

Fly-Fishing Preseason Prep

Understanding what your body is doing when you hit the water and how to prevent injury.



Dr. Jesse Schulz, DPT

Introduction



- Part 1
 - Anatomy and physiology of fly fishing
 - Information on how being physically unprepared can cause unnecessary tissue stress and injury
 - Injury prevention concepts
- Part 2
 - Brief review of Part 1
 - Exercises and activities to keep you more physically prepared for fly fishing
 - Specific parameters for gaining and maintaining your current fitness

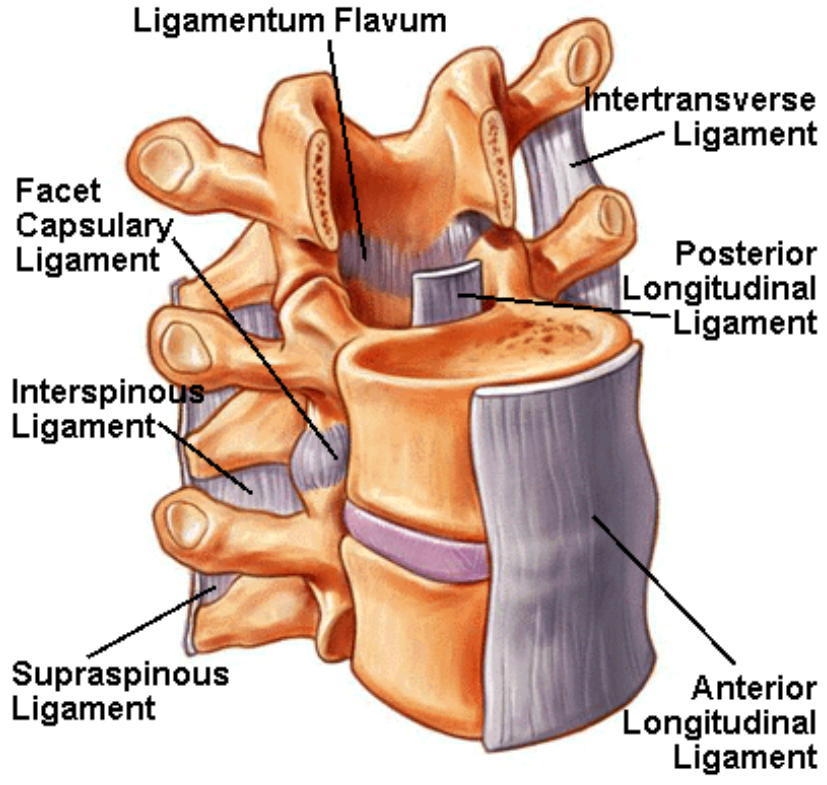
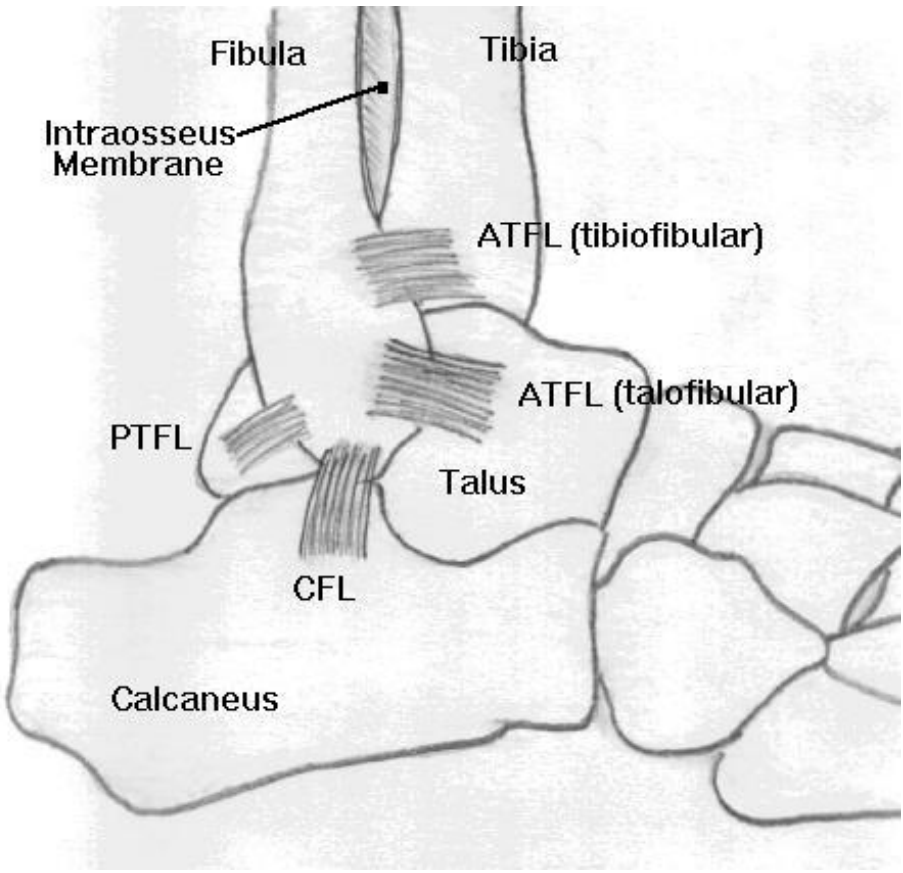
Anatomy and Physiology

