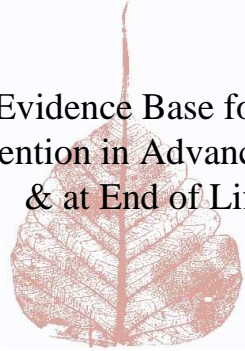


An Evidence Base for Yoga Intervention in Advanced Years & at End of Life

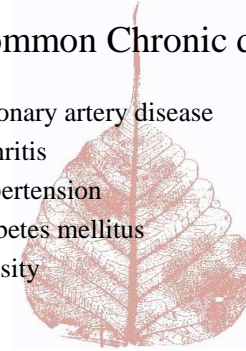


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Common Chronic diseases

- Coronary artery disease
- Arthritis
- Hypertension
- Diabetes mellitus
- Obesity



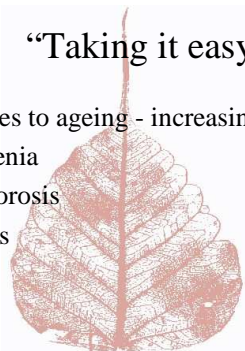
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“Taking it easy”

Contributes to ageing - increasing

- Sarcopenia
- Osteoporosis
- Arthritis



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Sarcopenia

Extended periods of sitting leads to muscles

- Shortening
- Tightening
- Weakening

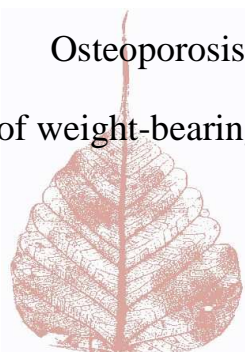


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Osteoporosis

Lack of weight-bearing activity



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Arthritis

Lack of movement & stretching leads to

- Joint deterioration
- Loss of flexibility
- Lack of balance
- Contributes to falls



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Sedentary lifestyle contributes to:

1. reduced joint flexibility
2. arthritis/bursitis
3. high blood pressure
4. increased body fat and decreased lean body tissue
5. osteoporosis

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6. low back pain
7. breathing difficulties
8. poor blood circulation
9. vision problems
10. chronic pain
11. stress-related symptoms
12. inability to sleep peacefully

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If we do not move, we deteriorate.

When we move, even a little bit, incredibly changes happen for the better.

Astonishingly, movement visualised in real time changes muscle mass.

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Functional Fitness refers to

- A level of strength
- Endurance
- Cardiovascular efficiency
- Joint flexibility
- Balance

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To carry out ADL – Activities of Daily Living

- ability to dress
- move on our own
- feed ourselves
- carry out unassisted toilet functions

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“Without exercise, all of these essential elements of functional fitness will decline as we get older. But it is our **INACTIVITY** and not the piling on of the years that is to blame.”

Leonard D. Therry www.seniorfitness.org

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“Geriatric Fitness; research paper”

“While greater variability exists in the general health status of older adults than in younger, one principle remains constant - **functional ability at any age is predicated on maintenance of fitness**”

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Fitness

1. Cardiorespiratory endurance
2. Muscular strength and endurance
3. Flexibility
4. Body composition

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Cardiovascular efficiency

- the body’s ability to effectively deliver oxygenated blood to the skeletal muscles via the heart and lungs to sustain our activity

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Muscular strength

- the ability to apply muscular power to a movement

Muscular endurance

- the ability to sustain force over time

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Flexibility

- the capacity to move body limbs and joints through a full range of motion

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Balance and Coordination

- The ability to perform everyday tasks without fear of falling

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Body composition

- the relative proportion of fat and fat-free tissues within the body
- Fat tissues made up of
 - Essential
 - Non-essential or adipose

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The 'FITT' principle

- 'F' represents frequency of exercise in days per week
- 'I' represents intensity as percent of maximal capacity
- 'T' represents time, or duration, of exercise
- 'T' represents type, or mode, of exercise.

American College of Sports Medicine (ACSM)

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Used as intervention, exercise is known to attenuate or reverse many of the manifestations of these disease processes... Only in the last few decades has exercise, including aerobic exercise and resistance training, become a recommended part of a healthy lifestyle for older adults.

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Points for consideration

- Aging does not occur uniformly across the population therefore, chronological age does not necessarily reflect physiological age
- While aging itself is imminent, its rate may be amenable to exercise
- The existence of an active or latent disease process is more likely in older adults than younger

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and

- Older persons are more likely than younger persons to be taking medications which may dampen or exaggerate the normal physiologic responses to exercise or alter the capacity to perform exercise
- Exercise training does not prevent the process of aging, but it does increase functional ability.

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Conclusion

- (1) exercise as an intervention is useful for maintaining and optimizing the components of fitness in older adults
- (2) musculoskeletal function is improved with a balanced program of cardiorespiratory, resistance training, and flexibility activities

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Conclusion cont

- (3) older adults who have remained physically active do not undergo a decline in fitness to the same extent as those who have been inactive
- (4) despite aging, older adults can experience adaptation to exercise in a manner similar to that of younger adults.

