

# What treatment program has biggest impact?

*What comes first, what has the biggest impact, most bang for the buck?*

*What intervention does the best?*

*What has the largest breadth?*

**Cancer screening**

**Eating more fiber**

**Drinking Less**

**Not Smoking**

**Having strong social networks**

**Losing weight**

**Exercising more**

**Control cholesterol and blood pressure**

Dr. Mike Evans points out a preventative treatment that works on so many different health problems.

**Knee arthritis**-1 hour treatment 3 days a week reduce pain and disability 47%.

**Alzheimer and dementia**-treatment reduced progression in older patients by 50%

**Diabetes**-treatment reduced progression of diabetes with those who were prediabetic by 50%.

**Post menopausal women** with 4 hours of treatment reduce hip fractures by 41%.

**Anxiety**-treatment reduced anxiety by 48%

**Depression**-those suffering from reduce severity by 30% and up to 47% with higher dose.

**Reduce in mortality** by 23% in those getting treatment

**Fatigue**-number 1 treatment

***Most who get it say their quality of life has improved.***

**So what is the  
treatment or  
what some call  
medicine?**

**Exercise,**

**not doing a triathlon  
or marathon, but  
simple walking  
(30 minutes a day).**

**Take time out of your  
day to get formal and  
informal exercise in.**

## Benefits of Regular Exercise

### Improves physical health and quality of life

**Reduce risk of premature death-** Reduce the risk of premature death from heart disease, high blood pressure, high cholesterol, diabetes, and colon and breast cancers. It increases high-density lipoprotein (HDL, or good cholesterol) while decreasing Triglycerides. Overall it **Increases resistance to various diseases by bolstering the immune system.**

**Improves psychological well-being** - Regular exercise improves your mood and reduces the likelihood of **depression and anxiety.**

**Increases your energy levels** - When your heart and lungs work more efficiently, you'll have more energy to do the things you enjoy.

### Helps you manage your weight

**Promotes better sleep** - Regular exercise helps you fall asleep faster and into a more deep sleep.

**Helps maintain and increase muscle strength, improves balance, coordination, reaction time and flexibility; can even improve mental concentration.**

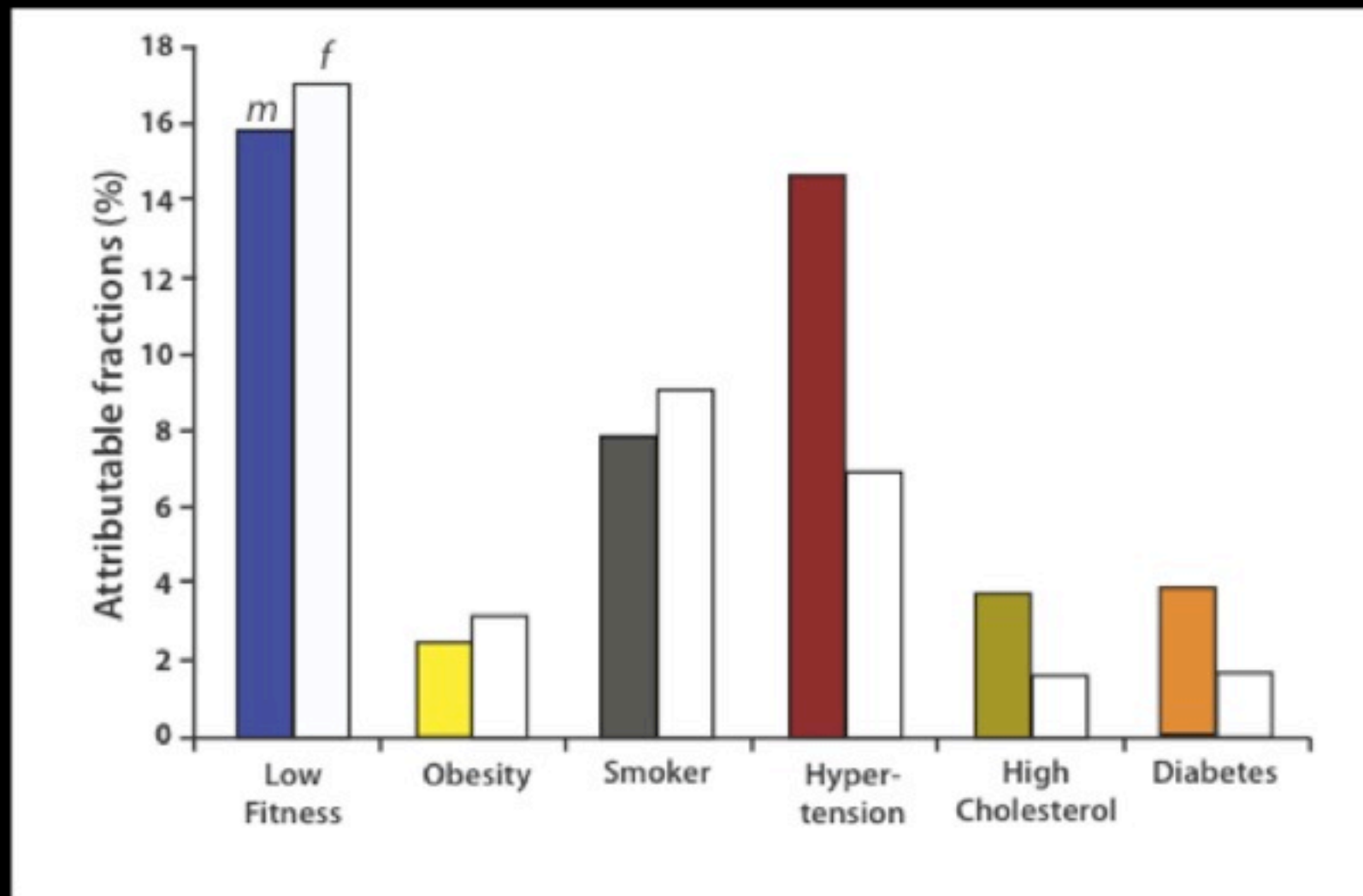
- Prevents muscle decay. Inactive people lose muscle fiber at a rate of **3% to 5% every decade after age 30** which amounts to a loss of 30% of muscle fiber by age 60.
- Reduces incidence of many illnesses.
- Research suggests that regular exercise can reduce the risk of colon cancer by as much as 50% and may considerably reduce the risk of breast cancer.
- **Relieves symptoms of osteoarthritis and rheumatoid arthritis** and therefore reduces the need for medication.
- Helps control hypertension, high blood cholesterol and diabetes.
- **Reduces the risk of accidental injury and shortens the recovery period from accident and illness.**

# What do the studies say?

**Fitness has the biggest impact.**

Low fitness was the strongest predictor of death.

