Aging Athlete

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Relevance

- US Population[1]
  - 326,000,000
- Age Structure[1]
  - 55 and up
    - 27% of the population
    - About 91,000,000
  - Life Expectancy
    - 80 years
      - Males 77
      - Females 82
    - Medical Care is only advancing

Relevance

- According to recent study at University of Rochester Medical Center poor physical activity and nutrition toped the list of most common health issues encountered by seniors[2]
  - Others included
    - Mental health
    - Overweight and obesity
    - Tobacco
    - Substance Abuse

Relevance

- Physical Activity[2]
  - Proven to help prevent or delay certain ailments
    - Heart disease
    - High blood pressure
    - Diabetes
    - Depression
  - Barriers[2]
    - Including but not limited to:
      - Lack of transportation
      - Lack of awareness
      - Lack of funds
      - Lack of understanding

Relevance

- Nutrition[2]
  - Tea and Toast Diet
  - Proven that eating alone promotes poor eating habits
  - Empty calories from sweets and treats
- Barriers[2]
  - Including but not limited to
    - Safety (cooking/preparing meals)
    - Cost of a meal
    - Lack of awareness
      - Meals on Wheels

Importance

- In comparing the US to peer countries we are less healthy in the key areas of obesity, diabetes, heart disease, hypertension, chronic lung disease and disability[3]
- These chronic diseases are the leading cause of death and disability[3]
- Over 117 million adults have at least 1 chronic condition[3]

Chronic Diseases[3]

- Diabetes
  - Leading cause of
    - Kidney failure
    - Non-Traumatic lower-limb amputations
    - New cause blindness in adults
- Obesity
  - As of 2010 more than 1/3 of adult population (nearly 78 million) were obese
    - BMI $\geq 30 kg/m^2$
- Arthritis
  - 53 million adults diagnosed with this more than 22 million reporting difficulty with ADL's as a result

Behavior

- Health risk behaviors[3]
  - Unhealthy behaviors that can be changed
  - If not then they contribute to illness, suffering and early death related to chronic diseases
  - Most common health risk behaviors:
    - Lack of exercise or physical activity
    - Poor nutrition
    - Tobacco use
    - Alcohol
  - Nearly half of adults (47%) have at least one risk factor of heart disease or stroke
    - Uncontrolled blood pressure, cholesterol, or current smokers

Behavior

- Physical Activity[3]
  - In 2011 more than half (52%) of adults over the age of 18 didn't meet requirements for aerobic exercise or physical activity
- 75% of people over the age of 65 do not exercise at the recommended levels[4]
- Nutrition[3]
  - In 2011
    - 38% of adults ate fruits less than once a day
    - 23% of adults ate vegetables less than once a day

Benefits

- Regular exercise[4]
  - Heart stronger
  - Lungs more fit
  - Lowers blood pressure
  - Potential to decrease LDL cholesterol
  - Increases HDL cholesterol
  - Decreases risk of diseases
    - Heart attack, stroke, coronary artery disease
    - Colon cancer
  - Enhance muscle strength affording better independence
  - Stretches muscles and joints to increase flexibility and prevent injuries
    - ADL's, stairs, cooking
  - Enhance proprioception and balance
- Psychological[15]
  - Reduce feelings of anxiety, depression, improve sleep and quality of life

Chronic Diseases

- Burden placed on health care system, productivity, disability is beyond the scope of this talk
- Our focus will be ways to reinforce exercise and nutrition in a safe and effective manner

Aging Athlete

- It is clear that keeping our patients active is a goal but what specific recommendations and understandings must we be aware of
- Although some patients are frail and delicate others are quite the opposite and must be treated accordingly
  - "Most frail, older people benefit from exercise at least as much as younger people.[4]"
- Divergence of this activity level
  - Minimal activity for health benefit alone
  - Master's Athlete planning on competing

Aging Athlete

- How do we prevent chronic diseases that worsen morbidity and mortality
  - Education
    - How much, how often, in what form
  - Awareness
    - Where can this be done, with whom can this be done
  - Assistance
    - Getting together, ride programs, community centers

Aging Athlete

- Afraid to start/don't know where to start
  - Absolute contraindications to exercise[4,5]
    - Acute MI within 2 days
    - Ongoing unstable angina
    - Uncontrolled cardiac arrhythmia with hemodynamic compromise
    - Active endocarditis
    - Symptomatic severe aortic stenosis
    - Decompensated heart failure
    - Acute PE
    - Acute myocarditis
    - Physical disability that precludes safe and adequate exercise
      - PT for supervision?

