

PROMOTION OF PHYSICAL ACTIVITY

Hassandra Mary

AIMS

- ◉ To familiarize with the recommendations for designing, implementing, and evaluating physical activity programmes for diverse populations.



OVERVIEW

- ◉ 1. Form 2 groups
- ◉ 2. Choose a topic and prepare a project plan (e.g.: in paper notes)
- ◉ We will form groups according to setting levels
- ◉ If in the future you have to develop a project plan for physical activity promotion to which setting you think this might be needed?

...CONT.

Scenario...

- ◉ Lets hypothesize that you have submitted a general proposal (1st stage) aiming to promote physical activity and...



CONGRATULATIONS!!!

- ◉ Your submitted a proposal for developing a Physical activity promotion program has been approved!! (for funding and application).
- ◉ Please submit the detailed program for the final decision



What you think you need to include?

SCENARIO A - SCHOOL LEVEL

- A. Students of an elementary school in a big city center area have low PA levels. You are just appointed there as the head PE Teacher. Prepare a proposal for a program in school for physical activity promotion in and out of school.



SCENARIO B - WORKSITE LEVEL

- ◉ A famous Trade Company wants to develop a Worksite Wellness Program for Disease Prevention for the working staff of the central building offices (500 workers). Prepare a proposal for a physical activity promotion program.

SCENARIO C - HEALTH CARE

- You need to submit a proposal for physical activity promotion to a Health Care Center. The aim is to motivate patients who follow a quit smoking program to increase their everyday PA levels as an additional strategy to quit and manage cravings.



SCENARIO D - ORGANIZATION LEVEL

- You need to submit a proposal for physical activity promotion to women over 45 years old (Without Physical Limitations) for a unit - organization who promotes health to women.



SCENARIO E - COMMUNITY LEVEL

- You need to submit a proposal for physical activity promotion to a community level.
- The size of the community is about 100.000 people.



SCENARIO F - INDIVIDUAL LEVEL

- You are a counselor and you have a client that has been referred to you by a doctor who prescribed physical activity for health reasons. You need to develop a physical activity promotion program for him/her.
- Develop your program.



FORM GROUPS NOW

- ◉ Equal number of students in each group
- ◉ Suggestion: Form groups with mixed backgrounds



Physical Activity Epidemiology & Physical activity recommendations

Hassandra Mary, PhD.

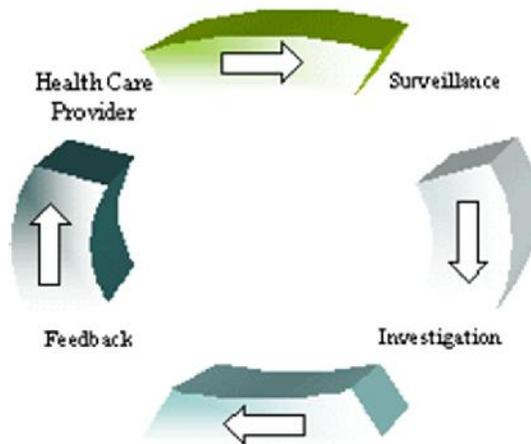
PHYSICAL ACTIVITY EPIDEMIOLOGY

Light and
moderate
physical
activity lowers
early death risk



DEFINITION - EPIDEMIOLOGY

- Epidemiology is the study of the distribution of disease and other health events in a population.
- Behavioural epidemiology is the observation and study of behaviours that lead to disease or premature death and of the distribution of these behaviours



(Dishman, Washburn & Heath, 2004)

DEFINITION - PHYSICAL ACTIVITY EPIDEMIOLOGY

- Physical activity has endured as an important part of hygiene in many cultures since antiquity.
- Physical activity epidemiology is a branch of behavioural epidemiology which composed of two main features:
 - Study of relationships between PA and physical inactivity and disease using the traditional methods of epidemiology
 - Study of the distribution and determinants of PA in a population.