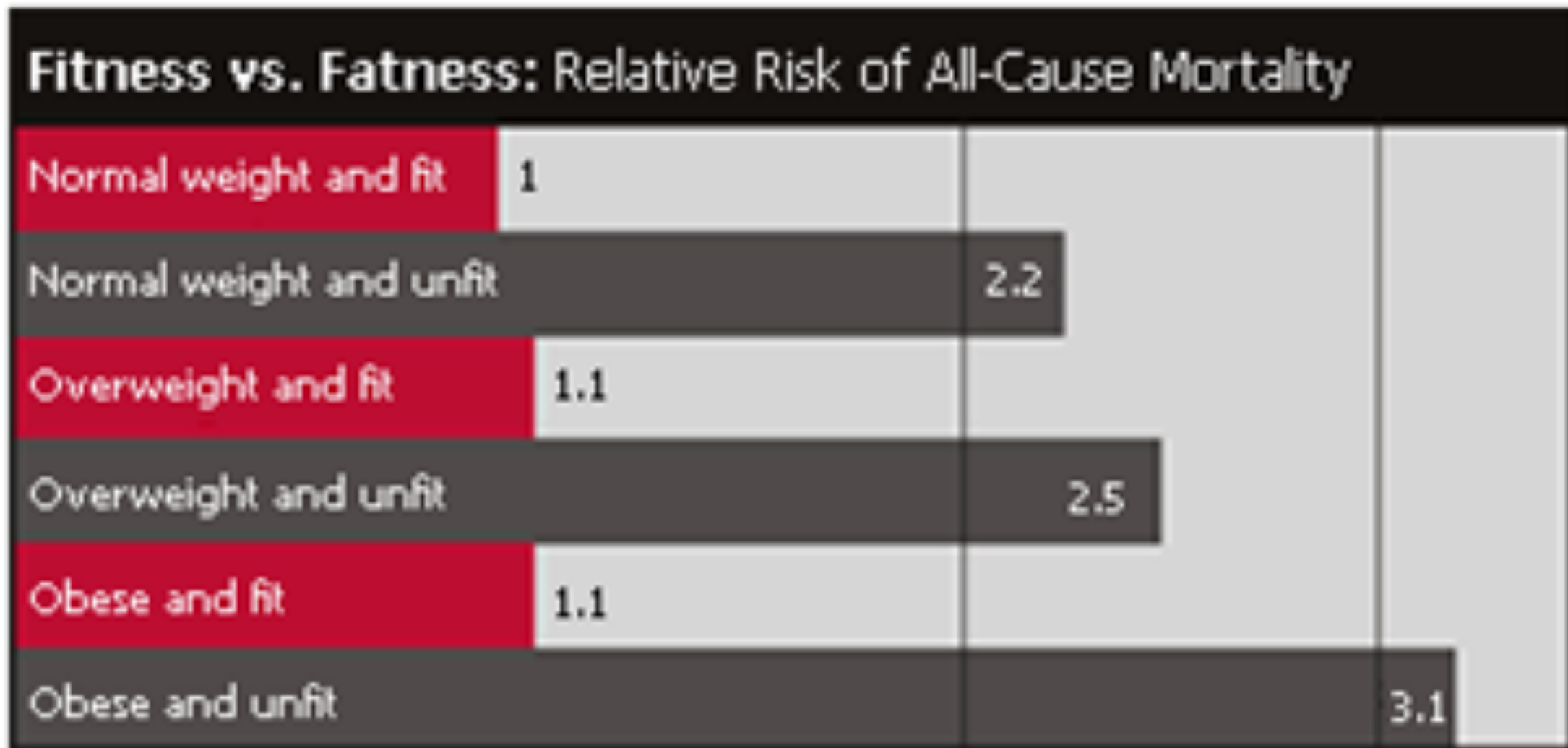
## Which risk factor kills more people?



# Aerobic Fitness Test



# Fitness versus Fatness



In this analysis, low cardiorespiratory fitness was a strong and independent predictor of CVD and all-cause mortality and of comparable importance with that of diabetes mellitus and other CVD risk factors. **A follow up study suggests being fit does not completely reverse the increased risk associated with excess fatness. Physical activity will offset some of the effects of excess weight, if it's just a few extra pounds. Yet exercise isn't going to magically erase all the health risks of being heavy.**



# Exercise Adds Years to Your Life

People who were moderately active added about **2** years to their lives and those who were highly active added about **4** years.

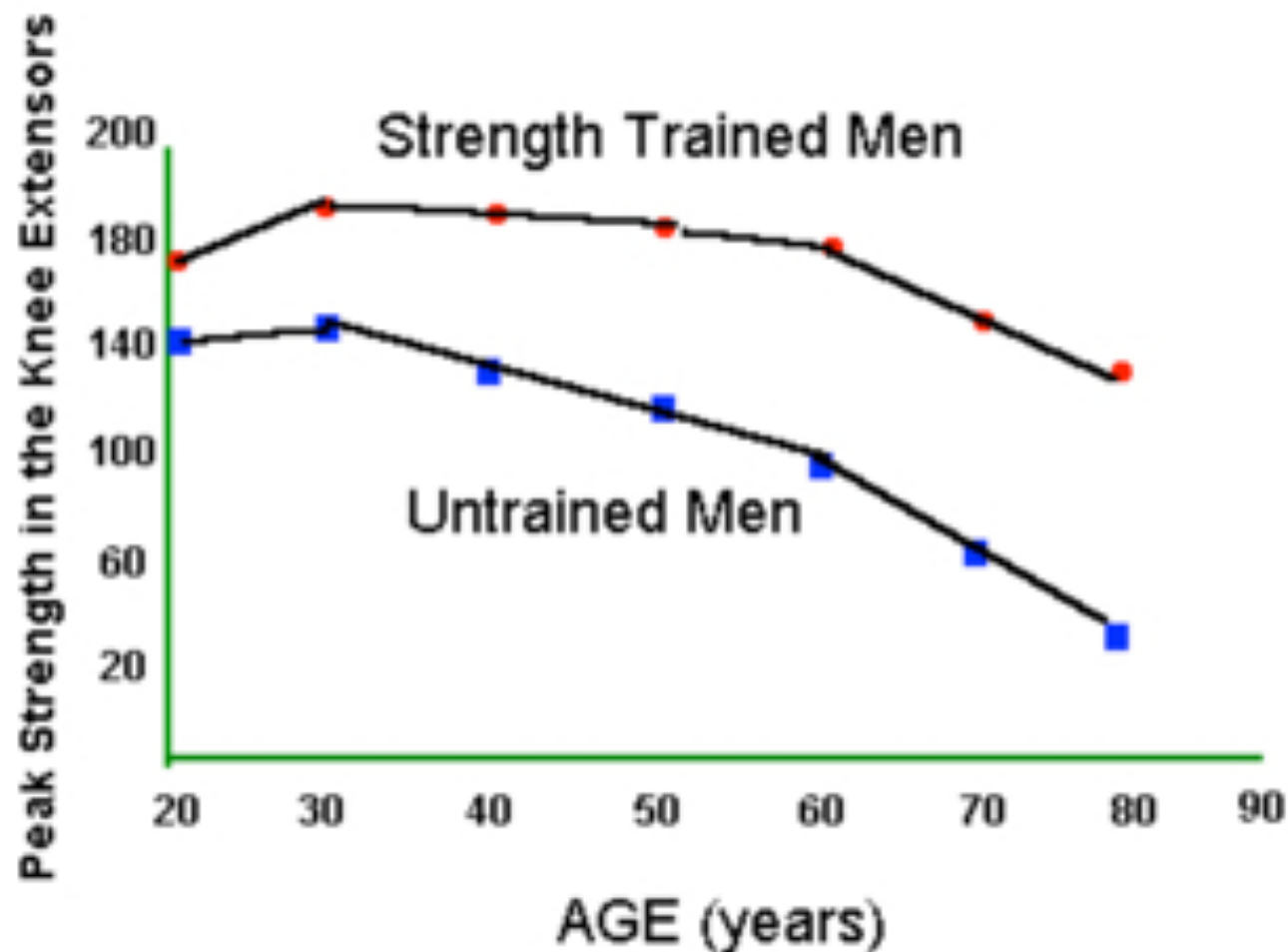
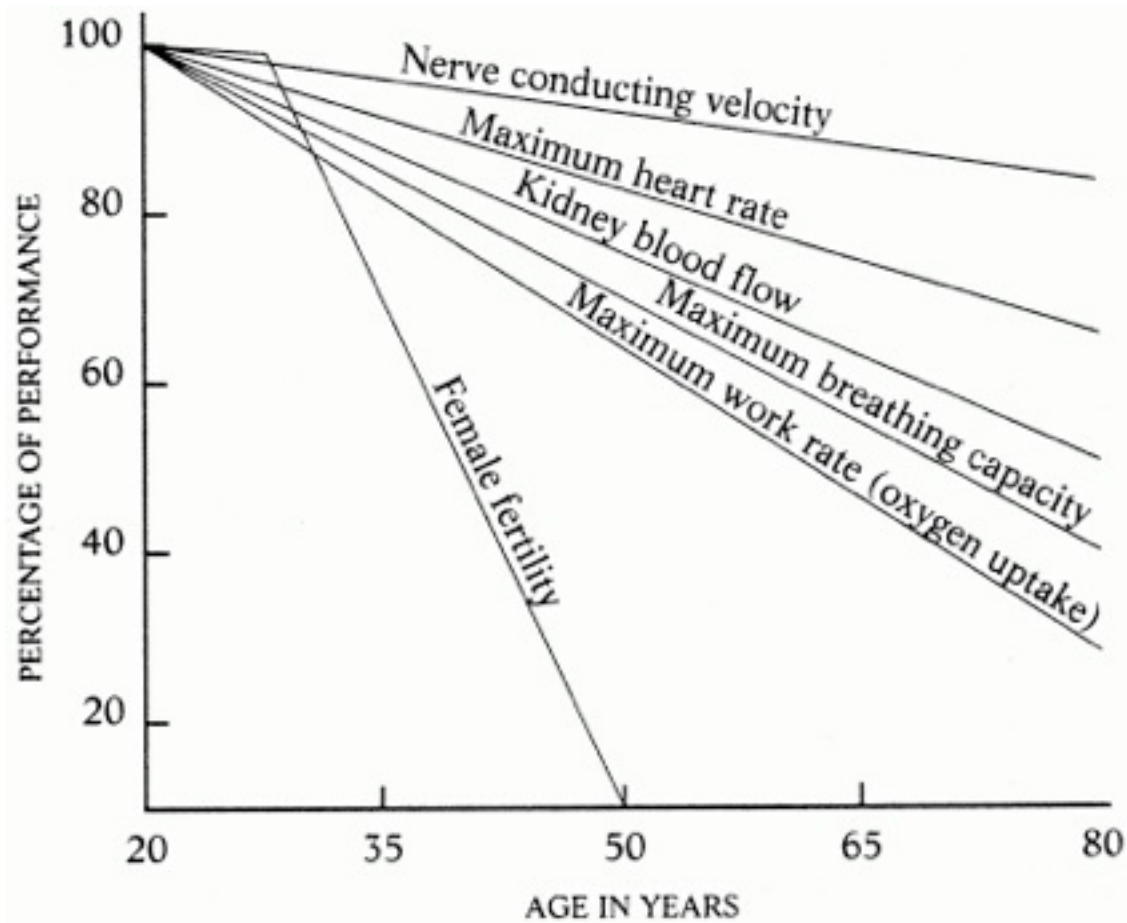
Some say that is not much but increases quality of life by preventing disability.

