


Exercise and the Elderly

June Leland MD MBA

Sarasota Memorial Hospital Grand Rounds

August 14, 2009

Sun City Aqua Suns, ages 68-88

Synchronized swimmers



From Etta Clark, *Growing Old Is Not For Sissies II*



Functional Status

- Vision
- Hearing
- Arm function

Assess by asking the patient to touch the back of their head with both hands and to pick up a pencil off the table with each hand and put it back. The examiner observes the patient watching for full range of motion of the proximal upper extremity and the dexterity of arm function.



Functional Status

- Assess with the "Get Up and Go Test" in which the patient rises from the chair without the use of their hands, walks 10 feet, sharply turns (\leq three steps to turn around) and sits back down safely.
 - If they can do this test well, and under 10 seconds, their fall risk is low and they have excellent lower extremity motor function
-



Functional Status

- Clinicians should inquire about recent falls and test gait performance in all older patients.
 - In addition to the "Get Up and Go Test", the clinician should be observant of the patient's standing/sitting balance, use of assistive devices, and navigation through the room.
 - This can provide added information on strength, safety, and level of independence.
-



Home Environment

Screening Questions;

*"Have you had any falls at home? _____
of stairs? _____ Throw rugs? _____
Bath rails? _____ Gas Stove? _____".*



Home Environment

Falls are the leading cause of death for patients over age 65.

The most common location for a fall to occur is the patient's home.

Home safety evaluation and subsequent improvements in the home resulted in a 60% reduction in falls.



ADLs

The easiest way to remember these is that they are the functions you had to do in order to leave home to go to "kindergarten".

Dress, feed, ambulate, toilet, and perform your own hygiene. (Take medications)

Another way to remember the ADLs is to think of this mnemonic: "**DEATH**". Dress, Eat, Ambulate, Transfer/Toilet, Hygiene.



IADL

The IADL screening instrument can uncover more subtle disabilities.

These are tasks necessary for independent functioning in the community.

Cooking, cleaning, doing laundry, shopping, using the telephone and accessing means of transportation, taking medicines, and managing money.

The IADLs are more influenced by a person's cultural background to a greater degree than are the basic tasks of everyday living.



Depressed Elderly

MORE LIKELY TO:

- ❑ Give somatic complaints
- ❑ Feel worthlessness, rather than guilt
- ❑ Demonstrate hypochondriasis
- ❑ Have psychomotor retardation or agitation
- ❑ Manifest psychotic delusions
- ❑ Commit Suicide:
Age > 65 = 13% of pop. but commit 25% of suicides.
Risk factors for suicide: (*living alone, male, alcoholism, comorbid physical illnesses*)

LESS LIKELY TO:

- ❑ Directly complain of depressed mood
-



SIG-E-CAPS

Sleep changes
Interest changes
Guilt (worthless)
Energy
Cognition/concentration
Appetite
Psychomotor
Suicide/death
preoccupation

Major Depression

4/8 >2 weeks

Minor Depression

3/8 >2 weeks

Dysthymia

> 2 years with
symptoms present >
50% of days



Non pharmacologic

In addition to prescribing medications, the clinician should utilize non-pharmacologic means.

The clinician should not hesitate to assign exercise activity, activities of caring, etc.

Counseling should be considered when the patient has a precipitating issue such as loss of spouse, or an unresolved life issues, or previous success in counseling.

Inside: Top 10 places to live for Masters skiers: Is your town on our list?

From the
to general news & inspiration

Masters Athlete



3 Silver Medal
Beijing Olympics



Austin Newman

Achieved World Records in Swimming at Age 90





Take home

- ❑ Not all seniors are inactive
 - ❑ Seniors gain as much or more from exercise than their younger counterparts, and have more at stake.
 - ❑ Four components of an exercise program are strength, endurance, balance, and flexibility
 - ❑ Write a prescription for exercise
-

Marie Wilcox-Little, age 73 Swimmer



From Etta Clark, Growing Old Is Not For Sissies II <http://ettaclarkphotography.com/>



Components of an Exercise Program

- Strength
 - Endurance
 - Balance
 - Flexibility
-



Elissa Schlicker 46 y/o physician





Strength

- Quadriceps muscle weakness predisposes to OA of the knee
 - Decreased body and muscle mass is a risk factor for osteoporotic fractures after falls.
-

Women's 80+ Masters Athlete of the Year: Marjorie Fitzgerald

By Nancy Averett

Fitzgerald's speed on the base paths leads to a new sport

Marjorie Fitzgerald was a softball player not a runner. Not once in her 70-some years had she ever dashed around a track. But while playing on her senior women's softball team, California Spirit, she showed some speed as she rounded the bases.

