" Anyone who sits around idle and takes no exercise will be subject to physical discomfort and failing strength."

* Rabbi Moses Maimonides, 12th century scholar and physician

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CONFLICT OF INTEREST:

I have NO conflict of interest to declare.

EXERCISE –Pro's & Con's

How can family doctor improve compliance

Educational goal:

To familiarize the participants with:
The benefits, risks, recommendations, guidelines and monitoring of exercise.

Look at the strategies to improve the compliance with exercise.

To review some specific conditions:
Cardiac, diabetic, elderly, women, children.


Faites-le à votre rythme!

BENEFITS OF EXERCISE

- **- 25 chronic conditions**
- All-cause morbidity and mortality
- Cardiovascular health
- Diabetes mellitus, Obesity
- Psychological, Cognition
- Cancer prevention
- Prevention of falls

Canadian Physical Activity Guidelines development

International Journal of Behavioral Nutrition and Physical Activity **2010, 7:42 (11 May 2010)**

7 articles. This papers describe the process for developing guidelines for Canadian school-aged children and youth (5-17 years), adults (18-64 years) and older adults (≥65 years).

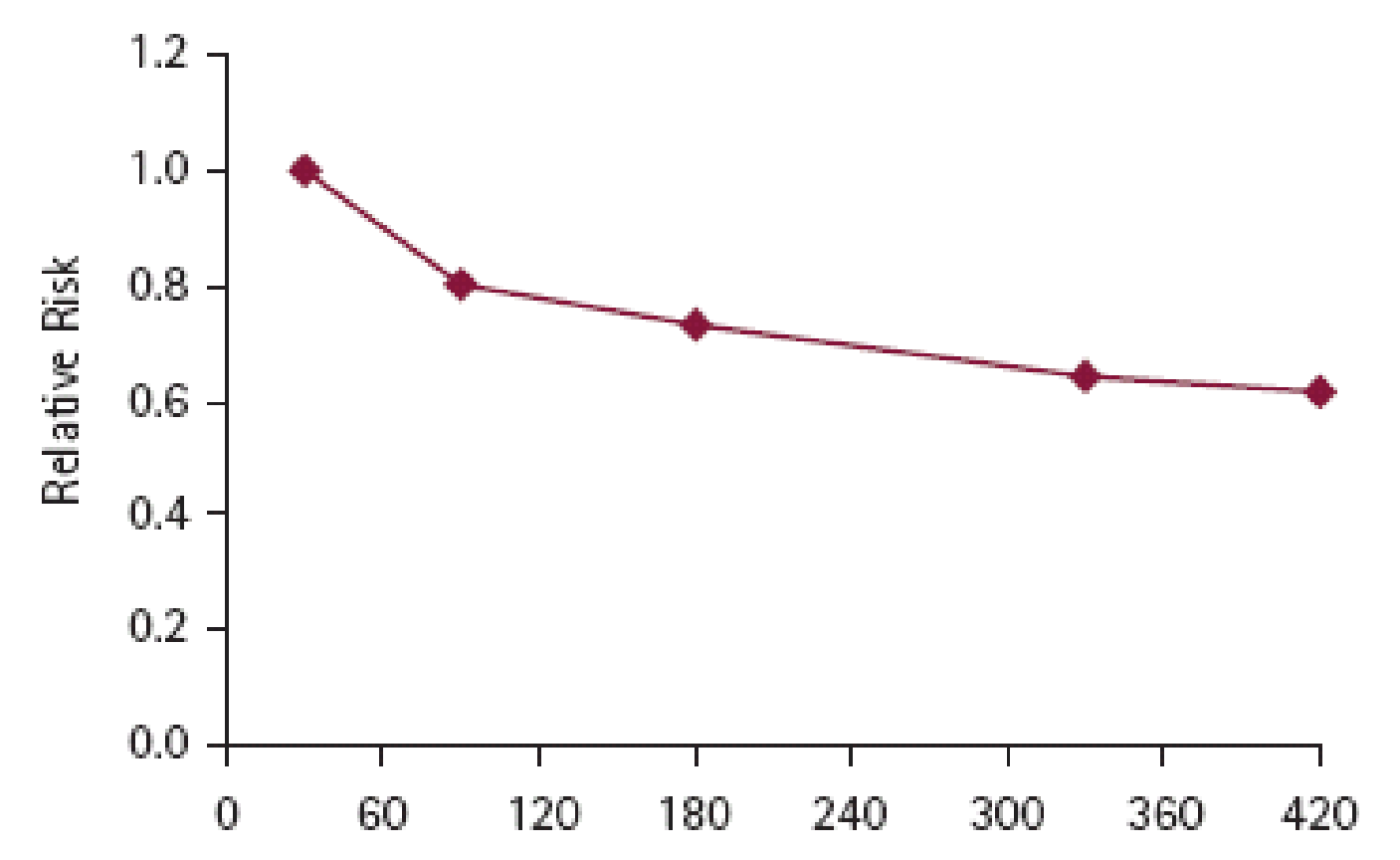
The Canadian Society for Exercise Physiology (CSEP