SUMMARY OF PA EFFECTS ON HEALTH

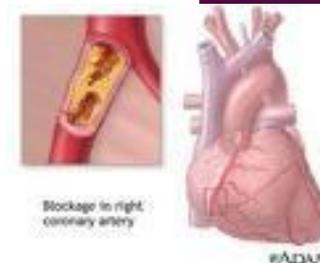
TABLE 3.5 SUMMARY OF EVIDENCE FOR DOSE-RESPONSE EFFECTS OF PHYSICAL ACTIVITY ON HEALTH

Health outcome	Strength of the evidence	Consensus conclusion
All-cause mortality	Moderate	Inverse and roughly linear reduction, with a threshold around 1,000 kcal/wk
Coronary heart and vascular disease	Moderate	Inverse and linear reduction in incidence and mortality
Blood pressure (normotensive and hypertensive participants)	Substantial to strong	Window of benefit: about 50%–70% of capacity; no apparent dose gradient
Blood lipids (+HDL-C; -LDL-C; -triglycerides)	Substantial	Window of benefit: about 50%–80% of capacity; no apparent dose gradient
Hemostatic factors (-platelet adhesion; -fibrinogen; +tPA)	Moderate to substantial	No evidence for dose response
Overweight and obesity	Strong	Linear reduction in weight in studies lasting 4 months or less with controlled diet; no dose response in studies lasting 6 months or more
Type 2 diabetes	Moderate	Inverse linear reduction
Osteoporosis	Substantial Strong	No evidence for peak bone mass No evidence for slowing bone loss after menopause
Cancer	Moderate	Inverse linear reduction for colon cancer
Depression	Moderate to substantial	No evidence for dose response

PHYSICAL ACTIVITY AND DISEASE MORTALITY



ALL CAUSE & CORONARY HEART DISEASE (CHD) MORTALITY



- ◉ Evidence: there is a protective effect of PA against CHD
- ◉ Reduced risks are independent of most other major risk factors
- ◉ The protective factor of PA operate also indirectly by positively affecting other biological risk factors (blood pressure, body weight, etc)
- ◉ There is a dose response relationship between PA and rates of CHD but the optimal protection dose remain controversial
- ◉ General rule: Something is better than nothing
- ◉ Experimental confirmation that Physical inactivity directly causes CHD will never be obtained because:
 - Cost of population based RCTis too great
 - Unethical to assign individuals to a sedentary control group

EVIDENCE...

- Cardiovascular disease: main cause of death in developed nations and third in developing (20% of all deaths worldwide)
- Physical inactivity accounts for 200.000 deaths from CHD, second only to the 440.000 deaths now attributed to tobacco use.
- There is an average 20%-30% reduction in mortality risk when people expend at least 1.000 Kcal a week in physical activity.
- Leisure time PA during middle age cuts the risk of CHD in half for both men and women.

CEREBROVASCULAR DISEASE AND STROKE

- ◉ There is a reduced risk of ischemic stroke in PA individuals regardless of age, sex and ethnicity, after adjustment for other risk factors
- ◉ PA measures often are not precise not allowing dose-response association
- ◉ Not clear classification of types of stroke and mechanisms by which PA might protect against ischemic, embolism or reduced perfusion





PHYSICAL ACTIVITY AND RISK FACTORS



PHYSICAL ACTIVITY AND HYPERTENSION



- ◉ Regular PA has potential for reducing or preventing mild hypertension
- ◉ Difficult to separate the independent effects of PA dietary and weight changes because hypertension, hyperlipidemia and obesity are intricately related to each other.
- ◉ The benefit of moderate PA appears sufficiently independent, consistent temporally logical and biologically plausible to support that PA represents an effective adjuvant in the prevention and treatment of hypertension

PHYSICAL ACTIVITY AND HYPERLIPIDEMIA

- Physical activity can help increase the HDL-C levels and decrease LDL-C and triglyceride levels, independent of age, sex and weight loss.
- Biological mechanisms are not fully understood