## Disability

Highly active 65-years-olds, however, have an additional **7** years of healthy life expectancy -- they will remain disability free until age **84**, compared to **77** year in their sedentary counterparts.

# What is Sarcopenia?

**Sarcopenia** (from the Greek meaning "poverty of flesh") is the degenerative loss of skeletal muscle mass and strength associated with aging (0.5-1% loss per year after the age of 25). Sarcopenia is a component of the frailty syndrome. The **frailty syndrome** is a collection of symptoms or markers, primarily due to the aging-related loss and dysfunction of skeletal muscle mass and bone that place (mostly) older adults at increased risk of adverse events such as death, disability, and institutionalization.



**ex·er·cise**/'eksər,sīz/

Noun:

Activity requiring physical effort, carried out esp. to sustain or improve health and fitness.

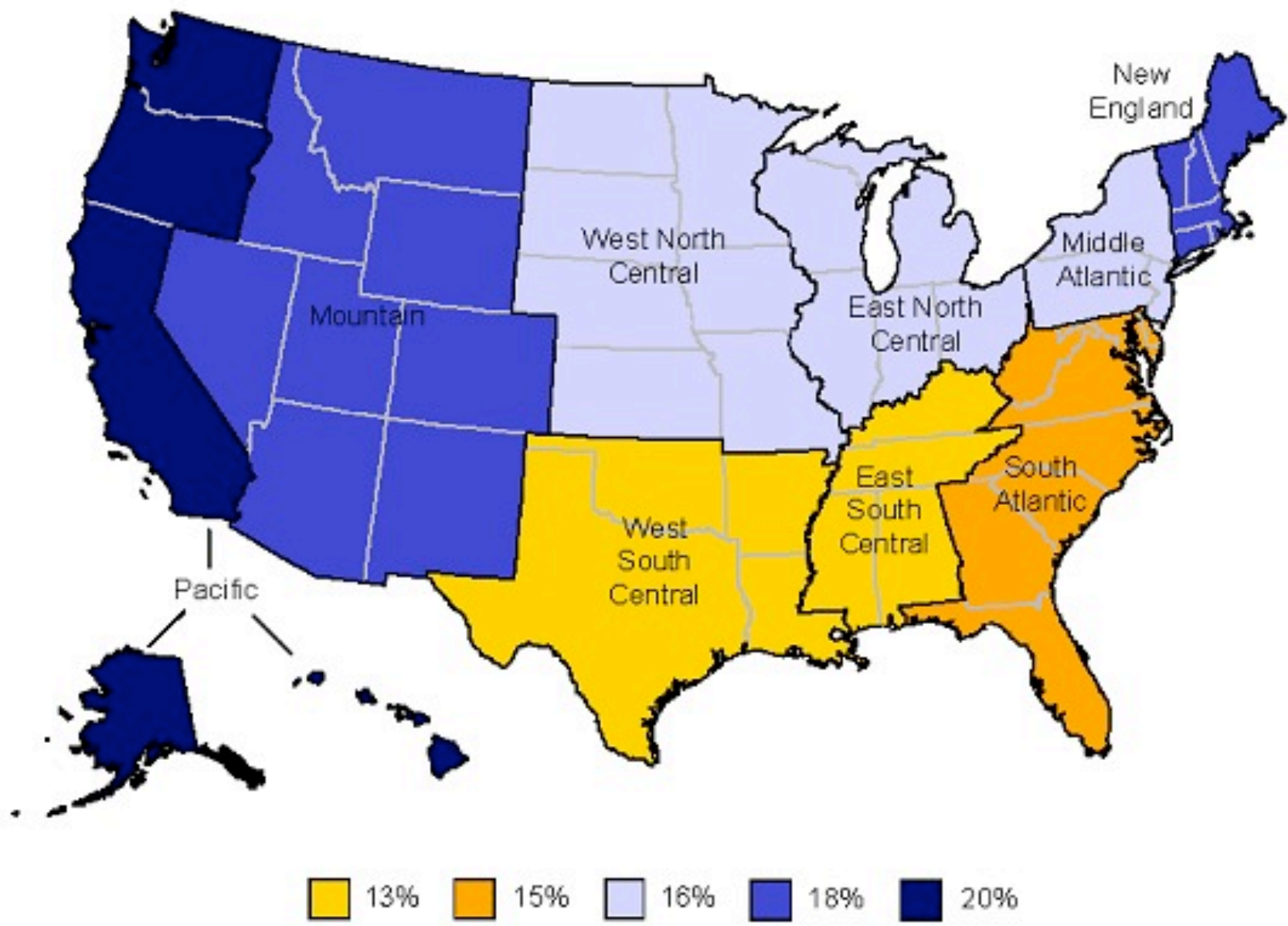
Physical activity is any body movement that works your muscles and requires more energy than resting.

Exercise is planned (formal) physical activity, like lifting weights, taking an aerobics class, and playing on a sports team. Informal physical activity are motions like standing, walking to and fro, cleaning, and gardening.

**Want to increase both.....**

**16 percent** people participated in sports and exercise activities on an average day in recent years. In comparison, consider that the number of people who watched television on an average day is roughly five times larger.

Percent of people aged 15 years and older who engaged in sports or exercise activities on an average day, by region, 2003-06



Percent of adults 18  
years of age and over  
who met the minimum  
Physical Activity  
Guidelines for both  
aerobic and muscle-  
strengthening physical  
activity: **20%** (2010)

# Exercise Programs

**90%** of people drop out after 3 months of non-supervised exercise programs.

Research Shows: Much higher success rates with supervised exercise programs, like cardiac rehab or working with a trainer or coach.

# The Exercise Problem

Problem: The weight loss and exercise industry makes it hard and expensive to reach lofty goals.

Multi-Billion Dollar Industry

Machines, Supplements, 1-2 hour training sessions

**Most Fail**

One of the reasons why many drop out of health & wellness programs is that it is too hard.

Physically too hard

Mentally too much to take in.