- Harmonization with other Canadian guideline initiatives
- Harmonize physical activity guidelines with developers from other countries and international organizations (i.e., United Kingdom, United States, World Health Organization, Australia).

Health benefits

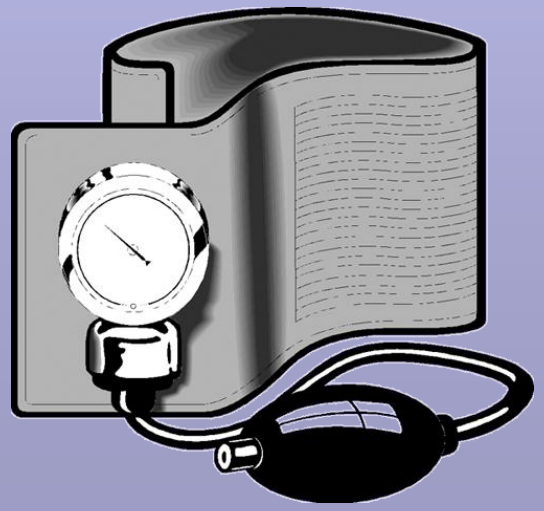
- 60 min/week - benefits start
- 150 min/week - most benefits
- 300 min/week - more benefits

All cause mortality declines with more physical activity

- 

CARDIOVASCULAR BENEFITS

- All CV disease incidence and mortality
- Coronary heart disease
- Multiple metabolic risk factors
- Lipids
- Hypertension
- Stroke



Psychological benefits

- Depression
- Anxiety, stress
- Well-being, self image
- Adjunct in alcohol and substance abuse

Complications and risks of exercise

BENEFITS FAR OUTWEIGH THE RISKS

Complications and risks of exercise

- Injuries
- Overuse syndromes
- Exhaustion, heat stroke, dehydration
- Hypoglycemia in diabetics
- Myocardial infarction irregular vigorous exercise
- Sudden death - rare

Adverse Events

- **Moderate-intensity physical activity**, such as brisk walking, has a **low risk** of such **adverse events.**

- **The risk of musculoskeletal injury** increases with the total amount of physical activity.. However, people who are physically active may have fewer injuries from other causes, such as motor vehicle collisions or work-related injuries.

- Participation in **contact or collision sports**, such as soccer or football, has a higher risk of injury than participation in non-contact physical activity, such as swimming or walking..

Adverse Events

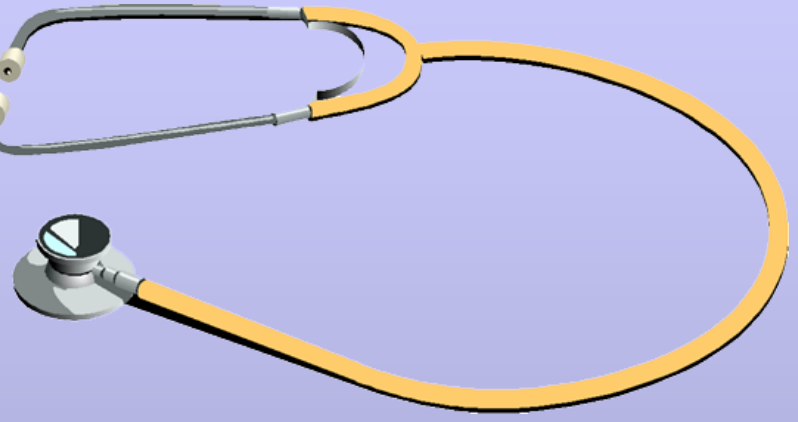
- **Cardiac events, such as a heart attack or sudden death** during physical activity, are **rare**. However, the risk of such cardiac events does increase when a person suddenly becomes much more active than usual. The greatest risk occurs when an adult who is usually inactive engages in **vigorous-intensity activity** (such as shovelling snow,. Competitive sports – hockey, tennis etc.)

