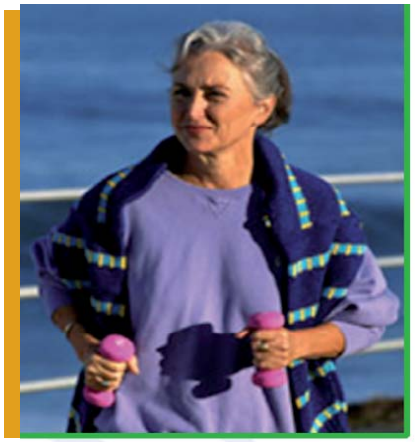
PHYSICAL ACTIVITY FOR THE ELDERLY



THEORY

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Contents

1. Benefits of physical activity
2. The problem
3. How to increase physical activity?

THE BENEFITS OF PHYSICAL ACTIVITY

Physical Activity (PA)

"Any bodily movement associated with muscular contraction that increases energy expenditure above resting levels"

→ Leisure-time PA

→ Occupational PA

→ PA at or near the home

→ PA connected with transport

BENEFITS OF PHYSICAL ACTIVITY

Management of the disease

Secondary Prevention

Primary Prevention

Advantages of Physical Activity

Prevents

- Diabetes
- Colon cancer
- Breast cancer
- Osteoporosis
- Falls and fractures
- Cognitive decay

Prevents and heals

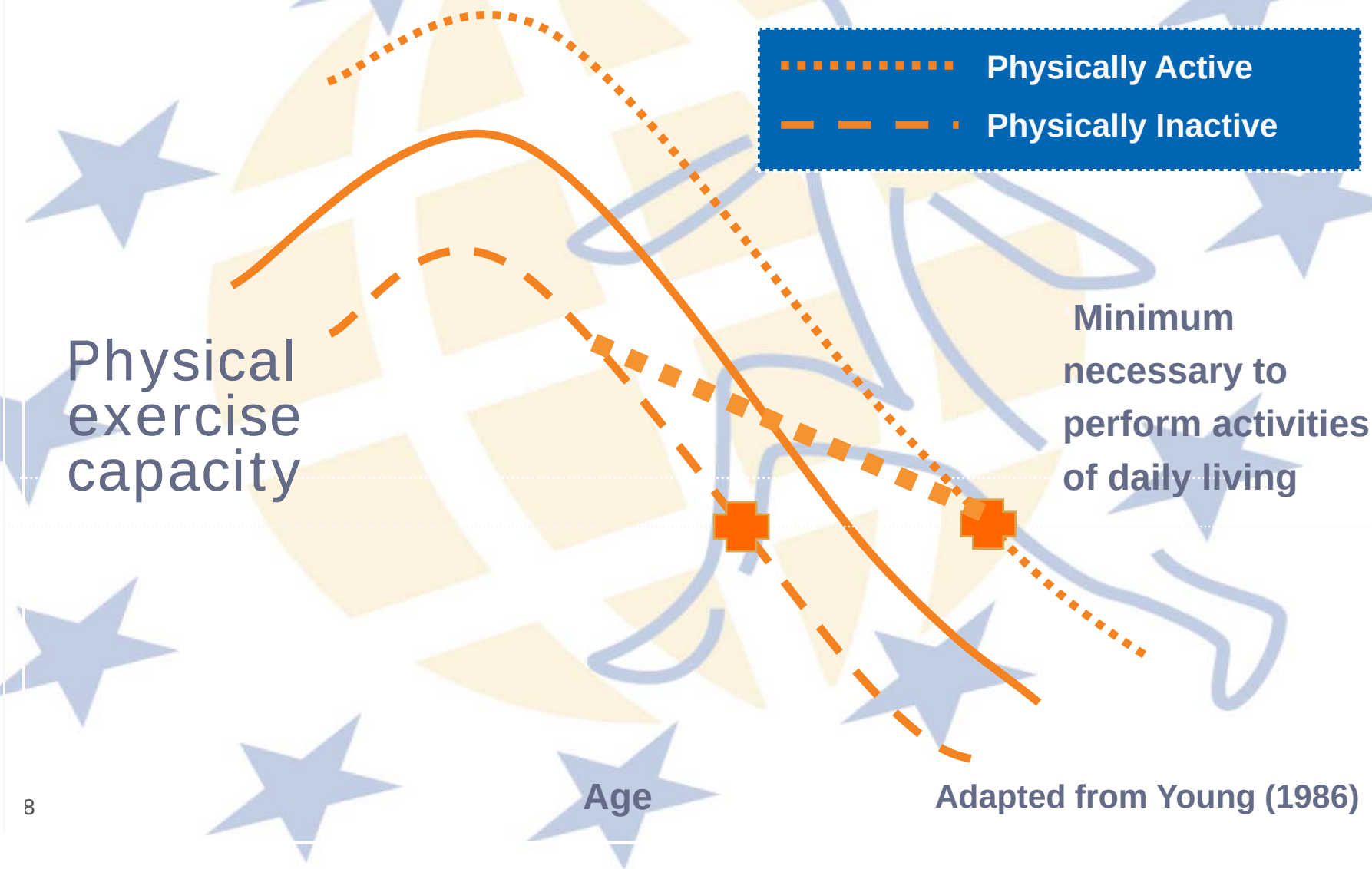
- Hypertension
- Coronary disease
- Stroke
- Obesity

