University of Washington
School of Pharmacy
Injury and Prevention Products
Presented by Daniel Neil MSPT
Courtesy of STAR Therapy Services
Products commonly sold at Pharmacies for Injury management and prevention:

• Ice Packs and Hot Packs:
  – Reusable small → large sizes
  – Use for 10-15 minutes
  – No longer than 20 minutes due to reverses the effect on swelling after 20 minutes.
Ankle Braces:

• A. Rigid Ankle Brace:
  – AirCast
Ankle Braces:
A. Rigid ankle brace: aircast brand
Soft lace up ankle braces:

- Arizona, Sweedo (fit in most shoes)
  - Ankle braces are designed to support the ankle, usually for medial and lateral (valgus / varus) support.
  - Most commonly sprained ligament is the anterior talofibular ligament with a Inversion and Plantarflexed movement
  - Safe to wear with athletic or demanding situations for up to 1 year without detriment.
Ligaments and Tendons of Ankle

**Right foot: lateral view**
- Posterior talofibular ligament
- Calcaneocuboid ligament
- Anterior talofibular ligament
- Interosseous talocalcaneal ligament
- Dorsal talonavicular ligament
- Calcaneonavicular ligament
- Calcaneocuboid ligament (part of the calcaneocuboid ligament)
- Dorsal cuboideonavicular ligament
- Dorsal intercuneiform ligaments
- Dorsal tarsometatarsal ligaments

**Right foot: medial view**
- Posterior tibiotalar ligament
- Tibiocalcaneal ligament
- Tibionavicular ligament
- Anterior tibiotalar ligament
- Dorsal talonavicular ligament
- Navicular bone
- Dorsal cuneonavicular ligaments
- Medial cuneiform bone
- Dorsal intercuneiform ligament
- Dorsal tarsometatarsal ligaments
- 1st metatarsal bone
- Tuberosity
- Tibialis anterior tendon
- Tibialis posterior tendon
- Plantar calcaneonavicular (spring) ligament
- Long plantar ligament
- Medial talocalcaneal ligament
- Posterior process of talus
- Posterior tibiocalcaneal ligament
- Calcaneal (Achilles) tendon (cut)
- Sustentaculum tali

ANKLE AND FOOT
PLATE 495
Ankle Sprain Rehab

• Acute Stage:
  – Sign: pain with Weight Bearing
  – Treatment: PRICE
    • Protect: crutches, ankle brace, cane, walker
      (usually not on crutches for longer than 2 weeks)
    • Rest:
    • Ice: cold packs (15 minutes)
    • Compression: ace wrap
    • Elevate: above the level of the heart with gentle ankle circles.
Crutch / Cane / Walker fitting:

- Have patient stand up tall
- Foot end 6” in front and 6” laterally from the little toe or (a dollar bill diagonally from the little toe)
- Hand piece to crease of the wrist on the pinky side of the hand
- Axillary (arm pit) end 2-3 finger widths from the axilla.
- Pinch axillary piece between arm and ribs
- Cane on good side
Using an assistive device with ADL’s

• “Good go to heaven, and bad goes to hell”
  -good foot goes up first
  -bad foot goes down first
Sub acute / Chronic Stage:

- Range of Motion: Ankle pumps
- Therapy (me)
- Pharmacy may want to carry:
  - Theracord and Theraband
ANKLE/FOOT - 7 Resist Inversion

Cross legs with involved ankle underneath. With tubing anchored around uninvolved foot, slowly turn involved foot inward.
Repeat___ times. Do___ sessions per day.

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ANKLE/FOOT - 5 Resist Dorsiflexion

With tubing anchored in doorjamb, pull foot toward face. Return slowly to starting position. Relax.
Repeat___ times. Do___ sessions per day.