- Getting hurt: There's a reason for everything
- Tissues of interest
 - Ligaments
 - Muscle
 - Tendon
 - Joints

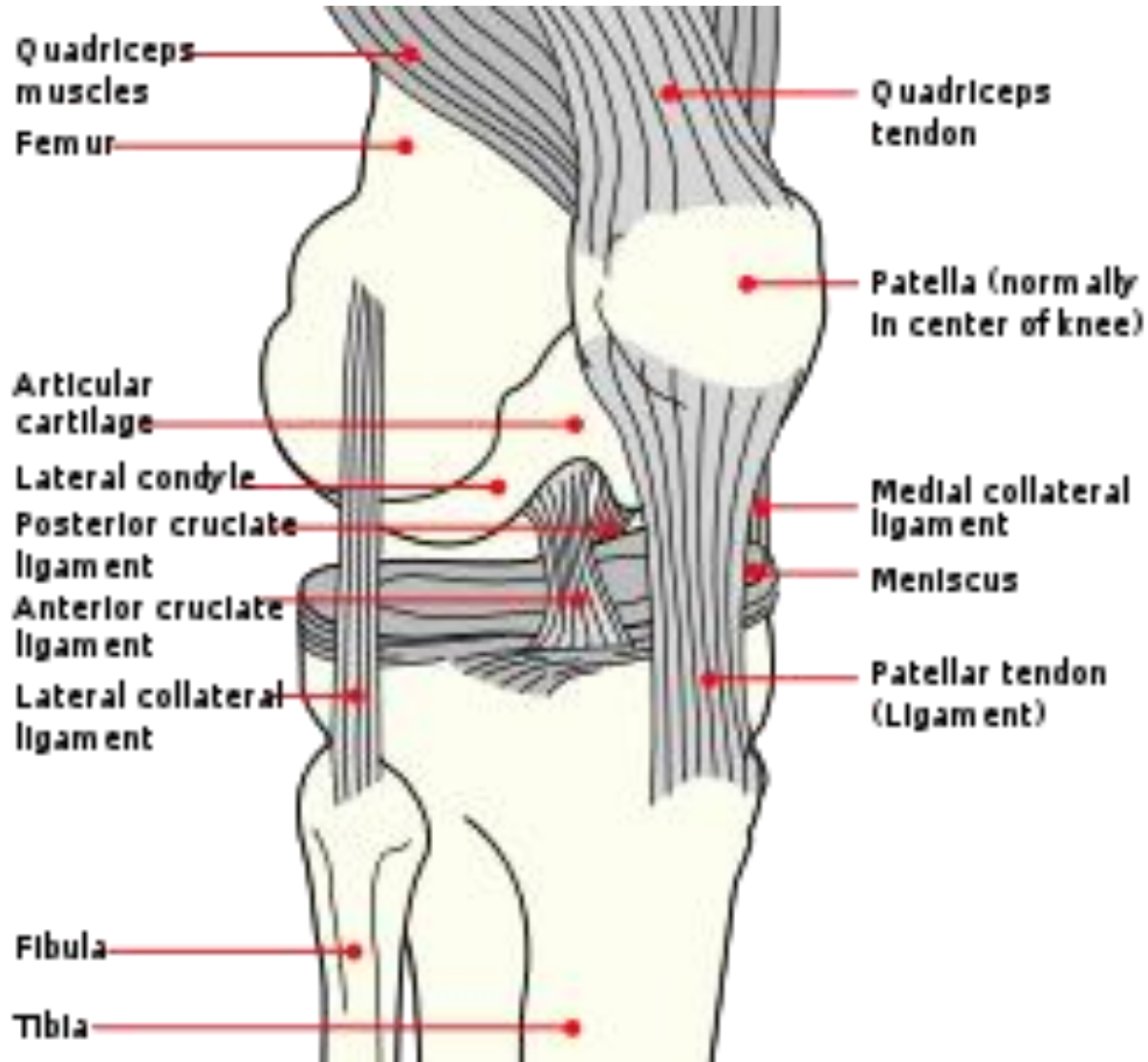
Ligaments

- Purpose: provide joints with extra stability in a certain direction or combination of directions
- How they work: like a seat belt they are especially stiff, when exposed to too much stress they get stretched
 - Can they heal? Yes and no...
- How they become injured-Excessive stress in the direction of support that they provide
 - Ex: slip/trip, fall, external force

