Benefits of OT and Aquatic Therapy

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What is an occupation?

- Meaningful activities in your life
- Each day you are involved in many
- Make up our identities
- Can you think of some of the occupations that you engage in every day?
- Sometimes there are barriers

https://www.youtube.com/watch?v=Ud5Fp279g4Y
What is OT?

- Help people continue occupations independently
- Find out what a person wants to do
- Figure out the limitations
- Design a therapeutic intervention
- Assess the outcomes

https://www.youtube.com/watch?v=kkw77r-Kluc

http://www.aota.org/about-occupational-therapy.aspx
Importance of Exercise

“Health and wellness promotion and preventative programs should be supported for the older adult to prevent or delay the development of many chronic problems which often result in the utilization of more costly services” -APTA
History of Aquatic Therapy

- Ancient Greek and Roman spas, other ancient civilizations used springs
- Started to be used more after WW II and polio epidemic
- Most research in 1960s and 1970s

http://www.apta.org/History/
Why water?

- Buoyancy
- Pressure
- Temperature
- Resistance

https://www.youtube.com/watch?v=1Hw2nwYQIoY 1:18-2:08, 4:05-4:35
**Buoyancy**

- Average body density less than water density
- Counteract force of gravity $\rightarrow$ offloading

http://www.uoguelph.ca/geology/geol2250/glossary/HTML%20files/archimedes.html
Percentage of body weight off-loaded with increasing immersion depth

http://aquatic.transitionsrehabilitation.com/after_injury_surgery.phtml
Pressure

- Pressure on submerged object 22.4 mm Hg/ft of depth
- Promote circulation
- Edema (swelling) of injured body part

Temperature

- Able to manipulate
  - Therapy pools 87-96 degrees F
- Good conductor: transfers heat 25x faster than air
- Warm → relaxation and tone reduction
Resistance

- Strength training
- Equipment to increase surface area
- Current
  - Laminar and turbulent flow
- ACSM recommends resistance training 2-3 days per week for older adults

http://www.aquagear.com/water-gear-aquaflex-paddles/
Fall Risk

- Balance = postural control = ability to control one’s body position for stability and orientation

- Age-related: falls are leading cause of injury adults over 65

- Why?
  - Musculoskeletal limitations
  - Decreased sensory ability
  - Decreased coordination
  - Impaired anticipatory control mechanisms

Balance and Stroke

- Need early active and repetitive training
- Motor function in a meaningful context
- Aquatic therapy stroke patients better mobility than standard physiotherapy stroke patients

http://completept.com/blog/?p=249
Fall Risk and Aquatic Therapy

- Safe environment to exercise
- Buoyancy provides support and easier handling
- Lessen force on joints
- Turbulence and viscosity for core strength
- Buoyancy supports upright posture → activate joint receptors
- Muscle and skin receptors stimulated
Education and Aquatic Therapy

- Education and aquatic therapy

- Goals
  - Increase transfer of pool exercises to land ADLs
  - Increase knowledge of fall risk factors and prevention
  - Improve confidence in ability to avoid a fall

- Goals, discussion, positive reinforcement

- Fall risk decreased after education + aquatic therapy
Arthritis

- Rheumatoid arthritis and osteoarthritis associated with
  - Reduced strength
  - Reduced range of motion (ROM)
  - Slower gait
  - Pain
- Effects of disease
- Inactivity from joint/muscle pain
- Fear of physical activity

http://www.divynenhealthy.com/joint-pain-arthritis-relief/
Arthritis

- Arthritis Foundation Aquatic Program
- Three 45-minute sessions/week
- Warm water 85-87 F
- Buoyancy reduced force on joints, move with less effort, and move safely
- Increased strength and ROM in joints affected by arthritis

https://www.youtube.com/watch?v=NcyIWuorhSU
Heart

- Maximal HR decreases
- Decrease cardiac output, increase BP
- Thicker, less compliant arterial walls $\rightarrow$ increased BP
- Weaker valves and venous walls $\rightarrow$ harder to return blood to heart, peripheral edema (swelling)
- Rehabilitation for mild-moderate heart failure
  - Improve cardiac output
  - Improve QOL, sleep quality, general well-being

http://www.texasheart.org/HIC/Anatomy/anatomy2.cfm
Back pain

- Less physical fitness associated with back pain
- Buoyancy reduces stress in joints and axial loading
- Decreased back pain and disability
- Increased quality of life
- Improved body composition
- Improved health-related fitness

http://www.advancedhealthcareofthepalmbeaches.com/back-pain/
Overall Health and Well-being

Aerobic exercise recommendation for older adults:
- 3 days/week, 20 minutes/session vigorous activity
- or
- 5 days/week, 30 min/session moderate activity

Reduce
- Blood pressure
- Cardiovascular risk
- Body weight, body fat, LDL cholesterol, and triglycerides

Improve glucose and insulin metabolism
Overall Health and Well-being

Resistance training recommendation: 2-3 days per week for older adults

- Walking ability
- Muscle strength and mass
- Improve energy metabolism
- Reduce body fat mass
- Maintain metabolically active tissue
Review

- Occupations and the purpose of OT
- Properties of water used for therapy
- Conditions that benefit from Aquatic Therapy
- Overall health benefits of living an active lifestyle
References


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