That got player-coach Cathy Nicholson thinking. "I watched her for about five years," Nicholson recalls. "And after a while, I thought: 'This is remarkable.'"

So Nicholson, a retired teacher who once coached high school track, talked Fitzgerald into running in the 50- and 100-meter dashes at meets such as the Huntsman World Senior Games, an event that their softball team had been competing in for a number of years. Nicholson supervised Fitzgerald's workouts at a community college track.

Their work did not always bring smooth results. The first time Fitzgerald entered a race and heard the gun go off, she jumped straight up in the air instead of running. So the next year, they worked on her starts. Soon she was coming smoothly out of the blocks and setting national records and racking up first-place finishes. "I'm just happier than heck to have all those medals," says Fitzgerald, now 81.

In 2007, Fitzgerald broke the USA Track and Field national record for the women's 80-84 age group in the 100-meter dash with a time of 18.76. She followed that up in October at the Huntsman Games, where she set a Huntsman age-group record for the 50-meter dash with a time of 9.85.

Next year, Fitzgerald will compete in the 100-meter dash at the 2009 Senior Olympic Games. There is no 50-meter run in those games so Nicholson is eyeing the 200. "She wants me to try it," Fitzgerald says, adding with a laugh: "I hope she doesn't talk me into it."





Strength-Benefits

Improved daily function

- Lowers fall risk

- Increases bone mass and bone density

Reduced disability

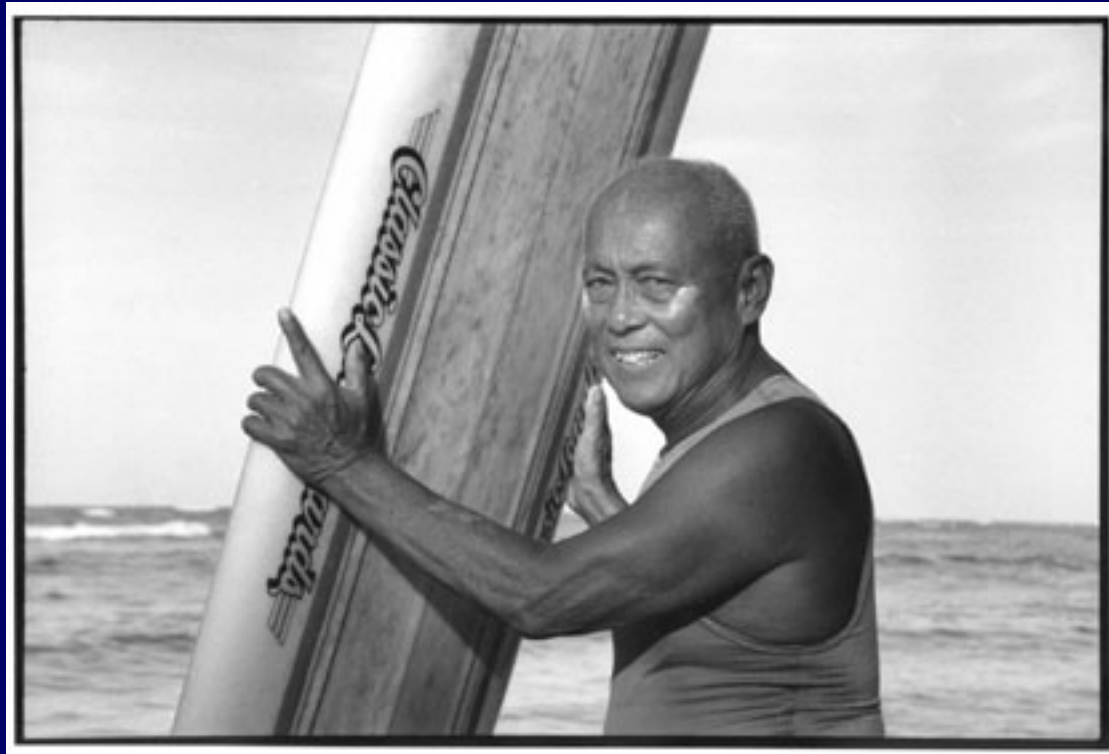
Reduced blood pressure

Reduced arthritis pain

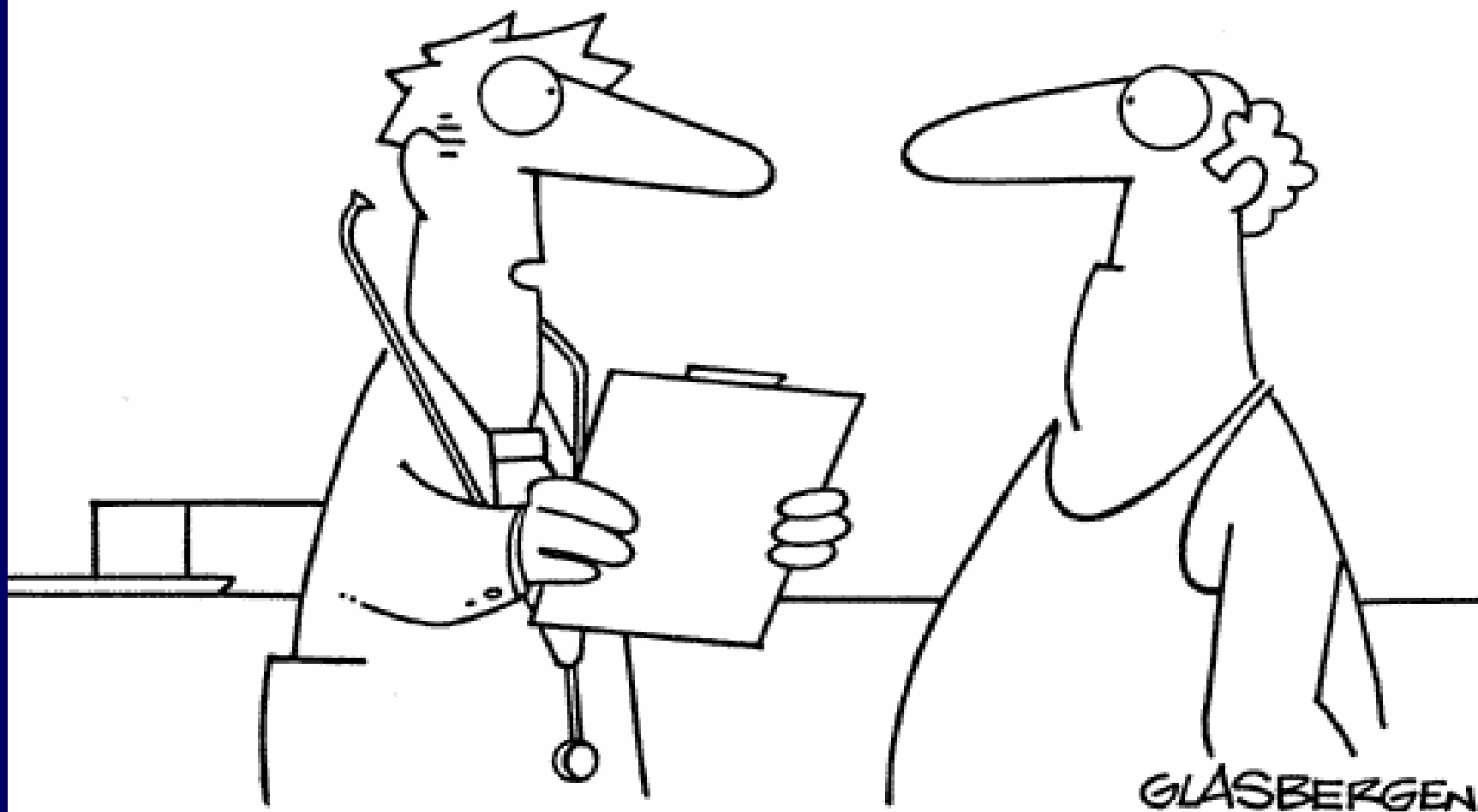
Increased aerobic capacity in CHF



Donald Goo, age 73 Surfer



From Etta Clark, Growing Old Is Not For Sissies II <http://ettaclarkphotography.com/>



“The handle on your recliner does not qualify as an exercise machine.”