Aging Athlete

- Relative Contraindications[4,5]
  - Known obstructive left main coronary artery stenosis
  - Moderate to severe aortic stenosis
  - Tachyarrhythmia with uncontrolled ventricular rates
  - Resting hypertension with systolic or diastolic blood pressure > 200/110 mmHg
- Most patients with relative contraindications can exercise in some form although typically with lower intensity levels and more structured (cardiac rehab). These patient will do better with shorter burst of higher intensity activity with rests in between rather than moderate sustained[4,5]
  - Also consider alternative exercise programs
    - Pool therapy, Yoga

Aging Athlete

- Patient desires to start exercising
  - No obvious contraindications/relative contraindications so now what
- Screening
  - Vast majority will do just fine with basic self guided program
    - Timing, modality, and duration will be discussed later
  - Evaluation primarily focuses on the heart[4,5]
    - Routine EKG is not indicated unless history indicates otherwise by cardiac risk factors
    - Routine stress testing is not indicated unless they have any one of the following:
      - Known coronary artery disease
      - Symptoms of coronary artery disease
      - ≥ 2 cardiac risk factors (hypercholesterolemia, hypertension, obesity, sedentary lifestyle, smoking, family history of early coronary artery disease)
      - Lung Disease
      - Diabetes
  - Medications must be considered[4,5]
    - Beta-blockers, sedative, diuretic
    - Recommendations specific to the patient

Pearls Before Starting

- Obese individuals more likely to injure from starting/stopping and impact activities
- Seizures should not be allowed to swim
- Diabetics higher rate of dehydration
- Diabetics may decreased kidney function and must be aware with NSAIDS
- Move more than sit in a day

- Great Resource:
- https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf

Recommendations

- Types of exercise
  - Must be tailored to the patient
  - Aerobic
    - Focuses on heart rate and breathing capacity
    - Running, treadmill, elliptical
    - Burns calories, improve heart function
    - Less effective at building strength and muscle mass
  - Strength
    - Focuses on muscle tension and lifting
    - Resistance, weight lifting
    - Enhances muscle mass and strength
  - Stretching and flexibility
  - Balance
- The best regiment is a combination of the above. Too much of one form can be bad[5]
  - Only strength training doesn't burn significant calories
  - Only Aerobic doesn't enhance muscle mass and with impact activities can lead to osteoarthritis

Recommendations

- Exercise should include aspects as noted on slide above
- Target heart rate[5]
  - 60-85% of maximum rate
  - 220-age X (.70)
  - Example of 65 yo would be 108 (70% of maximal heart rate)
- This is a rough estimate and must be tailored to the patient
  - Current conditioned state
  - Medications

Recommendations[5]

- This will be driven by your understanding of the patient's health, circumstances and goals
- 30 minutes of sufficient intensity 2 to 3 times a week with 5 minute warm up and cool down and 20 minutes of exercise
- High Intensity Training is safe alternative in the right patient
  - 10-15 minutes 2-3 times a week
- Interval training
  - Moderate aerobic exercise alternated with intense exertion
  - 90 seconds of moderate activity (60-85% of MHR) then 30 seconds of all out effort (85-95% of MHR)

Recommendations[5]

- Strength training/Resistance training
  - Goals
    - Increase muscular size and strength
    - Increase endurance
    - Increase flexibility
  - This leads to greater stamina
  - As we age muscle fibers begin to reduce in number but not in functional capacity[14]
  - Muscle size and strength loss can be reduced or partially reversed with training[14]
  - Leads to greater functional resilience[14]
    - Increases in muscle mass improves mobility thus speeding recovery from injury/illness
  - Improved recovery from critical illness by providing protein stores[14]