MI and exercise

MI risk during heavy exertion:

- 2.4x increase in regular exercisers
- 60 - 107x increase in irregular exercisers
- Higher risk in diabetics and the difference not fully accounted for the lack of regular exercise

Sudden death



- In young
- Middle age and older

1 death / 50,000 participants
1 death / 215,000 hours of competition
1 death / 396,000 exercise hours
1 cardiac arrest / 4,800,000 exercise hours

Prevention of cardiac events

- Screening is generally poor. Presently under scrutiny.
- Teaching of cardiac symptoms typical and even less typical
- CAD patients should be encouraged to exercise
- But they should avoid vigorous exercise

Recommendations, Guidelines for Exercise

- TYPE
- FREQUENCY
- INTENSITY

3 Main kinds of exercise

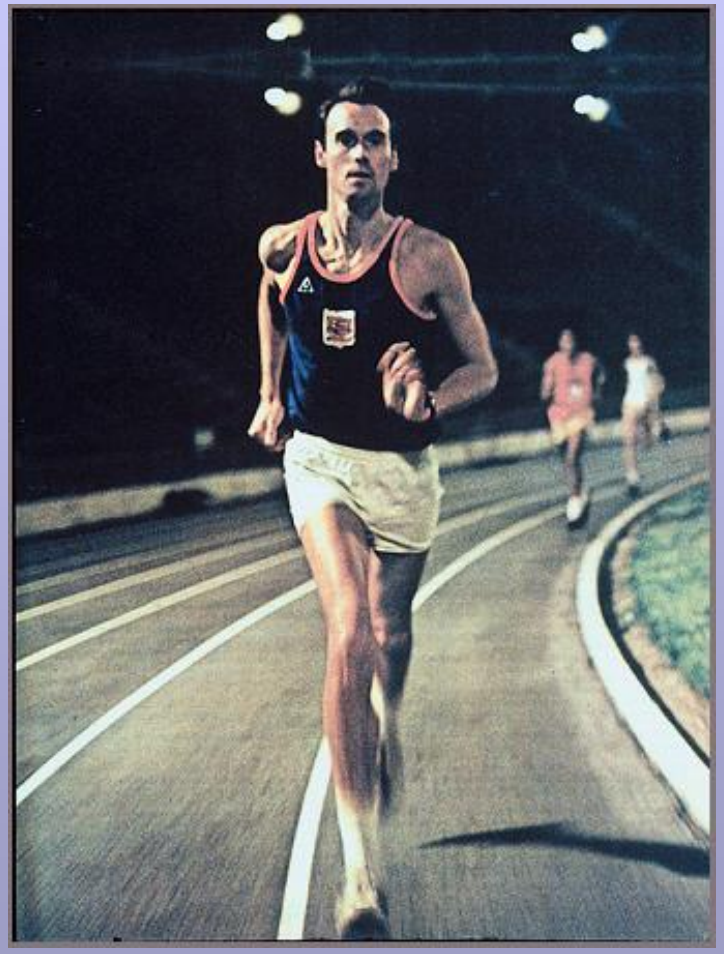
- Aerobic
- Muscle strengthening
- Bone strengthening*

- 2 other activity – Balance, Stretching

Type of exercise - aerobic

- Endurance – aerobic running, swimming, cycling, walking...

  All or most days of the week 30-60min/day



Type of exercise
Muscle Strengthening

- Lifting weights
- Working with resistance bands
- Push ups, sit ups
- Heavy gardening(digging, shoveling)
- Yoga

Bone strengthening

- Weight bearing exercises
- Start early – 30-40 % of bone mass is formed during the teen years.

STRETCHING

Controversy, individual approach.

- **NO prevention of injury of stretching immediately before exercise**. In general population, young, old, military.
  It decreases force by 2-5%.