PHYSICAL ACTIVITY AND OBESITY

- People who are overweight or obese have increased risk of developing several diseases.
- Because PA is the most variable aspect of energy balance has great potential for helping people avoid becoming overweight & obese
- The effects of exercise can be similar to the effects of dieting on weight loss (reduction in caloric intake & increased PA)
- Regular PA reduce the primary and secondary risk of becoming overweight or obese



PHYSICAL ACTIVITY AND OBESITY

- Difficult to separate the independent effects of PA from those of dietary & weight changes
- Impossible to prevent fat loss during increased PA without increasing calorie intake
- **PA represents an effective adjuvant in the prevention & treatment of overweight & obesity**
- The ultimate goal is weight loss or risk reduction?
 - Moderate physical fitness is perhaps a more important health goal for overweight (but not obese)





PHYSICAL ACTIVITY AND CHRONIC DISEASES



PHYSICAL ACTIVITY & DIABETES

- ◉ Moderate PA is associated with a reduction in the risk of developing type 2 diabetes, independent of age, sex and ethnic groups; and biologically plausible.
- ◉ Not clear whether the effect of PA is independent of BMI, fat loss and diet
- ◉ Vigorous PA 2/3 times per week provides benefits in glucose control
- ◉ Benefits of improved insulin sensitivity with daily moderate PA can occur through fat weight loss.



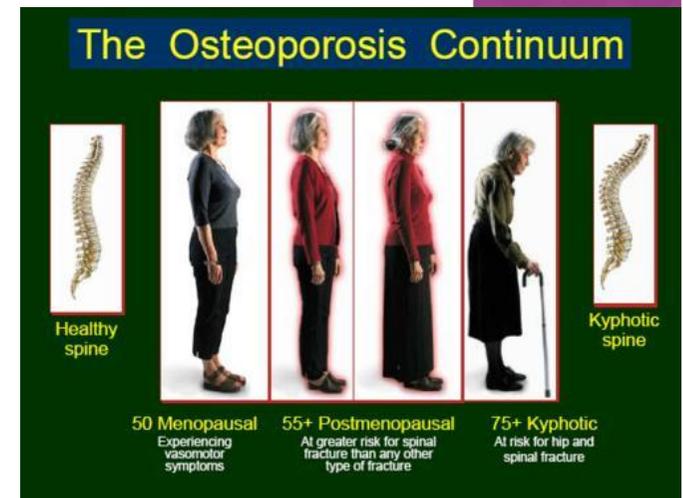
...and then a second instrument reads your blood sugar level.



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PHYSICAL ACTIVITY & OSTEOPOROSIS

- The prevention & treatment of osteoporosis and fractures should be directed at maximizing peak bone mass by:
 - Optimizing dietary calcium & Vit. D
 - Normal menstruation or sex hormones replacements
 - Using vigorous PA that involves high peak forces (resistance exercise)



PHYSICAL ACTIVITY CANCER AND IMMUNITY



PHYSICAL ACTIVITY AND CANCER

- ◉ The reduction in rates of colon cancer among PA people ranged from 20%-75%
- ◉ Reduction in breast cancer risk with increased PA (lack of explanation of the biological mechanisms)
- ◉ Evidence is inconclusive about the independent effect of PA against prostate cancer



FIT TO FIGHT

PHYSICAL ACTIVITY AND THE IMMUNE SYSTEM

- ◉ Moderate PA can have a positive influence on cancer survivors, increase fitness among HIV people, reduction in risk of upper respiratory infections
- ◉ In contrast, exhausting exercise & heavy endurance training associated with increased risk of infection
- ◉ More studies required to clarify the health implications of short & long term PA on overall immune function, resistance to infection and cancer risk.