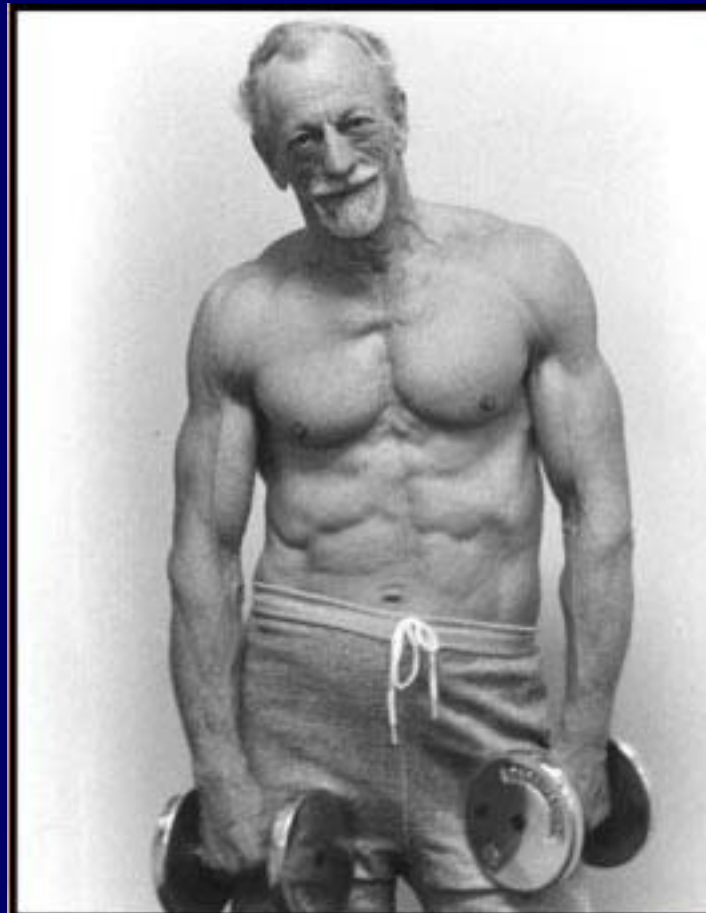


Strengthening-Cautions

- Unstable angina or severe left main coronary disease**
 - End stage CHF**
 - Severe valvular heart disease**
 - Malignant or unstable arrhythmias**
 - Elevated resting bp, >200/>110**
 - Large or expanding aortic aneurysm**
 - Known cerebral aneurysm or recent intracranial bleed**
 - Uncontrolled or end-stage systemic disease**
 - Acute retinal hemorrhage or recent ophthalmologic surgery**
 - Acute or unstable musculoskeletal injury**
 - Severe dementia or behavioral disturbance**
-



John Turner, 67 Weight Lifter



From Etta Clark, Growing Old Is Not For Sissies II <http://ettaclarkphotography.com/>



Strength-Precautions

- Monitor vital signs in patients with known coronary artery disease, pulmonary dysfunction (bp, p, SpO₂)
 - No algorithms for pre-exercise screening
 - Male >40, female >50: Exam, EKG, exercise test
 - Monitor patients with neurologic insults for fatigue.
 - Begin with reduced weight bearing in patients with unstable knee OA. Consider water exercises or NWB
-



Strength Exercises

- Hand Grip
- Wrist Curl
- Overhead, front, side arm raise
- Arm curl, arm curl with resistance
- Seated row with resistance bands
- Wall push up



Strength exercises

- Elbow extension
- Chair dip
- Back and side leg raises
- Leg straightening
- Chair stand
- Toe stand



Helen Zechmeister, age 81 Weight lifter



From Etta Clark, Growing Old Is Not For Sissies II <http://ettaclarkphotography.com/>



Endurance

Endurance exercises are activities — walking, jogging, swimming, raking, sweeping, dancing, playing tennis — that increase your heart rate and breathing for an extended period of time. They will make it easier for you to walk farther, faster, or uphill. They also should make everyday activities such as gardening, shopping, or playing a sport easier.



Endurance

- Ability to maintain a given level of exercise over time or to perform a given task repeatedly without fatigue.
- VO₂ peak is peak amount of oxygen that may be transported to the active muscles during exercise (cardiac and pulmonary rehab)
- Exercise intensity and caloric expenditure defined in terms of metabolic equivalents (METs). One MET is the equivalent to the oxygen uptake of a person at rest or ~3.5 mL/min
- Housework (vacuuming or mopping)=2-4 METS, jogging=5-6 METs, Exercise > 6 METs =high intensity

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**“I was going to wake up early to go jogging,
but my toes voted against me 10 to 1.”**

