

## Keeping the Aging Worker Productive and Injury Free



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### Aging

- ▶ Some say aging is > 30 years.
- ▶ Everybody is 'aging'.
- ▶ Generally aging workers refer to those in last decade of working life.
  - ▶ 50 years+
- ▶ More 'boomers' than ever will be in the 50-60 year category.

## Common misconceptions about aging workers.

- ▶ less productive
- ▶ have more injuries
- ▶ make more errors
- ▶ are less fit
- ▶ can't learn new jobs
- ▶ cost company money
- ▶ less up-to-date



## Types of aging

- ▶ Primary aging.
  - ▶ functional capacity decreases 1% year starting at 25-30 years
- ▶ Secondary aging.
  - ▶ attributed to personal, social, and environmental factors



## Deterioration and aging



- ▶ Can't generalize about functional capacity but...
  - ▶ fit 65 year old can have greater capacity than unfit 25 year old
- ▶ Aging changes are inevitable but...
  - ▶ Poor lifestyle choices can have a cumulative effect

## Effects of Exercise

- ▶ Exercise can increase muscle strength and aerobic capacity.
  - ▶ 10 yr. reversal in aging
  - ▶ strengthened back muscles
  - ▶ lower obesity/diabetes
  - ▶ lower CV disease



## Productivity and Aging

- ▶ Peak performance is during 30's and 40's.
  - ▶ little relationship between aging and productivity
  - ▶ gradual decline in performance
  - ▶ older workers still perform as well as younger workers
- ▶ Older workers use experience to offset slower performance.

## Accidents and aging

- ▶ Younger workers may have more formal education about health and safety.
- ▶ Older workers may have fewer accidents.
  - ▶ 'accident prone' are out of the workforce due to death and disability, remaining workers have better safety record
- ▶ Older workers generally recover from injuries more slowly.
  - ▶ Time off work in 'days' average same as worker's age

## Errors and aging

- ▶ Older workers are more accurate and show higher quality work.
- ▶ Older workers make fewer errors and have greater experience to draw on.
- ▶ Younger workers have more speed, but make more mistakes.



## Up-to-date knowledge and aging

- ▶ Older workers are less up-to-date but experience is what companies value.

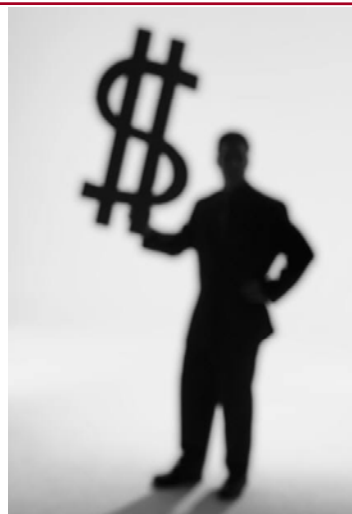


## Learning new skills and aging

- ▶ Older workers learn differently.
  - ▶ learn by 'doing'
  - ▶ classroom learning may not be effective
- ▶ Older workers need more time to practice new skills.
- ▶ Older workers ask more questions.

## Costs and the aging worker

- ▶ Older workers take fewer sick days, even though there is more ill health.
  - ▶ have fewer accidents but off longer
  - ▶ have equivalent productivity
  - ▶ should be valued for wisdom, experience, dedication



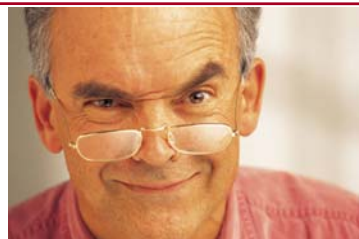
## Secondary Aging

- ▶ Increase aerobic power & muscular strength with regular exercise.
- ▶ Increased muscular strength, decreased CV disease, controls obesity, general increase in health.



## Visual Changes

- ▶ Greater difficulty seeing in normal lighting.
- ▶ Slower focusing ability.
- ▶ loss of near vision
- ▶ need for greater contrast.
- ▶ loss of color perception (blues).



## Vision recommendations

- ▶ Increase illumination.
- ▶ Increase size of critical visual details.
- ▶ Increase contrast. (light paint)
- ▶ Corrective lenses.
  - ▶ Regular eye exams
- ▶ Reduce need for quick focusing.
- ▶ Critical colours coding should not include blue/green.