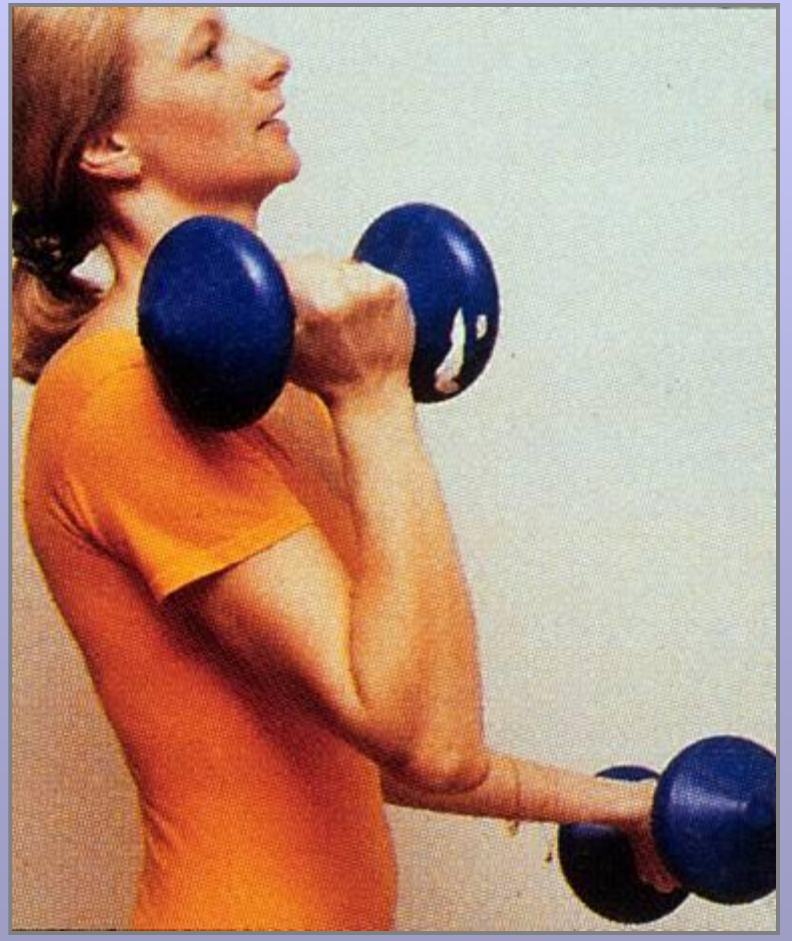
- **Regular stretching – benefits:** increases force, power, running speed.
  The improvements are mild 2-5%.
- Possible reduction of injury .

Type of exercise

•Muscle Strengthening– weights,
resistance exercises

2-4 times per week

•10-12 repetitions



- **Aerobic Exercise – cornerstone of prevention**
- Uses ***large muscle groups for a prolonged period of time***
- Brisk walking, jogging, running, swimming, cycling, rowing, cross-country skiing, dancing.
- Low weight bearing activities: swimming, rowing, aqua exercises.
- **Min 10 minutes, cumulative effect.**

Frequency of exercise

- All or most of the days of the week

  30 min/day of vigorous intensity or
  60min/day of moderate intensity
- Can be accumulated in 10 min. intervals

Intensity of exercise

- Moderate activity : brisk walking, cycling no hills, swimming, skating, dancing, tennis(doubles)…
- Vigorous activity : running, soccer, cycling(hills),basketball, hockey, tennis singles, competitive sports,.



Intensity of exercise

Evaluated by:

