



Fly Fishing Injury Prevention Part 2

What do you need to do, how much
of it and when?



Review of lecture #1

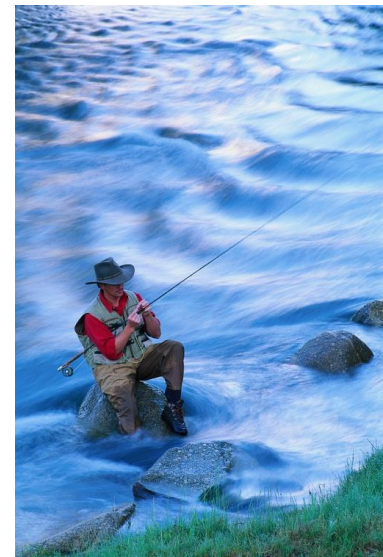
- Berend 2001, Trout U study
 - 64% of the study participants required care from a chiropractor, medical doctor or orthopedic doctor
 - 59% had low back pain, no effect from back braces
 - 16% elbow pain prevalence in freshwater anglers
 - 18% had shoulder pain
 - “heavier, stiffer equipment and longer casts requiring the "double-haul" are likely risk factors for injury. Proper grip size, rod action, and equipment combined with conditioning may reduce the occurrence of elbow pain in those who enjoy fly fishing.”
 - 31% prevalence of freshwater anglers with wrist or hand pain. Higher incidence with softer presentations, and lighter weight rods
 - Leg pain was reported by 12% of warm-freshwater anglers, and 23% in coldwater anglers.

Review of lecture #1, Cont'd

- McCue et al. 2004, casting instructor study
 - 50% had shoulder pain, 39% had elbow pain, 36% had wrist pain
 - Respondents who used multiple casting styles had significantly less elbow pain than did single-style casters.
 - Pain was significantly more frequent in those who cast with a haul, used shooting heads, or added weight to sinking flies.
 - Moderate-to-severe pain was more frequent in fishers of heavy saltwater fish.

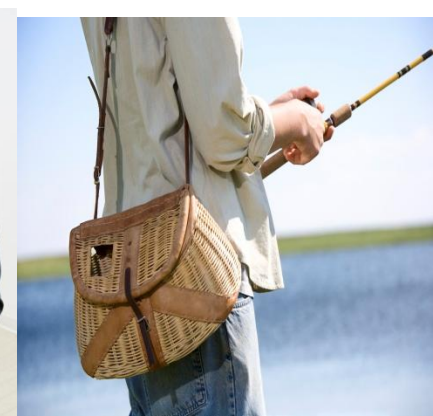
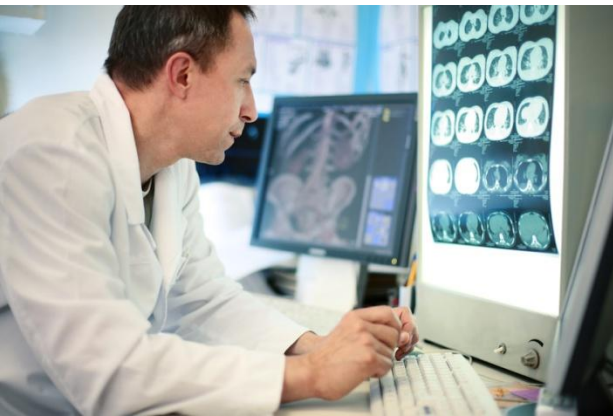
Other studies...

- Allen JR, et al. 2008. Longer casts/more line increased the total amount of motion traveled by the arm.
- O'Keefe, et al. Proximal to distal sequence of muscular activation with novice casters demonstrating higher wrist velocities



Other Studies on Injuries to Fly Fishermen...

- Expert opinion???
 - Who is speaking (philosophy and motivation)
 - What is their background
 - What is their experience with the sport
 - What is their knowledge of physiology
 - What is their knowledge of biomechanics



Nutrition

- To maintain your weight: energy in=energy spent
- MET: fishing 3.5-4
- MET: stream fishing 5-6
- MET: mountain climbing 8-9
- MET: lying down 1
 - MET calculator is used for calorie expenditure

For your 220# presenter

4 hours in a stream

2096 calories... beware this may be high!

- <http://lamb.cc/calories-burned-calculator/>



Nutrition, Cont'd

- **Fueling Before Endurance Exercise**
 - Glycogen, glycogen, glycogen (complex carbohydrates)
- “If you have three or four hours, eat 300-600 calories, primarily of carbohydrate (2-3g/kg body weight), moderate in protein and low in fat. Minimize the amount of fiber in this meal to prevent stomach discomfort during exercise.”
Andrea Hacker Thompson-ACSM



Nutrition, Cont'd

- **Fueling During Exercise**

- ACSM guidelines recommend 30-60 grams of carbohydrate (120-240 calories) per hour.