## Changes in hearing

- ▶ Loss of higher frequency. (4000hz)
  - ▶ don't use high frequency alarms
- ▶ Do not use high frequency sounds as alarm.
  - ▶ use flashing lights or low frequency sounds



## Cognitive changes with aging

- ▶ Vocabulary skills, knowledge and long term memory are unchanged.
- ▶ Short term memory declines from age 50.
- ▶ Reaction time increases.
  - ▶ Research shows that older workers use experience to offset memory loss

## Accommodating cognitive changes

- ▶ Reduce demands for short term memory.
- ▶ Train for complex decision making.
  - ▶ Training must be age-adapted
  - ▶ Include older workers on teams developing the training

## Physical changes due to aging

- ▶ Reduced joint mobility. (flexibility)
- ▶ Loss of tissue elasticity.
- ▶ Reduced cardiovascular function.
- ▶ Reduced muscular strength.
- ▶ Poor posture due to muscular weakness.
  - ▶ poor biomechanics

## Accommodating physical changes

- ▶ Work should avoid elevated arm movements, static postures, and twisting the back.
- ▶ Mechanize more demanding aspects of the work.
- ▶ Introduce brief rest periods.
- ▶ Efficient techniques result in fewer physical demands.

## Accommodating physical changes

- ▶ Opportunities to maximize health.
  - ▶ encourage exercise
  - ▶ healthy lifestyles
    - smoking cessation
  - ▶ regular health assessments
  - ▶ blood pressure monitoring
  - ▶ cholesterol monitoring
- ▶ Identify decreasing abilities early.

## Accommodating physical changes

- ▶ Provide training in back care and lifting techniques.
- ▶ Train in prevention principles.
- ▶ Train supervisors on how aging workers need to be supported.

## Factors reducing older workers' ability to cope

- ▶ Physical demand that are too high.
  - ▶ static muscular work
  - ▶ high muscular strength required
  - ▶ lifting and carrying
  - ▶ sudden peak loads (overexertion)
  - ▶ repetitive movements
  - ▶ bending/twisting positions

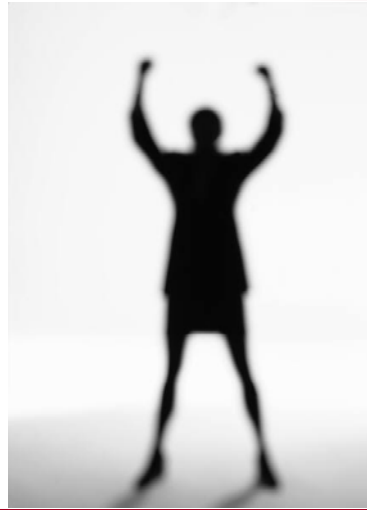
## Factors reducing older workers' ability to cope

- ▶ Stressful and dangerous work.
  - ▶ dirty and wet workplaces
  - ▶ hot workplaces
  - ▶ cold workplaces
  - ▶ high risk of workplace accidents
  - ▶ high temperature fluctuations



## Factors reducing older workers' ability to cope

- ▶ Poorly organized work.
  - ▶ role conflicts
  - ▶ fear of mistakes
  - ▶ time pressure
  - ▶ lack of influence
  - ▶ lack of professional development
  - ▶ lack of acknowledgement



## Work capacity vs. work demands

- ▶ Problem.
  - ▶ demands of work don't change even though capacity decreases with age
- ▶ Recommendation.
  - ▶ physical demands should reduce in parallel to capacity by adding non-physical tasks

## Recommendations

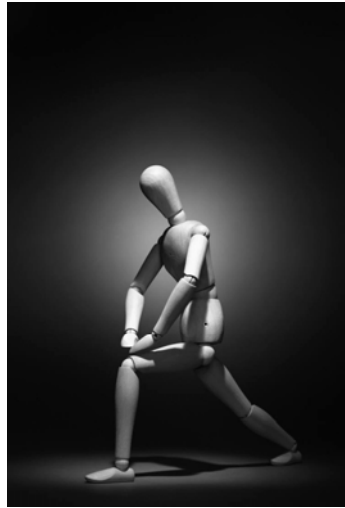
- ▶ To compensate for age related changes.
  - ▶ ergonomic reduction in task demands
  - ▶ lifestyle programs to increase capacity
  - ▶ affirm positive aspects of aging
    - knowledge and experience

## Injury Management

- ▶ Train to recognize early signs and symptoms.
- ▶ Determine least stressful techniques and train workers to use them.
- ▶ Return new or absent workers gradually.