Recommendations

- Strength training/Resistance Training[5]
  - Repetition of 8-12 in 3 sets but not to absolute failure, rather significant work load
    - Exercising 8-10 different modalities/techniques
  - Tension time (duration of band work or sets)
    - 40-60 seconds of upper body
    - 60-90 seconds of lower body
  - Quality not quantity
- Single set of 15 reps performed 2 days per week can develop and maintain muscle mass[6]

Recommendations[6]

- Frequency
  - Bleeding and microscopic tears after a work out peak at about 24 hours after
  - This stimulates healing and ability of muscles to adapt to a higher level of functioning
  - Ideally 2-3 days of rest of a particular muscle group is recommended from strength training standpoint
  - This is where muscle/region specific exercise comes in
    - Ideally no more than twice per week for a particular group

Recommendations

- Less weight and higher reps can increase strength and endurance, provide some aerobic exercise and increase blood flow to accelerate healing.
  - My preferred method

  - Sample of 5 day training schedule
    - Repetition of 8-12 in 3 sets but not to absolute failure, rather significant work load
      - 2 days a week
        - 1 day upper body (8-10 regions)
        - 1 day lower body (8-10 regions)
    - 30 minutes of sufficient intensity 3 times a week with 5 minute warm up and cool down and 20 minutes of exercise
      - OR Interval training
        - Moderate aerobic exercise alternated with intense exertion
        - 90 seconds of moderate activity (60-85% of MHR) then 30 seconds of all out effort (85-95% of MHR)

Activity Descriptions[15]

Moderate-Intensity Activities

- Walking briskly (2.5 miles per hour or faster)
- Recreational swimming
- Bicycling slower than 10 miles per hour on level terrain
- Tennis (doubles)
- Active forms of yoga (for example, Vinyasa or power yoga)
- Ballroom or line dancing
- General yard work and home repair work
- Exercise classes like water aerobics

Vigorous-Intensity Activities

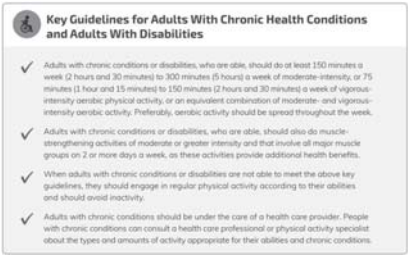
- Jogging or running
- Swimming laps
- Tennis (singles)
- Vigorous dancing
- Bicycling faster than 10 miles per hour
- Jumping rope
- Heavy yard work (digging or shoveling, with heart rate increases)
- Hiking uphill or with a heavy backpack
- High-intensity interval training (HIIT)
- Exercise classes like vigorous step aerobics or kickboxing

Activity Descriptions for age[15]

Aerobic Activities	Muscle-Strengthening Activities
• Walking or hiking • Dancing • Swimming • Water aerobics • Jogging or running • Aerobic exercise classes • Some forms of yoga • Bicycle riding (stationary or outdoors) • Some yard work, such as raking and pushing a lawn mower • Sports like tennis or basketball • Walking as part of golf	• Strengthening exercises using exercise bands, weight machines, or hand-held weights • Body-weight exercises (push-ups, pull-ups, planks, squats, lunges) • Digging, lifting, and carrying as part of gardening • Carrying groceries • Some yoga postures • Some forms of tai chi

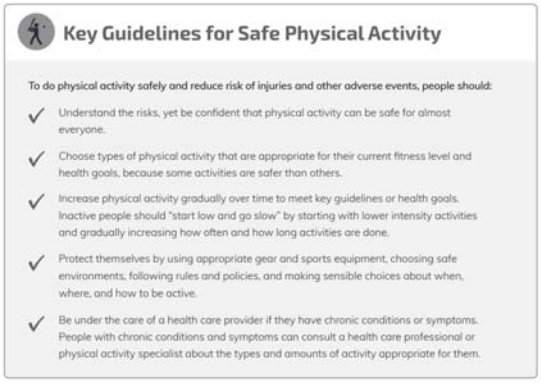
Note: The intensity of these activities can be either relatively moderate or relatively vigorous, depending upon an older adult's level of fitness.