- **Eating After Exercise**

- *Losing weight, versus fueling up for the next day...*
- **Goals:** replenish glycogen stores, available nutrients for protein synthesis, replace fluids and electrolytes
- Within 30 minutes of exercise, an endurance athlete should have a snack of 300-400 calories containing carbohydrate (75-100 grams) and protein (6 grams). The carbohydrate-to-protein ratio should be 2:1 in short, low- to medium-intensity workouts or 3:1 in long, high-intensity workouts.

Nutrition, Cont'd

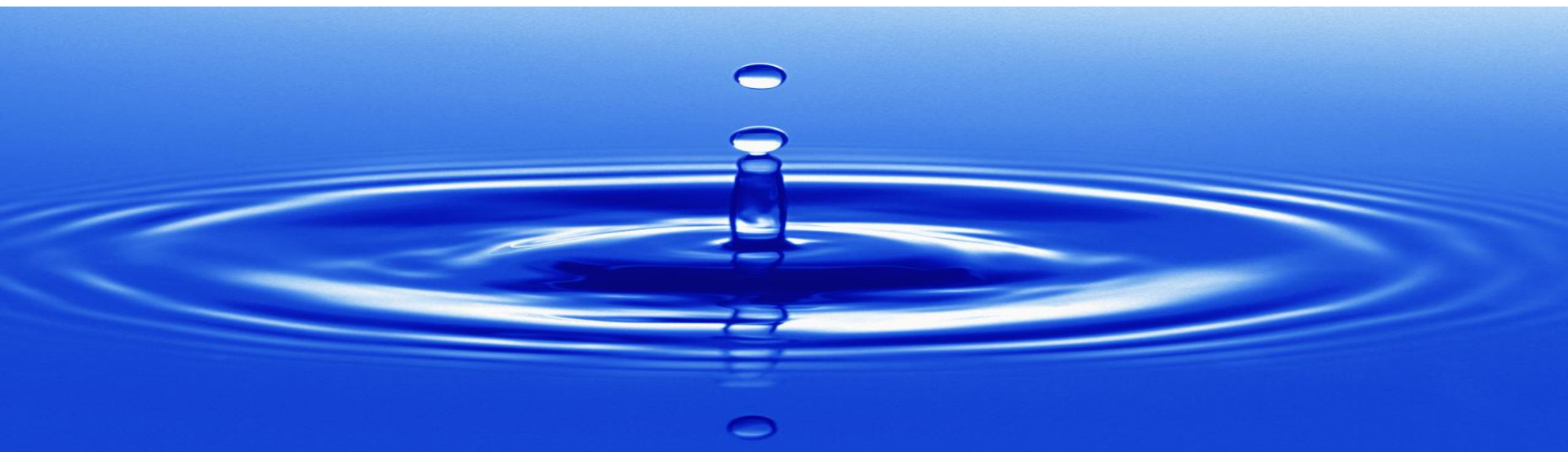
- Healthy Eating for your health and general activity
 - Consistently eating a diet higher in whole grains, complex carbohydrates, fruits, vegetables and lean protein.
 - There is minimal nutritional preparation for any activity, if you are always eating as you should... and better enjoyment from all life activities



Water Intake

– Functions of water:

- “transportation of nutrients, elimination of waste products, regulation and maintenance of body temperature through sweating, maintenance of blood circulation and pressure, lubrication of joints and body tissues, and facilitation of digestion.”



Dehydration

- Dehydration's effects on the body: "muscle fatigue, loss of coordination, inability to regulate body temperature, heat illness, decreased energy and athletic performance"
- If you lose weight during an activity (one session) it is water weight

>1% loss of your body weight = dehydration

>3-5% is significant dehydration

>5% is serious dehydration

The darker the color of your urine the poorer the hydration

Water Intake, Cont'd

- Sports beverages-use during prolonged higher intensity exercise.
- Before exercise:

Drink 16-20 fluid ounces of water or sports beverage at least four hours before exercise.

Drink 8-12 fluid ounces of water 10-15 minutes before exercise.

Water Intake, Cont'd

- During Exercise:

Drink 3-8 fluid ounces of water every 15-20 minutes when exercising for less than 60 minutes.

Drink 3-8 fluid ounces of a sports beverage (5-8 percent carbohydrate with electrolytes) every 15-20 minutes when exercising greater than 60 minutes.

Do not drink more than one quart/hour during exercise.

Water Intake, Cont'd

- After Exercise:

The goal is to correct your water losses within two hours after exercise.

Drink 20-24 fluid ounces of water or sports beverage for every one pound lost

Water need monitoring

- Monitoring fluid loss...
- “Bedside evaluation of a patient's intravascular volume status is challenging, even for the seasoned practitioner. There is no single diagnostic test to determine whether a patient is hypovolemic, hypervolemic, or euvolemic. Often, underlying or concomitant disease states, medications, and other therapeutics can make available data difficult to interpret. Therefore, a combination of clinical evaluation, laboratory studies, and other diagnostics are required to make a clinical judgment regarding volume status. Patients who demonstrate alterations in their volume status are likely to have electrolyte abnormalities as well, and assessment of serum electrolyte values and potential therapeutic interventions is a vital piece in caring for critically ill patients.”
- So what do you do???