PHYSICAL ACTIVITY AND SPECIAL CONCERNS



PHYSICAL ACTIVITY AND MENTAL HEALTH



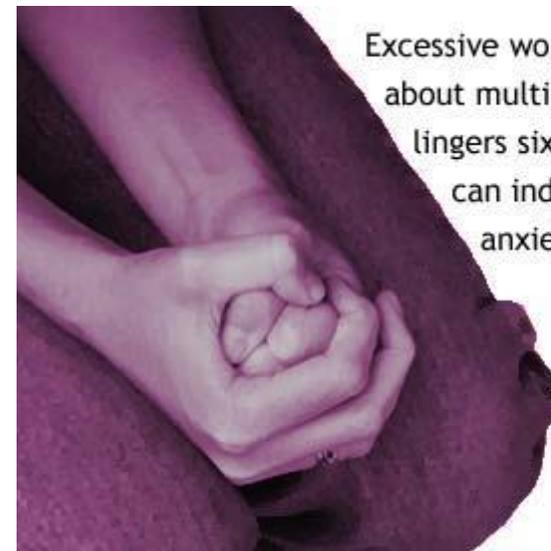
PA & DEPRESSION

- ◉ Moderate exercise is associated with reduced risk of depression symptoms excessive exercise can result in depression (in athletes)
- ◉ Being sedentary increases the risk for depression
- ◉ There is a need to determine whether the relationship between PA and & depression is consistent across:
 - Age
 - Sex
 - Race
 - Ethnicity
 - Education level
 - Socioeconomic level
 - Mental status



PA & ANXIETY DISORDERS

- Physical inactivity is associated with a small to moderate increase in the risk of depression symptoms among adults
- Not human studies have yet tested whether neurobiological responses and adaptations can help explain the antidepressant and antianxiety effects of PA



Excessive worry or anxiety about multiple issues which lingers six months or more can indicate generalized anxiety disorder

PHYSICAL ACTIVITY AND DISABILITY



THE DISABILITY CONSEQUENCES OF INACTIVITY

- ◉ Overweight and obesity
- ◉ Coronary heart disease
- ◉ Deep vein thrombosis
- ◉ Osteoporosis

Regular PA, sports participation & active recreation are essential for the prevention of disease, promotion of health, maintenance of functional independence & quality of life

HAZARDS OF PHYSICAL ACTIVITY

“Both excessive and defective exercise destroys the strength”

-Aristotle



HOST FACTORS

- ◉ Age
- ◉ Sex
- ◉ Physical activity experience
- ◉ Injury history
- ◉ Body mass
- ◉ Pre-exercise stretching



FEATURES OF THE AGENT: PA

- ◉ Total exposure
- ◉ Frequency
- ◉ Duration
- ◉ Intensity
- ◉ Type of PA

Environmental factors

- ◉ Exercise surface
- ◉ Temperature
- ◉ Urban environment features

MYOCARDIAL INFARCTION & SUDDEN DEATH

- Main causes:
 - Congenital abnormality in young subjects
 - Atherosclerotic coronary disease in adults
- Even though exercise carries a short-term risk, its long-term benefits still outweigh the risks of being sedentary

PSYCHOLOGICAL HAZARDS

- ◉ Disordered eating
- ◉ Muscle dysmorphia
- ◉ Exercise abuse





Alcohol & Fats

It's a relief to know the truth after all those conflicting medical studies.

The Japanese eat very little fat and suffer fewer heart attacks than the British or Americans.

The French eat a lot of fat and also suffer fewer heart attacks than the British or Americans.

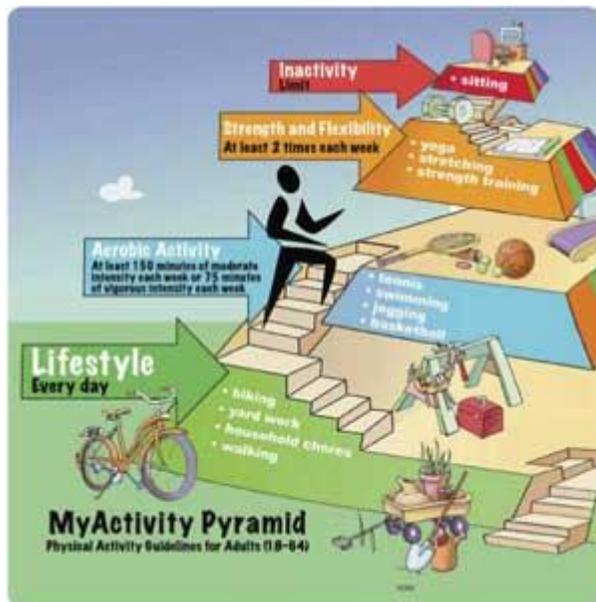
The Japanese drink very little red wine and suffer fewer heart attacks than the British or Americans.