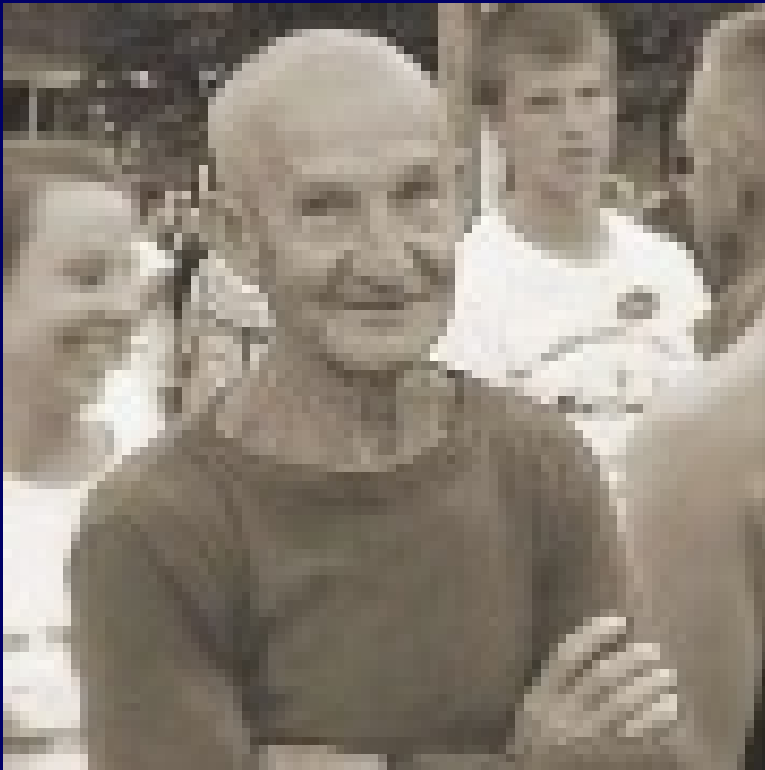


Endurance-Benefits

- ❑ Reduce blood pressure -11 mm Hg systolic, 8mm diastolic
 - ❑ Improve lipid profiles
 - ❑ Lower cardiac mortality
 - ❑ Improve insulin sensitivity
 - ❑ Improve symptoms of pulmonary disease and reduce associated disability
 - ❑ Reduce CVA-associated weakness and improve energy expenditure
 - ❑ Reduce pain and improve function in OA and RA
-



Al Widing



Widing, 81, is training for his 37th Weyerhaeuser AuSable Canoe Marathon, which starts in Grayling, Mich., and takes place July 29-30. With his partner, Robert Bradford, 62, Widing placed in the top 25 of the grueling 120-mile event in 2005. A retired home builder, Widing stays in shape over the winter by canoeing in the Colorado River near Yuma, Ariz.



Boston 2006

The oldest competitor is Carlton Mendell of Windham, Me., a long-time fixture in New England running. Mendell was born in 1921, and is 84 years old. He has competed in 28 consecutive Boston Marathons and finished in 6:38:35 last year. He is one of three octogenarian competing. The oldest woman in the race is 80-year-old Regina Tumidajewicz of Amsterdam, N.Y. Emery H. Jewell Jr. of Tampa, Fla., is also 80.