- Borg exertion scale
- Pulse
- VO_2 max

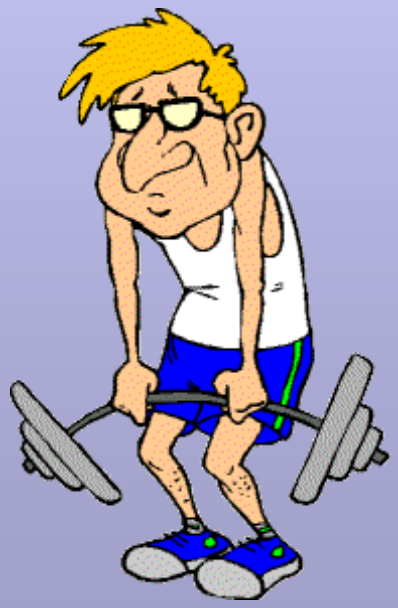
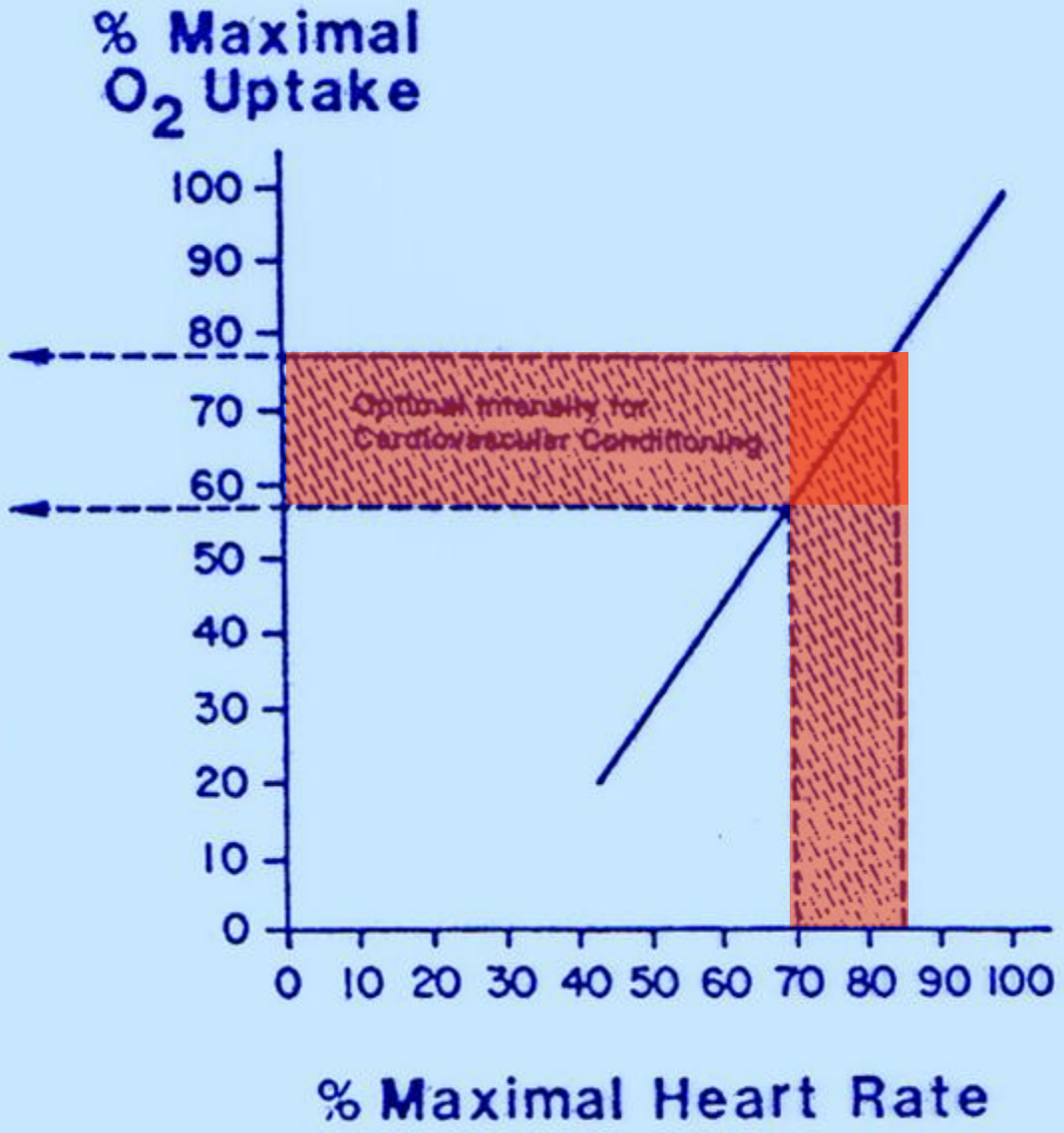


TABLE 6. Borg Scale of Perceived Exertion

Number	Exertion Level
6	
7	Very, very light
8	
9	Very light
10	
11	Light*
12	
13	Moderate
14	
15	Heavy†
16	
17	Very heavy
18	
19	Very, very heavy
20	

R.P.E.	
very, very hard	19
very hard	17
hard	15
somewhat hard	13
fairly light	11
very light	9
very, very light	7