Key Guidelines Age[15]



Key Guidelines for Adults With Chronic Health Conditions and Adults With Disabilities

- ✓ Adults with chronic conditions or disabilities, who are able, should do at least 150 minutes a week (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week.
- ✓ Adults with chronic conditions or disabilities, who are able, should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.
- ✓ When adults with chronic conditions or disabilities are not able to meet the above key guidelines, they should engage in regular physical activity according to their abilities and should avoid inactivity.
- ✓ Adults with chronic conditions should be under the care of a health care provider. People with chronic conditions can consult a health care professional or physical activity specialist about the types and amounts of activity appropriate for their abilities and chronic conditions.



Key Guidelines for Safe Physical Activity

To do physical activity safely and reduce risk of injuries and other adverse events, people should:

- ✓ Understand the risks, yet be confident that physical activity can be safe for almost everyone.
- ✓ Choose types of physical activity that are appropriate for their current fitness level and health goals, because some activities are safer than others.
- ✓ Increase physical activity gradually over time to meet key guidelines or health goals. Inactive people should "start low and go slow" by starting with lower intensity activities and gradually increasing how often and how long activities are done.
- ✓ Protect themselves by using appropriate gear and sports equipment, choosing safe environments, following rules and policies, and making sensible choices about when, where, and how to be active.
- ✓ Be under the care of a health care provider if they have chronic conditions or symptoms. People with chronic conditions and symptoms can consult a health care professional or physical activity specialist about the types and amounts of activity appropriate for them.

https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf

Talk Test[15]

- As a rule of thumb, a person doing moderate-intensity aerobic activity can talk but not sing during the activity. A person doing vigorous-intensity activity cannot say more than a few words without pausing for a breath[15]

Flexibility and Stretching

- As noted before can help in injury prevention
- Warm Up[7]
  - Best done with dynamic activities
    - Movement based
    - I tell my runners that if they plan for a 20 minute run start with 2 minutes of light jog first and progress into the run
- Cool down[7]
  - Best time for static stretching
  - Hold for 30-60 seconds
  - 2-3 times

Recommendations

- Balance Exercises
  - Very important for many reasons
  - Start with eyes open single leg stance →eyes closed→ standing on a pillow eyes open → Standing on a pillow eyes closed
  - Set time for 30 seconds and build to 60 seconds
  - Perform in a safe environment
  - Yoga
  - Pilates

Recommendations

"How Much Physical Activity Do You Need?" *About Heart Attacks*, www.heart.org/en/healthy-living/fitness/fitness-basics/aha-recs-for-physical-activity-infographic.

Practical Examples[15]

Rumi: A 79-Year-Old Woman in an Assisted-Living Community

Rumi struggles to stay active. She lives in an assisted-living community and no longer drives. She is worried about falling and heard from her doctor that staying active can improve her physical function and reduce her risk of falls and fall-related injuries.

Her goals and current activity pattern: Currently, Rumi walks 5 times a week in a loop around her assisted-living complex; this takes her about 10 minutes (50 minutes of moderate-intensity activity each week). Her goal is to increase the number of walks each week and also increase the length of some of her walks. In addition to her walks, Rumi goes with a friend to do bird watching with a group once a week at the local park. These outings usually involve at least 20 minutes of walking.

Starting out: Rumi slowly adds to her walks by taking a slightly longer route. After a few weeks, she is able to walk about 15 minutes 3 times a week. She continues to go to the bird-watching group.

Reaching her goal: Within a few months, Rumi is consistently walking the 10-minute loop around her assisted-living complex every day. She extends to a longer 15-minute loop at least 4 times a week. She continues to attend the bird-watching group, and she feels more comfortable walking on uneven terrain; she has extended these walks to about 40 minutes a week. Rumi has also started going to an exercise class for older adults twice a week. The leader teaches different exercises that focus on aerobic activity, muscle-strengthening activity, and balance training. Rumi is now meeting the key guideline of 150 minutes of moderate-intensity aerobic activity. This class has helped Rumi to meet the twice-weekly guideline for muscle-strengthening activities and adds multicomponent activities to her routine.

Practical Examples[15]

Ines: An 83-Year-Old Woman With Osteoarthritis

Ines has been active all her life, but osteoarthritis in her hip and knee have started to slow her down. Ines communicates regularly with her doctor, who agrees that staying active can help to reduce her level of pain, as well as improve her physical function and health-related quality of life. Because of her age and ability level, Ines typically judges the intensity of her activity based on her own level of exertion.