Emery Jewell is a volunteer at the JAHVA in Tampa



Daniel Bulkley



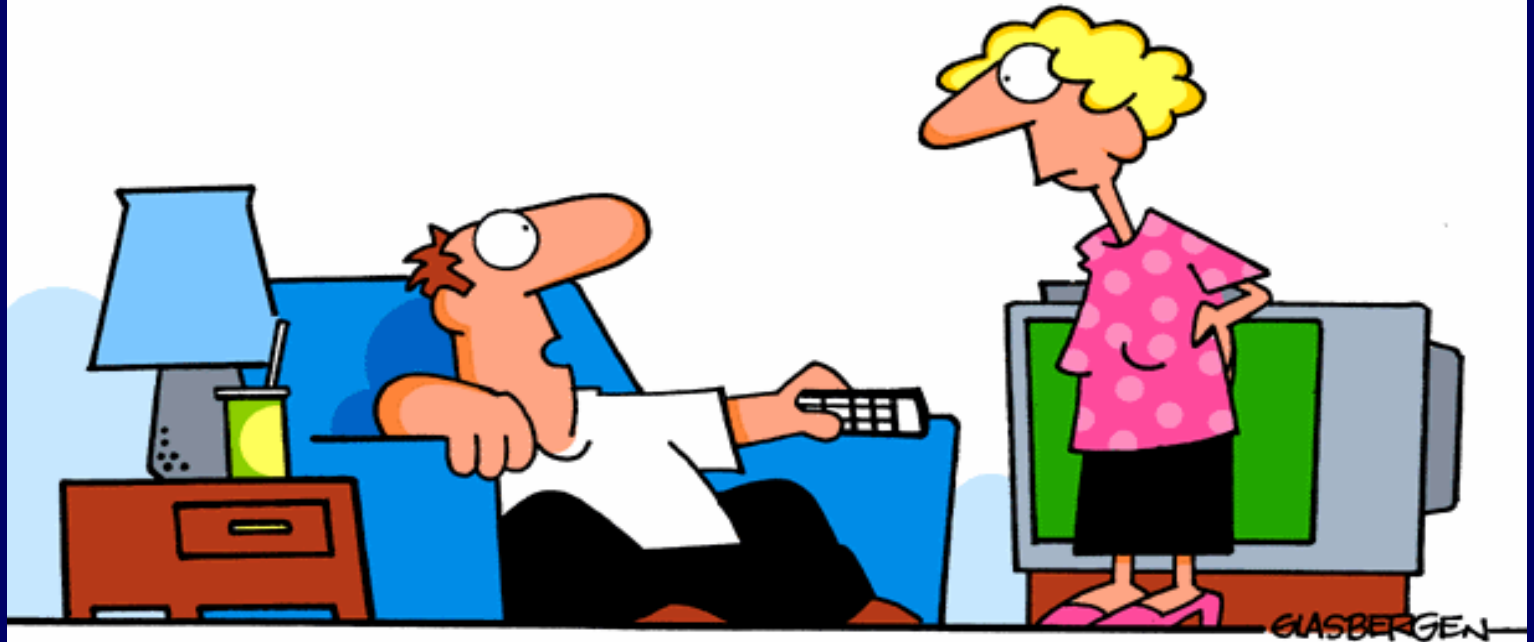
Bulkley, 88, may be his age group's best all-around athlete. He finished second in the men's 80-plus badminton singles at the World Masters Games, held in summer 2005 in Edmonton, Alberta, Canada. He won the gold medal in the pentathlon, the 300-meter hurdles, and the 2-kilometer steeplechase, also at the World Masters Games. Additionally, he is a champion cross country skier.



Endurance-Prescription

- 5-6 METs or more for 30 min 5X/wk
 - Start slowly and increase
 - Heart rate 60-70% of projected max on Borg Scale of Perceived Exertion level 11-13, or “talk test.”
 - Treadmill, walking, biking, dancing, swimming
 - Increase endurance before intensity
-

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**“My doctor told me to start my exercise program
very gradually. Today I drove past a store
that sells sweat pants.”**



Endurance-Precautions

- ❑ Monitor SpO₂ in patients with pulmonary disease and use supplemental oxygen where needed.
 - ❑ Monitor vital signs in patients with cardiac and pulmonary impairment
 - ❑ Patients with vascular claudication exercise to just below the point of pain
 - ❑ Monitor patients with neurologic deficits for fatigue and schedule exercise and rest accordingly.
-

Women's 70-79 Masters Athlete of the Year: Betsy Jordan

By Nancy Averett

Jordan has a lifelong connection to the water -- and to winning. Betsy Jordan, who has been racking up first place finishes this year, spends most of her time training and competing in swimming pools. Yet once a week, during late spring and summer, the 71-year-old slips into the ocean for a workout, enjoying the sensation of being swallowed up by the vastness of the water. "It gets the gremlins out of your head by reminding you that you're really just a little speck in the universe," she says.

Water has been a big factor in shaping Jordan's life. She began swimming at age 9 and was good enough to compete in the 1952 Olympic trials six years later. She got into Masters swimming later in life and met her second husband, Peter Riddle, also a swimmer, while helping remove the pool tarps for early morning swims on the University of California-San Diego campus. "He said that anyone who could be cheerful at 6 in the morning was a keeper," she recalls. "I feel the same way about him."

Between Jordan and Riddle, they have six children. Jordan won five events at the 2008 U.S. Masters Swimming Short Course Nationals in May, including the 50-yard, 100-yard and 200-yard backstroke. This year, she has placed first in all but four of the 34 events in which she had competed. Her success has brought nothing but pride to Riddle, who often tells others: "If Betsy's going to be the leader of the pack, somebody's got to be the pack. That's my job."

