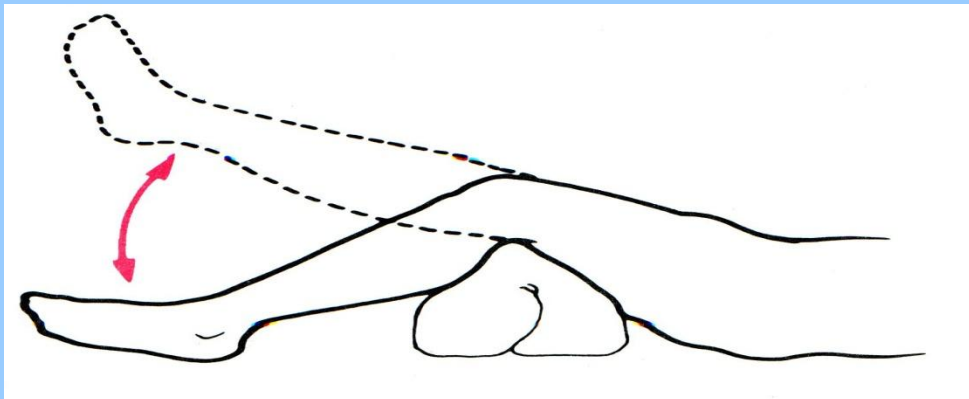
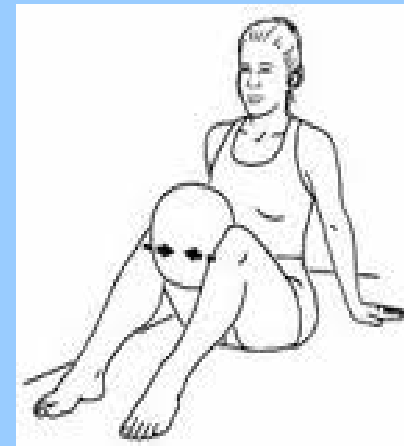
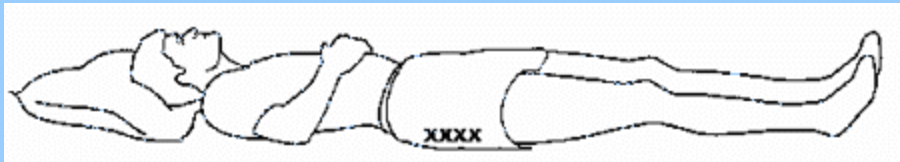
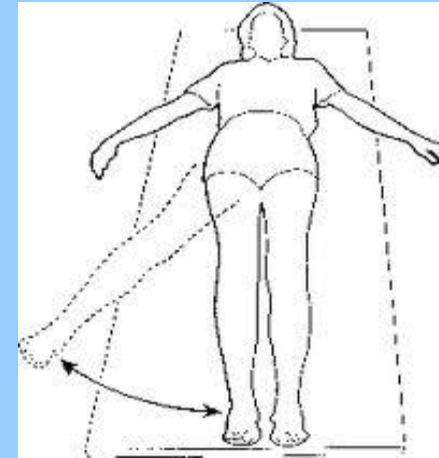


- Both PROM and AAROM require second person.
- Both PROM and AAROM have very similar if not identical movements BUT,
- PROM—Helper does all the work.
- AAROM—Work is shared so that the person exercising gets the most out of their body.

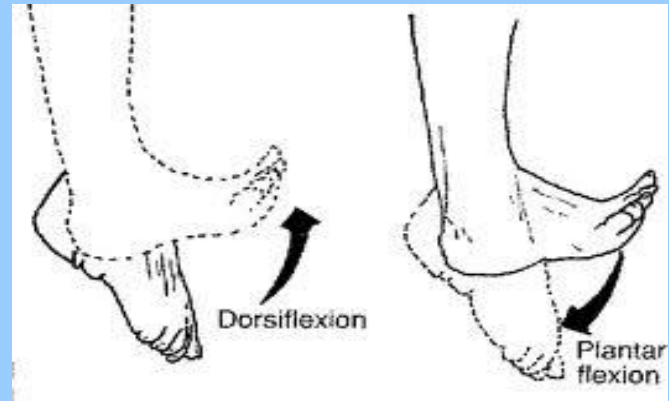
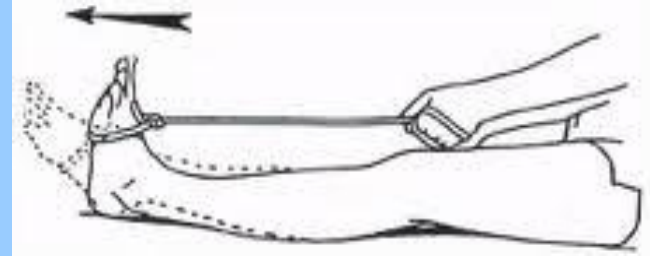
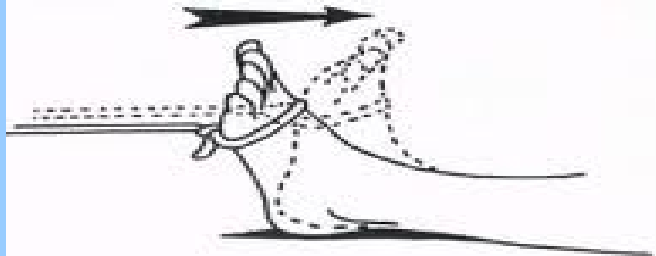
# PROM/AAROM



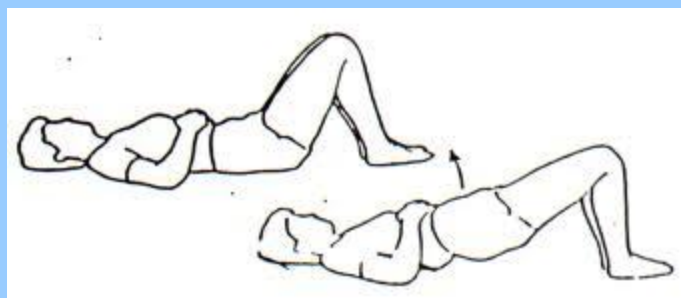
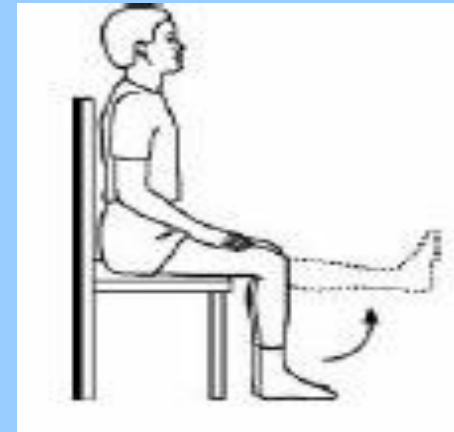
# Recommended Open Chain Lying Down Exercises



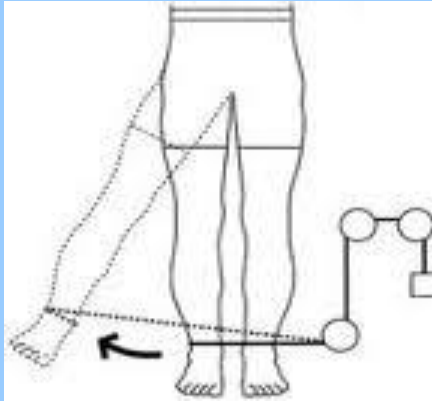
# Recommended Open Chain Lying Down Exercises



# Recommended Open Chain Lying/Sitting Exercises



# Recommended Open Chain Standing Exercises





# Open Chain

- Why should we care? Open chain?  
Closed Chain?
- All about energy conservation!