***- Set up for failure***



**Prevention of  
Disease, Injuries,  
and Disorders  
is #1.**



**My Goal:** Get people that are not committed to any wellness program on a simple program that will *promote health and increase physical fitness.*

**Definition of physical fitness:** Adequate physical fitness is the ability to handle work stress and daily tasks without becoming fatigued. It's a state of overall vitality, related to, but not a measure of athletic ability.

The five components of fitness are body composition, flexibility, muscular strength and endurance, and aerobic capacity.

# Understand your goals.

What are you looking to get out of your program?  
Don't think about what is the latest fad or what  
you see on TV.

**“Don't train like an athlete if you are  
not an athlete.”**

All programs should be health based and then  
work from there.

**Get aerobic exercise in first.**

# **First of all what is aerobic exercise.**

It is formal planned movement.

Aerobic exercise has many synonyms including cardiovascular, cardiorespiratory, and endurance exercise. Aerobic exercises involves using your larger muscles for a sustained period of time in a continuous, rhythmical fashion. --usually at least 5-10 minutes.

Type 1 (which require little skill and can be maintained at a constant intensity like walking, jogging, cycling, and elliptical training),

Type 2 (as with Type 1 can be maintained at a constant intensity but requires skill like swimming, in line skating, and aerobic dancing), and

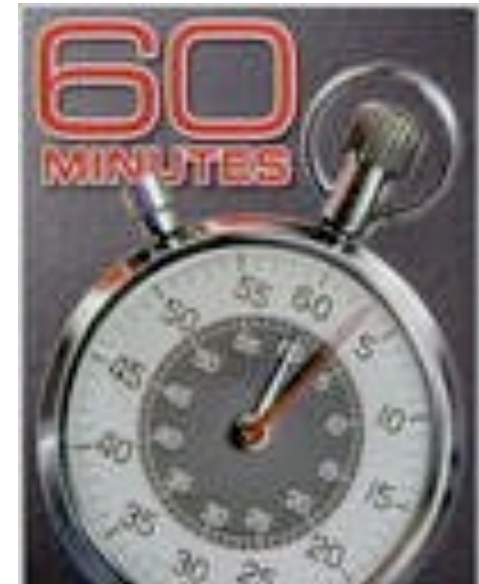
Type 3 (requiring a great deal of skill and have a high degree of exercise variability, like basketball, western dancing, and raquet sports).

# ***WHAT DOES THE SCIENCE SAY.....***

## **US Dietary Guidelines for Americans (2005)**

The guidelines address three levels of health.

- 1) **reduce the risk of chronic disease**, suggests at least 30 minutes of moderate intensity physical activity at work or at home, on most days of the week.
- 2) **to help manage body weight and prevent gradual body weight gain**, suggests approximately 60 minutes of moderate to vigorous physical activity at work or home on most days of the week.
- 3) **sustaining weight loss in adulthood**, suggests daily physical activity of moderate to vigorous intensity for 60 to 90 minutes is recommended.



## **60 MINUTES OF EXERCISE IF YOU DON'T WATCH WHAT YOU EAT.....**

These recommendations are based on research findings from large populations that include individuals who were obese, had pre-diabetes, and who lost **70 pounds or more and kept it off for longer than three years**. (Weight Loss Registry).

**What gives the Biggest  
Bang for the Least  
Amount of Time**

## Least amount of formal exercise.

- 3 to 5 minutes: Minimal exercise period of 3 to 5 minutes a day has been shown to increase VO<sub>2</sub>max with additional training effects (Katch and McCardle).
- 7 minutes: According to British researchers just seven minutes of exercise weekly may prevent type 2 diabetes by controlling your blood sugar.

Here's the catch: The exercise has to be **vigorous.**

• Just 15 minutes of somewhat vigorous exercise a day can increase your life expectancy by three years and reduce the risk of dying by **14 per cent**, according to research.

And every additional 15 minutes of daily exercise reduces the risk of death further, by four per cent, the study found.

***No time for formal  
exercise?***

**Increase Daily Physical  
Activity  
like Standing....**

## ***No time for formal exercise?***

Studies have found standing health benefits. Standing for a few hours a day is better for your health than 30-60 minutes of moderate aerobic activity.



The simple act of standing up instead of sitting may help you burn as many as 60 more calories per hour, depending on your size. Although 50 calories may not seem like a lot in a 2,000-calorie day, making the standing adjustment for four hours out of the day can burn an extra **200-300 calories a day**--leading to a 20 lb. weight loss over the course of a year. Standing more often also contributes to an overall better sense of well-being and health.

Prolonged Sitting Causes Disease, Standing Fights It



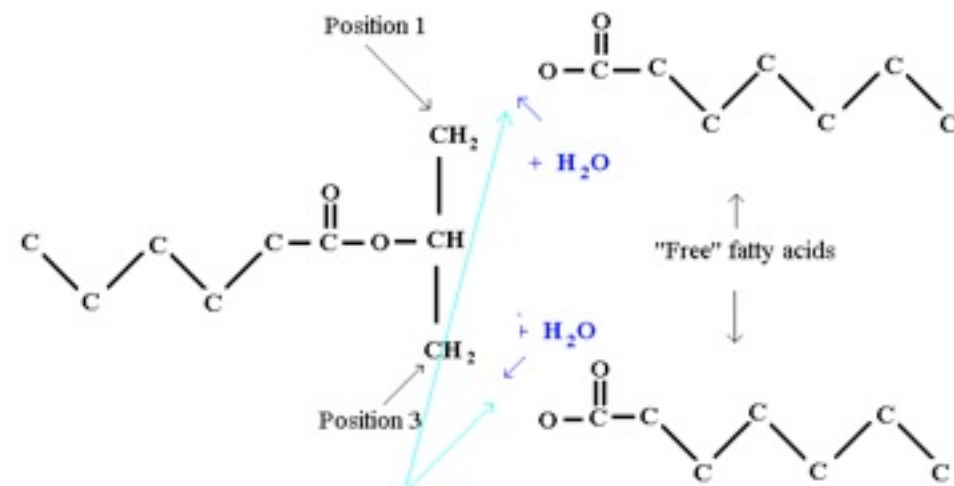
## Standing is Physical Activity Our Health Depends on it.

**Donald Rumsfeld was in great shape, stood 8-10 hours a day, no chair in his office.**

**Cavemen spent all day standing, we are meant to be upright.**

**One study suggested that lean people spent 150 minutes extra a day standing and doing light activity compared to the obese subjects even though they did the same amount of activity and ate the same.**

**Standing turns on Lipase enzyme, which clears the blood stream of fat, while sitting shuts it off.**



Pancreatic lipase is an enzyme that breaks the bonds between glycerol and the fatty acids at positions 1 and 3, liberating the 2 fatty acids.



**Lipase  
enzyme is  
turned on  
while  
standing fat  
goes into  
muscle.**



**SITTING  
DOWN**

**STANDING  
UP**

**Some studies suggest that the rate of heart disease and diabetes doubled or triple in those who sit a lot.**

Energy-metabolism lab, Dr.  
Braun had a group of  
volunteers spend an entire  
day sitting and then another  
day standing

stood all day, “not  
doing anything in  
particular

entire day sitting. If  
they needed to visit  
the bathroom or  
any other location,  
they spun over in a  
wheelchair.

“hundreds of calories difference because of standing”

“no increase among the upright in their blood levels of  
ghrelin or other appetite hormones”

Standing did not ignite hunger

Braun says: if you want to lose weight, you don't  
necessarily have to go for a long run. “Just get rid of your  
chair.”



School of  
**Public Health and Health Sciences**  
**Department of Kinesiology**

# STANDING VS. SITTING

## SITTING

Sitting compresses the spine and tightens the chest, shoulder and neck muscles. Poorly designed chairs further exacerbate postural problems and inflexibility caused by excessive sitting.

## STANDING

Standing improves your posture and reduces aches and stiffness. People who choose to stand over sitting note that their minds feel more clear and that they have a better ability to concentrate.

Standing often leads to other movement, such as pacing while on the phone or walking to the copier. All these small movements add up to more calories burned over the course of the day.



## Bottom Line....

Spend Less Time Sitting!