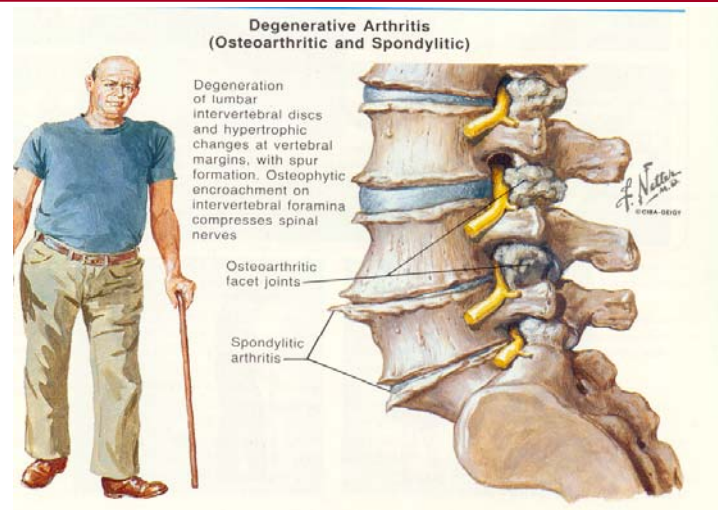
## Stretch Break



## Typical Injury Types

- ▶ Overexertion injuries.
  - ▶ Low back pain
- ▶ Activity related injuries.
  - ▶ Upper extremities
    - Wrist
    - Elbow
    - Shoulder
  - ▶ Lower extremities.
    - Knee
    - Foot

## Effects of aging on the spine



## Tendonitis

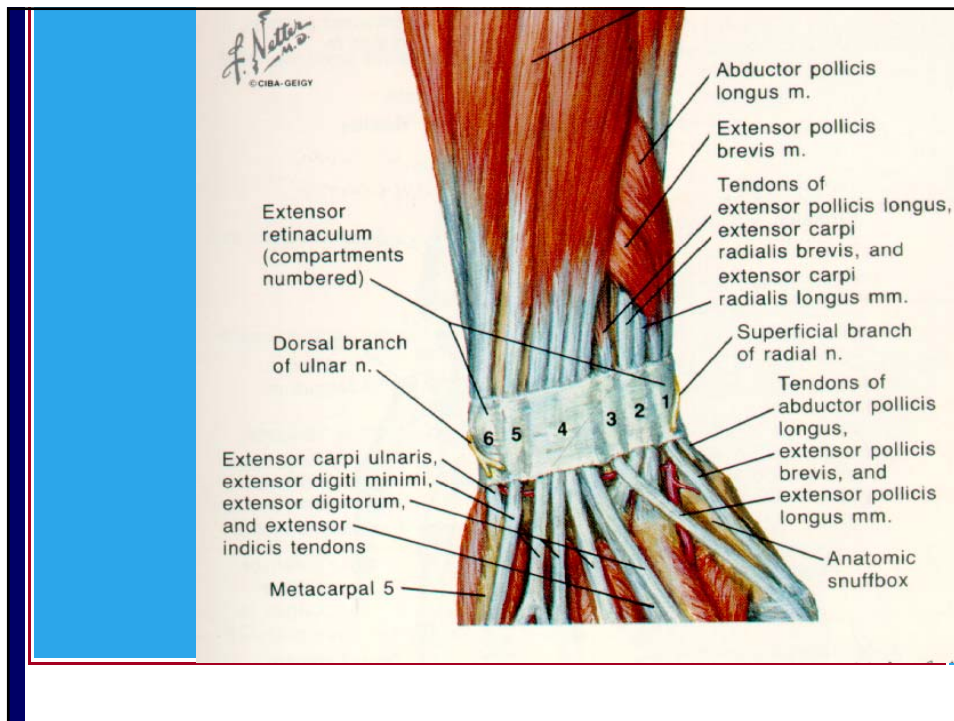
*Tendonitis* is an inflammation of the tendon or tendon sheath.