# Examples of Land Based Exercises

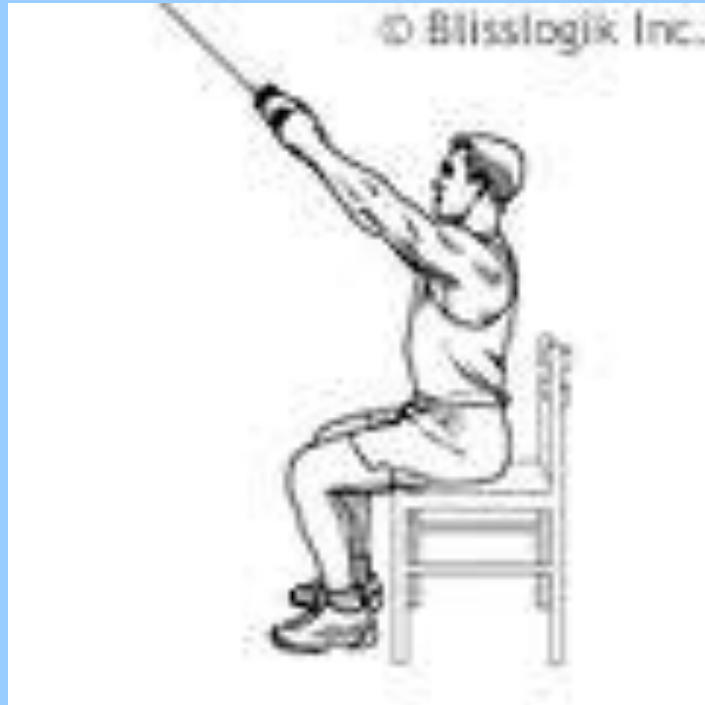
- Machine Circuits (mainly open chain) but can be a combination of both



# Example of Open Combined with Closed Chain Exercise



# Example of Open Combined with Closed Chain



# Examples of Land Based Exercises

- Standing (closed chain)