- Take activity breaks at work or home

**Don't sit when you can stand, don't stand when you can walk around, and don't walk when you can walk briskly or run!**





# 10 Simple Ways to Increase Your Activity

**1. Take the stairs as often as possible.**

**2. Drink plenty of water.** Added bonus – staying well hydrated may also reduce feelings of hunger, and can often reduce chronic back pain. So this is really a win-win-win.

**3. Park as far from the front door as possible.**

**4. Clean your home regularly.** Cleaning involves plenty of walking, lifting, and stretching

**5. Gardening and yard work.**

**6. Watch less TV.** Time spent watching TV is an *independent* predictor of disease, especially for kids.

**7. Buy a pedometer.** Aim for at least 10,000 steps each day

**8. Use active transportation and public transit.** Individuals who take public transit are more likely to meet physical activity recommendations.

**9. Have “walk-meetings” or “standing-meetings”**

**10. Go for a family walk after dinner.**

***How about formal exercise.***



## A Simple Fitness Plan

You can do it anytime with or without formal equipment or supervision.

- **3-5 x a week**-Three to upwards of five times a week we ask you to do 15-20 minutes of some type of formal exercise, like **walking**, biking, elliptical, swimming, exercise classes.
- We also ask you to **stand**, yes stand, an additional hour a day. Standing has been shown to be a very potent calorie burner. You can do this at your work station or while watching TV at the end of the day. This has to be extra standing.
- We would also like you to try to accumulate **extra steps** by parking further from the buildings you are going to as well as walking a longer way to get where you are going. These simple actions will add up.

# More Advance Fitness-Basic 3 Part Approach to Body Fat Reduction and Good Health.



- Strength train-2-3 days a week.
- Cardiovascular train-5 to 7 days a week 30-60 minutes.
- Follow a low saturated fat, high fiber, nutrient dense, and reduced caloric diet

Strength train **boost ones metabolism** through building lean muscle mass (**A one pound muscle gain can increase RMR by 25 to 100 calories a day**). The other benefit is the increase tone of the muscle pulls excess body fat stores inward giving one the appearance that they are less fat.

**Walking is an essential part of everyday life** and a preferred form of physical activity for many who are looking for weight loss. A general rule is that you should **walk (or perform any other aerobic activity)** with **a sense of determined purpose**. (Rooks 1997).

**Proper nutrition is essential to weight loss.** Permanent weight loss is not achieved without exercise and proper diet.

# 4 Components of Physical Activity

Aerobic (cardio) exercise



Flexibility



Strength/Resistance training



Daily and leisure activity



Proprietary and Confidential

# BEING ACTIVE - A WAY OF LIFE

- F.I.T.T. principal of activity
  - Frequency
  - Intensity
  - Time
  - Type



Applies to both Aerobic, Resistance, and Flexibility Training

- F.I.T.T. principal of activity
  - **Frequency - How often**
  - Intensity **Aerobic-3-7 days a week; additional days for weight maintenance.**
  - Time
  - Type **Flexibility-Most days of the week**  
**Resistance-2-3 days a week**  
More than 3 days a week you must split train, such as upper body one day and lower body other day

- F.I.T.T. principal of activity
  - Frequency
  - **Intensity-How hard should you work?**
  - Time      **Aerobic-RPE -Somewhat hard intensity or**
  - Type      **60-85 % Max Heart Rate.**

**Flexibility**-Go slightly past first resistance barrier and hold.

**Resistance**-Momentary muscular fatigue; good repetition scheme is between 8-12 reps.



# - Intensity-How hard should you work aerobically?

## Heart Rate Range 60-85% of Max

First of all determine your max heart rate.

You can estimate via the following equation.

Women: Max heart rate= $((206-(age \times .88))$

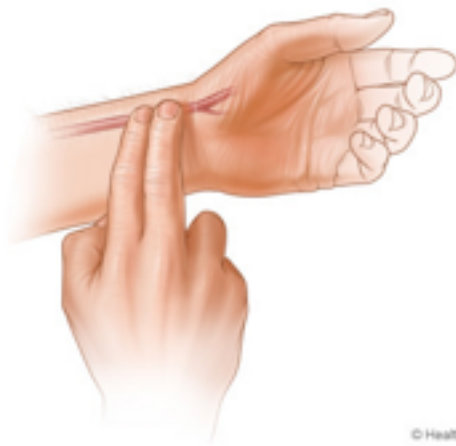
Men: Max heart rate= $((207-(age \times .7))$

or Old Equation

Max heart rate= $(220-age)$

*There is a large degree of error associated with these equations.  $\pm 20$  beat per minute.*

Then multiply that number by **.60 and .85** to get a target heart rate range for your exercise effort. **40 yr. old 108-143**



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## Using a RPE Chart

A great way to judge exercise intensity is through the Rating of Perceived Exertion (RPE) scale.

This scale is purely subjective: it is based on how you feel during physical activity.

- 6
- 7 VERY, VERY LIGHT
- 8
- 9 VERY LIGHT
- 10
- 11 FAIRLY LIGHT
- 12
- 13 SOMEWHAT HARD**
- 14
- 15 HARD
- 16
- 17 VERY HARD
- 18
- 19 VERY, VERY HARD
- 20 MAXIMAL

## Using the Talk Test

A simple way to know you are running/exercising at the right pace is by taking the "Talk Test". If you can talk while you moving, you are at the right pace. If you find that you are gasping for air, slow down.

Proprietary and Confidential

- F.I.T.T. principal of activity
  - Frequency - How often
  - Intensity **Aerobic**-20-60 minutes; great if you can get 30 minutes. Can be split sessions.
  - **Time**
  - Type **Flexibility**-Hold each stretch for 30 seconds.  
  
**Resistance**-1-3 sets per exercise; work all the major muscle groups which corresponds to 8 or more exercises. Sessions should be 30 minutes, but not more than 60 minutes in length.



- F.I.T.T. principal of activity
  - Frequency - How often
  - Intensity
  - Time
  - **Type**

**Aerobic**-Walk, Bike, Jog, Run, Exercise classes, Elliptical, Swim, and certain Sports. Cross train for fun and to avoid injury.

**Flexibility**-Static or dynamic, not ballistic. Yoga or general fitness and rehab stretches.

**Resistance**-Free weights, hand weights, bands, selectorized machines, resistance bands, and body weight edxercises.

# Aerobic Exercise

**Running is High Impact  
2-3 x our body weight when  
you land**

**Great calorie burner**

**Great cardio developer**

**But not for everyone**

# Calories Expended through Running

Thanks to the Syracuse researchers, we now know the relative Net Calories Burnt of running a mile in 9:30 versus walking the same mile in 19:00. Their male subjects **burned 105 calories running, 52 walking; the women, 91 and 43.** That is, running burns twice as many net calories per mile as walking. And since you can run two miles in the time it takes to walk one mile, running burns four times as many net calories per hour as walking.

What's the Burn? A Calorie Calculator

Your Total Calorie Burn/Mile

Your Net Calorie Burn/Mile

Running

.75 x your weight (in lbs.)

.63 x your weight

Walking

.53 x your weight

.30 x your weight

Adapted from "Energy Expenditure of Walking and Running," Medicine & Science in Sport & Exercise, Cameron et al, Dec. 2004.

The walking formulas apply to speeds of 3 to 4 mph. **At 5 mph and faster, walking burns as much or more calories than running.**

# Power Walking

**Power walking** or **speed walking** is the act of walking with a speed at the upper end of the natural range for the walking gait typically 4.5 to 5.5 mph. To qualify as power walking as opposed to jogging or running, at least one foot must be in contact with the ground at all times.

Power walking has been increasingly recommended as an alternative to jogging. **Similar aerobic capacity benefits as jogging.** At the upper range walking takes over jogging in terms of burning more calories, and the walking gait gives significantly less impact to the joints.

An exaggerated arm swing is often used.

# Elliptical training

Unlike running or jogging, this form of exercise may provide a high-intensity workout with low-impact forces comparable to walking and running.

Similar benefits to running.

The elliptical is great if you have an injury or chronic knee pain, back pain, or arthritis. In general, exercises which involve keeping your feet connected to a pedal are called closed chain kinetic exercises (as opposed to open chain which would be running, swimming, etc.).