Ligaments



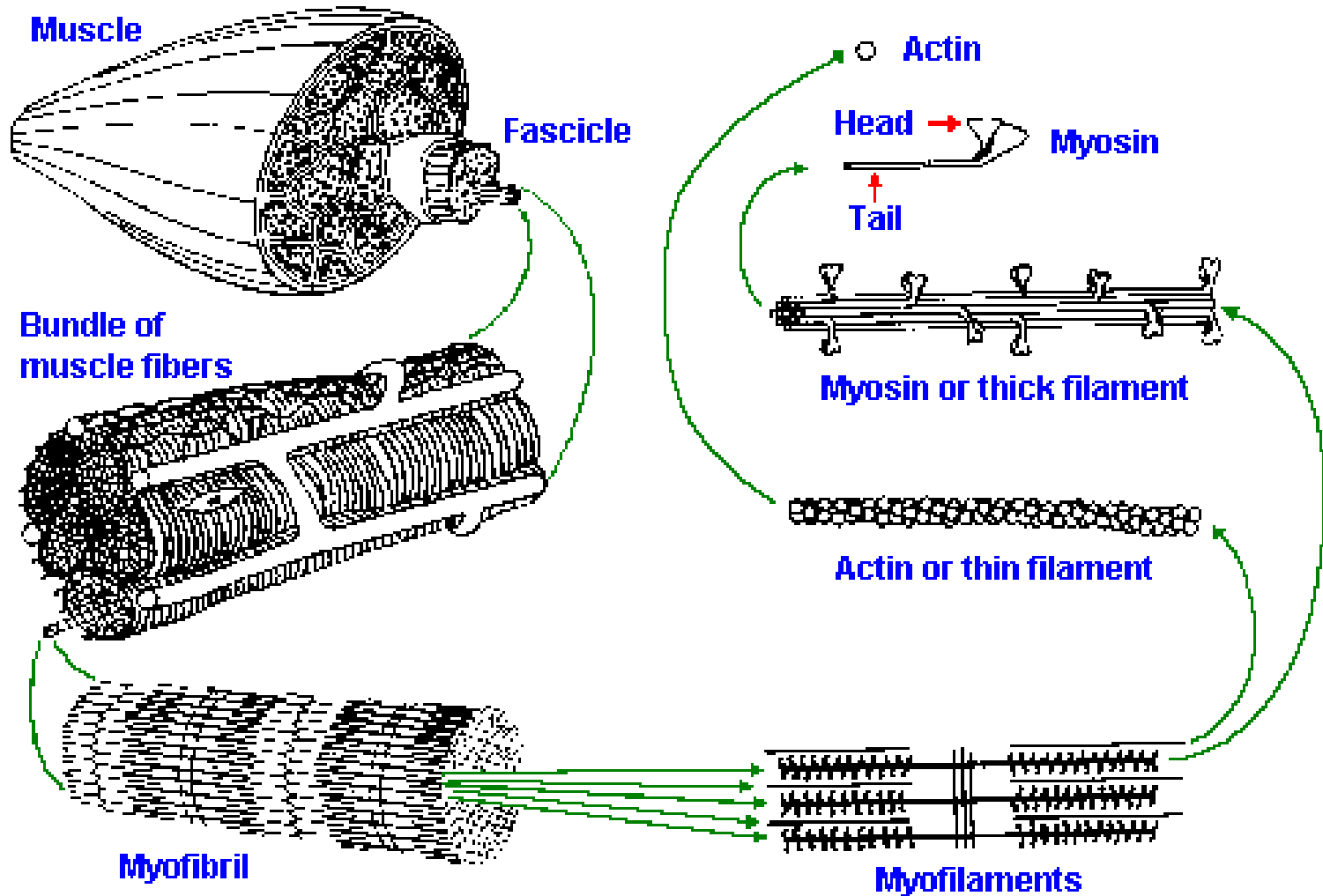
Ligaments, Cont'd



Muscle

- Purpose-To provide a pull from one bone to another in order to cause movement or resist a perturbation
- How they work-Currently uncertain...
- How they become injured-Excessive stress at a weak point