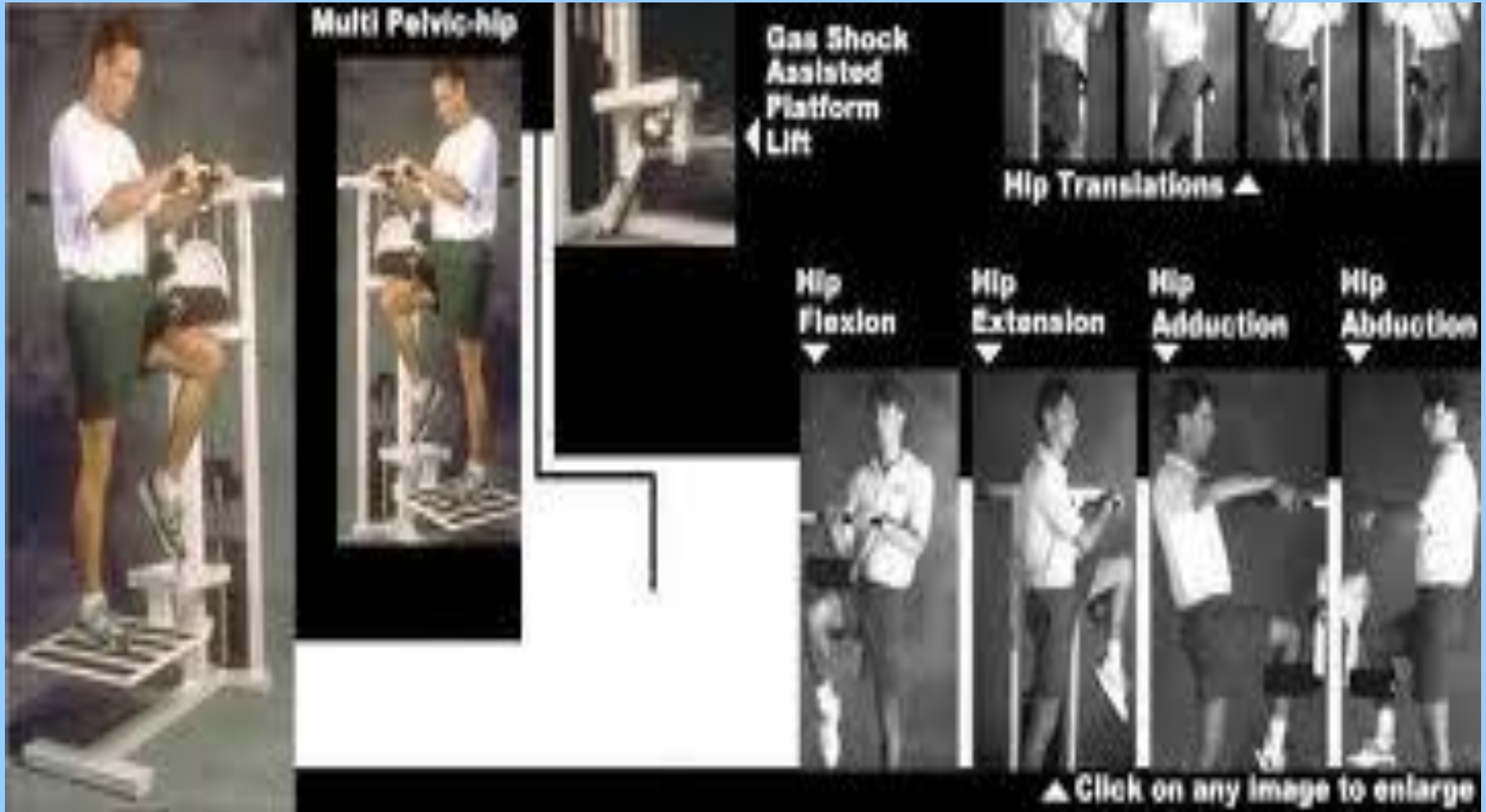
# Examples of Land Based Exercises



# Land Based Exercises

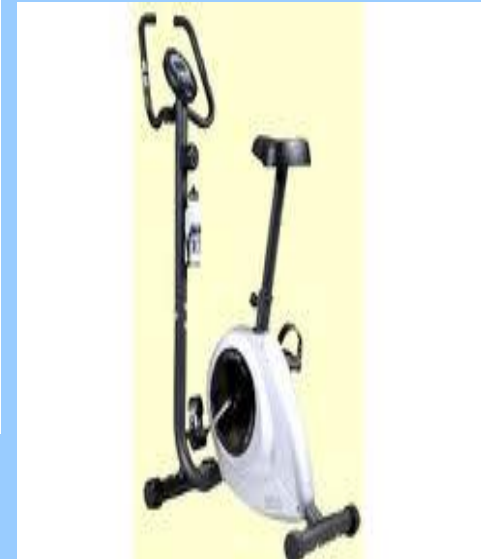


# Land Based Exercises





# Land Based Exercises



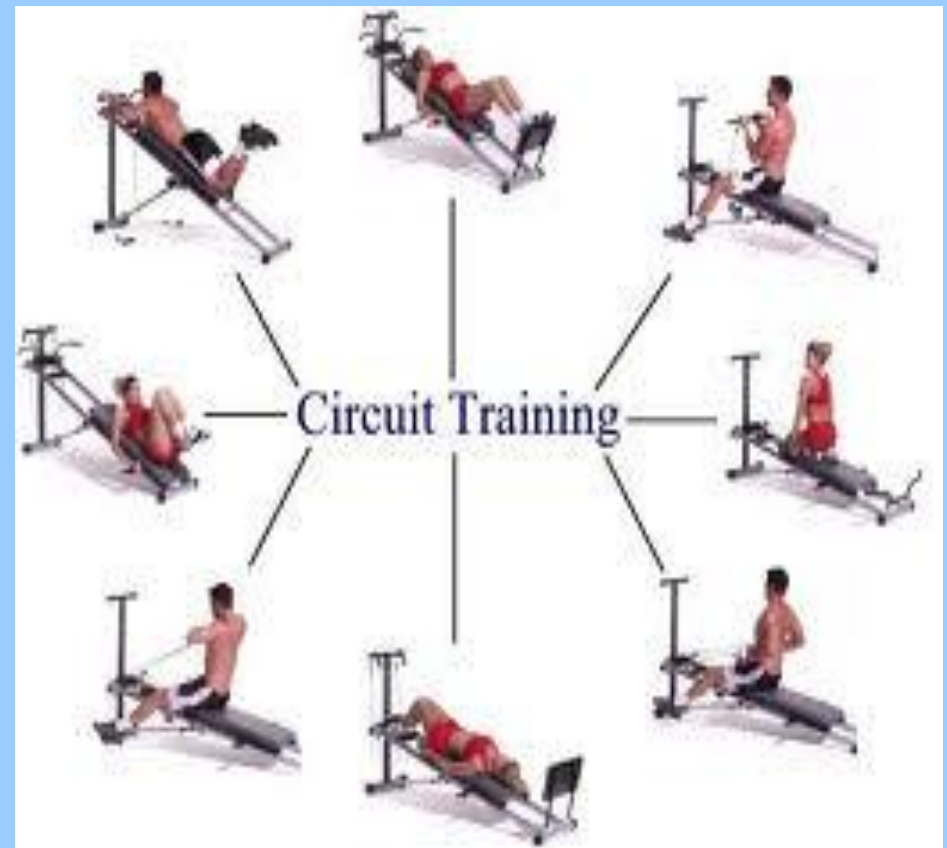
# Land Based Exercises



# Land Based Exercises



# Land Based Exercises



# Caution

- Eccentric phase of exercise can be dangerous. Having to slow down a resistive movement takes more muscle activation.
  - More energy will be used
  - Overuse and injury is possible
  - \*\*low resistance exercise is preferred. Open chain with heavier weights, or closed chain aggressive exercise like plyometric should be avoided.

# Open Chain Compared to Closed Chain

- Which expands the most energy?
- Which cause highest amount of muscle activation?
- Which have the best functional carry-over for everyday activities?
- Should you stick to one routine? Why? Why not?
- Should you know all types of exercises mentioned? If yes, why?
- If you're having inflammation or an exacerbation should you exercise? If yes, which would be most beneficial?
- Should you exercise daily? Why?

# Examples of Land Based Exercises

- Group Classes
  - Dance, Tai Chi, aerobics, “Muscle Pump”, etc. are all closed chain.
    - May need chair, pole for balance.
    - Need to consider energy conservation.
  - Spinning, yoga, stretching etc (are a mixture of open and closed chain).
    - Expand less energy.

# BREAK!!

Let's take a short break ~ 10 minutes



# Aquatic Based Exercise

- Benefits:
  - Safer, if you don't have a fear of water.
  - Exercises can mirror functional daily movements (which directly transfers over to that activity).
  - Decreased energy expenditure.
  - Can work on walking, balance, strengthening, range of motion, stretching, endurance/aerobic with the same exercise. If fatigue is an issue you can create a program where each functional aquatic exercise addresses a deficit on land. Minimize your exercises BUT maximize the neuro re-education. Your body will become more efficient in the tasks that are most difficult for you.
  - Same exercise movement can be
    - Resistive --(strengthening)
    - Assistive—ROM(range of motion;stretching)
    - Or a combination of both

# Aquatic Based Exercise

- Benefits, continued..
  - Once you've learned the concept, you'll be able to be creative.
    - You'll figure out how a normal task is difficult for you, and you'll create a movement in the water that mimics it, BUT the water will allow you to complete the task correctly. With time, the muscle groups that are not affected by Myositis will adapt and learn how to handle the extra demand placed upon them. They'll become more efficient and better able to help out the weaker muscle groups.
    - *Motor re-learning* takes time. Create exercises that mimic you challenges and slow things down so that you can complete the task correctly. Over time you'll improve without the risk of *overworking* the *unaffected* muscles.
    - Be patient and soon you should see improvement on the task that once gave you problems.

# Aquatic Based Exercise

- All community based pools MUST now provide aquatic lifts in and out of the pool (if needed).
- In my opinion there's no better place to exercise than in water. BUT, don't just jump in and go. Seek expert guidance first and take time to learn how to properly perform aquatic exercises.
- Once you've learned the concepts, positions, depth advantages/disadvantages and how to use the equipment you'll have a great exercise tool that will always allow you to make the most of your exercise session and improve functional mobility with the least amount of ***fatigue***, and the best ***joint protection*** (without the need for bracing, splinting, etc.)

# Aquatic Based Exercise

- For most people aquatic exercises feel so good that they tend to overdo it initially. They're able to do things they've not been able to do on land and as a result they have FUN and overdo it.
- Don't stop. Just back off a little and give your body time to adapt. You may need up to 3 months or more to get used to a new exercise routine.
- Remember, these are lifestyle habits we're trying to establish. There is no rush.