**METS**=metabolic equivalent, 1 MET is the metabolic requirements at rest, while 3 METS is 3x the metabolic work at rest, such as walking).

### **ACTIVITIES METS**

REST 1.0  
BILLIARDS 2.5  
FISHING 2-4  
BOWLING 2-4  
TABLE TENNIS 3-5  
WALKING 3-6  
EXERCISE BIKE ( LOW LEVELS ) 3-6  
VOLLEYBALL 3-6  
LIGHT CONDITIONING EXERCISE 4-6  
HANDBALL 3-7  
DANCING ( SOCIAL ) 4-7  
SKIING ( WATER ) 5-7  
SKIING ( DOWNHILL ) 5-8  
BASKETBALL ( NON GAME ) 3-9  
TENNIS 4-9  
STAIR CLIMBING 4-8  
SWIMMING 4-8

### **ACTIVITIES METS (continued)**

AEROBIC DANCE 6-9  
CLIMBING HILLS 5-10  
HEAVY CONDITIONING EXERCISE 6-8  
EXERCISE BIKE 6-12  
SOCCER 6-12  
SKIING ( CROSS COUNTRY ) 6-12  
BASKETBALL ( GAME ) 7-12  
SQUASH/RACQUETBALL 8-12  
SNOW SHOEING 8-14  
**ROPE JUMPING ( 60-80 SKIPS/MIN ) 9**  
RUNNING ( 12 MIN MILE ) 8.7  
RUNNING ( 11 MIN MILE ) 9.4  
RUNNING ( 10 MIN MILE ) 10.2  
RUNNING ( 9 MIN MILE ) 11.2  
RUNNING ( 8 MIN MILE ) 12.5  
RUNNING ( 7 MIN MILE ) 14.1

# Calories expended in 1 hour - 130 pound person

Walking 3.0 mph, moderate	195
Walking 3.5 mph, brisk pace	224
Walking 4.5 mph	372
Walking 5.0 mph	<b>472</b>
Running, 5 mph (12 minute mile)	<b>472</b>
Running, 8 mph (7.5 min mile)	<b>797</b>
Stationary cycling, light	325
Elliptical	<b>476</b>
Swimming laps, freestyle, fast	<b>590</b>
Swimming laps, freestyle, slow	413



# Resistance Exercise

# Resistance Training Principles

- The **same principles apply to most all programs**, from a novice exerciser to an experienced bodybuilder.
- Perform 10-12 reps (repetitions) each set in most cases. A 10-12 rep scheme is good approach when a person is looking for general fitness, tone, strength, and hypertrophy (muscle growth) development. Perform additional reps if you're looking for muscular endurance gains. Perform 6 to 8 reps if you're looking for strength gains. All in all the 10 to 12 rep scheme should be used in most cases.
- If novice one set of **10-12** reps is sufficient, for others resistance sessions should follow a standard approach, where the weight stays the same through multiple sets. Pyramid style where the weight goes up or down can be used by more experienced exercisers.
- Allow a **30-60 second rest** between sets (as improvement occurs rest periods can decrease). Always allow more rest if needed. **Days off between sessions.**
- When you can perform suggested reps easily, usually 10-12, on your last set increase the weight by 5-10 lbs. or 5%.
- After several weeks of training increase set number on the exercises which work the body parts in most need of development.
- After a few sessions of conditioning substitute or add exercises.
- **Stress quality over quantity.**
- **Proper breathing** is essential either expire on concentric actions (working against gravity) and inspiration on eccentric actions (working with gravity) or steady breathing throughout, no Val Salva maneuver (breath holding).
- Eccentric actions should be performed slowly with a 2-3 count. Concentric actions (contracting, raising) should be performed in a slightly faster fashion than the eccentric action with a 1-2 count.
- Only train the muscles that are intended to be trained, focus on the muscles, in other words don't use jerking motions or **momentum** causing swinging motions.
- Always use **good posture and low back and knee mechanics.**



BMS-Each station plus some core.



**Bio-**

**Markers**

# Understand your situation.

You need to understand your situation;  
where do you stand.

Many you can do yourself.

Blood pressure

Body weight

Resting heart rate

Waist circumference

Abdomen skinfold

VO2 capacity-aerobic fitness

Strength

Balance

Flexibility

Core stability

**Check your Blood Pressure**  
**Silent Killer**  
**Easily measured**

**77% of Americans treated for first stroke have  
blood pressure over 140/90**

**69% of Americans treated for first heart attack  
have blood pressure over 140/90**

**74% of Americans with congestive heart failure  
have blood pressure over 140/90**

<b>Category</b>	<b>Systolic (top number)</b>		<b>Diastolic (bottom number)</b>
Normal	Less than 120	<i>And</i>	Less than 80
Prehypertension	120–139	<i>Or</i>	80–89
High blood pressure			
Stage 1	140–159	<i>Or</i>	90–99
Stage 2	160 or higher	<i>Or</i>	100 or higher



## Complications of High Blood Pressure

When blood pressure stays high over time, it can damage the body. HBP can cause:

- The heart to get larger or weaker, which may lead to heart failure. Heart failure is a condition in which the heart can't pump enough blood to meet the body's needs.
- Aneurysms (AN-u-risms) to form in blood vessels. An aneurysm is an abnormal bulge in the wall of an artery. Common spots for aneurysms are the main artery that carries blood from the heart to the body; the arteries in the brain, legs, and intestines; and the artery leading to the spleen.
- Blood vessels in the kidney to narrow. This may cause kidney failure.
- Arteries throughout the body to narrow in some places, which limits blood flow (especially to the heart, brain, kidneys, and legs). This can cause a heart attack, stroke, kidney failure, or amputation of part of the leg.
- Blood vessels in the eyes to burst or bleed. This may lead to vision changes or blindness.

Lowering your blood pressure can pay off in significant reductions in your risk of strokes and heart attacks, regardless of your age and even if your readings are already in the **normal range.**

# Check Your Weight

## Excess Weight

Overweight and obesity lead to serious health consequences including coronary artery disease, stroke, type-2 diabetes, heart failure, dyslipidemia, hypertension, reproductive and gastrointestinal cancers, gallstones, fatty liver disease, osteoarthritis and sleep apnea (*Padwal et al 2003*).

Beneficial health effects of modest weight loss-modest weight loss can show significant health benefits.

The good news is that no matter what your weight loss goal is, even a modest weight loss, such as 5 to 10 percent of your total body weight, is likely to produce health benefits, such as improvements in blood pressure, blood cholesterol, and blood sugars. Modest weight reduction also appeared to increase longevity in obese individuals.

## Check your Waist Circumference

Pinch an inch. If you can pinch an inch at your belly, you are at increased risk for Metabolic Syndrome.

Belly Fat is one of the primary risk factors for Metabolic Syndrome

### Risk Stratification / Waist Circumference Inches

	Men	Women
Very Low	< 31.5	< 28.5
Low	31.5-39	28.5-35
High	39.5-47	35.5-43
Very High	>47	>43

## **Good and bad News on Belly Fat**

Baseline serum glucose, cholesterol, triglyceride, uric acid and blood pressure levels are usually higher in the upper body than is the case in peripheral obesity, and tend to decrease more in response to moderate weight loss.

*Nutr Metab Cardiovasc Dis.* 2001 Dec;11(6):  
401-6.

*Benefits of sustained moderate weight loss in obesity.*

## Check your VO2 Max

Research suggest that a VO2 max score below the 20 th percentile for age and sex, which is often indicative of a sedentary lifestyle, is associated with an increased risk of death from all causes. People should aspire to increase their scores above the 20 th percentile.