The Italians drink excessive amounts of red wine and also suffer fewer heart attacks than the British or Americans.

The Germans drink a lot of beer and eat lots of sausages and fats and suffer fewer heart attacks than the British or Americans.

Conclusion: Eat and drink what you like. Speaking English is apparently what kills you.

PHYSICAL ACTIVITY RECOMMENDATIONS



NATIONAL AGENCIES & PROFESSIONAL ORGANIZATIONS

WHO

EU

American College of Sports Medicine

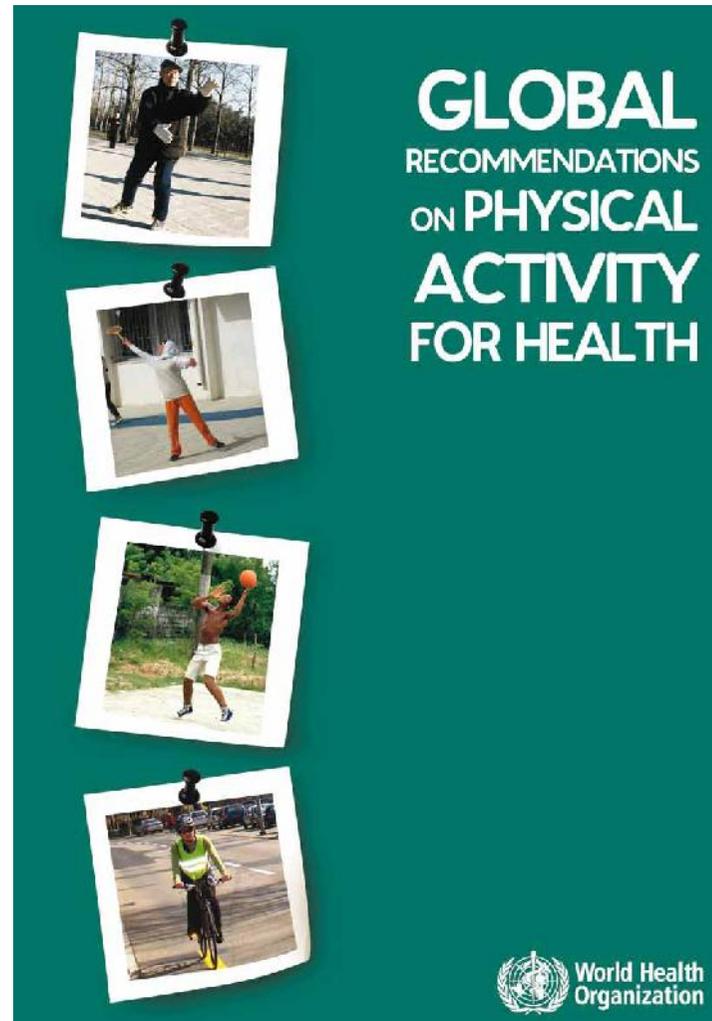
American Heart Association

Australian Government

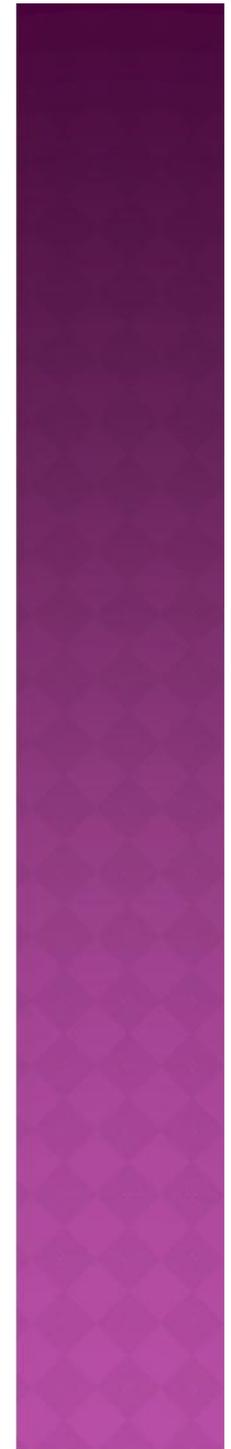
From:

- World
- Europe
- USA
- Australia

WHO RECOMMENDATIONS



http://whqlibdoc.who.int/publications/2010/9789241599979_eng.pdf



THE WHO RECOMMENDATIONS FROM 5-17 YEARS OLD:

- 60 minutes of moderate to vigorous intensity physical activity have to be accumulated on a daily basis.