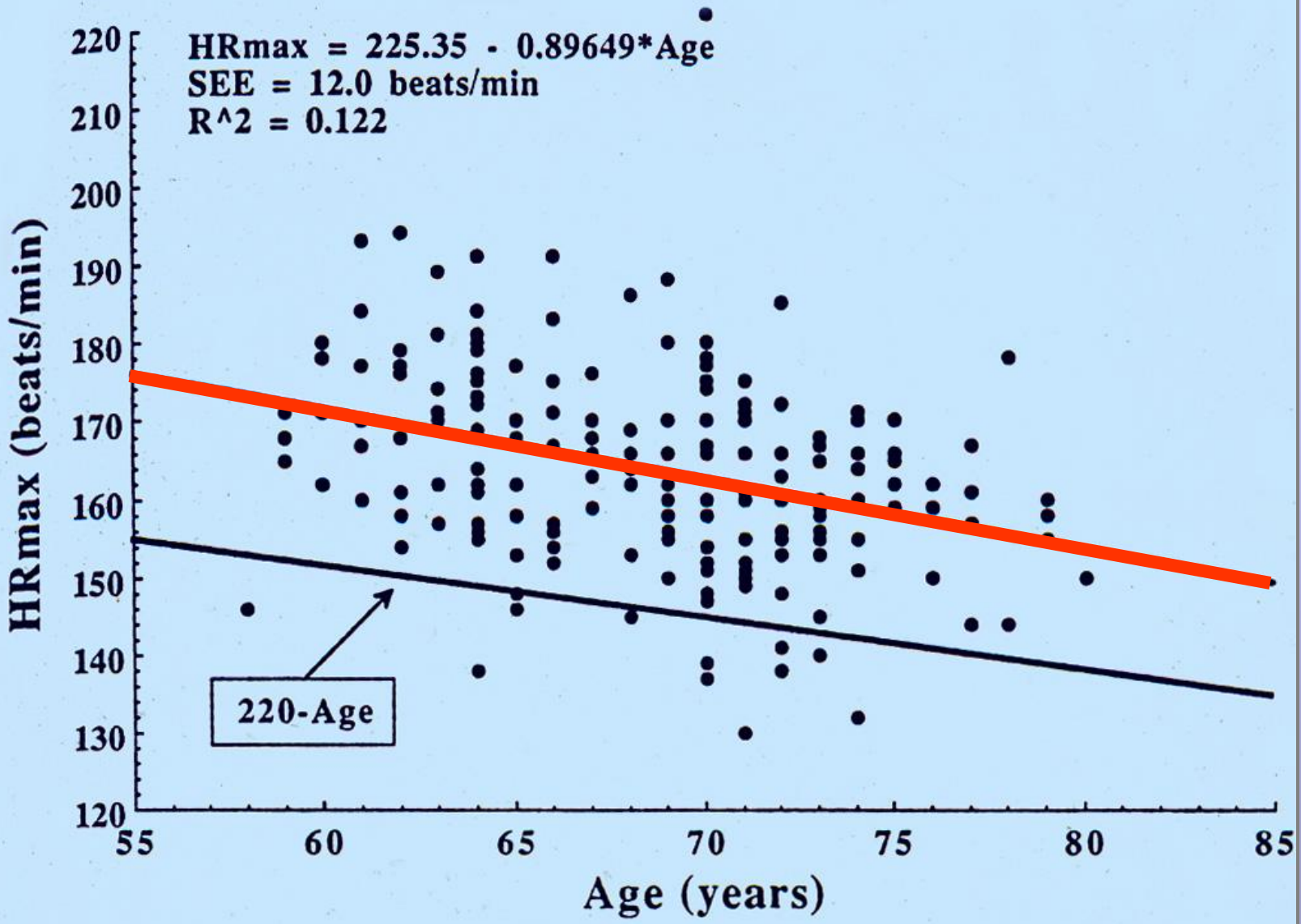
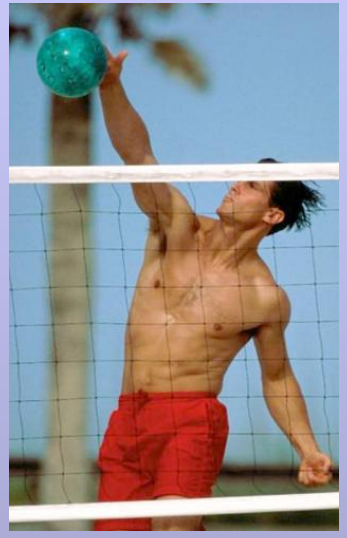


Figure 2. Relationship between age and HRmax.

Monitoring of exercise



- Talk test
- Pulse testing
- Perceived exertion of Borg scale
- Subjective feeling – weakness, chest pain, dizziness, sudden abdominal pain

General exercise Rx for diabetics

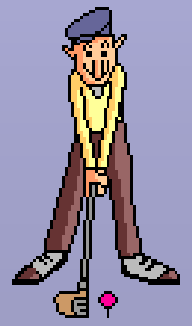
Except those with neuropathy, retinopathy and vascular disease hypertension and glucose out of control

Rx as for non diabetics:

Aerobic exercise 30-60 min most days of the week

moderate even high intensity if tolerated.

Strength training one set of 8-15 repetitions at least twice/week.



To avoid complications of exercise in DM

Patients with peripheral neuropathy:

Avoid: running, jogging and similar greater risk of soft tissue and joint injuries.