# Examples of Aquatic Based Exercise and Equipment

- Lift



Poolside Chair



Safety Island



# Examples of Aquatic Based Exercise and Equipment

- VHI kits

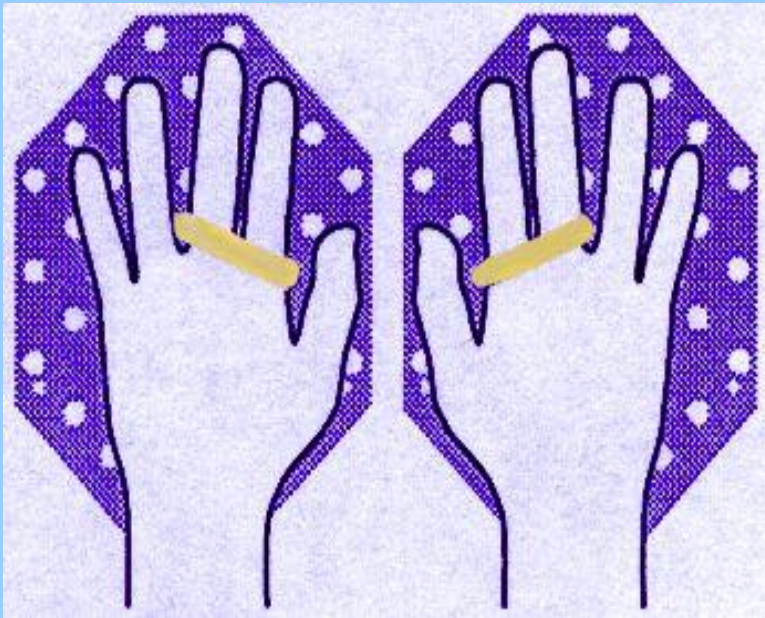


- Aquafoam handbars

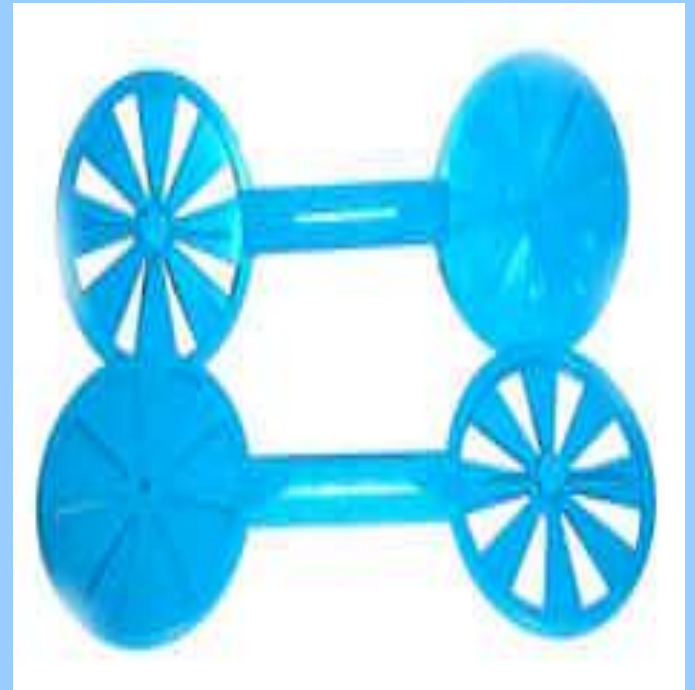


# Examples of Aquatic Based Exercise and Equipment

- Hand Groover



- Aquaflex paddles



# Examples of Aquatic Based Exercise and Equipment

- Exercise disc



Aqua gloves





# Examples of Aquatic Based Exercise and Equipment

- Aquatic tubing



- Hydrobells



# Examples of Aquatic Based Exercise and Equipment

- Aquafins



# Examples of Aquatic Based Exercise and Equipment

- Aqua Logix Fins
- [www.aqualogixfitness.com](http://www.aqualogixfitness.com)



# Examples of Aquatic Based Exercise and Equipment

- Ankle weights
- Resistive

Aquajogger foam  
Resistive/Assistive



# Examples of Aquatic Based Exercise and Equipment

- Hydroboot

Hydro mini fin



# Examples of Aquatic Based Exercise and Equipment

- Weighted swim belt
  - To ground you if you're too buoyant.
  - Weights can be taken out until you feel just right.



# Examples of Aquatic Based Exercise and Equipment

- Wonderboard balance board



# Examples of Aquatic Based Exercise and Equipment

- Training leash and Stretchcordz





# Examples of Aquatic Based Exercise and Equipment

- Range of Motion (ROM)



# Examples of Aquatic Based Exercise and Equipment

- Aquafin

Aqua handbells



# Examples of Aquatic Based Exercise and Equipment

- Balance training with noodle support



# Examples of Aquatic Based Exercise and Equipment

- Noodle assisted balance/stretching/ROM



# Examples of Aquatic Based Exercise and Equipment

- Very challenging balance training



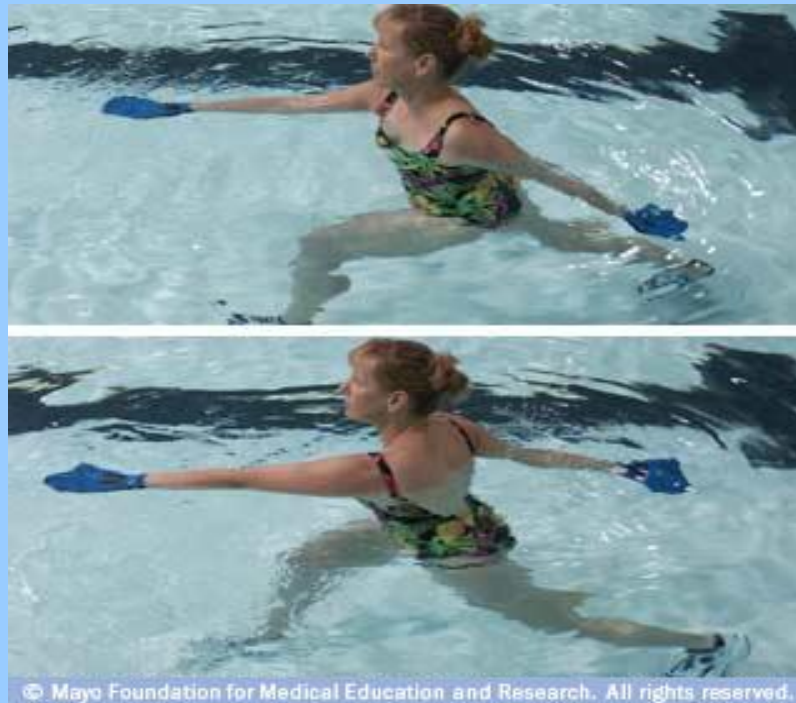
# Examples of Aquatic Based Exercise and Equipment

- Assisted/supervised balance/walking training



# Examples of Aquatic Based Exercise and Equipment

- Water walking using aquagloves
  - Strength/ROM/coordination/balance for legs/trunk.
  - Strength/ROM/posture for arms/head/neck.
  - Can be made aerobic if desired.



# Examples of Aquatic Based Exercise and Equipment

- What are these?
- How can they be used for exercise?
- Are they expensive?





# Aquatic Based Exercise



**Group Exercise Lateral  
Trunk Flexion**

# Aquatic Based Exercise



# Goals of a Proper Aquatic or Land Based Exercise Program

- Minimize fatigue
  - Energy conservation
- Maximize functional outcomes
  - It needs to complement your functional life and improve it. If it puts you at more risk, then you need to change the way your exercising.
- Improve quality of life
  - It should allow you to do that things that are important to you on a daily basis. The things that give your life meaning. If you're too exhausted from your exercise and can't do the things that give your life meaning...
- Must be a regular part of your life
  - Should exercise 5-6 times a week.
  - Intensity can change. You can have "Active Rest Exercise Days" where you focus on ROM, positioning, relaxation and stretching rather than strengthening. There should be a definite intensity decrease on your "Active Rest" days.
- Minimize risk
  - Exercise in a way that maximally limits your fall risk, protects weaker muscles and joints and saves energy.

# Exercise Guidelines

- I highly recommend that you see a Physical Therapist who is experienced with Myositis and IBM or is willing to learn about it. If the therapist is interested...you'll be well served.
- Have your therapist create an individual program for you based on their evaluation findings. Even though many expect a protocol or “cookbook” specific to Myositis, the best exercise program will actually be individualized.
- Every patient with Myositis is different AND the same patient can even be different from day to day or even hour to hour.

# Exercise Guidelines (con't)

- Your PT will want to know how you spend your day. They want to know how your daily activities exercise certain body parts. They'll prescribe additional exercises which address areas which you don't use in your daily activities BUT should use? Aids, equipment may be necessary to do that.
- PT Goal: Maximize therapeutic benefits while conserving energy and therefore improving overall quality of life.

# Exercise Guidelines (con't)

- Take time to warm-up. Light resistance (if any) for a good 5 minutes.
- Listen to your body. Exercise at a rate that feels good. Easy to moderate level on the RPE scale (Rate of Perceived Exertion)—see next page.
- You may want to keep a log of your RPE score with the exercise you're doing and track post-exercise fatigue. If you are finding it hard to recover from your exercise session, you may have done too much. Fatigued the next day?
- Adjust your RPE working number so you don't feel overly fatigued after exercise.

# Exercise Guidelines (con't)

- The RPE scale is used to measure the intensity of your exercise. The RPE scale runs from 0 – 10. The numbers below relate to phrases used to rate how easy or difficult you find an activity. For example, 0 (nothing at all) would be how you feel when sitting in a chair; 10 (very, very heavy) is how you feel at the end of an exercise stress test or after a very difficult activity.
  - 0 – Nothing at all
  - 0.5 – Just noticeable
  - 1 – Very light
  - 2 – Light
  - 3 – Moderate
  - 4 – Somewhat heavy
  - 5 – Heavy
  - 6
  - 7 – Very heavy
  - 8
  - 9
  - 10 – Very, very heavy

# Exercise Guidelines (con't)

- Cool down. Best time to do passive range of motion and stretching is during your cool down period. Warmed up muscles that have been exercised are resistant to strains, injury during stretching.