Brukner PD et al, MJA 2005

Loss of functional capacity with ageing

Muscle resistance	1-2% per anno
Muscle force	3-4%
Aerobic capacity	3-4% per anno
Bone density male	1%
Bone density female	2-3%
Flexibility and balance	
Proprioception and coordination	
Kinesthetic Perception	
Temperature Regulation	

Improvement of quality of life



The Problem

Physical activity
One of the most important human functions

Civilization reduces the need for

- Human force
- Movement
  - Agriculture
  - Buildings
  - Transport

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Physical activity
One of the most important human functions

Today

- In great measure eliminated
- We ignore its importance for health and well-being

The Problem

- 40 – 60 % of the EU adult population leads a sedentary lifestyle
- 23.5 % is completely sedentary

Table 13. Time spend walking on a usual day by age

	15-25 years %	26-44 years %	45-64 years %	65 + years%
No walking for at least 10 minutes	16.7	21.4	21.6	23.5
30 minutes or less	42.1	38.1	34.6	36.5
31 to 60 minutes	21.2	20.7	22.7	22.9
61 to 90 minutes	4.6	5.3	6.9	6.1
91 to 120 minutes	7.0	6.2	6.4	5.0
More than 120 minutes	1.4	1.7	1.7	1.6
DK	7.1	6.5	6.1	4.4

Lifestyle

No Physical Activity

Poor muscle tone

Risk of fractures

Obesity

Diabetes

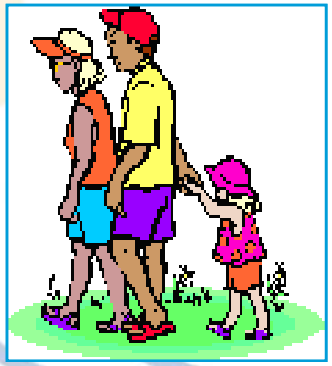
Premature Ageing

sleeping
0.9 METs

cooking
2.0 METs

Energy Cost

1 MET = 3.5 mL • kg-1 • min-1 $V0_2$



Running quickly on a flat surface
12.0 METs

Slow walking on a flat surface
3.0 METs

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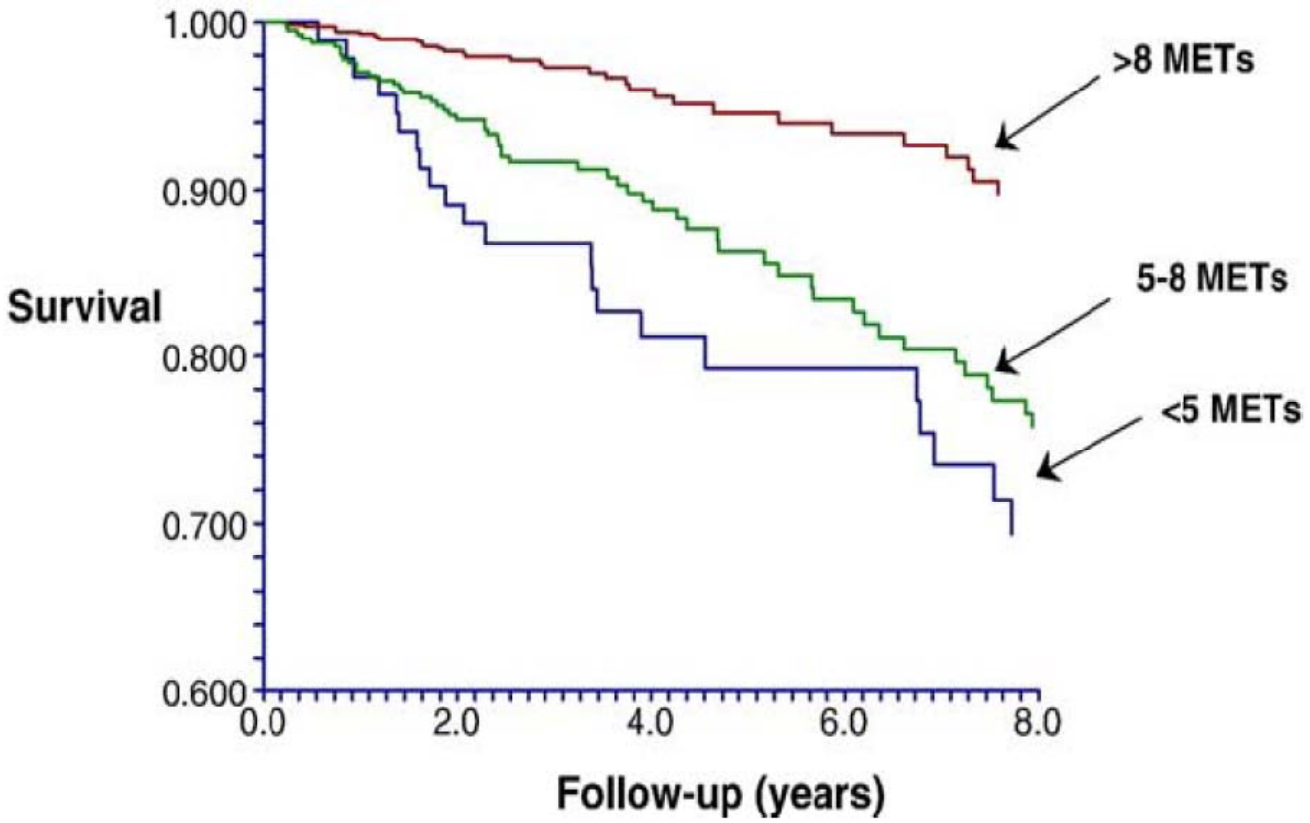
Relationship PA and mortality