- Beyond this level, every physical activity will provide additional health benefits.
- The majority of these activities should be aerobic.
- In addition, vigorous activity at least 3 times per week.



THE WHO RECOMMENDATIONS FROM 18-64 YEARS OLD:



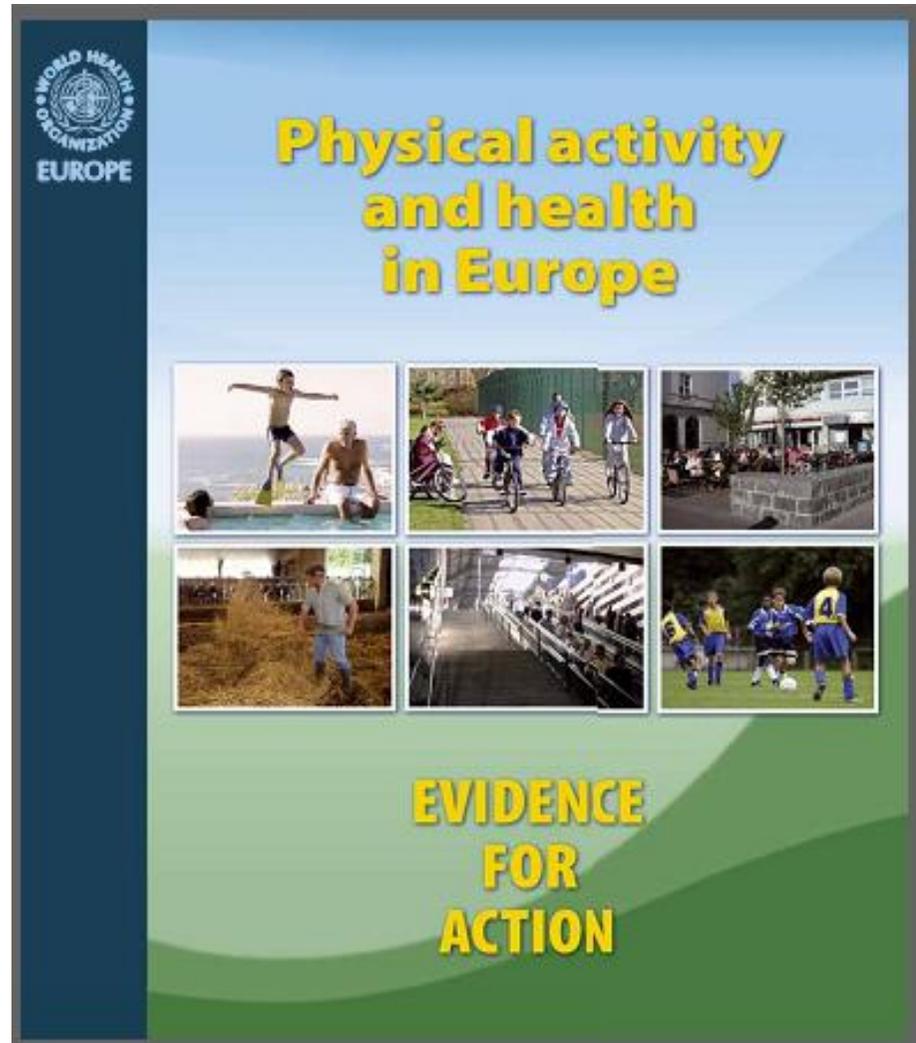
- ◉ At least 150 minutes of moderate intensity aerobic physical activity or 75 minutes of vigorous intensity physical activity should be undertaken per week.
- ◉ Both types of activity can also be combined.
- ◉ In order to increase health benefits, physical activity could be raised to 150 minutes of vigorous intensity physical activity and 300 minutes of moderate intensity physical activity.
- ◉ Every session should last at least 10 minutes.
- ◉ Two additional days should be used for muscle-strengthening activities.