Water need monitoring

- “Thirst is a signal that your body is headed towards dehydration” i.e. it is already too late
- Follow the guidelines previously outlined
- Monitor your urine color (clear to pale yellow can demonstrate euhydration)-even though this is not always accurate

Water intake and altitude

- Below 8000 feet altitude sickness rarely occurs
- Acute Mountain Sickness (AMS)
 - Headache plus any of the following after an ascent of more than 8000 feet
 - Loss of appetite, nausea, or vomiting
 - Fatigue or weakness
 - Dizziness or light-headedness
 - Difficulty sleeping

Liability Clause

If you are going to be moderately changing your activity levels, and/or if you have any of the following risk factors for having an adverse body response to exercise

1. High blood pressure
2. Abnormal cholesterol levels
3. Family history of heart disease
4. Smoking habits
5. obesity
6. Abnormal glucose tolerance

“As a minimum, adults who are to begin an exercise program should begin with a self-administered assessment using a popular questionnaire such as the Physical Activity Readiness Questionnaire (see simple version below). Such a questionnaire is easy to use and helpful in determining one’s suitability to safely begin an exercise program. Results from the self-assessment will suggest whether medical clearance would be useful and/or necessary prior to beginning an exercise program.”

Liability Cont'd

If you answer yes to one or more of these questions, see your doctor before you start becoming much more physically active or before you have a fitness appraisal.

1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?
2. Do you feel pain in your chest when you do physical activity?
3. In the past month, have you had chest pain when you were not doing physical activity?

Liability Cont'd

Physical Activity Readiness Questionnaire

4. Do you lose your balance because of dizziness or do you ever lose consciousness?
5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?
6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
7. Do you know of any other reason why you should not do physical activity?

Maintaining your Fitness

The American College of Sports Medicine recommends that most adults engage in

1. moderate-intensity cardiorespiratory exercise training for ≥ 30 minutes/day on ≥ 5 days/week for a total of ≥ 150 minutes/week

OR

2. vigorous-intensity cardiorespiratory exercise training for ≥ 20 minutes/day on ≥ 3 days/week (≥ 75 minutes/week)

OR

3. A combination of moderate- and vigorous-intensity exercise to achieve a total energy expenditure of ≥ 500 - 1000 MET x minutes/week.



Maintaining your Fitness, Cont'd

The following table has the scale between 6-20. This is made to correspond to the heart rate. i.e. a rating of 13 should have a heart rate of 130 beats/minute (13 x 10).

- What is Moderate Intensity Exercise? 13
- What is Vigorous Intensity Exercise? 16

Rating of Perceived Exertion (RPE)	
6	No exertion at all
7	
	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (heavy)
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion

Resistance Training: Toning vs Strengthening vs Maintaining

- What is your purpose of exercise?
 - Toning: to decrease the fat around your muscles
 - What you need to do: 8 repetitions, 3 sets, 2 days per week of 80% of your 1 repetition max weight (1RM).
 - Strengthening: to increase the amount of work OR power that your muscles can do
 - What you need to do: Heavy weights (you are working HARD), 80% of 1RM, 8 repetitions, 3 sets, 2 days per week.
 - Progressive increase in weight
 - Maintaining: To either maintain your strength or body composition
 - What you need to do: Use moderate-heavy weights (80% 1 Rep Max), 10 repetitions, 3 sets, 1 day per week

Stretching

- Study on 3 days per week, 30 seconds, 5X/part
- Flexibility decreases risk of injury
- Other stretching methods are available, but...
- Decreased severity of nocturnal leg cramps



Balance training

- Goal for balancing in fly fishing: be able to balance on one and/or both legs with internal (muscular effort) and external (water current) perturbations on varied surfaces
- What you will need: proprioception (joint/muscular awareness), strength, flexibility, vision?
- Wobble Board-5 weeks, 5X/day, 3 minutes per session holding neutral

Common Pitfalls

- Not strengthening the antagonist
- Strengthening only the beach muscles
- Not stretching if you are tight
- Doing only the exercises that you enjoy
- Not working on your weaknesses

More Serious Symptoms

- Symptoms to be more careful of:
 - Paresthesias (tingling/abnormal nerve sensations)
 - unexplained weakness
 - Burning
 - Radicular (down the arm or leg) pain

Night Cramps

- Many options are available, but which one(s) is/are right for you
 - CoE Q10 and Tart Cherry juice
 - Soap in the bed sheets
 - Medication changes (with your doctor's assistance!)
 - Supplements
 - Stretching before bed and during the cramps if they continue
 - Medications
 - Avoiding alcohol and caffeine before bed
 - Back treatments

Exercise Associated Muscle Cramps (EAMC)

- “painful, spasmodic and involuntary contraction of skeletal muscle that occurs during or immediately after exercise.”
- Not due to electrolytes or dehydration
- Muscle fatigue, insufficient carbohydrate intake, exercise in hot and humid environments, more intense activity, being poorly conditioned, currently accepted as contributing factors
- Medications and other medical conditions may be contributing factors

Equipment

- Wader insoles
- What you carry-how you carry it
- Fly rod



THANK YOU