Ines does the equivalent of at least 160 minutes of moderate-intensity aerobic activity each week, plus muscle-strengthening activities 2 days a week.

- Three days a week, Ines follows along with a fitness video at home. The video includes 20 minutes of moderate-intensity movements, including stepping, marching, and walking in place.
- Two days a week, Ines participates in a 30-minute chair yoga class at the senior center nearby, which incorporates muscle-strengthening, stretching, and balance exercises.
- On Saturday before the mall opens, Ines and her daughter walk for 40 minutes. The mall provides a safe, indoor place to walk with clear paths, even surfaces, and places to sit down if needed.

Hot Off the Press

- High Intensity Interval Training (HIIT)[8]
  - Brief bursts of very intense exercises followed by periods of slower, less demanding work.
  - Builds muscle, regulates insulin, cuts fat and increased heart function
  - Boost hormones
    - 22 sedentary men in their 60's found that regular exercise plus HIIT increased testosterone by 17 % in 12 weeks
  - Affects at cellular level
    - Mayo Clinic Researchers found that persons age 65-80 who incorporated HIIT into biking or walking programs made more proteins for their mitochondria effectively slowing down aging at the cellular level
  - Belly Fat
    - 20 minutes of HIIT versus 40 minutes of steady state found that more belly fat was lost with HIIT

HIIT Benefits[8]

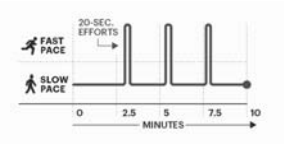
- Study of 5,000 patients with heart disease found that HIIT did more to protect from future heart problems than traditional exercises
- Japanese study of 696 people middle age or older on a walking program that incorporated HIIT found 70% were still doing it 22 months later

HIIT Specifics[8]

Beginner

The 10-minute workout

Warm up with your preferred form of aerobic exercise for 3 minutes, at a pace at which you can speak in full sentences. Then pick up the pace for 20 seconds, working hard enough that you are too winded to speak. Slow it down to your original pace for 1 to 2 minutes. Add another 20-second effort, rest 2 minutes and then add a last 20-second effort. Cool down for 2 minutes at your original pace.

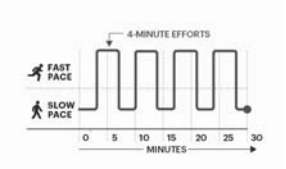


HIIT Specifics[8]

Intermediate

The 4-by-4

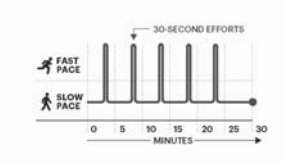
Warm up for 3 minutes, at an easy pace. Then pick it up to as fast as you can go, without feeling a burning sensation in your muscles, and hold it for 4 minutes. Take it back to the easy warm-up pace for 3 minutes, and repeat for 4 rounds of activity. Finally, take an easy 2-minute cooldown. The total time of the workout should be about 30 minutes.



HIIT Specifics[8]

The modified Wingate

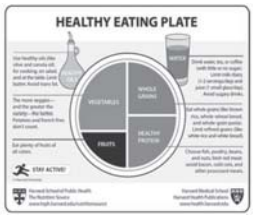
The Wingate protocol is often used in fitness and performance testing, but it's easy to emulate in an exercise regimen. Warm up for 3 minutes. Make an all-out, lung-busting, muscle-burning effort for 30 seconds, then recover with a light effort for 4½ minutes. Repeat until you've done 5 sprints. Cool down for 2 minutes. This also should total about 30 minutes.