Kaplan-Meier survival curves (age-adjusted) for the VSAQ.

MET =

Energy cost

McAuley P et al. Am Hearth J 2006

INCREASING PHYSICAL ACTIVITY

Guidelines (1)

World Health Organisation

The objective

- Goal is to achieve a minimum of 30 minutes of moderate-intensity physical activity 5 days a week or at least 20 minutes of vigorous-intensity physical activity 3 days a week

Recommended in short bursts of 10-15 minutes

Guidelines (2)

- 30 minutes a day → prevention of chronic diseases
- 60 minutes a day → weight management

How to increase physical activity?

Counselling methods:

- Individually or in groups
- In person, by telephone or via internet
- Brief or intensive
- Physical activity only or multiple behaviour changes (including smoking and diet)

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Behaviour Change

Explain risks

Motivate: why change?

Goal setting:
How to change?

Problem Solving Treatment

Goal setting:

Specific: increase physical activity

Measurable: 3 times a week for 30 minutes, 2 weekdays and one weekend day

Achieveable: walking alone

Relevant: walking

Timetable: in the next week

"Walk for 30 minutes three times a week"

Optimal is not achieveable

→ Optimum

- 3-4 times a week, 30-60 minutes a day
- High intensity

→Not achieveable so:

- “Something” is better than “nothing”
- Moderate intensity for a long period is better than high intensity for short
- Find something you can achieve eg. Walking, cycling
- Incorporate PA into your daily life, eg. Walk to the shop instead of going by car
- Ask your doctor to help you

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How to increase physical activity?

- Type of PA: choose an activity you enjoy → greater effect
- PA in daily life: use the stairs instead of the lift
- All types of PA are effective: cycling, walking, tennis, golf etc
- Try to keep a balance: 2-3 times a week, every week
- Try to find family or friends to join you

Overall improvement in health

- Increase physcal activity
- Decrease dietary intake
- Involve family and friends in your behaviour change → they have to change too

HOW TO CHANGE PHYSICAL ACTIVITY?

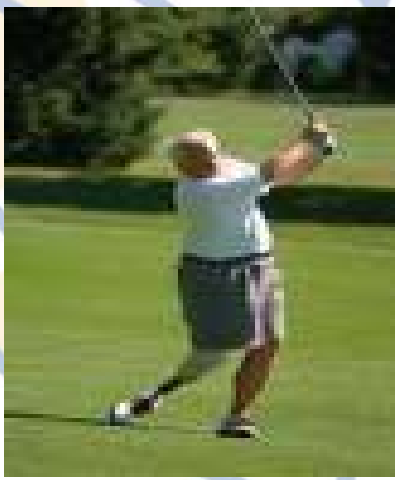
1. Initial evaluation of possible risks and contro-indications
   - (PAR-Q Questionnaire Aptitude for Physical Actvity)
2. Define an improvement plan with measurable objectives (PASA)