THE WHO RECOMMENDATIONS FROM 65 YEARS OLD AND ABOVE :

- ◉ At least 150 minutes of moderate intensity aerobic physical activity or 75 minutes of vigorous intensity aerobic physical activity per week (or a combination of both).
- ◉ In order to increase the health benefits, the physical activity could be raised as such : 150 minutes of vigorous intensity physical activity and 300 minutes of moderate intensity physical activity.
- ◉ Every session should last at least 10 minutes
- ◉ Persons with poor mobility should train and **strengthen their balance** in order to prevent falls during 3 or more days per week.
- ◉ Two additional days should be used for muscle-strengthening activities.
- ◉ If all these recommendations are difficult to accomplish because of health conditions, people are encouraged to be **as physically active as possible.**



EU PA RECOMMENDATIONS



http://www.euro.who.int/__data/assets/pdf_file/0011/87545/E89490.pdf

EU PA RECOMMENDATIONS

- ◉ **Same as WHO recommendations**
- ◉ In accordance with the guidance documents of the World Health Organisation, the European Union and its Member States recommend a minimum of 60 minutes of daily moderate-intensity physical activity for **children and young people**
- ◉ and a minimum of 30 minutes of daily moderate-intensity physical activity for **adults including seniors.**

http://ec.europa.eu/sport/library/doc/c1/pa_guidelines_4th_consolidated_draft_en.pdf



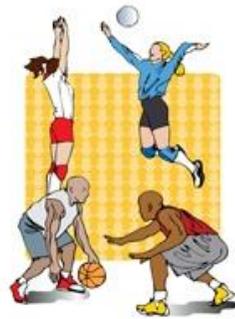
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FOOD TODAY 03/2009

Guidelines for physical activity



The human body is designed to move; being physically active can offer a range of physical, social and psychological benefits. New guidelines have been released to help Europeans achieve a better quality of life by being more active.

Defining physical activity

Physical activity is “any bodily movement associated with muscular contraction that increases energy expenditure above resting levels.”¹ It is a major factor associated with

health and quality of life and includes many sports and leisure activities (i.e.



Terms used in this article

Energy Expenditure
Quality

Related Documents

- Excess weight in childhood and adolescence: prevention and treatment
- Get off the couch!
- Physical activity - walk to a better

AMERICAN COLLEGE OF SPORTS
MEDICINE

&

THE AMERICAN HEART ASSOCIATION
2008



CHILDREN 6-17 YEARS OLD

- ◉ **60 minutes (1 hour) or more of physical activity each day - 3 types of physical activity:**

1. Aerobic Activity

- Aerobic activity should make up most of your child's 60 or more minutes of physical activity each day. This can include either moderate-intensity aerobic activity, such as brisk walking, or vigorous-intensity activity, such as running. Be sure to include vigorous-intensity aerobic activity on at least 3 days per week.

2. Muscle Strengthening

- Include muscle strengthening activities, such as gymnastics or push-ups, at least 3 days per week as part of your child's 60 or more minutes.

3. Bone Strengthening

- Include bone strengthening activities, such as jumping rope or running, at least 3 days per week as part of your child's 60 or more minutes.

