Masters and the Aging Athlete

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Conflicts of Interests

• I have no conflicts of interest in regards of this topic.
• I have no financial relationships to divulge that would impact the bias nature of this lecture other than:
  • AARP Grant Recipient
  • GERITROL Vitamin- sales representative
  • Paid Spokesmodel for the DEPENDS Undergarments
• No nursing home patients were HARMED during the making of this lecture
Objectives

• Define Masters
  • Different sports
• Aging Athlete
  • Strength: Sinclair-Meltzer Equation
  • Speed:
  • Proprioception:
  • Flexibility:
  • Cognitive
• Chronic medical issues
• Special Considerations

Ronay Hershey, 48y.o. wins GOLD for USA at 2016 IWF World Masters in Heinsheim, GER at 69kg body wt
Change you find the Master’s Weightlifter?
What is a Master?

• Arnold Palmer at the Masters
Sports & Age in which become Masters

- Swimming 25yo
- Weightlifting 35yo
- Powerlifting 40yo
- Gymnastics 20yo

Oldest swimming competitor, 98-year-old Margo Bates, is helped from the water after competing in the 100m backstroke at the Sydney 2009 World Masters Games.
Masters are gaining on Non-Masters!!

• According to Dr. Akkari et al, they noticed that number of world records in many sports like track & field has “stagnated” over the past 3 decades. For example very little improvement in 100m and 400m time. Now, when you compare to number of world records achieve by Masters athlete in same sports, much more productive.

• Conclusion: While younger athletes' performance has stagnated, Masters athletes improved their athletic performance significantly and progressively over the years. The magnitude of improvements was greater in older age groups gradually closing the gap in athletic performance between younger and older participants.

Aging Athlete: STRENGTH

- **Sinclair-Meltzer Equation:** Calculates linear strength decline as we age

- **David Meltzer, PhD**
  - Professor at Arizona State Univ
  - Aged 62 y.o.
  - Competing in 105+ kg wt class in 2016 IWF Masters - Germany
Aging Athlete: STRENGTH

Kurt Rosenberger, age 88y.o., Clean and Jerking 50kg
Aging Athlete: SPEED

- Longevity study looking at **SPEED of AMBULATION** is the **SINGLE MOST IMPORTANT PREDICTIVE FACTOR** in high quality longevity in OCTAGENERIANS.
Australia's Osmo Millridge, 77, takes on the water jump during the Men's steeplechase for 70+ year-olds during the World Masters Games in Sydney on October 10, 2009.
Aging Athlete: PROPRIOCEPTION

Dorothy De-Low aged 99 has enough balance to compete at 2009 World Masters Games in Sydney, AUS
Aging Athlete: PROPRIOCEPTION

• Improved proprioception has been sown to decrease risk of Falls in Octagenerians
• Hip Fractures one of the LEADING causes of death /disability in Octagenerians
• Sports like Pilates, Yoga, Tai-Chi, Water Aerobics have ALL been shown to help improve balance and decrease risk of falls.
Aging Athlete: FLEXIBILITY

Olga Kotelko, 90, leaps in the 70+ women's long jump at the Sydney Olympic Park Athletic Centre during the Sydney 2009 World Masters Games on October 16, 2009
Aging Athlete: FLEXIBILITY

• Static vs. Dynamic stretching on a daily basis
• Exercises like Yoga and Pilates very helpful in achieving better flexibility
Aging Athlete: COGNITION

• Age-Related “forgetfulness” is NOT Dementia
• Dementia is NOT necessarily a CONTRAIMDICATION to all sports
• Studies show that mental exercises in those over 50y.o.
  • Decrease rate of Depression
  • Improve social engagement
  • Improve scores on MME and other cognitive testing
• Visit www.Brainworks.com for more info on mental exercises to stimulate the aging brain
Chronic Medical Conditions

- Cardiac
- HTN
- CVA/thrombosis
- Obesity
- DM
- Arthritis
- Osteoporosis
- Vision issues (glaucoma, cataract, poor vision)
Cardiac Considerations in Masters

- Coronary Artery Disease
- Atrial Fibrillation
  - If rate controlled, can participate in most sports
- Arrhythmias
  - Control and monitor
- Myocardial infarction
  - Treadmill stress testing helpful in grading final ability post-MI
- Aortic Stenosis
  - Gradient > xx mmHg, high dynamic sports CONTRAINDIATED
- Bicuspid Aortic valve
  - Dilatation of Aortic Root > 4.4cm, high dynamic sports CONTRAINDIATED
  - 36th Bethesda Guidelines

Implantable Defibrillator
Cardiac Considerations in Masters

- Shapero K, Baggish A et al looked at 591 masters runners in the Boston area as part of MASTERS (Masters Athlete Survey To Evaluate Risk).