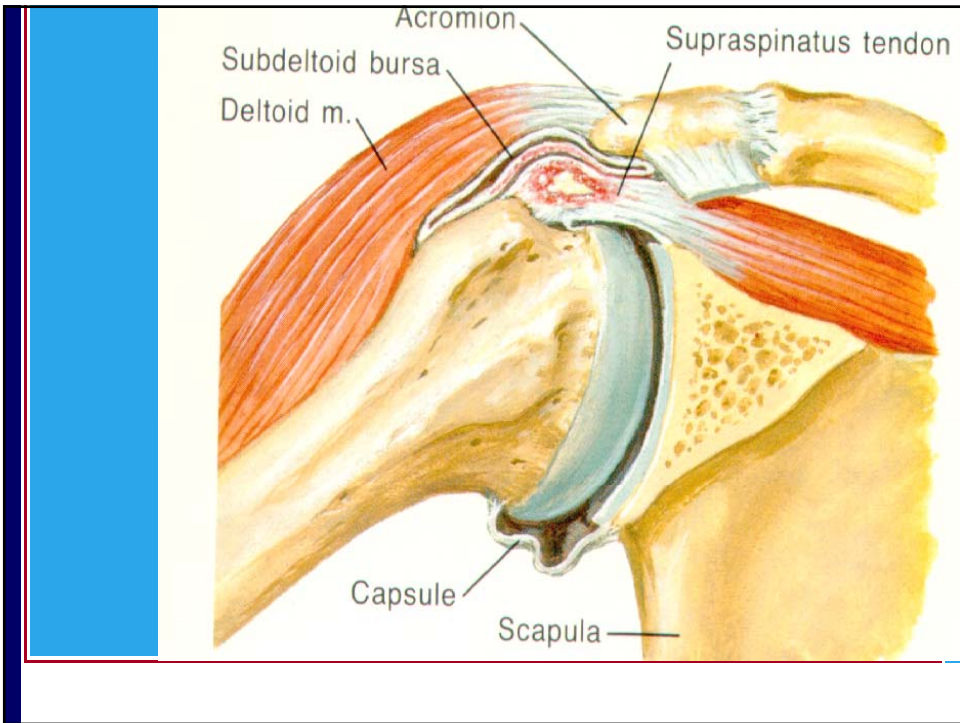
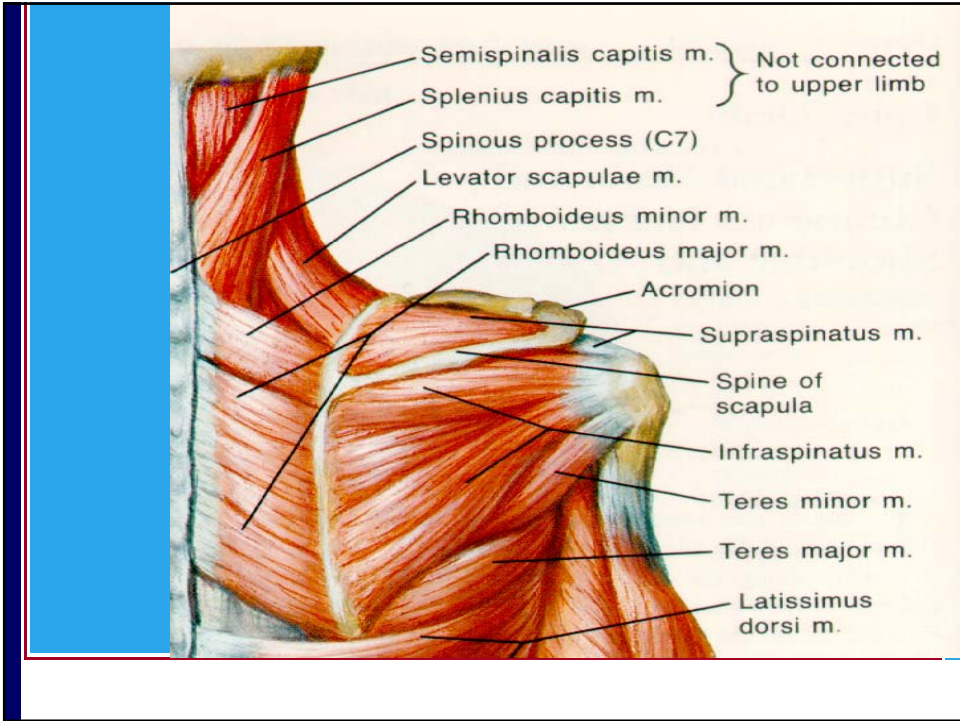