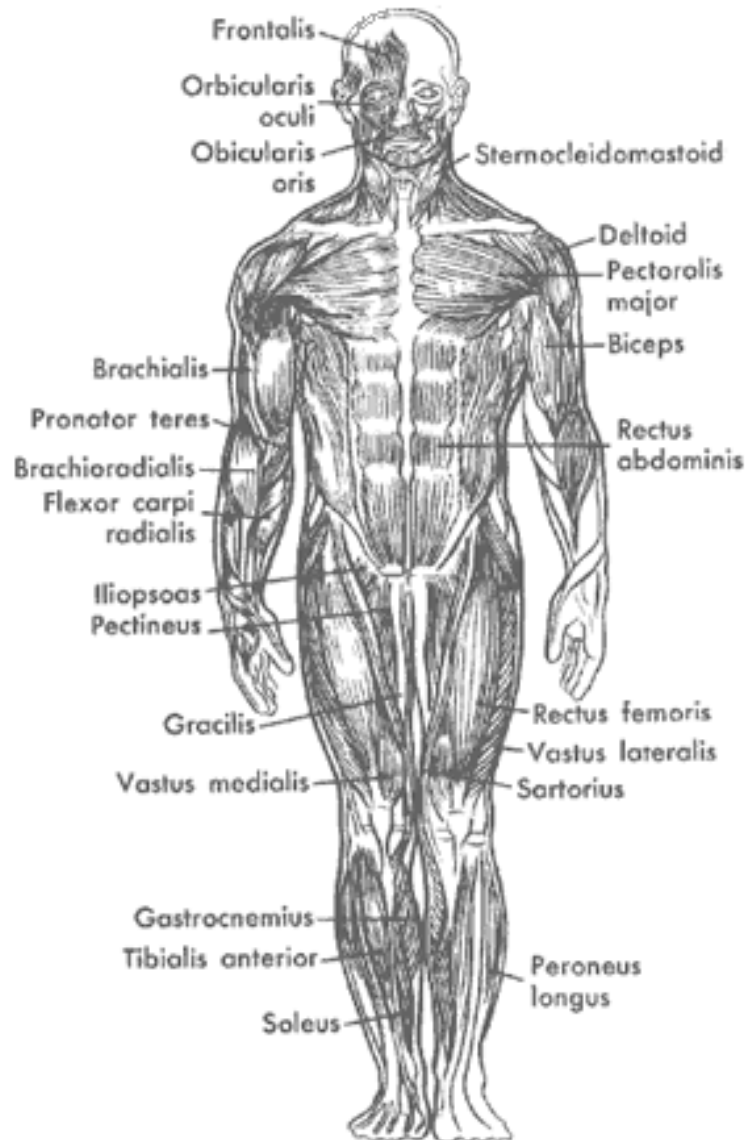
Muscle Structure



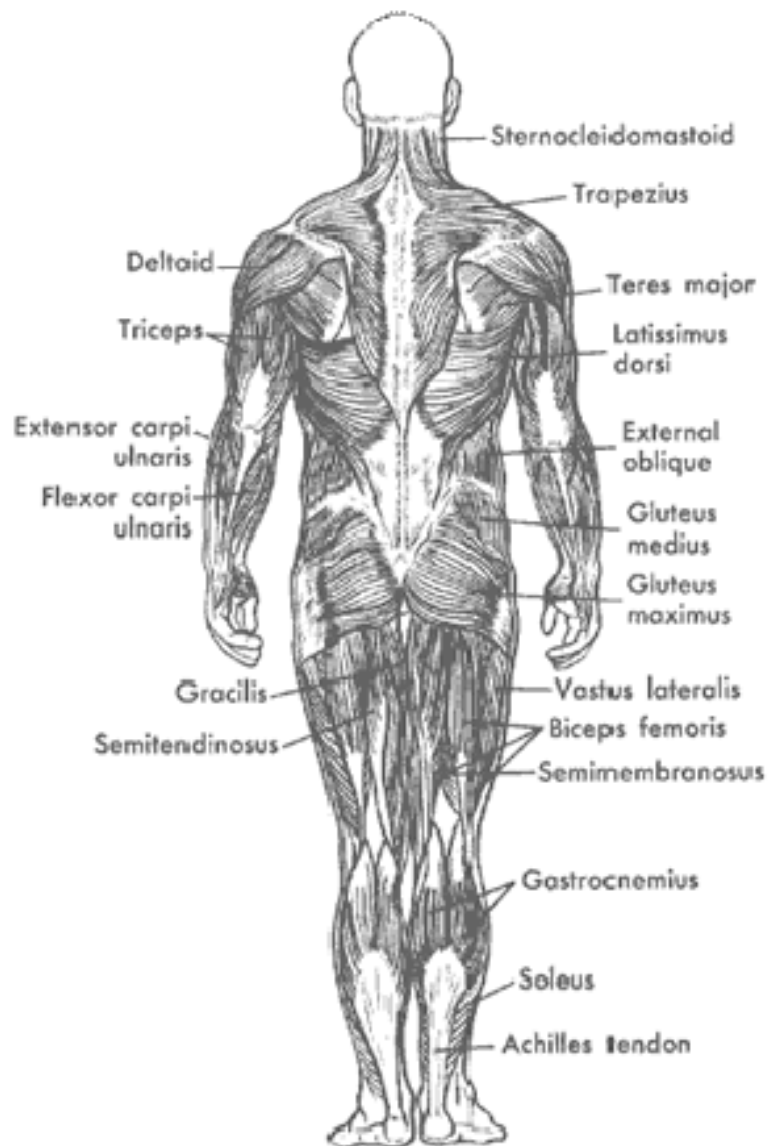
Muscle contraction

- <http://www.youtube.com/watch?v=gJ309LfHQ3M>

Muscles of the Body



The Main Anterior Muscles of the Human body



The Main Posterior Muscles of the Human body

Tendon

- Purpose-limit peak muscle forces, limit lengthening rates, and limit power inputs
- How they work-Energy storage and energy absorption
- How they become injured-large force and decreased elasticity of the tendon (↑ stiffness)