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ANKLE/FOOT - 8 Resist Eversion

With tubing anchored around uninvolved foot, slowly turn involved foot outward.
Repeat___ times. Do___ sessions per day.
The Knee:

Muscles of Leg (Superficial Dissection): Anterior View

PLATE 488  LOWER LIMB
McConnell Tape

- Therapist trains the patient in use, and uses on current patients
- Hypoallergenic
- May need to use Maalox for antacid properties.
Fat Pad of Knee and the VMO
Medial glide taping

• For PFPS and CMP:
  – Common in women and after ACL surgery
  – Poor patellar tracking in trochlear groove of femur
Patellar Tendinosis / Fat Pad

-taping relieves pressure
Other uses for Taping in Therapy

Achilles tendinosis:
- realigns achilles and calcaneous, and changes it’s wear and tear

Arch support / and Plantar Fascitis:
- keeps arch supported and in stretched position (like truck spring)
Upper Trapezius inhibiting

Postural Correction Thoracic and Lumbar “X”

Deltoid un-weighting
Muscles of Shoulder

SEE ALSO PLATES 2, 160, 174, 175, 177, 178

Posterior view
- Semispinalis capitis muscle
- Sphenius capitis muscle
- Spinalis process of C7
- Levator scapulae muscle
- Rhomboidus minor muscle
- Rhomboidus major muscle
- Accesorio
- Supraspinatus muscle
- Spine of scapula
- Infraspinatus muscle
- Teres minor muscle
- Teres major muscle
- Latissimus dorsi muscle
- Long head
- Lateral head
- Spinoous process of T2

Anterior view
- Trapezius muscle
- Omohyoid muscle and cervical (innervating) fascia
- Sternocleidomastoid muscle
- Clavicle
- Cleavicular head
- Sternocephalic head
- Abdominal head
- Sternum
- 6th costal cartilage
- Anterior sheet of rectus abdominis muscle

PLATE 399
Ankle Tape:
-increases proprioception input and increases protective reflexes.
-proven to have no protective property after 7-15 minutes, just feedback (like a back belt)
Heel Lifts

- shortens the achilles tendon
- decreases tension on the achilles
- extreme example (high heels chronic shortening)
- also for LLD and Sacral / Lumbar pain
Heel lift
Heel cup
Arch supports:
Arch Supports

Firm: good for structural support with no inflammation involvement

Soft: good for support with and without inflammation process occurring.

-affects arch, knee, hip, pelvis and back

-good for treatment of Plantar Fascitis, Achilles tendinosis, CMP, PFPS, Greater Trochanteric bursitis, SIJ pain, Lumbar pain, meniscal pain in the knee with pronated feet, and stress fractures and shin splints due to Cavus (or supinated) feet, etc.
Shoe inserts / Air cushions

Small amount of padding makes a big difference (ex: shock carpets, pads)

Good for Metatarsalgia, Plantar fascitis, and shock absorption for the lumbar spine.
Doughnuts:

-un-weight and spread small area of metatarsalgia
Patellar Pad
Patellar Pad

- compresses at patellar tendon
- like a tennis elbow pad
- changes point of force by changing the lever arm for the Quadriceps pull allowing injured area some relief.
Theraband / Theratubing

Isotonic resistance
  (changes over ROM)
Convenient and cheap
Multiple uses
Theraband Exercises

ANGL/E/FOOT - 3. Resisted Inversion
Cross legs with involved ankle underneath. With tubing anchored around uninjured foot, slowly turn involved foot inward.
Repeat ____ times. Do ____ sessions per day.

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ANGL/E/FOOT - 5. Resisted Dorsiflexion
With tubing anchored to dorsiflexor, put foot toward face. Return slowly to starting position. Relax.
Repeat ____ times. Do ____ sessions per day.

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ANGL/E/FOOT - 8. Resisted Eversion
With tubing anchored around uninjured foot, slowly turn involved foot outward.
Repeat ____ times. Do ____ sessions per day.
Theratubing Exercises
Thera-tubing Exercises

SHOULDER - 64
Progressive Relative Exercises
External Rotation (tubing)

Raise arm up toward ceiling. Keep elbow bent and in an aside.
Repeat ______ times with______ pounds.
Do ______ sessions per day.

SHOULDER - 42
Strengthening Activities
Active Relative Abduction

Using tubing, start with arm lifted and pull across body. Move through full range of motion.
Repeat ______ times.
Do ______ sessions per day.

SHOULDER - 44
Strengthening Activities
Active Relative External Rotation

Using tubing, and keeping elbow in at side, move arm out to sides. Be sure to keep forearm parallel to floor.
Repeat ______ times.
Do ______ sessions per day.