FACTORS TO TAKE INTO CONSIDERATION

- TYPES OF EXERCISE
  - Cardiovascular resistance
  - Strength
  - Balance
  - Flexibility
- FREQUENCY AND TIME: see recommendations
  - WHO (World Health Organisation)
  - ACSM (American College of Sports Medicine)
- INTENSITY: **Borg Scale**

MODERATE PHYSICAL EXERCISE

- Swimming
- Cycling
- Race cycling
- Gardening
- Housework
- Ping Pong
- Rowing
- Dancing
- Golf



MORE INTENSE ACTIVITY

- Going upstairs, going for an uphill walk or in the hills/mountains
- Swimming lengths of a pool
- Going trekking in the mountains
- Going for a trip to the mountains
- Skiing
- Tennis
- Horseriding

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Examples of resistance activities

Examples of resistance activities with moderate effort for the average elderly person

Moderate:

- Swimming
- Going for a bike ride
- Exercise bike
- Gardening (digging,raking)
- Quick walking on a flat surface
- Sweep or wash the floor
- Tennis (in doubles)
- Volleyball
- Row
- Dance

Resistance activities with more intense effort.

Vigorous:

- Climb the stairs or a slope
- Shovel snow
- Cycle up a hill
- Tennis (singles)
- Cross country skiing
- Slope skiing
- Running

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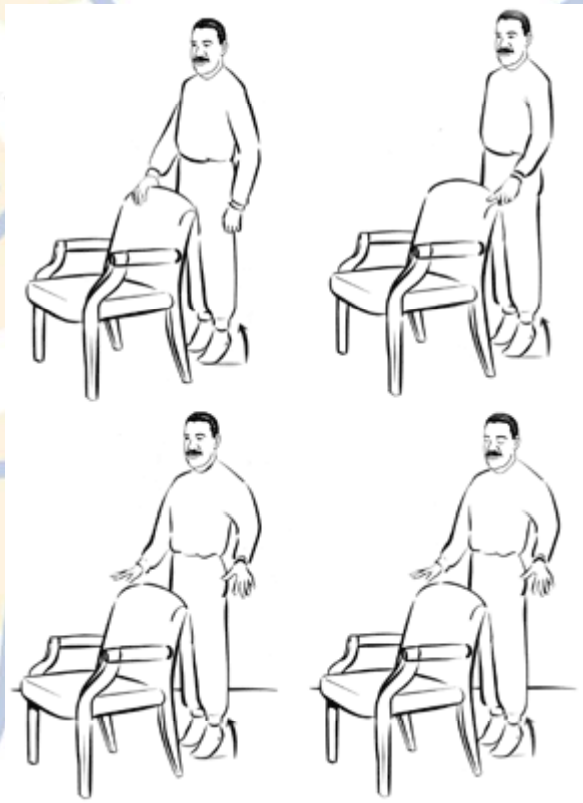
STRENGTH AND BALANCE
Examples



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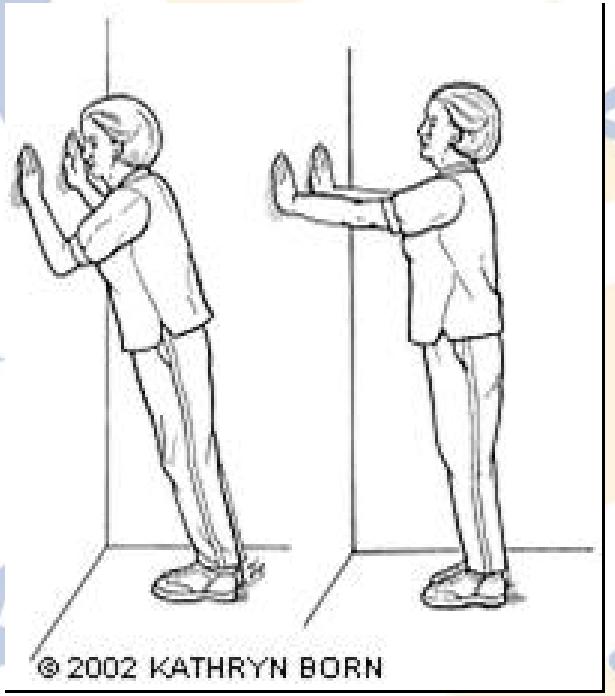
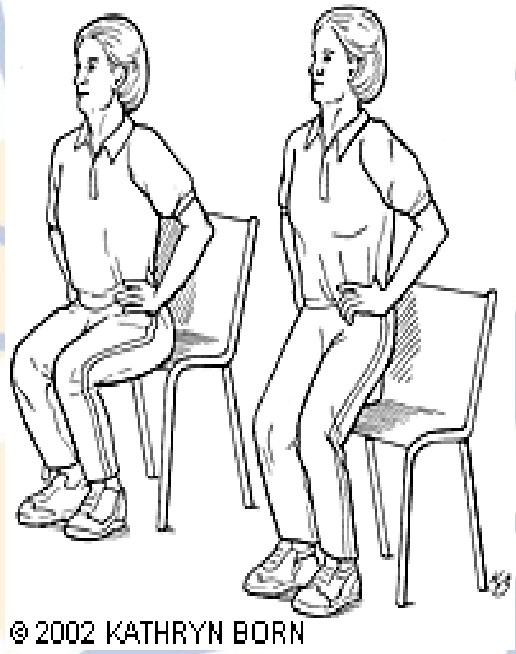
STRENGTH AND BALANCE
Examples