Joints/Cartilage/Internal structures

- Joint tissues
 - Meniscus-Present at the Knee
 - Labrum-Present at the Shoulder and hip
 - Discs-Present at the spine
 - Capsule-Present in all joints
 - Cartilage-Present at all joints

Meniscus

- Purpose- distribute stress across the knee, stabilize the knee (secondary), facilitate gliding, protect the joint margins
- How they work- fibrocartilage spring/pad
- How they become injured- long term wear and tear (maybe)?, shearing/twisting movements

Labrum

- Purpose-increase the stability inside the joint socket
- How they work-Deepens the socket
- How they become injured- Shoulder: fall on an outstretched arm, throwing due to excessive load from the biceps. Hip: fall, slip/trip, excessive strain from being overweight with/without poor hip motion causing pinching

Joint Capsule

- Purpose- seals the joint, passive stability, active stability
- How they work- encapsulates the joint, may form a joint surface, secretes joint fluid (inner lining the synovial membrane)
- How they become injured- Overstretch (shoulder is the most common)

Cartilage

- Purpose- Hyaline cartilage-decreases friction, shock absorption*
- How they become injured- Non-contact twisting/pivoting, landing from a jump, chronic minor traumas (not wear and tear necessarily)

Discs

- Purpose- support the spine, allow for movement, provide structural stability
- How they work- jelly doughnut between your bones
- How they become injured- excessive load with/without poor body positioning

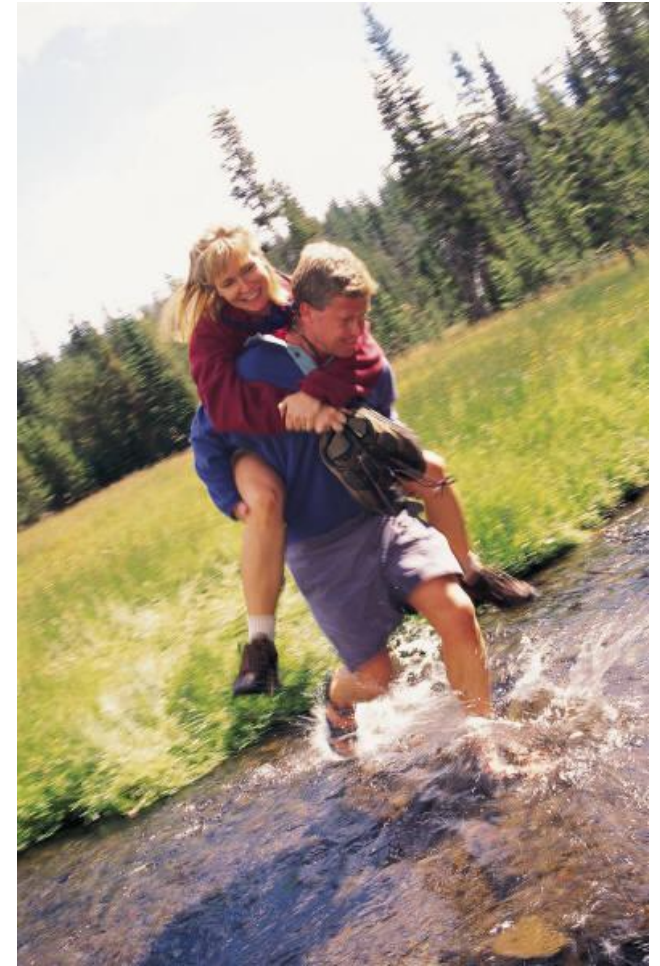
Why do all of these Tissues get Injured?