Jordan, a retired UCSD humanities professor, says swimming has impacted stages of her life differently. When she was younger, Jordan says, competing taught her the importance of time-management as well as how to cope with losses and display humility with wins. Now, swimming -- through the exercise, travel opportunities and camaraderie it provides -- is teaching her how to enjoy old age.





Dan Miller



Balance-Benefits

- Fall risk reduction
 - Postural control system very complex and redundant
 - Falls are the leading cause of accidental death in the elderly
 - Improved quadriceps strength
 - Improved functionality
-

Tai Chi San Francisco





Balance



1. Stand on one foot behind a sturdy chair, holding on for balance.
2. Hold position for up to 10 seconds.
3. Repeat 10-15 times.
4. Repeat 10-15 times with other leg.
5. Repeat 10-15 more times with each leg.

Heel Toe Walk



- Position the heel of one foot just in front of the toes of the other foot. Your heel and toes should touch or almost touch.
- Choose a spot ahead of you and focus on it to keep you steady as you walk.
- Take a step. Put your heel just in front of the toe of your other foot.
- Repeat for 20 steps.



Balance Walk

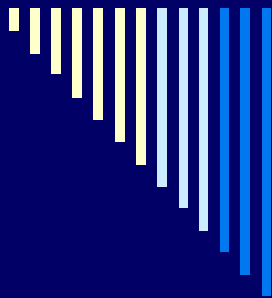


1. Raise arms to sides, shoulder height.
2. Choose a spot ahead of you and focus on it to keep you steady as you walk.
3. Walk in a straight line with one foot in front of the other.
4. As you walk, lift your back leg. Pause for 1 second before stepping forward.
5. Repeat for 20 steps, alternating legs.



Balance-Prescription

- Tai Chi, or weighted vest exercises 3-4x/wk in combination with other modes
 - Include static and dynamic.
 - Wide based stance, narrow base stance, and single leg stance held for 30 or more seconds with eyes closed.
 - Walk with various bases of support from wide to normal to narrow, to heel toe gait.
-



Men's 70-79 Masters Athlete of the Year: Dave Bauer

By Brion O'Connor

Bauer credits rowing with overcoming his back pain -- and getting him active again

At 73, Dave Bauer has garnered seven age-group world championships in indoor rowing, the last coming this past February at the CRASH-B Sprints in Boston. That title, in the Veterans Lightweight 70-74 category, came on the heels of Bauer's first European Championship, which he won with the U.S. national indoor rowing team in Dresden, Germany, in December 2007.

"I firmly believe that rowing is the very best single workout there is," he said. "It works all the major muscle groups with no impact, and it is a great cardiovascular workout as well."

Nearly two decades ago, when he was 55 and living in California, Bauer was a top-flight age-group runner with one obstacle he couldn't overcome -- debilitating back pain. Rejecting surgery and chiropractic visits, Bauer, a retired aerospace engineer, decided he could figure out how to align his back. He started rowing "with a vengeance." After moving to Colorado, Bauer started competing and qualified for the Boston event.

An indoor rowing race is fiendishly simple. Hop aboard a Concept2 Model D ergometer rowing machine, and rip through 2,000 meters as quick as you can. Long and lanky (6-foot-1, 165 pounds), Bauer has the power-to-weight ratio often found among elite cyclists. The same lean body type clearly excels at rowing.

Today, the father of three (and grandfather of four) says his back feels so good that he has resumed his running. He runs the Pike's Peak Ascent (a road race that gains 7,185 feet in 13.3 miles). "I've done that five times, and I've finished as high as third in my age group," he says. "And I'll continue running it until I win it."



Balance-Precautions

- Control pain where needed.
 - Prescribe appropriate assistive devices adjunctively.
 - Consider DEXA scan where appropriate; supplement Vitamin D and Calcium.
-

Men's 80+ Masters Athlete of the Year: Orville Rogers

By Ray Glier

Rogers has been running almost half his life -- he started at age 50

Orville Rogers started running when he was 50 years old, and he has been running competitively for 41 years.

Go right ahead, do the math. That's right. He is 91 years old.

A retired airline pilot, Rogers broke world records for his age group in both the mile and 800 meters at the USA Masters Indoor Track Championships in Boston in March. His time of 4:19.97 in the 800 was more than 30 seconds faster than the previous record, and his 9:56.58 mile beat the record by more than 1:27.

"I started looking up the records before the meet and said 'Hey, I can do that,' " Rogers said. "I always wanted to be on top in anything I did and I've tried to stay in shape my whole life, so I thought I could set records."