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FLEXIBILITY

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FLEXIBILITY

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FREQUENCY AND DURATION

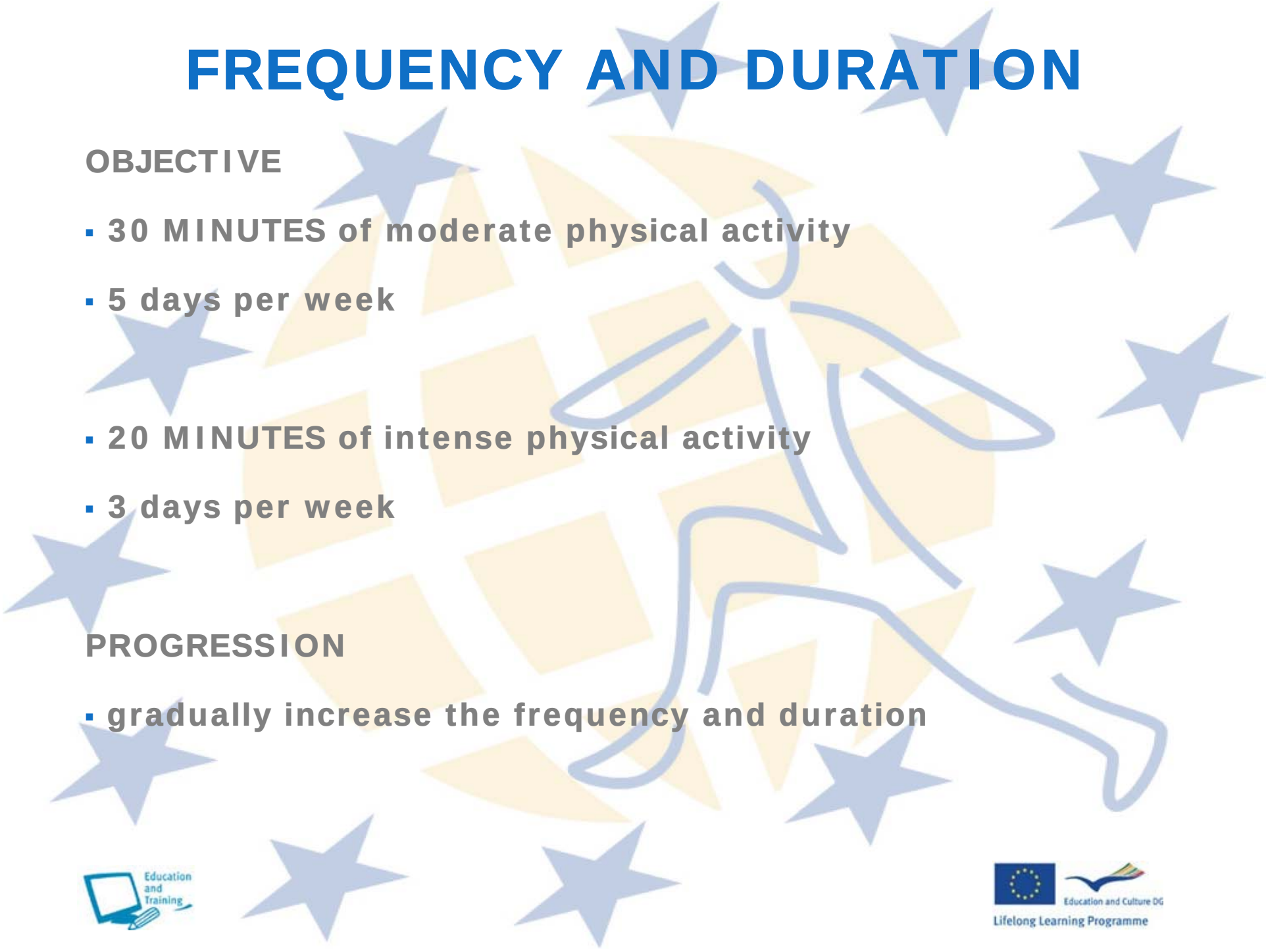
OBJECTIVE

- 30 MINUTES of moderate physical activity
- 5 days per week

- 20 MINUTES of intense physical activity