- Hypomobile joints
- external forces
- excessive internal forces
- end range/vicarious positions
- Weakness
- decreased flexibility
- excessive loading (obesity, more than just wear and tear)
- Instability
- overly fast movements
- unaccustomed activity
- Spasms
- slouching

Key Fly Fishing Muscles

- Depends upon what you are doing because the different muscle uses for different activities
- Think of the key activities of the sport/hobby
 - Walking the stream with a slippery bottom
 - Walking the stream with a muddy bottom
 - Static standing with casting on a stable and firm surface
 - Static standing with casting while off-balance
 - Walking up and down inclines
 - Bending to lift a fish in waist deep water
 - Bending to lift a fish in knee deep water

Walking Biomechanics

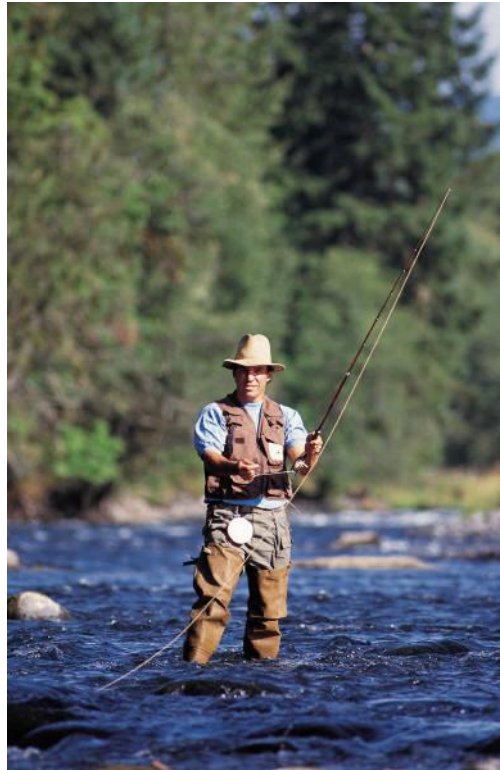


Walking injuries

- Trip injury
- Near-Trip injury
- Chronic use
- Acute



Casting Muscles



Potential Casting injuries

- Anecdotal anterior shoulder tendonitis (likely bicipital tendonitis) per Tracey Stroup of Stroup Flyfishing
- Rotator cuff tendonitis or tears per John Hartwick, PT
- Berend KR 2001-recreational fly fishing injuries
- McCue et al. 2004-fly casting instructor study
- Good form?
 - In theory it will minimize injury.
 - Can it be better?
 - Possible future improvements of the current fly fishing form...would the purists faint?

Why you do not want tendonitis...

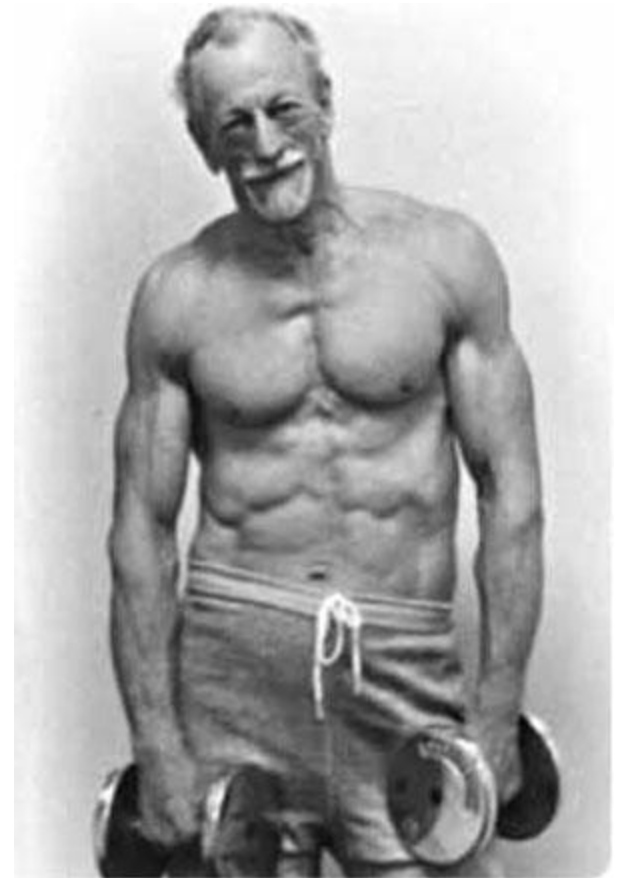
- Corticosteroid injections are supported for SHORT TERM relief of symptoms.
- Convincing evidence in support of other conservative treatments and modalities is generally lacking.
- Extracorporeal shock wave therapy may have significant clinical benefit for calcific tendinitis BUT...it requires IV sedation AND it does not appear to be effective in lateral epicondylitis.
- The most consistent positive treatment effects for rotator cuff tendinitis were achieved by ultrasound-guided subacromial corticosteroid injection AND manual therapy in conjunction with therapeutic exercise.