### Men

**Age 40-49 VO2 max score 34.6 ml/kg/min**

***17 minute mile or 3.5 mph mile @ somewhat hard intensity***

### Women

**Age 50-59 VO2 max score 25.1 ml/kg/min**

***18 minute mile or 3.3 mph mile @ somewhat hard intensity***



## Check your Strength Grip Strength

The grip strength test measures the muscular strength of your upper extremities. There is a strong correlation between grip strength and overall upper body strength. Strength training is an important component of a physical fitness program. *CONCLUSION: In older **people**, handgrip **strength** was a powerful predictor of cause-specific and total mortality.*



# Check Your Balance

## Stand on one foot to test your Balance

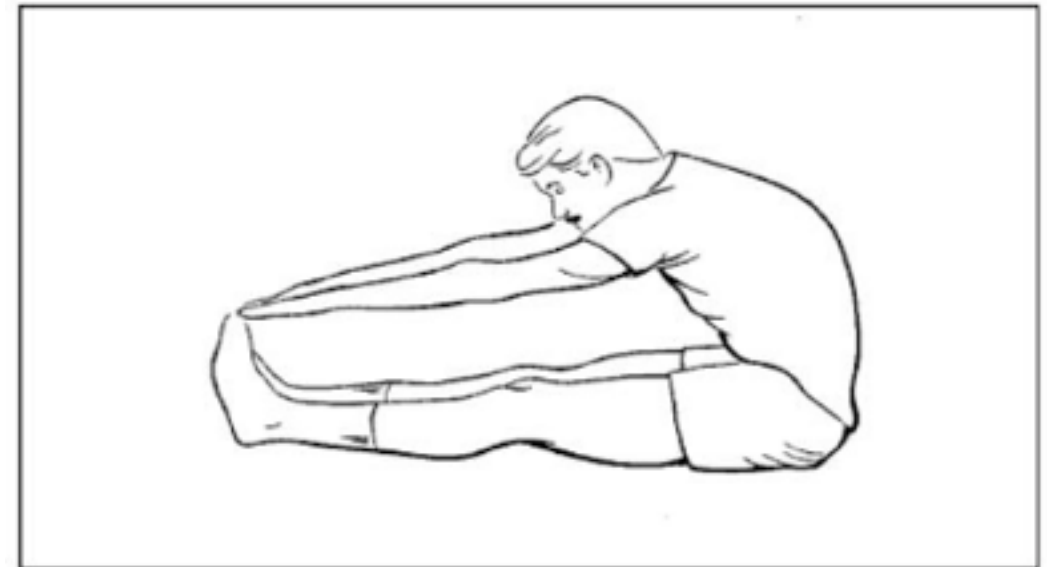
According to the National Institute on Aging, 300,000 hospital admissions per year are due to hip fractures from a fall. Recovery from a fracture or fall is stressful and gets harder as you age. Maintaining your balance can help reduce your risk of falls and keep you independent. Perform balance exercises daily. You should be able to stand on one foot for **60 seconds**.



## Sit and Reach

# Check Your Flexibility

Sit on the floor with your legs stretched straight out in front of you, toes pointing up. Reach forward from the hips. Are you flexible enough to touch your toes? If so, then your cardiac arteries probably are also flexible. What researchers have found is a clear correlation between inflexible bodies and inflexible arteries in subjects older than 40. ***Adults with poor results on the sit-and-reach test also tended to have relatively high readings of arterial stiffness.***



\*

# Check Your Core Ability



**Side bridges-good  
= 45 secs hold\*  
\* Do both sides  
and compare. A  
difference  
between right  
and left time is  
an indicator of  
low back  
imbalance, which  
may lead to a  
disorder**



# ***Self Fitness Test Take it....***





## So how do we change behavior?

It is important to know that behavior can be changed.

- First, and most important, ask yourself - Do I really want to change the behavior? And if so, why?
- Do I think I can do this? What can I do? Some people need to set small goals.
- Do I have past experience with change? What have I done before and what can I learn from it?
- What was hard about this experience and what were the barriers to success?
- What was helpful (resources) and made the attempt easier?



**AMERICAN COLLEGE  
of SPORTS MEDICINE®**

## **What does the ACSM say?**

The American College of Sports Medicine (ACSM) is the largest sports medicine and exercise science organization in the world. More than 45,000 international, national and regional members and certified professionals are dedicated to advancing and integrating scientific research to provide educational and practical applications of exercise science and sports medicine.



# ACSM Exercise Goals

## Cardiorespiratory Exercise

- Adults should get at least **150** minutes of moderate-intensity exercise per week.
- Exercise recommendations can be met through **30-60** minutes of moderate-intensity exercise (five days per week) or **20-60** minutes of vigorous-intensity exercise (three days per week).

## Resistance Exercise

- Adults should train each major muscle group **two or three** days each week using a variety of exercises and equipment.
- Very light or light intensity is best for older persons or previously sedentary adults starting exercise.
- **Two to four sets** of each exercise will help adults improve strength and power.
- For each exercise, **8-12** repetitions improve strength and power, 10-15 repetitions improve strength in middle-age and older persons starting exercise, and 15-20 repetitions improve muscular endurance.

## Flexibility Exercise

- Adults should do flexibility exercises at least **two or three days** each week to improve range of motion.
- Each stretch should be held for **10-30** seconds to the point of tightness or slight discomfort.

## Neuromotor Exercise

- Neuromotor exercise (sometimes called “functional fitness training”) is recommended for two or three days per week.
- Motor skills (**balance, agility, coordination and gait**), proprioceptive exercise training and multifaceted activities (tai ji and yoga) to improve physical function and prevent falls in older adults.
- 20-30 minutes per day is appropriate for neuromotor exercise.

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## Exercise basics that you should follow.

### 1. Regularity

In order to improve your fitness level, you need to exercise regularly.

### 2. Progression

Increasing the amount of time you exercise and the intensity of your program will allow you to advance your fitness level.

### 3. Balance

It is important to work your muscles in a manner that is balanced and does not overuse one group while ignoring another.

### 4. Variety

Lack of motivation is the single biggest reason why people stop exercising. Adding variety to your program will help keep you from getting bored.

### 5. Specificity

If you are training for a particular purpose, specificity is important. For example, studies show that soldiers who regularly run will perform better on the 2-mile-run test than soldiers who swim. While both running and swimming can improve aerobic fitness levels, the specificity of training will help soldiers who run perform better during testing (and on the battlefield).

### 6. Recovery - **No Pain, No Gain is wrong**

After a hard day of training a certain muscle group, either complete rest of those muscles or an easier training day should follow this in order to permit recovery.

### 7. Overload

The work load of the exercise must exceed the normal demands you place on your body in order for you to improve your fitness level and achieve a training effect.

**Making lifestyle changes can be hard.**

**Start by making one healthy lifestyle change and then adopt others.**

**If you combine healthy lifestyle habits, you can achieve even better results than taking single steps.**

# Extreme Conditioning can be Harmful

Phidippides cardiomyopathy," a condition caused by chronic excessive endurance exercise.

Recent research suggests that chronic training for, and competing in, extreme endurance exercise such as marathons, iron man distance triathlons, and very long distance bicycle races may cause structural changes to the heart and large arteries, leading to myocardial injury.

**12%** of apparently healthy marathon runners showed evidence for patchy myocardial scarring, and the coronary heart disease event rate.

Endurance sports such as ultramarathon running or professional cycling have been associated with as much as a **5-fold increase in the prevalence of atrial fibrillation.**

Chronic excessive sustained exercise may also be associated with coronary artery calcification, diastolic dysfunction, and large-artery wall stiffening.



“Physical exercise, though not a drug, possesses many traits of a powerful pharmacologic agent. A routine of daily physical activity can be highly effective for prevention and treatment of many diseases, including coronary heart disease, hypertension, heart failure, and obesity,” says lead author James H. O’Keefe, MD, of Saint Luke’s Hospital of Kansas City, MO. “However, as with any pharmacologic agent, **a safe upper dose limit potentially exists, beyond which the adverse effects of physical exercise, such as musculoskeletal trauma and cardiovascular stress, may outweigh its benefits.**”

O’Keefe stresses that the report does not detract from the importance of physical exercise. “Physically active people are much healthier than their sedentary counterparts. Exercise is one of the most important things you need to do on a daily basis,” he explains. “But what this paper points out is that a lot of people do not understand that the lion’s share of health benefits accrue at a relatively modest level. Extreme exercise is not really conducive to great cardiovascular health. Beyond 30-60 minutes per day, you reach a point of diminishing returns.