ADULTS: 18 - 64 YEARS OLD

- ◉ For Important Health Benefits, Adults need at least:
 - 2 hours and 30 minutes (150 minutes) of moderate-intensity aerobic activity (i.e., brisk walking) every week and
 - muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- 1 hour and 15 minutes (75 minutes) of vigorous-intensity aerobic activity (i.e., jogging or running) every week and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- An equivalent mix of moderate- and vigorous-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

<http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.html>

ADULTS: 18 - 64 YEARS OLD

10 minutes at a time is fine

- ◉ We know 150 minutes each week sounds like a lot of time, but you don't have to do it all at once.
- ◉ Not only is it best to spread your activity out during the week, but you can break it up into smaller chunks of time during the day.
- ◉ As long as you're doing your activity at a moderate or vigorous effort for at least 10 minutes at a time.
- ◉ A 10-minute brisk walk, 3 times a day, 5 days a week, will give you a total of 150 minutes of moderate-intensity activity.

FOR EVEN GREATER HEALTH BENEFITS

Adults should increase their activity to:

- 5 hours (300 minutes) each week of moderate-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- 2 hours and 30 minutes (150 minutes) each week of vigorous-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- An equivalent mix of moderate- and vigorous-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).



OLDER ADULTS 65+

For Important Health Benefits Older adults of 65+ years of age and with no limiting health conditions need at least:

- 2 hours and 30 minutes (150 minutes) of moderate-intensity aerobic activity (i.e., brisk walking) every week and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- 1 hour and 15 minutes (75 minutes) of vigorous-intensity aerobic activity (i.e., jogging or running) every week and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

○ OR

- An equivalent mix of moderate- and vigorous-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

○ 10 minutes at a time

<http://www.cdc.gov/physicalactivity/everyone/guidelines/olderadults.html>

FOR EVEN GREATER HEALTH BENEFITS

Older adults should increase their activity to:

- 5 hours (300 minutes) each week of moderate-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- 2 hours and 30 minutes (150 minutes) each week of vigorous-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

- An equivalent mix of moderate- and vigorous-intensity aerobic activity and
- muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).



US AND EU RECOMMENDATIONS ON PHYSICAL ACTIVITY FOR ADULTS

US recommendations	EU recommendations (based on WHO)
At least 150 minutes per week of moderate-intensity Or 75 minutes per week of vigorous-intensity aerobic activity	A minimum of 30 minutes of moderate-intensity physical activity 5 days per week Or At least 20 minutes of vigorous-intensity physical activity 3 days per week
Activity should be in episodes of at least 10 minutes and spread throughout the week	Activity can be accumulated in blocks of at least 10 minutes
For additional benefit adults should increase their aerobic activity to 300 minutes per week of moderate intensity or 150 minutes of vigorous intensity	Activities to increase muscular strength and endurance should be added 2 to 3 days per week
Adults should also do muscle-strengthening activities of moderate or high intensity and involve all major muscle groups on 2 or more days	

NATIONAL PHYSICAL ACTIVITY GUIDELINES FOR AUSTRALIANS

The guidelines refer to the minimum levels of physical activity required for good health. They are not intended for high level fitness or sports training.

Try to carry out all guidelines and **for best results combine an active lifestyle with healthy eating.**



think of movement as an opportunity, not an inconvenience.



be active every day in as many ways as you can.



put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days.



if you can, also enjoy some regular, vigorous exercise for extra health and fitness.



Australian Government
Department of Health and Ageing

AGE & TRAINING PRINCIPLES

Group	Frequency	Intensity	Duration	Type of Activity
Child & Youth	7 days	Moderate to Vigorous	60 min+	Weight bearing / impact
Adult	Minimum of 5 days	Moderate	30 min	All types
Obese	7	Low-moderate	60 min	Aerobic

GROUP WORK

- ◉ Which recommendations apply to your project?
- ◉ In your project are you going to aim to achieve the official recommendations? Or not? Explain why....



THANK YOU ...