- 3 days per week

PROGRESSION

- gradually increase the frequency and duration



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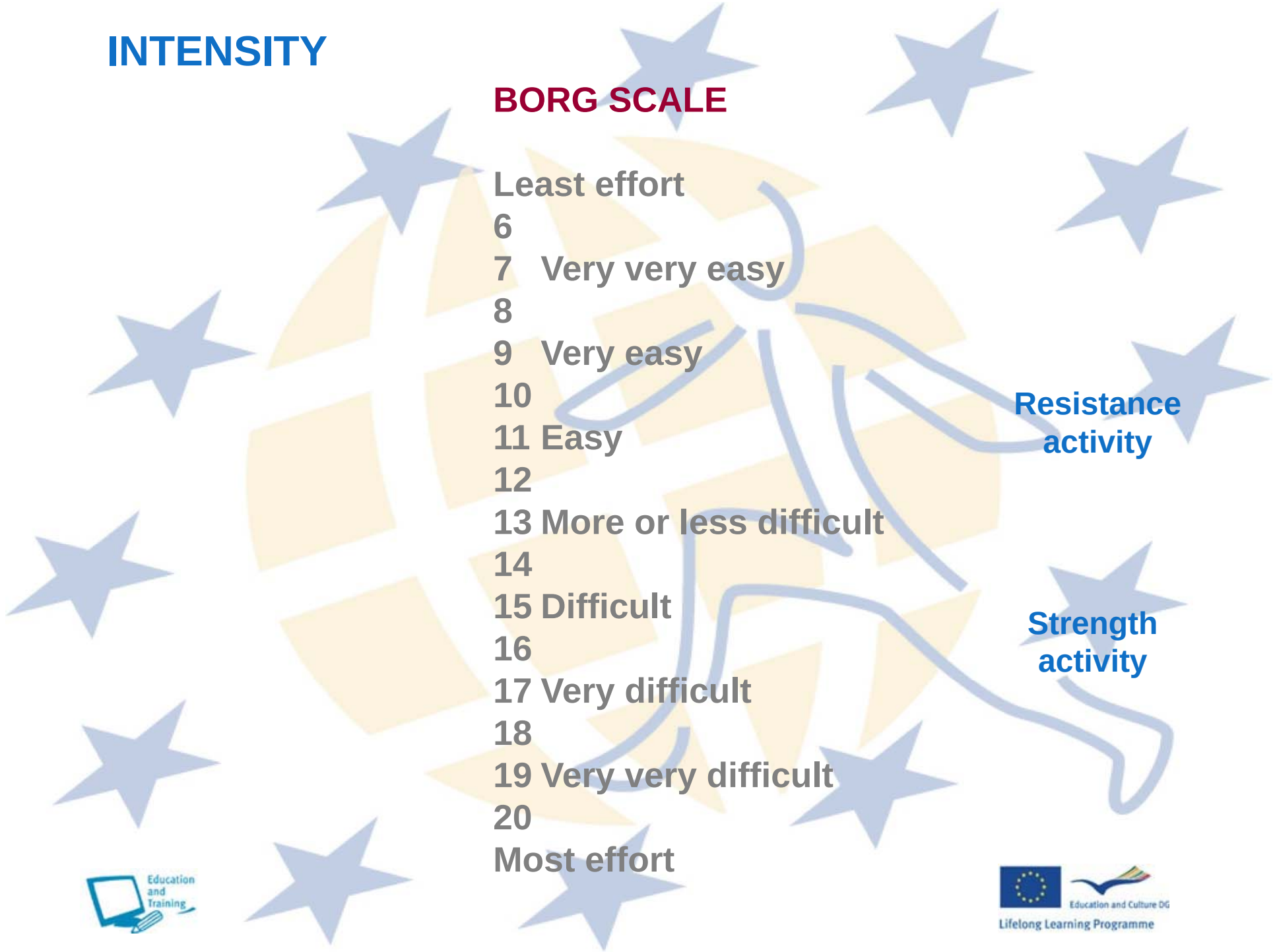
INTENSITY

BORG SCALE

Least effort
6
7 Very very easy
8
9 Very easy
10
11 Easy
12
13 More or less difficult
14
15 Difficult
16
17 Very difficult
18
19 Very very difficult
20
Most effort