# Exercise Hints

- Gradually build up. Slow and steady approach works best. You may need 6-12 weeks to adapt to a new exercise program.
- You may have “off” days. Unless you’re having an exacerbation/flare-up, you should have a less intense routine for your “off” days. It’s important to do something than nothing. Keep the routine going once you’re established it.
  - If you are having an exacerbation, you may want to limit your activity to necessary daily functional mobility and walking and avoid additional exercise.
- Keep it fun, social. Exercise buddies help keep you coming back as well as enjoying the moment.

# Exercise Hints

- Since exercise can cause an elevation in CPK (Creatine Phosphokinase) values make sure your doctor knows (if he's not aware of it already) that you're on a regular exercise program, especially if blood work is due.

# Thank Goodness! He's finally finished!



# BREAK!!

Let's take a short break ~ 10 minutes

# A BRIEF LOOK AT THE HAND AND WRIST

Why? Very Complex...



# Occupational Therapy and Myositis

## Part 1

What can be done to preserve hand strength, range of motion, and function?

# From the Inside Out...

## “The Foundation”

Proximal to Distal:

Forearm Bones: Ulna and Radius

Wrist Bones: 8 Carpal Bones

Pisiform, Triquetral, Lunate, Scaphoid,  
Trapezium, Trapezoid, Capitate, Hamate

The wrist has been called the “most complex joint in the body”.

Finger Bones:

5 Metacarpal Bones

5 Proximal Phalanges

4 Middle Phalanges

5 Distal Phalanges



27 bones in your wrist and hand.

# Cartilage

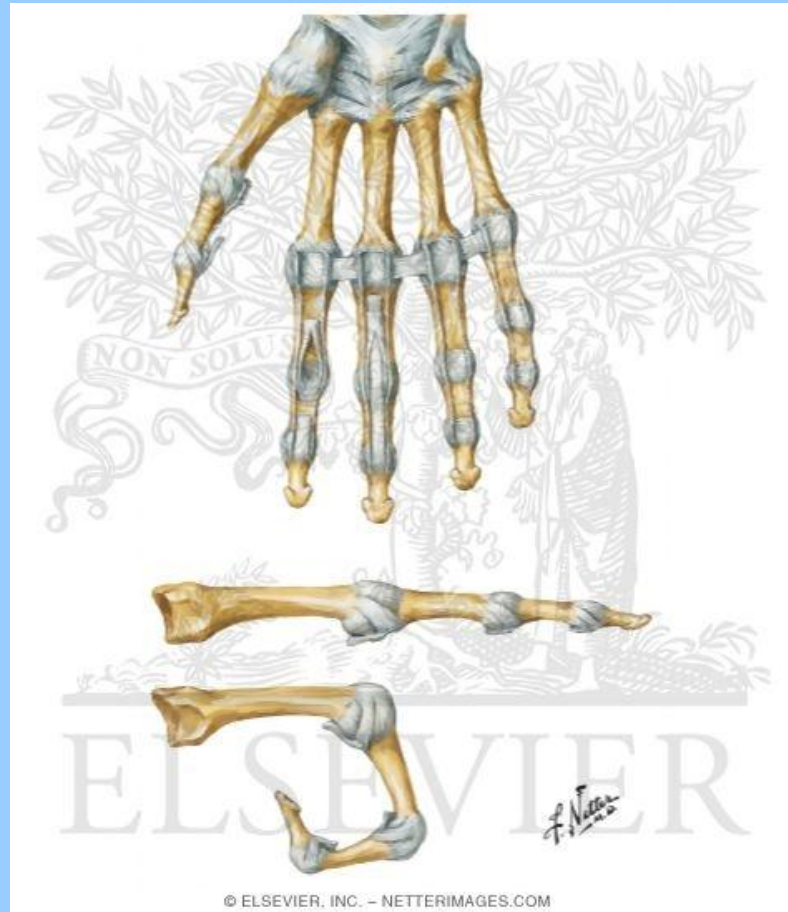
- Cartilage provides a cushion between the bones.
- When the cartilage degrades you can have “bone on bone”.
- Can result in joint pain or “aching”.





# Ligaments – Hold It All Together

Metacarpophalangeal and  
Interphalangeal ligaments,  
Joint capsules



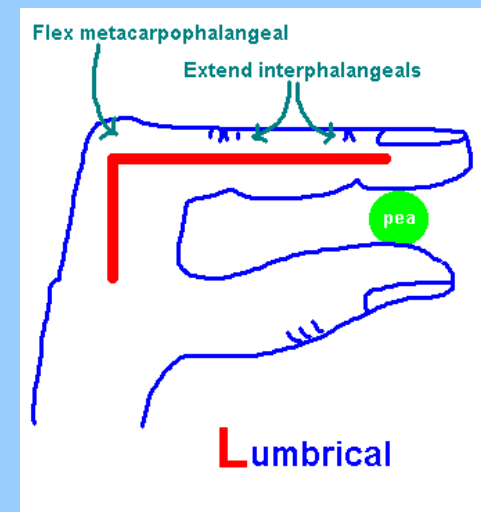
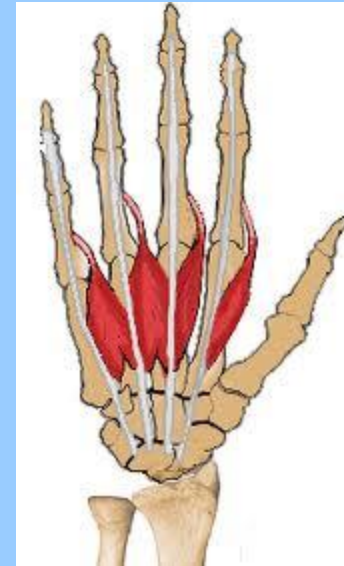
# Intrinsic Muscles of the Hand

- Deep inside the hand there are small intrinsic muscles.
- Intrinsic Muscle Groups:
  - Lumbricals (central)
  - Interosseous (metacarpal)
  - Thenar (thumb)
  - Hypothenar (little finger)



# Lumbrical Muscles

- **Four** slender muscles, one for each digit.
- Action of the lumbrical muscles
- They place the digits into the writing position.



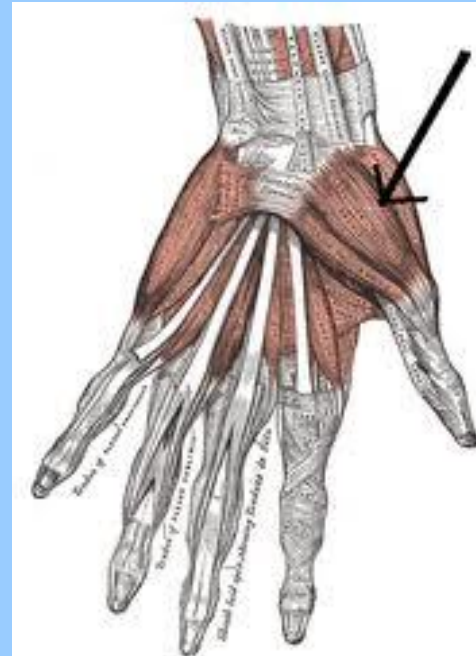
# Interosseous Muscles

- **Seven** interosseous muscles between the metacarpal bones.
- Arranged in two layers:
  - Three palmar muscles (PAD)
  - Four dorsal muscles (DAB)
- These muscles assist the lumbricals.
- Important for movements in typing, writing, and playing the piano, for example.



# Thenar Muscles

- **Three** muscles produce the *thenar eminence*:
  - abductor pollicis brevis
  - flexor pollicis brevis
  - opponens pollicis
- Responsible for opposition of the thumb.
- Opposition is the most important movement of the thumb as it allows grasping.
- Opposable thumbs and allowed primates to develop the use of tools.