SHOULDER - 45
Strengthening Activities
Active Relative Extension

Using tubing, pull arm back. Be sure to keep elbow straight.
Repeat ______ times.
Do ______ sessions per day.

SHOULDER - 41
Strengthening Activities
Active Relative Flexion

Using tubing, start with arm in side and pull arm outward and upward. Move shoulder through full range of motion.
Repeat ______ times.
Do ______ sessions per day.
Thera-tubing Exercises

**Shoulder - Scapular Retraction**

Wrap tubing around both forearms. Pull arms back while bringing shoulders together as if nursing a head.
Repeat ___ Repetitions/set.
Do ___ Sets/session.
Do ___ Sessions/day.
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**Pulldown**

Place hand high in the door. Pull down while pinching shoulders back. Sit in a chair for higher pull.
Repeat ___ Repetitions/set.
Do ___ Sets/session.
Do ___ Sessions/day.
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**Back - Bilateral Scapular Retraction**

Wrap tubing around both forearms. Pull arms back while bringing shoulders together as if nursing a head.
Repeat ___ Repetitions/set.
Do ___ Sets/session.
Do ___ Sessions/day.
Copyright 1991/1992

**Shoulder - Strengthening Activity**

Using tubing, pull arm in circular motion. Do not cross or raise hands.
Repeat ___ Times.
Do ___ Sessions per day.
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HAND - 29
Active Resistive Wrist Flexion

With tubing wrapped around fist and opposite end secured under foot, bend wrist up (palm up) as far as possible. Lower slowly, keeping forearm on thigh.

Repeat _____ times.
Do _____ sessions per day.

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HAND - 30
Active Resistive Wrist Extension

With tubing wrapped around fist and opposite end secured under foot, bend wrist up (palm down) as far as possible. Lower slowly, keeping forearm on thigh.

Repeat _____ times.
Do _____ sessions per day.

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HAND - 31
Active Resistive Radial Deviation

With tubing wrapped around fist and opposite end secured under foot, bend wrist up (thumb side up) as far as possible. Lower slowly, keeping forearm on thigh.

Repeat _____ times per session.
Do _____ sessions per day.

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Thera-putty

-comes in a variety of resistances
-good for hand and finger therapy
Theraball

AROM Hip ext straight leg w/ball
- Lie on back with ankles on ball.
- Bridge up as shown.
- Lower and repeat.

Perform __________ sets of __________ Repetitions.
________ time a __________ times a __________

Perform __________ repetitions every __________ Seconds.
Use __________ Ball
Rest __________ Minute between sets.

AROM Hip marching on Ball
- Sit on ball with hips and knees at 90 degrees.
- Lift up one leg and lower.
- Repeat with other leg.

Special Instructions:
Maintain proper low back posture. Keep arms at sides.

Perform __________ sets of __________ Repetitions.
________ time a __________ times a __________

Perform __________ repetitions every __________ Seconds.
Rest __________ Minute between sets.

AROM Lumbar all leg supine on Ball
- Lie face up over ball as shown.
- Straighten left leg.
- Hold, lower and repeat with other leg.

Special Instructions:
Maintain proper pelvic posture. Do not allow hips to twist.

Perform __________ sets of __________ Minute.
________ time a __________ times a __________

Perform __________ repetitions every __________ Seconds.
Use __________ Ball
Rest __________ Minute between sets.

Issued By: Daniel Neil MSPT  Signature: ____________________________
Knee Braces

Compression Style:
- controls swelling
- proprioception and input to protective reflexes
Knee Braces

Valgus / Varus stress reduction
-hinges with side support
Knee Braces

Alignment changing
-elastic, velcro, straps, silicon and felt patellar pads
-good for PFPS, CMP, and subluxations
-attempt to change the patellar tracking, glide, etc.
-Custom order (BENIK) or OTC
Back / Lumbar Braces

Good for feed-back on posture and lifting technique
-not a cure, or a substitute for good body mechanics
-soft, hard inserts, and suspender versions, etc.
Sleeping Splint

Used for Plantar Fascitis, and Achilles lengthening

- foot held in Dorsiflexion instead of resting in Plantarflexion all night while asleep

- makes first steps in morning bearable and stops the cycle
The End
Any Questions ?????
Please pass all handed out materials and supplies to the front. Thank you.