Why you do not want tendonitis, cont'd

- Elbow tendonditis
 - How do you get it: excessive use of the wrist and/or elbow muscles
 - Pathology: inflammation of the wrist and/or elbow tendons
 - Treatment: correction of form, rest, physical therapy (stretching, strengthening, Ultrasound, manual therapy), acupuncture, many-many different injections, radiofrequency debridement

What 40+ y.o. males look like

- This may be regional...

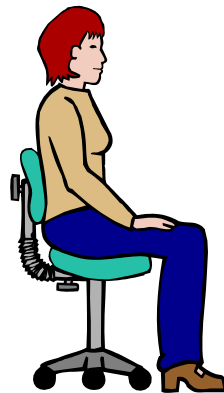


Bad habits we slip into

- Poor posture in sitting
- Poor posture in standing
- Excessive inactivity
- Insufficient water intake/Poor nutrition

Poor sitting posture

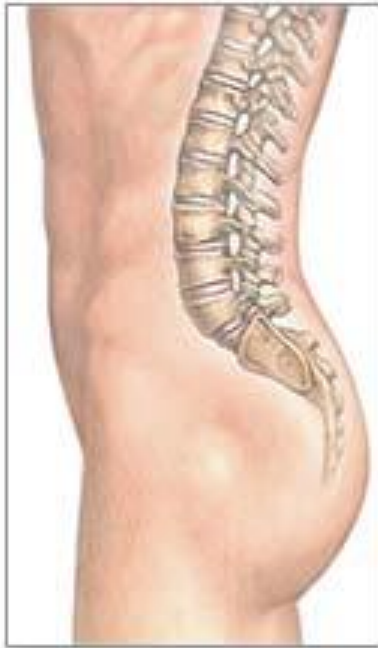
- Driving
- Leisure
- Fly tying



Poor standing posture

Exaggerated curves: The posture of older age

Columna vertebral normal



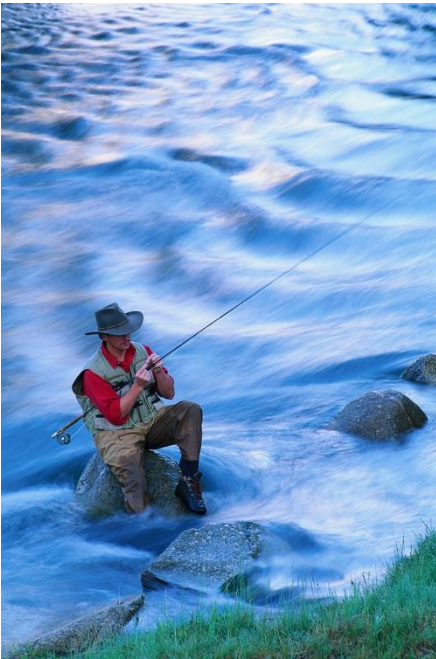
Lordosis de la columna vertebral



Curvatura lumbar exagerada

General Principles of Preparedness for any Activity (Fly fishing specific)

- Don't wait to the last minute
- Think about what you are doing
- More suggestions and recommendations in Part 2



Pondering point

- No one can know everything, but knowledge is power.
- You now have the knowledge, what will you choose to do with it? (All or none, or A-La-Carte)
- \$\$\$-with 10-30 minutes of activity per day, how much money can you save yourself for medical care?

Q&A



Possible Recommended Reading?

- **Fit to Fish: How to Tackle Angling Injuries**
By Stephen L. Hisey, P.T. and Keith R. Berend, M.D.
Published by Frank Amato Publications, Inc.