Recovery

- RICE
  - Rest, ice, compression, elevation
  - Modified activity
- NSAIDs/Tylenol
  - Per patient
- Educate that pushing through is not helpful and over training leads to fatigue, decreased performance, and increased probability of injury
- Time to get back from injury is prolonged[6]
  - Twice as long as a 60 year old compared to a 20 year old
  - Three times as long for a 75 year old
- Consider PT for assistance in progression back

Nutrition



https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/

- Important vitamins include Vit D, Vitamin B12, iron and calcium
- Dehydration very important
- As we age we lose taste buds and saliva production affecting palatability of food

Summary

- Each exercise program has to be tailored to the patient and their abilities, goals, and desires
- Start low and go slow
- I would recommend balance therapy for everyone
  - Start with eyes open single leg stance →eyes closed→ standing on a pillow eyes open → Standing on a pillow eyes closed
  - Set time for 30 seconds and build to 60 seconds
  - Perform in a safe environment
  - Yoga/Pilates
- A simple program is 30 minutes 5 days a week for basic/beginners
- 20 minutes with additional dynamic warm up and stretch period afterwards for 3 days a week and 2 days of strength training/resistance training
- For the more motivated patient HIIT training
- Yoga/Tai Chi are very viable options and I count them as strength training days and not aerobic
- Recommend community/local resources with group therapy, aquatic therapy
- Anticipate longer recovery times

Specific Conditions

Osteoarthritis

- Primary
  - Age and genetics
- Secondary
  - Trauma, infections, surgery, calcification, auto-immune, injury
- "Today's runners are tomorrow's cyclists"
- Does running cause osteoarthritis
  - Yes
  - No
  - Too multifactorial to know for sure
    - Functioning with non-neutral mechanics
    - Previous trauma
      - Individual that runs likely was active at a younger age as well
    - Endurance athletes his higher prevalence of radiologic evidence of osteoarthritis but not symptomatic

Osteoarthritis

- Journal of American Osteopathic Association[9]
  - 2006 study Recommended further studies following meta analysis
  - Lower extremity athletes are at higher risk for lower extremity joint injury and thus this could be the cause of the arthritis
  - Animal studies
    - Some for and some against
  - Human studies
    - Lane and colleagues in 1993 performed 5 and 9 year follow up for 33 matched pairs of individuals (runners and non runners)
      - No difference in the incidence of OA
    - Cheng and others performed reviewed of over 17000 patients from 1970-1995 during a 10 year review window and found higher incidence of OA in persons who walked or ran more than 20 miles per week
      - Wide age range, unknown history, additional activities or occupational hazards (kneeling, squatting)

Osteoarthritis

- Overall[9]
  - It appears that moderate levels (less than 20 miles a week) of running does not increase risk of OA of the hips and knees.
  - History of trauma or injury seems to be a much higher association
    - ACL repair patients
  - BMI is important as noted before about obese individuals and injury

Knee MRI

- Meniscal Tears[10]
  - Traumatic tears in young active people, under the age of 40. Typically transverse or longitudinal
  - Degenerative tears are seen in over 40 years old and with a more subtle nonspecific injury. Typically noted as complex tears or horizontal tears.
- Treatments [10]
  - Non-operative: 6-12 weeks of rest, ice, anti-inflammatories and avoidance of bend/twisting/deep squatting.
  - Operative Indications:
    - Persistent pain and limitation of daily activity
    - Mechanical Symptoms (locking, catching or giving out)
    - Effusion, joint line tenderness, restriction of motion, and physical exam findings
- Those with mechanical symptoms or unstable tear (flap tear) should undergo surgery right away and not undergo trial of conservative management.[10]

Knee MRI

- Bucket handle: unstable and should be repaired. Typically seen in posteriorly in the medial meniscus. When over 1 cm can displace in the joint and limit extension. These tears are completion of vertical/longitudinal tears. Incomplete vertical/longitudinal tears or complete tears less than 1 cm are typically stable and do not require intervention.[10]
- Oblique Tears (aka flap or parrot beak): Occur at the posterior horn and body of meniscus. Typically symptomatic due to mobility of the flap and need repair[10]
- Radial Tears: Can occur in either medial or lateral meniscus. Isolated radial tears are usually asymptomatic but risk propagate to a more symptomatic unstable configuration[10]
- Horizontal Tears: results from sheering forces leading to parallel disruption of superior and inferior tissue. Occur very frequently in the older population due to poor tissue pliability[10]
- Complex Tears: Tears in multiple directions and include a horizontal component. Typically involve posterior horn[10]
- Stability evaluation: Most important question is vascular supply. Vascular supply from the geniculate artery is located along the peripheral margin. Basically meniscus is divided into thirds. Most peripheral 1/3 is vascular (red-red), middle is middle (red-white), and innermost is avascular (white-white)[10]