# Ideas to Become Active at Work!

- If your job requires you to sit all day:
  - Take frequent **breaks** to move around and stretch
  - Try **chair dips** and **chair squats**
  - Keep **exercise tubing** at your desk
- Sample Desk Workout
- Inquire about onsite Fitness Center/Programs



# Other Tips for Fitting in Fitness

- View **chores** like lawn mowing and vacuuming as opportunities to exercise
- Kids play sports? Use their **practice time** to walk or jog around a field
- **Pace** when you talk on the phone
- When cooking (and waiting for things to boil) try doing a few **squats and walking lunges**
- Start a **walking club** at work during your lunch time

# MOVEMENT TRACKER

- Set daily, weekly, monthly goals
- Start slow
  - Walk 10 minutes a day the first week
  - Increase intensity and duration weekly

# Movement Tracker

## (Minimum 150 minutes of movement/week)

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
week 1							
week 2							
week 3							
week 4							
week 5							
week 6							
week 7							
week 8							
week 9							
week 10							
week 11							
week 12							

# STAY MOTIVATED

- Praise the goals reached
- Plan future goals
- Keep visible signs of progress
- Track weight and activity
- Add variety
- Workout buddy
- A referee - Your Way to Living Life Better

# Common Questions?

Proprietary and Confidential

Researchers found that a 50- minute session of Hatha yoga burns **144 calories**, equivalent to a slow walk, and provides no substantial aerobic benefit. As for Power yoga, it burns about **237 calories** in 50 minutes and boosts heart rates to 62 percent of heart rate max providing just a mild aerobic workout. “It is a great muscular workout and you certainly sweat, but it’s not an aerobic workout.”

Sure, Hatha yoga will improve your strength, but you’ll get much stronger, more quickly, by simply lifting weights. As for a cardiovascular workout, yoga isn’t the answer for that either. In fact, you’d have to jog or cycle to the yoga studio if you’re looking to improve your cardio fitness level.

That said, the researchers stress that Hatha yoga is still an excellent addition to any fitness routine, particularly because it targets those aspects of fitness— flexibility, balance and relaxation— that are most often skipped or over- looked

Does Yoga Really  
Do the Body Good?



## **If I only have time for one thing should I do aerobics or lift weights?**

And the answer is . . . both, plus working a little bit on your flexibility. There are four basic types of exercises, although they go by many names and sometimes seem confusing. They are exercises to improve:

1. Strength
2. Cardiovascular fitness
3. Flexibility
4. Coordination and balance

## **What's the best type of aerobic exercise?**

First of all, aerobic exercise has many synonyms including cardiovascular, cardiorespiratory, and endurance exercise. Aerobic exercises involves using your larger muscles for a sustained period of time--usually at least 5-10 minutes.

Second, we need to differentiate between the types of aerobic exercise, which exercise professionals sometimes call modes. These modalities are classified as

Type 1 (which require little skill and can be maintained at a constant intensity like walking, jogging, cycling, and elliptical training),

Type 2 (as with Type 1 can be maintained at a constant intensity but requires skill like swimming, in line skating, and aerobic dancing), and

Type 3 (requiring a great deal of skill and have a high degree of exercise variability, like basketball, western dancing, and raquet sports).

The primary goal of most people who exercise is to develop their cardiovascular system and to burn calories. Type 1 and 2 activities can achieve both through large muscles groups being moved in a continuous, rhythmical fashion. Choose Type 3 activities as a supplement to Type 1 and 2 after you have built up your cardiovascular system for fun and variety as long as you are orthopedically sound.

## What is the best aerobic intensity that burns fat?

You burn fat all day long, when at rest your body's number one fuel source is from stored body fat.

While it is true that a higher proportion of calories burned during low-intensity exercise come from fat (upwards of 60 percent as opposed to a much lower percent percent from high-intensity programs), high-intensity exercise can still burn more calories from fat in the final analysis.

Example, if you perform 30 minutes of low-intensity aerobic exercise (50 percent of maximal exercise capacity), you'll burn approximately 200 calories where about 120 of those come from fat (60 percent). Exercising for the same amount of time at a high intensity (75 percent of your maximal exercise capacity) you may burn approximately 400 calories. Using a 35 percent fat utilization, 140 of the calories you've burned will have come from stored fat.

Another good reason for following a high-intensity aerobic exercise program is heightened metabolism for several hours after the activity. The body takes time to bring its metabolism to a resting level. Low-intensity exercise doesn't affect post-exercise metabolic rate to any great degree. *It is sometimes called the after glow.*

*Consider your health status though when considering higher intensity aerobic exercise due to the risk of orthopedic injury.*

*Also there is some suggestion that people drop out of high intensity training programs more so than low intensity programs.*

## **Does the Curves fitness franchises work?**

Bottomline, take a brisk walk for 20-30 minutes.

A study suggest that Curves is a moderately intense exercise program, equivalent to walking at 3.2-4 mph.

The total 30-minute Curves workout burns an average of 184 calories, while the 25-minute circuit alone burns 163 calories.

Cardiovascular improvements are low and strength improvements are similar to doing a simple home program.

## Despite regular exercise, I look the same; why is that?

- 1. You may not be exercising for a long enough period of time.** Your muscles change (strengthen) with stress. While you don't want to overstress them, if you do too little, they won't be stressed enough to change much at all. Since the heart is a muscle, this pertains to cardiovascular fitness as well as other muscular fitness. Keep in mind that the harder it is for you to do something, the more calories you will burn. This in turn accelerates weight loss.
- 2. You may not be doing enough strength training.** Aerobic exercise is great for cardiovascular fitness and can help you lose weight, but to look tone and fit, strength training is important.
- 3. You may need to vary your exercise regimen (cross-train)** in order to make sure your entire body gets in shape. If you do the same thing over and over, then you'll burn fewer calories because you'll improve your efficiency and also you will work some muscles more than others.
- 4. Be realistic, don't go by the movies or magazines.**
- 5. Remember 70% is diet.**

## Since my heart rate soars when I weight train should I not do aerobic exercise?

The heart rate response to ultra slow training is higher than a typical bout of resistance training. Some therefore suggest that you do not need to perform any cardiovascular conditioning.

Apparently, the authors of this form of training neglected to pay attention when they hopefully took a rudimentary exercise physiology course. The effects of resistance training on the heart is different from traditional sustained, rhythmical aerobic exercises. The somewhat static nature of the motion during resistance training causes the muscle being worked to be tightened around the arteries to almost a point of occlusion raising blood pressure to heightened levels. Brachial arterial pressures of 400 mm HG have been found in athletes performing heavy lifts. When this occurs, the heart pumps faster and harder to supply the occluded area and the rest of the body with blood. This is known as a **pressor response**, which is governed by the autonomic nervous system and occurs reflexively from the contraction of the skeletal muscles. It is increased more if there is a Valsalva maneuver performed (breath holding). The pressor response causes an increase in heart rate with a corresponding reduction in stroke volume (the amount of blood pumped per beat). As a result, even though heart rates are increased during resistance training, the oxygen uptake is not increased to the same degree as it is during aerobic conditioning. This minimizes the muscles metabolic overload limiting the aerobic training benefit that can occur as the result of resistance training.

## **When I exercise I sweat a lot does this mean Im out of shape?**

Men and women who are conditioned respond better to heat stress than sedentary people.

Trained people sweat sooner at lower body temperatures, they sweat more, and their sweat is more diluted.

Training actually changes the sweat glands and causes an increase in plasma volume that is essential in the production of sweat and for other cardiovascular and thermoregulation demands.

All of this allows a trained person to store less heat and therefore have a lower core temperature than an untrained person.

# Easy Home Program



# Side bridge



# Row



**10-15  
reps**

# Crunch



# Push Ups



# Squats



10-15  
reps

# Lunge





**10-15  
reps**

**Bridges**



## Lastly Simple Points on Exercise Summary

Walking is probably the best exercise, but there is no one superior aerobic exercise.

Try a variety of activities. Cross training is fun.

Try to work at a somewhat hard intensity, not too hard.



Don't work at such a low intensity that your not burning calories.

Achieving a high number of calories expended should be your goal.

A way to monitor the effort during aerobic exercise is the talk test.

This simple test says that if you are not able to carry on a conversation while exercising, you are pushing too hard and should slow down.