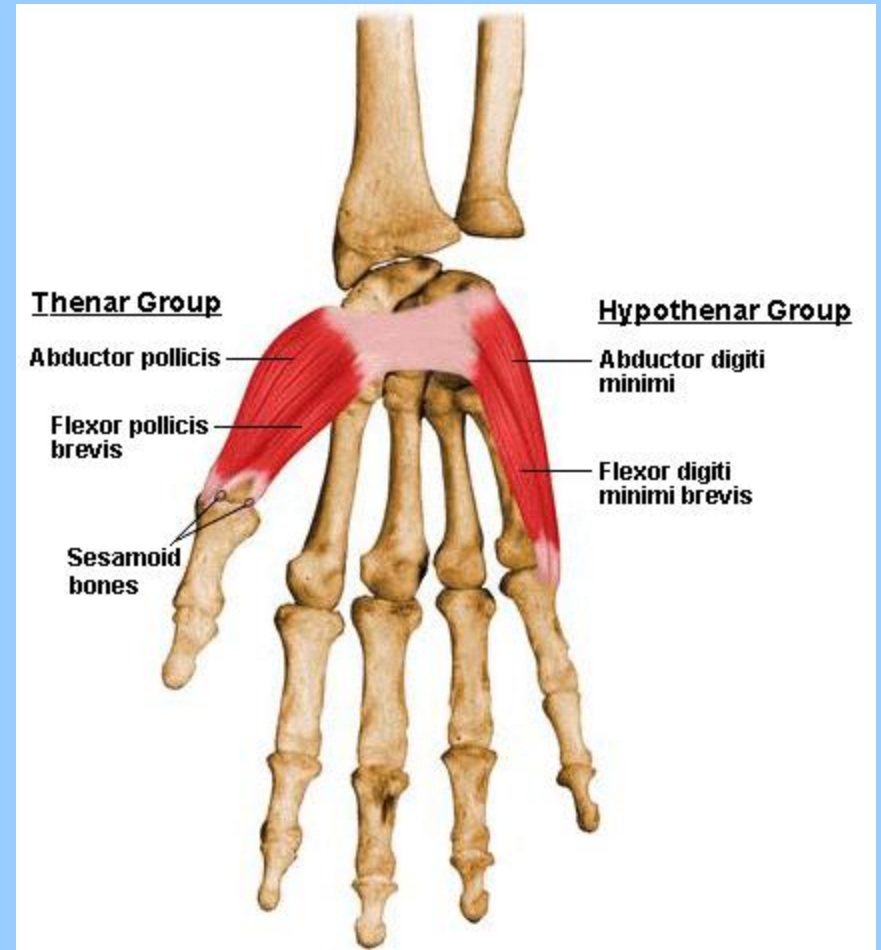
# Another Thumb Muscle

- Adductor pollicis muscle.
- Adducts the thumb and gives it power for gross grasp.
- Total of **four** thumb muscles.



# Hypothenar Muscles

- **Three** muscles move the little finger
  - abductor digiti minimi
  - flexor digiti minimi brevis
  - opponens digiti minimi
- Any movement of the little finger.



# Extrinsic Muscles

## Muscle Bellies are on the Forearm

### Flexor Muscles:

The primary function of the flexors is to bend the wrist and fingers.

### Extensor Muscles:

The primary function of the extensors is to straighten out the wrist and fingers.

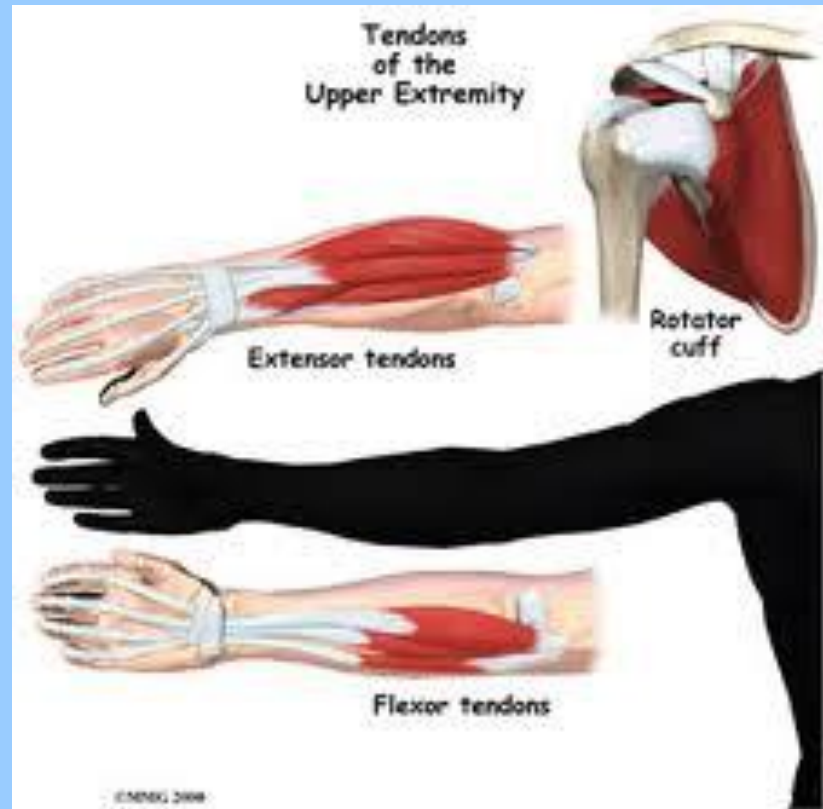
### Adductor Muscles:

The primary function of the adductors is to move the wrist toward from midline.

Ulnar deviation (palms up).

### Abductor Muscles:

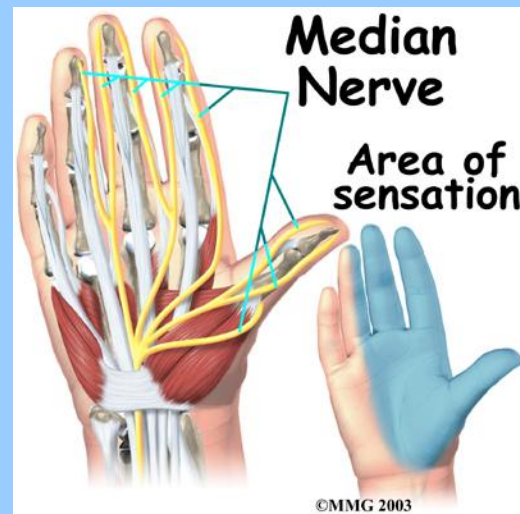
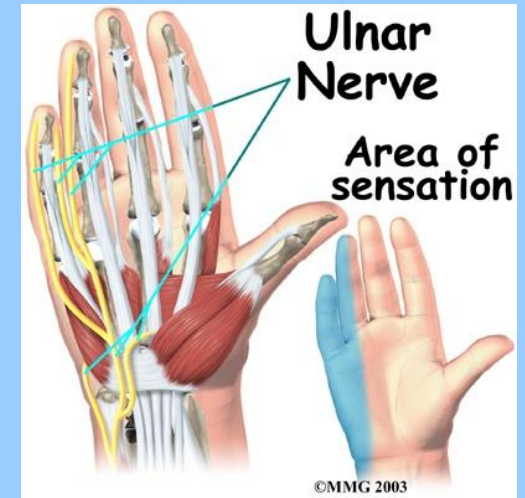
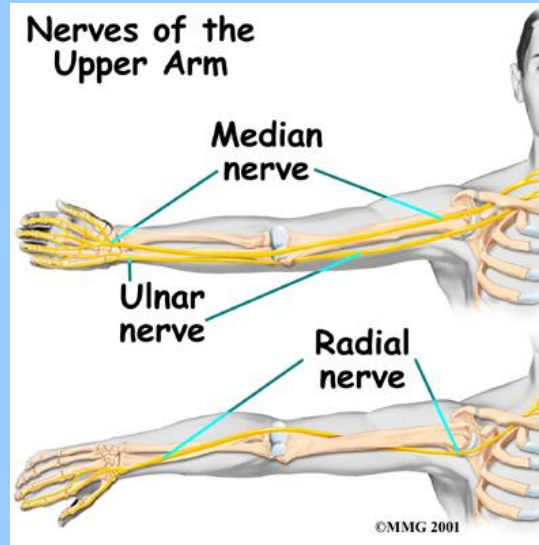
The primary function of the abductors is to move the wrist away from midline. Radial deviation (palms up).