Treatment[11]

Treatment

- Tailored to the patient
  - Activity Modification
  - Medial wedge for shoe
  - Medial Off-loader brace
    - Don Joy OA Nano
    - Don Joy Custom Defiance
  - Inserts
    - Custom or off the shelf
  - Shoe wear
    - Minimalist versus supportive
      - Needs to match day to day
  - Physical Therapy
  - Osteopathic Manipulative Medicine
  - Steroid injections
    - 2cc lidocaine, 2cc Marcaine, 40/80mg Depomedrol
  - Get active/moving
  - Surgery
    - When the pain limits their function/activities
- Tylenol/NSAIDS
- Glucosamine Chondroitin
- Turmeric
- CBD Oil
- Supartz/Hyaluronic Acid
- Platelet Rich Plasmas
- Amniofix

Hip Pain

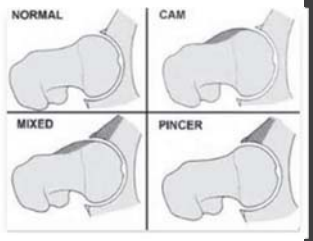
- Femoroacetabular Impingement (FAI)[12]
  - Warwick Agreement
    - 2016 consensus on diagnosis and treatment of this syndrome
    - Symptomatic premature contact between proximal femur and acetabulum
    - Triad of:
      - Symptoms
      - Clinical Signs
      - Imaging Findings

Hip Pain

- FAI Symptoms[12]
  - Motion related or position related pain in the hip, groin, back or buttock
  - Clicking, catching, locking, stiffness, restricted range of motion
- FAI Clinical Signs[12]
  - Flexion Adduction Internal Rotation (FADIR), loss/asymmetric Internal Rotation

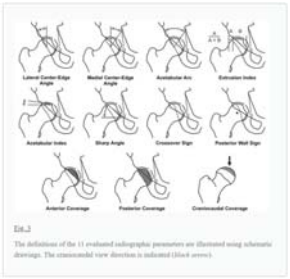
Hip Pain

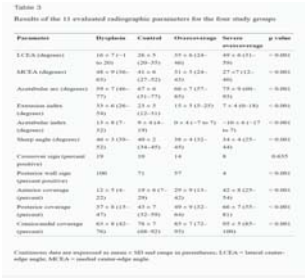
- FAI Diagnostic Imaging[12]
- Cam lesion
  - Flattening or convexity at the femoral head neck junction
- Pincer Lesion
  - Global or focal over coverage of the femoral head by the acetabulum



https://www.physica.com.au/cam-lesion/

Hip Pain





"What are the radiologic Reference Values for Acetabular Under and Overcoverage?" Tannast, Moritz, et al. Clin Orthop Relat Res. 2015 Apr; 473(4): 1234–1246.Published online 2014 Nov 11

Hip Pain[12]

- Treatment for FAI
  - Education
  - Watchful waiting
  - Lifestyle and activity modification
  - PT
    - Core stabilization
  - OMM
  - Intra-articular injections
    - Steroid
    - PRP
  - Surgery
    - Treatment failure and affects daily life
- There is association with hip OA and cam lesions so if asymptomatic patient presents this should be addressed
- It is unknown if treatment prevents progression to OA but treatment does help with symptoms

Hip Pain

- For all types:
  - OA
  - Labral tears
  - FAI
  - Posterior Impingement
  - Glut Med/Minimus
- Tailored to the patient
  - Activity modification
  - Inserts
    - Custom or off the shelf
  - Shoewear
    - Minimalist versus supportive
      - Needs to match day to day
  - Physical Therapy
  - Osteopathic Manipulative Medicine
  - Steroid injections
  - Get active/moving
  - Surgery
    - When the pain limits their function/activities
  - Tylenol/NSAIDS
  - Glucosamine Chondroitin
  - Turmeric
  - Supartz/Hyaluronic Acid
  - Platelet Rich Plasmas

Treatment

Questions

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