- Conclusion: Among MAs, A Fib is associated with prior exercise exposure whereas CAD is associated with typical risk factors including dyslipidemia and prior tobacco use. These findings suggest that there are numerous opportunities to improve disease prevention and clinical care in this population.

Hypertension in Masters

• 36th Bethesda Guidelines states:
• JNC 6 recommendations:
• Control BP
  • Diet & exercise, if possible
  • Consider ACEI, ARBs
  • Careful with
    • Betablockers – syncope
    • Diuretics- dehydration, hypokalemia
Vascular issues in Masters

- Cerebral Vascular Accident
- Thrombosis (i.e. DVT)
- Carotid Disease
- Aortic Aneurysm

- 36th Bethesda Guidelines – good reference
Obesity in Masters

• I beat anorexia picture.
Diabetes Mellitus in Masters
Osteoporosis in Masters

HEALTH MAINTENANCE
- Monitor Vitamin D levels
- Check Calcium intake
- Encourage resistance training
- Get DEXA scanning after Menopause

TREATMENT
- Improve nutrition
- Supplement Vitamin D, Calcium
- Increase resistance training
- Calcitonin
- Bisphosphonates (non child bearing)

Australian Women’s 100M Relay Team WMG (65+ age group)
Practice Recommendation – EBM

Screening for Osteoporosis

USPSTF

- Women > 65 yrs be screened routinely. SOR: B
- Women younger than 65 whose risk is equivalent to 65 yr old woman be screened SOR: B
  - Use FRAX Calculation
  - Risk at 65 yo and no other risks = 9.3%
  - Examples:
    - 50 yr old BMI <21, smoker, daily alcohol and maternal h/o hip fx.
    - 55 yr old woman with parental h/o hip fx.
    - 60 yr old smoker and daily alcohol use

http://www.uspreventiveservicestaskforce.org/uspstf10/osteoporosis/osteors.htm
### Secondary Causes of Osteoporosis

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Non-Pharmacologic TREATMENT

• **Resistance & weight bearing exercise** – improves microarchitecture

• **Reduce Fall Risk**
  • Balance exercise decreases falls – tai chi, yoga 
  • Remove home hazards 
  • Vitamin D 800 units daily 
  • Remove hazardous meds. 
  • Eliminate alcohol – increase falls

• **Stop tobacco** – decreases BMD.

• **Calcium and Vitamin D** – small reduction in fracture in meta-analysis
Alendronate & Risedronate most studied*

Ibandronate not shown to reduce non-vertebral or hip fractures (Chestnut, et al)
  - Better GI tolerability.

Zoledronic Acid following recent hip fx:**
  - Reduced subsequent fracture
  - Improved Overall Survival

*SOR: Strong Recommendation; Moderate- Quality Evidence. Qaseem

Visual changes in Masters

• Cataracts
• Glaucoma
• Retinal detachment
• Presbyopia (Near-Sighted)
• Myopia (Far-Sighted)
• Macular Degeneration (Wet or Dry)
• Diabetic Retinopathy
• Blindness

Blind Navy Vet and Paralympian Swimmer, Brad Snyder
Special Considerations

• Adaptions for particular sport
• Adjust goal-Setting
• Partner with athlete/ Engage them in decision process  
  • Not like high school or college athletes.
• Medication review/ contraindications
• Sporting Career – Ending injuries – discussions
• Sexuality
• Mental Health issues
Thoughts on Masters Athletes

• Never assume they are NOT as competitive as younger athletes.
• Try to figure a way to keep them in their sport.
• Treat them with respect regardless of age and ability.
  • They were once YOUNG and may be ex-Olympians, ex-professionals.
• Be mindful with medications you prescribe.
• Time, use of Formal Rehab and functional movement essential
Closing Ceremonies 2009 World Masters Games
Thank You!!

Fred Lowe, Hall of Fame 2016 inductee in Heinsheim, Germany (69yo, 62kg body wt)
References