Resistance activity

Strength activity

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INTENSITY

Borg Scale

GENERAL INSTRUCTIONS FOR USE OF THE SCALE (Rating of perceived exertion)

- While perfoming these exercises, we would like you to measure your percieved effort – how difficult the exrcise seems to you overall, not for any particular part of your body.
- While doing a physicla activity, look at the scale which gos from **6 "no effort"** to **20 "maximum effort"**.
- Choose the number which best describes the intensity level of your effort. This will give you a good idea of the intensity of effort that you are carrying out, and you can use this scale to raise or lower the intensity of exercise so as to gain the required intensity.
- Try to evalutae your level of effort as honestly as possible without thinking about the physical effort – it is your feeling of effort that counts, not how you compare to others.
- Look at the scale and the numbers which correspond to the levels of inensity, then choose a number.

20	Most effort
19	Extremely difficult
18	
17	Very difficult
16	
15	Difficult
14	
13	A little difficult
12	
11	Light
10	
9	Little effort
8	
7	Very little effort
6	No effort

Borg scale

effort

resistance

Échelle de Borg		Borg's Scale
très très facile	6	very, very light
	7	
très facile	8	very light
	9	
assez facile	10	fairly light
	11	
un peu difficile	12	somewhat hard
	13	
difficile	14	hard
	15	
très difficile	16	very hard
	17	
	18	
très très difficile	19	very, very hard
	20	

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Go to your doctor if...

You have chest pain

You feel dizzy

Excessive breathlessness

Irregular heartbeat

Worrying symptoms

INTENSITY

According to the levels of physical activity, we can divide people into three groups. A different intensity level is recommended for each group.

- Sedentary (at the moment does not do physical activity)
  - from 7 to 9 on the Borg Scale
- Partially Active (some physical activity but not that recommended by the WHO/ASCM)
  - from 10 to 13 on the Borg Scale
- Active (follow WHO/ASCM recommendations)
  - from 13 on the Borg Scale

It is important to gradually increase the intensity!