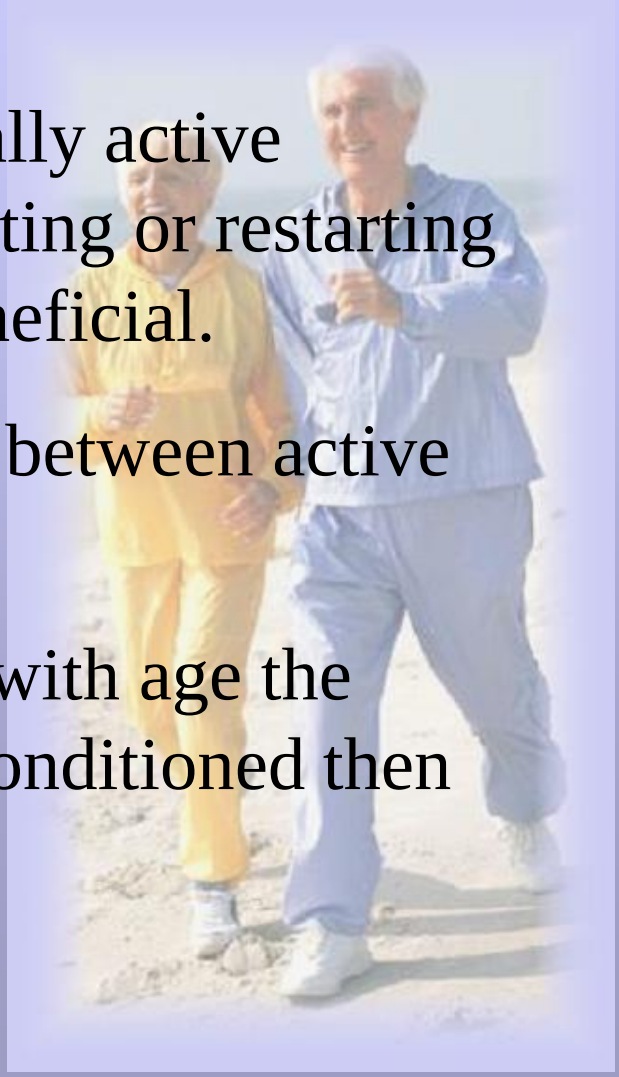
Unsafe: prolonged walking, jogging and step exercises.

Good exercises: non weight bearing exercises like swimming, cycling, rowing, chair exercises.

Monitor feet for blisters and other skin damage. Do not tie the shoelaces too tight!

Exercises in older patients

- Ideally, patients should be physically active throughout their life, however starting or restarting at an advanced age can still be beneficial.
- There is 20% difference in fitness between active and inactive at a given age
- Despite the physiological decline with age the active 60 year old may be better conditioned then inactive 40 year old.



Benefits of exercise in elderly

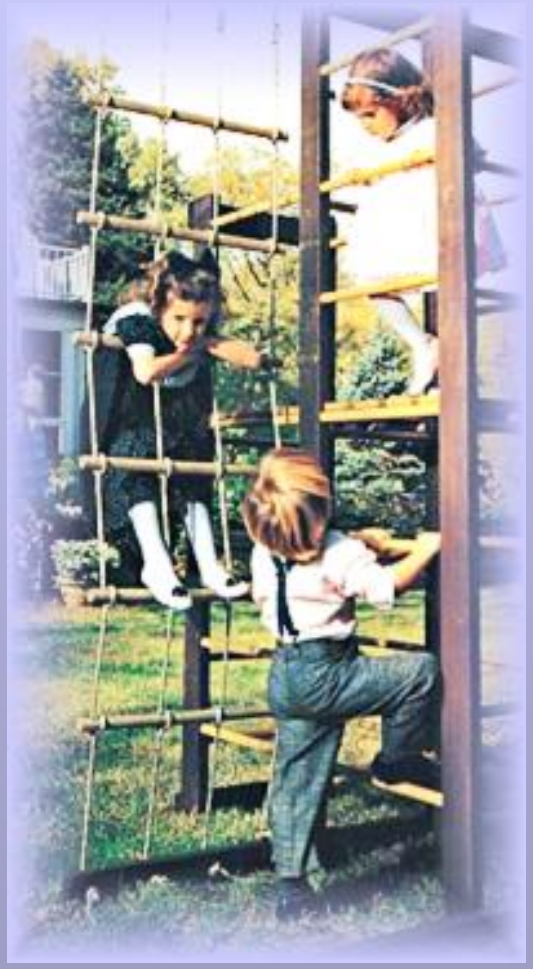
- Increased independence
- Reducing falls, improves balance
- Physical and mental well-being
- Arthritis
- General benefits – cardiovascular, diabetes, hypertension, weight control, some cancers

Complications and Risks of exercise in elderly

- Risks of falls and fractures especially in patients with osteoporosis
- Dehydration, impaired renal function
- Danger of MI especially in sedentary patients
- Sudden death rare, usually warning signs

Children and exercise

- To encourage increase activity see Health Canada
- Try to reduce “non active” TV, computer games
- Prevention of injuries