Rogers, who is from Dallas, worked on his pacing to set the records. "The objective was to go out slower, which I did," Rogers said, "and I slaughtered the records." Rogers figures he has run 38,000 miles in his 41 years of running. He runs 12 to 14 miles a week and concentrates on the shorter distances. He played high school football and swam a lot as a teen-ager, and played racquetball and handball. Rogers said he still has 35 percent lung capacity, which keeps him fit.

Rogers wonders what his times would be like if he could actually have some competition. He watched the 400-meter race in his age group and the top runners in the race battled to the wire. "They ran neck and neck and I wish I could have competed like that," Rogers said. "That was tremendous to watch."

Now he wants to set some records when he turns 95 and ages up to another bracket. "Show up and suit up, that will be my goal," Rogers said.





Flexibility-Benefits

- Not well studied
 - Describes ROM around a joint or joints
-



Flexibility-Prescription

- 4-5 repetitions, held for 30 s apiece, incorporating both static and dynamic exercises.
 - Static-move the joint to end range and hold.
 - Combine routinely with other modes.
-



Flexibility-Precautions

- No clear contraindications.
 - Begin with gentle, supervised stretching where healing orthopedic injuries are present.
-



Neck



1. You can do this stretch while standing or sitting in a sturdy chair.
2. Keep your feet flat on the floor, shoulder-width apart.
3. Slowly turn your head to the right until you feel a slight stretch. Be careful not to tip or tilt your head forward or backward, but hold it in a comfortable position.
4. Hold the position for 10-30 seconds.
5. Turn your head to the left and hold the position for 10-30 seconds.
6. Repeat at least 3-5 times.



Shoulder



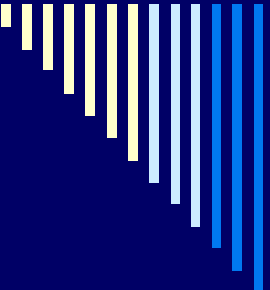
1. Stand with feet shoulder-width apart.
2. Hold one end of a towel in your right hand.
3. Raise and bend your right arm to drape the towel down your back. Keep your right arm in this position and continue holding on to the towel.
4. Reach behind your lower back and grasp the towel with your left hand.
5. To stretch your right shoulder, pull the towel down with your left hand. Stop when you feel a stretch or slight discomfort in your right shoulder.
6. Repeat at least 3-5 times.
7. Reverse positions, and repeat at least 3-5 times.



Back



1. **Sit up toward the front of a sturdy chair with armrests. Stay as straight as possible. Keep your feet flat on the floor, shoulder-width apart.**
2. **Slowly twist to the left from your waist without moving your hips. Turn your head to the left. Lift your left hand and hold on to the left arm of the chair. Place your right hand on the outside of your left thigh. Twist farther, if possible.**
3. **Hold the position for 10-30 seconds.**
4. **Slowly return to face forward.**
5. **Repeat on the right side.**
6. **Repeat at least 3-5 more times.**



Woodbridge R. "Woody" Brown, age 83 Surfer

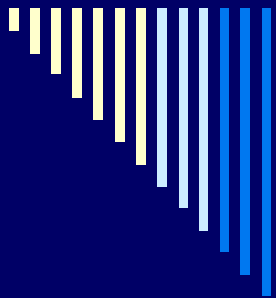


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Compliance constraints

- Transportation
 - Finances
 - Insurance
 - Supervised or group setting may be preferable
 - Workout buddy
 - Community options (tai chi)
-

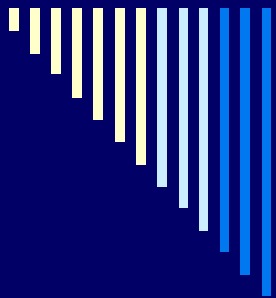


August 8, 2009 Matt Mahoney 54, Sandra Melton 53



Is it safe to exercise?

- Reframe the question to “Is it safe to remain sedentary?”
 - A major contributing factor to poor patient compliance is “lack of physician endorsement.”
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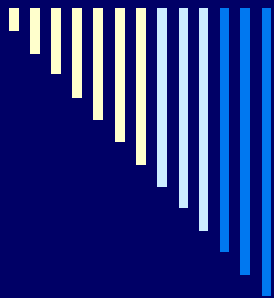
The Prescription

Exercise

Intensity

Frequency





Exercise
is
Medicine

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“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”