## Tendonitis

Common sites for these inflammations:

- ▶ **Shoulder** - rotator cuff, biceps tendon, frozen shoulder.
- ▶ **Hand and wrist** - de Quervains syndrome.
- ▶ **Foot** - Achilles tendonitis





## Bursitis

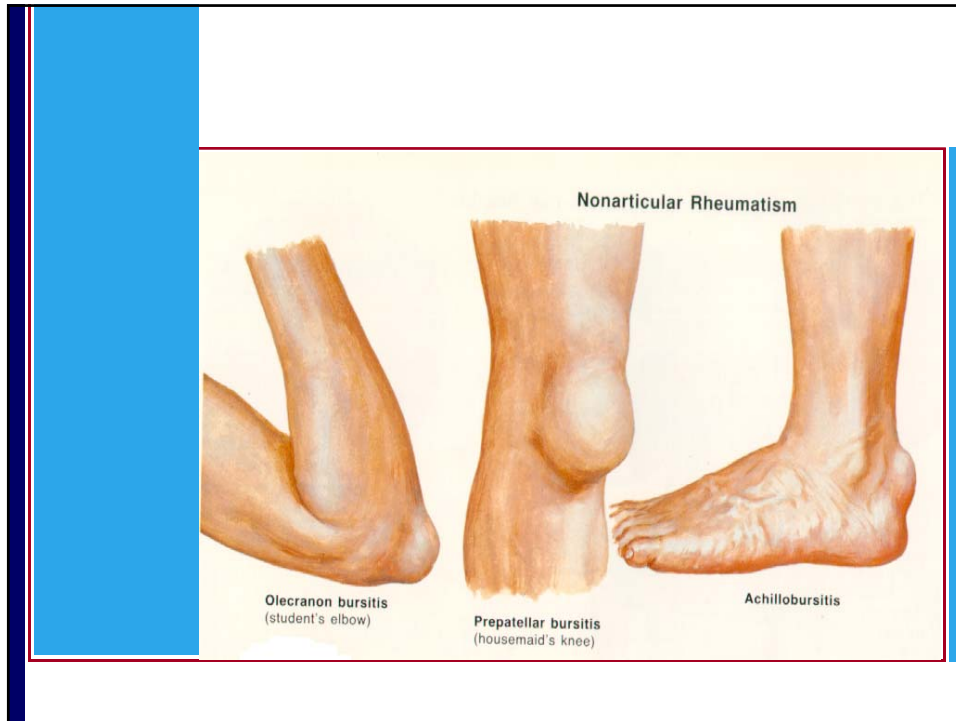
*Bursitis* is when the bursa becomes inflamed due to excessive friction or pressure.

A *bursa* is a sac lined with slippery tissue, found at sites of friction between muscles and tendons and bones.

## Bursitis

Common sites for *bursitis*:

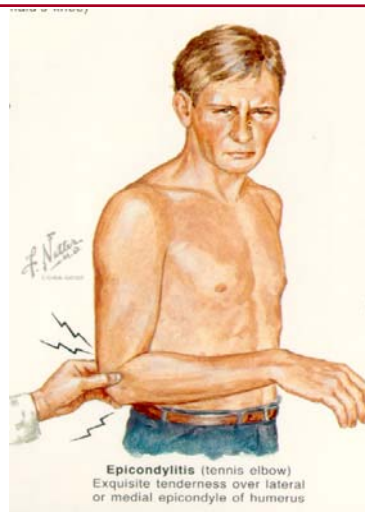
- ▶ *shoulder* - sub acromial bursitis
- ▶ *elbow* - olecranon bursitis
- ▶ *knee* - patellar bursitis



## Epicondylitis

**Epicondylitis** is an inflammation of the tendons as they insert into the elbow.

- ▶ **Lateral epicondylitis** is tennis elbow
- ▶ **Medial epicondylitis** is golfers elbow