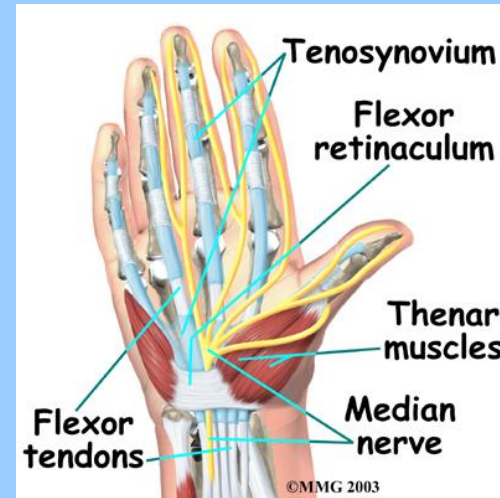
# Nerves

- Median, Ulnar, and Radial nerves supply innervation to the muscles.
- Note areas of sensation.
- Median nerve compression = Carpal Tunnel Syndrome
- Radial nerve compression = “Saturday Night Palsy”.
- Ulnar nerve compression = hitting your “funny bone”.

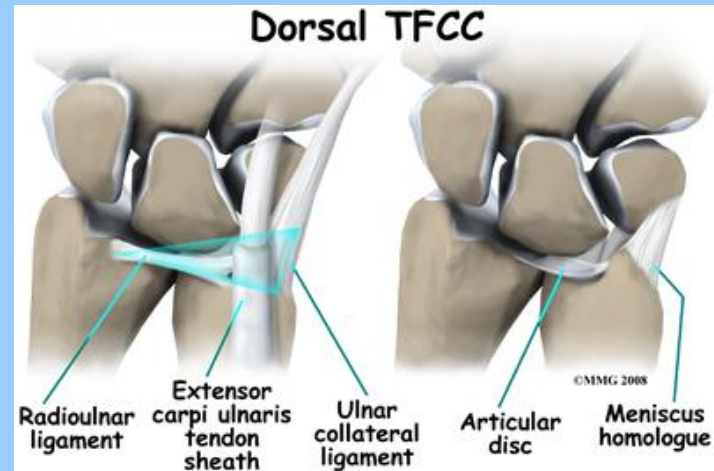


# Other Structures

- Flexor retinaculum – repetitive movement may cause inflammation and trap the median nerve. The result is Carpal Tunnel Syndrome. May require surgery.



- Triangular Fibrocartilage Complex (TFCC) – allows the wrist to move in 6 directions: bending, straightening, twisting, and side-to-side. In a fall it can be torn and is difficult to heal. May require surgery.



# Why Is This Important?

- The hand and wrist is very complex. You must be aware which muscles are being affected before you know how to treat the problem.
- Especially important for your therapist!



# Your Wonderful Hand!

- We take our hands for granted



# Hand and Wrist Movement

You Tube has many excellent videos of hand and arm anatomy and movement.

Handarmdoc on youtube

[http://www.youtube.com/watch?v=vlwAoKpSI7s&feature=player\\_detailpage](http://www.youtube.com/watch?v=vlwAoKpSI7s&feature=player_detailpage)

# Inclusion Body Myositis

- Typical presentation is weakness in the forearm and wrist flexors and in the hands.
- The inclusion bodies cause inflammation and weakness.
- This creates problems with lifting and carrying objects, opening jars, turning doorknobs, gripping keys, dropping objects, or any functional movement that uses the involved muscles.

# Weakness Causes Fatigue

- Movement doesn't rely on one muscle or one muscle group, but on many groups working together.
- Muscles are working hard to compensate for weakness.
- This causes fatigue.

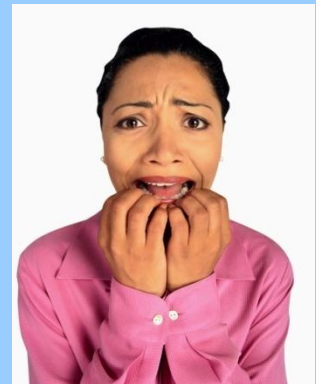
# Disuse Atrophy

- Sometimes people fear that exercise will cause damage or increase the progression of the disease process.
- However, if a muscle isn't used it can atrophy from disuse.
- Weak muscles can be “built up”, atrophied muscles can't.
- This is opposite our “intuition”.



# Typical Fears

- The fear of “doing damage”.
- The fear that doing too much will “ruin your body”.
- The fear that exercise will cause the disease to progress.
- The fear that fatigue from exercise is breaking down muscles.



# Exercise is Important

- Exercise allows the muscles surrounding the weak muscle(s) to be strengthened and therefore “help” the weak muscle.
- Exercise will help the body compensate for weakness.
- Exercise will preserve hand function by strengthening surrounding musculature.
- Exercise will preserve hand function by maintaining or improving range of motion.

# Another Reason to Exercise

- In addition, studies have shown that exercise reduces inflammation.
- Exercise will reduce fatigue because it strengthens muscles, reduces inflammation, and increases stamina.

# Benefits of Exercise

- Improved efficiency for Activities of Daily Living (ADLs) without overusing the involved muscle group.
- Improved Quality of Life because you can continue to do the things you like to do - but they may need to be modified or adapted.

# How Do You Start?

- Have your physician “clear you” for exercise: Do not start if you are having an inflammatory exacerbation.

## **Seek Expert Guidance Because Everyone is Different:**

- Find an Occupational Therapist that has a “neuro” background and understands progressive neurological diseases.
- If you can’t find a “Neuro OT”, look for a Certified Hand Therapist (CHT). A CHT is an expert in the anatomy and function of the hand and arm. A CHT can be an OT or a PT.
- **HAVE THE THERAPIST COME UP WITH AN INDIVIDUALIZED TREATMENT PLAN FOR YOU.**

# What is “Proper” Exercise?

- Understand which muscles need to be strengthened.
- Protect weaker areas so you don't strain them during exercise.
- Stabilize joints so they are not injured when one muscle group dominates them.
- Proper positioning during exercise.
- Gentle, slow and steady.
- Don't “overdo” it.
  - Next day fatigue or pain indicates “too much”.

# Proper Exercise

- Create exercises that mimic your challenges and slow things down so that you can complete the task correctly.
- Take time to learn how to do the exercise correctly.
- Overtime, you will improve without the risk of overworking the unaffected muscles.
- Be patient and you will see improvement with the task that gave you problems.

# Proper Exercise

- Motor re-learning takes time.
- With time, muscle groups without IBM will adapt and learn how to handle the extra demand.
- They will become more efficient and better able to help out weaker muscles / muscle groups.

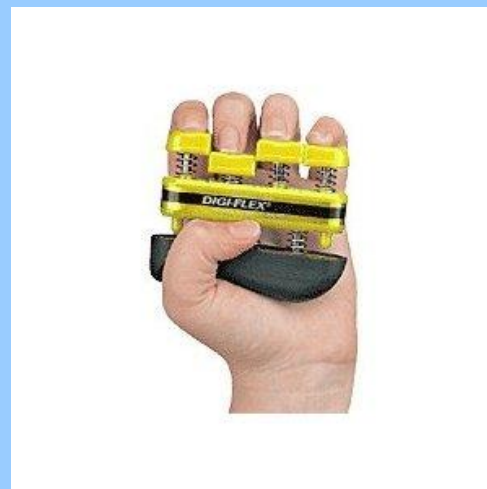


# Hand Exercise

- For Strengthening (examples)
  - Theraputty
  - Squeeze balls (flexion)
  - Hand grip exercises
  - Digiflex
  - And many other ways to strengthen

If you experience pain, STOP!