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Borg Scale

active

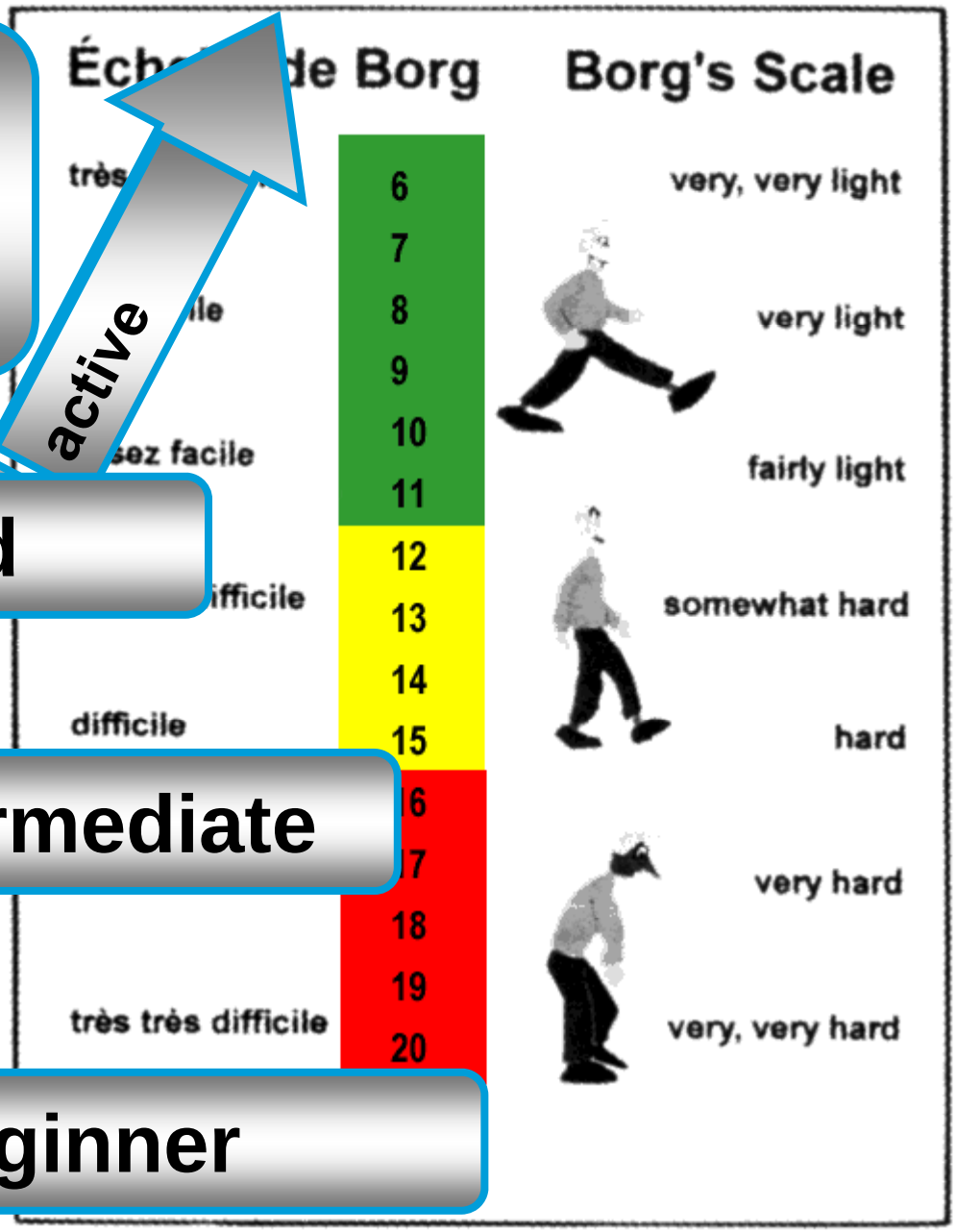
advanced

partially active

intermediate

sedentary

beginner



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BEGINNER

(Example of Sedentary Profile)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Resistance **20 min.** **Walk** **From 7 to 9 Borg**		Resistance **20 min.** **Walk** **From 7 to 9 Borg**		Resistance **20 min.** **Walk** **From 7 to 9 Borg**	

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INTERMEDIATE

(Example of Partially Active Profile)

Sunday	Monday	Tuesday	Wednesday	Thusday	Friday	Saturday
	Resistance **30 min.** **Cycle** **10 to13 Borg**		Resistance **30 min.** **Swim** **10 to13 Borg**		Resistance **30 min.** **Cycle** **10 to13 Borg**	
		Strength/ Balance **15 min**.		Strength/ Balance **15 min**.		
	Stretching for the legs	Stretching for the arms	Stretching for the legs	Stretching for the arms	Stretching for the legs	

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ADVANCED

(Example of Active Profile)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Resistance 30 min	Resistance 30 min	Resistance 30 min	Resistance 30 min		Resistance 30 min
		Stength/ Balance **From 15 – 20 min**		Stength/ Balance **From 15 – 20 min**		
	Stretching 10 min	Stretching 10 min	Stretching 10 min	Stretching 10 min		Stretching 10 min

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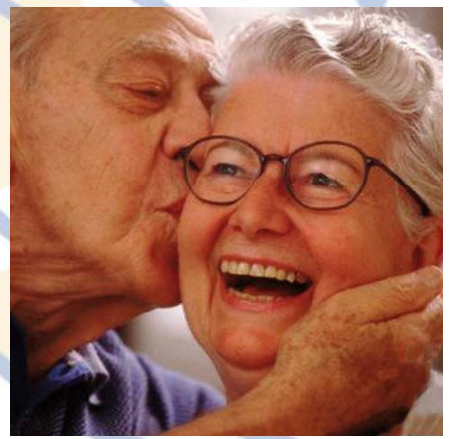
PRACTICAL PART



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Practical Part (1)

- **Activity in multidisciplinary groups:**
  - Groups of approx. 10 people
  - Three sessions of 10 minutes
  - One group leader for each group (a doctor, nurse, pharmacist or other expert)
- In groups, the participants discuss a **case from real life**.
  - An example is provided for every group (beginner, intermediate, advanced). They are asked to decide whether the subject of the case study is a beginner, intermediate or advanced level.
  - Distinguishing any risk factors they must then prepare an **weekly programme adapted** to their needs, with objectives, stages exercised to do and so on.
  - See Handbook for additional details and solutions for Cases A, B and C.

Case-study

- ***Case Study A**: A woman of 65. She is in good health and takes no medicine. She played volleyball regularly until the age of 25 and then gradually reduced her exercise. For the last 20 years she has hardly exercised. Her motivation to start exercising again is that she has noticed a gradual weight gain over the last five years.*
- ***Case Study B**: A man aged 72. Slightly high blood pressure which is treated with medicines. He has always played sport and trained for it and has exercised irregularly for the last 20 years. He has decided to take up a regular programme of exercise to better control his blood pressure.*

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Case Study

- ***Case Study C**: A man aged 66. He is in good health and takes only oral hypoglycemic agent for a light . He has always played competitive sport in the past and still trains regularly, going to the swimming pool (twice a week) and to the gym (twice a week). He is motivated to follow a personalised exercise programme to improve the results obtained.*

Successful Ageing

A physically and mentally active life