Young people & exercise

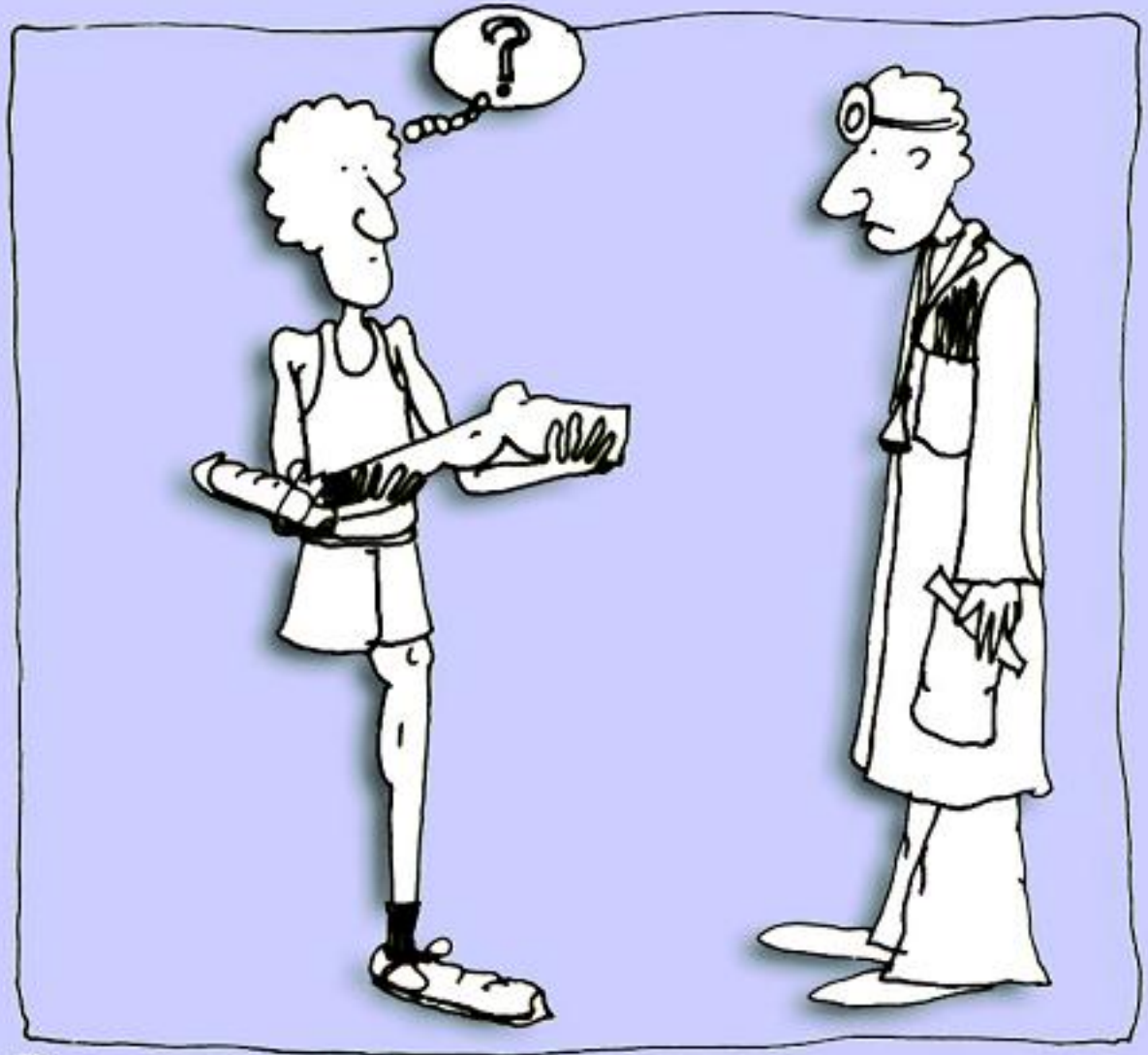
- Young people who are physically active are less likely to use:
- Tobacco
- Alcohol
- Drugs

Exercise recommendations for children

- 60-90 min/day most of the days
- Mainly aerobic activity, may be intermittent
- Moderate and vigorous activity
- Muscle and bone strengthening climbing – playground equipment,runnig, jumping, basketball, hopscotch…at least 3days/week.

Compliance issues

- Studies show it makes a difference
- Importance of written material
- “Green prescription”
- Knowledge of exercise and recommendations, pitfalls…



DON'T OVERDO IT. USE COMMON SENSE.

Thank You for your attention…

See you in the gym…

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