# Strengthening Aids



# Strengthening Aids







# Hand Exercises

- For Range of Motion
  - Active Range of Motion (AROM)  
Movement without assistance.
  - Active Assisted Range of Motion (AAROM)  
Movement with moderate assistance.
  - Passive Range of Motion (PROM)  
Movement with total assistance.

# Tendon Glide Exercises

- The purpose of these exercises is to gently glide the tendons to minimize microscopic adhesions, reduce congestion, and improve lubrication in the tendons.
- If tendons aren't gliding smoothly, this will cause inflammation and loss of function.

**Tendon Gliding Exercises**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>AROM Finger Lumbricals Flex/Extension</b></p> <ul style="list-style-type: none"><li>• Begin with fingers straight and together.</li><li>• Bend at MP joints keeping fingers straight, as if waving.</li><li>• Straighten and repeat.</li><li>• Perform 3 sets of 20 repetitions, once a day.</li><li>• Rest 1 minute between sets.</li><li>• Perform 1 repetition every 4 seconds.</li></ul>                                                       | <p style="text-align: center;"><b>AROM Finger PIP Flex/Extension Intrinsic</b></p> <ul style="list-style-type: none"><li>• Begin with fingers and thumb straight and together as shown.</li><li>• Bend just the top two joints of the fingers and just the top joint of the thumb toward the palm.</li><li>• Straighten and repeat.</li><li>• Perform 3 sets of 20 repetitions, once a day.</li><li>• Rest 1 minute between sets.</li><li>• Perform 1 repetition every 4 seconds.</li></ul>  |
| <p style="text-align: center;"><b>AROM Hand/Finger Tendon Glide</b></p> <ul style="list-style-type: none"><li>• Start with fingers straight.</li><li>• Make hook fist, return to straight hand.</li><li>• Make full fist, return to straight hand.</li><li>• Make straight fist, return to straight hand.</li><li>• Repeat.</li><li>• Perform 3 sets of 20 repetitions, once a day.</li><li>• Rest 1 minute between sets.</li><li>• Perform 1 repetition every 4 seconds.</li></ul>  | <p style="text-align: center;"><b>AROM Hand Intrinsic</b></p> <ul style="list-style-type: none"><li>• Start with fingers curled, thumb bent, as shown.</li><li>• Straighten fingers and thumb together as shown.</li><li>• Repeat.</li><li>• Perform 3 sets of 20 repetitions, once a day.</li><li>• Rest 1 minute between sets.</li><li>• Perform 1 repetition every 4 seconds.</li></ul>                                                                                                   |

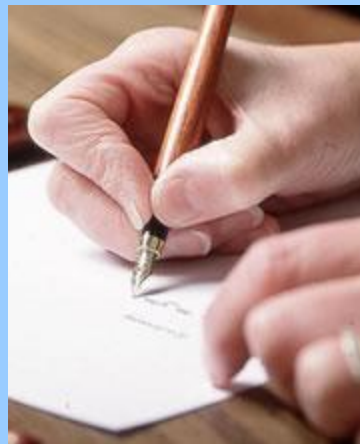
Signature \_\_\_\_\_ Copyright 1995-2006 BioEx Systems, Inc.

These exercises are to be used only under the direction of a licensed, qualified professional.

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# Range of Motion Exercises

- Daily activities such as cooking, keyboarding, writing, hobbies, etc. all are part of ROM.



# Protect Wrists and Hands During Exercise and Daily Activities

- Most people are aware of the problems with keyboarding but –
- Other activities can put stress on the wrists and hands:
  - Pushing up from a chair – make a fist and keep wrists straight rather than placing hands flat on the armrests.
  - Yoga – press weight into your fingertips rather than the heel of your hands.
  - Lifting weights – make sure wrists are lined up with forearms.
- Be aware of the stresses you place on your wrists and hands throughout the day.

# BREAK!!

Let's take a short break ~ 10 minutes



# Other Ways to Preserve Hand Strength

- Splint to protect joints.
- Go to a therapist for the correct splint.
- Get a splint wearing schedule from your therapist.
- Be compliant with wearing your splint.
  - You may wear the splint only when exercising.
  - You may wear the splint only at night.
  - You may wear the splint only for certain types of functional activity.

# Joint Protection for Wrists

- Splints:  
Support the wrist to avoid putting undue stress on the joints, ligaments, tendons, and muscles.



# Joint Protection for Thumb and Fingers

- Splints:  
Support the thumb and fingers to avoid putting undue stress on the joints, ligaments, tendons, and muscles.



# Goals for Exercise

- Strengthen available muscle groups.
- Improve ROM.
- Minimize fatigue, practice energy conservation.
- Minimize risk, protect weaker muscles and joints.
- Make it a regular part of your life, exercise your body and your hands 5-6x/week.

# Modalities

- NMES – for strengthening and pain, consult with a therapist.
- Paraffin – aching joints. Home unit is ok
- Fluidotherapy – aching joints.



# In a Nutshell

- Consult with a therapist.
- Understand your treatment plan
- Strengthen muscle groups
- Maintain ROM
- Protect joints
- Use other modalities as needed

# Resources

- [www.myositis.org](http://www.myositis.org)
- [www.ibmmyositis.com](http://www.ibmmyositis.com)
- [www.mda.org](http://www.mda.org)
- [www.ninds.nih.gov](http://www.ninds.nih.gov)
- [www.arthritis.org](http://www.arthritis.org)
- [www.Activeforever.com](http://www.Activeforever.com)
- [www.Pattersonmedical.com](http://www.Pattersonmedical.com)
- [www.Northcoastmedical.com](http://www.Northcoastmedical.com)
- [www.Allegromedical.com](http://www.Allegromedical.com)

# Exercise Research Articles

- **The role of exercise in the rehabilitation of idiopathic inflammatory myopathies**
  - Alexanderson, Helene,a,b; Lundberg, Ingrid Eb
- **Exercise therapy in patients with myopathy**
  - Phillips, Beverley A.a; Mastaglia, Frank L.b
- **Safety and efficacy of strength training in patients with sporadic inclusion body myositis**
  - Sidney A. Spector MD, PhD<sup>1</sup>, Jeffery T. Lemmer MS<sup>2</sup>, Boyd M. Koffman MD, PhD<sup>1</sup>, T.A. Fleisher MD<sup>3</sup>, Irwin M. Feuerstein MD<sup>4</sup>, Ben F. Hurley PhD<sup>2</sup>, Marinos C. Dalakas MD<sup>2,\*</sup>
  - Article first published online: 7 DEC 1998; DOI: 10.1002/(SICI)1097-4598(199710)20:10<1242::AID-MUS6>3.0.CO;2-C
- **SPORADIC INCLUSION BODY MYOSITIS: PILOT STUDY ON THE EFFECTS OF A HOME EXERCISE PROGRAM ON MUSCLE FUNCTION, HISTOPATHOLOGY AND INFLAMMATORY REACTION**
  - **Authors:** Arnardottir S.<sup>1</sup>; Alexanderson H.<sup>2</sup>; Lundberg I.E.<sup>3</sup>; Borg K.<sup>4</sup>
  - **Source:** [Journal of Rehabilitation Medicine](#), Volume 35, Number 1, 1 January 2003 , pp. 31-35(5)



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# QUESTIONS?



*THANK YOU*

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