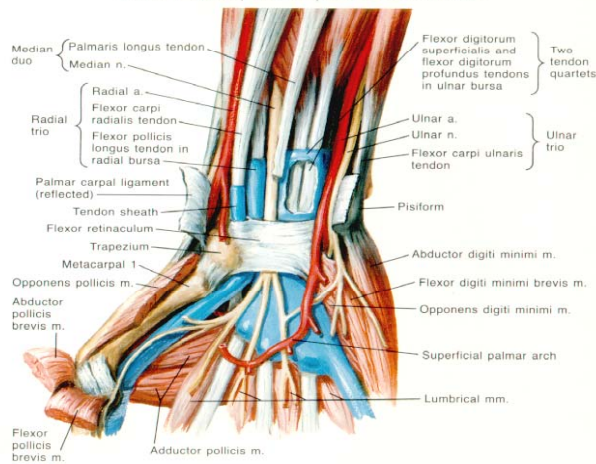


## Carpal Tunnel Syndrome

- *Carpal tunnel syndrome (CTS)* is caused by compression of the median nerve at the wrist. Increased pressure on the nerve is caused by swelling in the carpal tunnel through which the nerve passes.

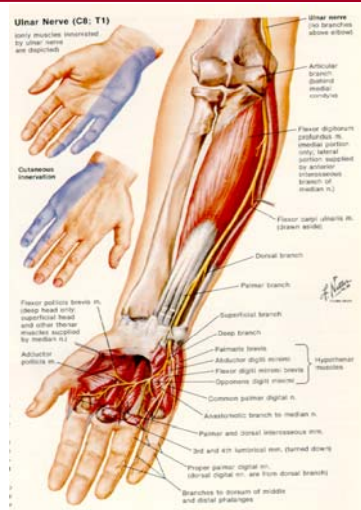
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Flexor Tendons, Arteries, and Nerves at Wrist



## Cubital Tunnel Syndrome

- ▶ **Cubital tunnel syndrome** is a compression of the ulnar nerve at the elbow which usually results in numbness, tingling, pain, and weakness of the upper limb.

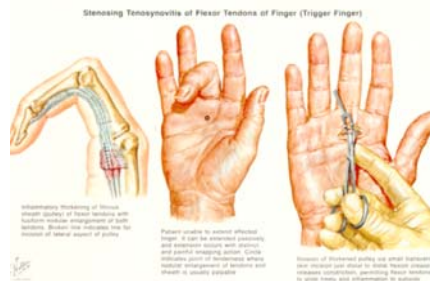


## Thoracic Outlet Syndrome

- ▶ **Thoracic outlet syndrome** is a condition where there is compression of nerves and blood vessels as they leave the armpit.

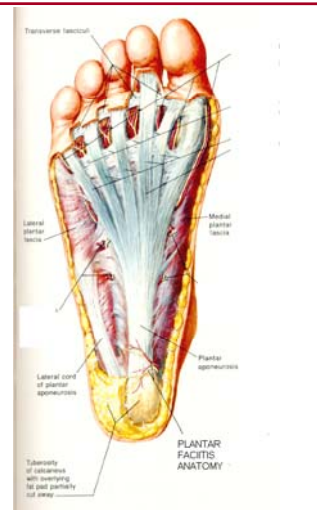
## Trigger Finger

- ▶ **Trigger finger** is a fibrous thickening of the tendon sheath which results in a snapping movement of a finger due to swelling and restricted gliding. The condition most often involves the flexor tendons of the hand.



## Plantar Fasciitis

- ▶ **Plantar fasciitis** is an inflammation of the foot. The condition is commonly occurs in the arch of the foot.



## Managing the future of the older worker

- ▶ Promote health
- ▶ Improve work task design
  - ▶ Reduce physical loads
  - ▶ Avoid excessive work rate
  - ▶ Reduce postural demands
  - ▶ Worker control over pace
- ▶ Improve design and organization
  - ▶ Improve scheduling
  - ▶ Allow time to adapt to change

## Managing the future of the older worker

- ▶ Improve physical work environment
  - ▶ Ensure appropriate lighting
  - ▶ Minimize noise levels
  - ▶ Eliminate slip, trip and fall hazards
  - ▶ Allow for working in heat and sun
- ▶ Train for an aging workforce
  - ▶ Educate in accordance with adult learning principles.

# Questions?