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Strength training study

- 1,100 participants 95% of whom continued training after completion of the study

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Results

- Reduced resting blood pressure
- Improved blood lipid profiles
- Increased gastrointestinal transit speed
- Enhanced glucose utilization
- Alleviated low back pain

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And

- Increased bone mineral density
- Eased arthritic discomfort
- Relieved depression
- Improved post coronary performance
- Increased muscle strength and size in senior men, senior women, and even nursing home residents

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Significantly higher FIM (Functional Independent Mobility) scores = financial benefit

- 1 point increase in a resident's FIM score reduces cost of care by 50 cents a day
- 11 point FIM score gain therefore represents a cost of care reduction of \$5.50 per day some \$1,800

That is getting into the cents of exercise

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Strength study concluded

- improved body composition
- increased muscle strength
- enhanced joint flexibility
- increased functional capacity
- improved mobility

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- increased potential for patient independence
- improved cooperation between care-givers & patients
- improved cooperation with clinicians
- enhanced potential for recruiting new residents
- enhanced potential for recruiting new professional staff
- reduced health care costs

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Johns Hopkins Uni Dept of Medicine Arthritis Center

Researched 75 scientific trials - Findings

- yoga is a safe and effective way to increase physical activity
- Yoga is also associated with increased energy and fewer bodily aches and pains
- Physically, yoga can increase muscle strength, improve flexibility, enhance respiratory endurance, and promote balance

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- due to its meditative nature has important psychological benefits
- yoga is associated with increased mental energy
- as positive feelings (such as alertness and enthusiasm),
- fewer negative feelings (reduced excitability, anxiety, aggressiveness)
- Fewer somatic complaints

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- In persons with arthritis, exercise is safe and does not exacerbate pain or worsen disease
- exercise may play a key role in promoting joint health, since those who do not exercise often suffer more joint discomfort than those who do
- regular physical activity is especially important for people with arthritis, who often have decreased muscle strength, physical energy, and endurance

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Psychological benefits of exercise

- Stress reduction
- Fewer depressive symptoms
- Improved coping and well-being
- Enhanced immune functioning

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In summary

- Yoga is associated with a wide range of physical and psychological benefits that may be especially helpful for persons living with a chronic illness
- Yoga can play an important role in reducing stress and frustration that results from pain and disability, and increasing positive feelings and wellbeing.

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Yoga & Carpel Tunnel Syndrome

- Yoga was shown to
 - reduce pain
 - improve grip strength
- does not require
 - drugs
 - expensive equipment
 - surgery

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Study of Yoga intervention with back pain

Yoga was more effective than conventional therapeutic exercise or a self-care book for improving function and reducing chronic low back pain
benefits persisted for at least several months.

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Yoga intervention with Osteoarthritis

- may provide a feasible treatment option for previously yoga-naïve, obese patients >50 years of age
- offers potential reductions in pain and disability caused by knee OA.

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Gentle Iyengar Yoga Program on Gait in the Elderly

yoga practice may

- improve hip extension
- increase stride length
- decrease anterior pelvic tilt in healthy elders

yoga programs tailored to elderly adults may offer a cost-effective means of preventing or reducing age related changes in these indices of gait function

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Home exercise on the rheumatoid hand

Performed for 10-20 min twice daily

Aside from transient, mild to moderate discomfort, exercises were well tolerated.

- Range of motion exercises were associated with improved right hand joint count
- Range of motion plus balanced resistive exercises were associated with increased left hand dexterity

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- Home hand exercise (exercise groups combined) significantly increased left grip strength
- Temporary use of home hand exercise has acceptable side effects and is an effective means of increasing grip strength.

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Adherence to yoga & exercise interventions 6-month clinical trial

135 healthy seniors 65-85 years of age

- an Iyengar yoga class with home practice
- an exercise class with home practice
- a wait-list control group

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Conclusion:

- Healthy seniors have good attendance at classes with a physically active intervention.
- Home practice takes place over half of the time.

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Yoga and meditation intervention for dementia caregiver stress

Pre/post comparison revealed statistically significant reductions in

- depression and anxiety
- perceived self-efficacy
- coping
- physical well-being
- stress management

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Effects of yoga and ayurveda on older adults

- The depression symptom scores of the Yoga Group at both 3 and 6 months decreased significantly
- Ayurveda & control groups showed no change

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Evidence is Poor

- Client samples too small
- Research period too short
- Parameters poorly established a clear dose /response relationship does not exist

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Feedback is great

- Clients feel so much better
- Nursing staff very enthusiastic
- Physio, Occupational therapist & clinicians enthusiastic
- Families profoundly grateful

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Action?

Inspire really thorough, faultless research



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