



EFSMA

---- Position Paper ----

Role of Physical Activity, Movement, Exercise and Sports in Prevention, Rehabilitation, and Therapy

Definitions and Terminology

Physical activity is any bodily movement by muscular activity with increase of energy expenditure beyond what is *spent at rest*. Physical activity becomes **exercise and training** by planned, structured and repeatedly performed *practise*. Physical activity provides well being and aims to improve health-related physical fitness. **Health enhancing physical activity** includes all physical activity that improves health and fitness without constituting a (major) risk of injury. **Fitness** is a set of body functions which relates to ability to perform physical activity. Fitness can either be directed to health-related or skill-related fitness. **Sport** is planned and structured intense training and physical activity with competitive character.

Benefits of regular exercise activity on physiological function and body composition

Improvement of

- muscle function (structure, metabolism, molecular function)
- cardio-vascular *and* pulmonary function
- metabolism, glucose tolerance
- brain and cognitive function, hormonal response
- stabilization of fibrinolysis
- cholesterol (decreased) and HDL (raised) levels
- possibly immunological factors

Reduction of

- insulin resistance
- thromboocyte adhesiveness

Positive side effects of physical activity include facilitation to quit smoking, reduction of body weight and mental stress. In general, exercise activity furthers a healthy lifestyle, improves self-determination and autonomy and reduces disability, especially in the elderly.

Epidemiological aspects

Regular physical activity

- reduces all cause mortality and cardiovascular mortality by 30 - 40 % (5 meta-analyses)
- a high fitness level (or physical capacity) indicates a favorable prognosis for longevity and morbidity in healthy subjects and patients suffering from various diseases



There is a non-linear but significant inverse relationship between regular physical activity and mortality (dosis - efficiency).

Even moderate activity, e. g. walking or nordic walking is an effective measure to prevent disease.

Many small training units per day add up to a summarizing effect.

Significant training effects are similarly observed in elderly (> 65 ys). So far, the only modality to promote an „anti-aging“ effect is regular physical activity.

Regular physical activity may even prevent from some forms of cancer disease (e.g. colon and breast cancer).

Physical activity as therapy in cardiovascular and pulmonary diseases

Coronary artery disease:

Physical activity is effective for prevention of coronary artery disease. Patients who have sustained acute myocardial infarction or suffer from known coronary artery disease, physical activity may effectively prevent disease progression or recurrence of acute cardiac events.

In patients with one-vessel disease regular exercise with may be as beneficial as percutaneous coronary intervention (PCI), especially for symptom reduction.

Heart failure

Physical exercise improves cardiac function in systolic and diastolic heart failure patients (ejection fraction) and quality of life as well as physical capacity.

PAOD

In peripheral artery occlusive disease (PAOD), walking activity is more effective than any drug therapy and may be superior to peripheral arterial dilatation and stenting. Recommendations are 30 – 40 minutes of walking per day until pain occurs.

Arterial Hypertension

Physical training may prevent and treat from arterial hypertension thus reducing morbidity and mortality.

COLD

Regular physical activity may not only prevent from but also effectively treat chronic obstructive lung disease (COLD) and asthma (allergic, infectious and exercise-induced). Physical training improves physical capacity, lung function and quality of life.

Physical activity in further diseases with high level of evidence

Diabetes mellitus

Physical activity reduces diabetes mellitus induced mortality and morbidity by 50%, reduces secondary organ damage (retinopathy, nephropathy, neuropathy, micro- and macroangiopathy) and improves insulin sensitivity and glucose tolerance.

Cancer

Physical exercise may reduce the incidence of colon and breast cancer.

Osteoporosis



Physical activity is superior to drug therapy in prevention and therapy of osteoporosis alongside sun exposure and sufficient vitamin D intake.

Musculo-skeletal health

Physical exercise reduces muscular dysbalance, falls and (fatigue) fractures.

Stroke

Exercise reduces stroke morbidity and mortality and is highly effective during post-stroke rehabilitation.

Mental health

Physical activity significantly reduces the incidence of depression, mental distress, anxiety disorders, improves cognitive health and sleep quality and is a significant and essential part of therapy for depression.

Dementia and Alzheimer's disease

may be delayed or partly prevented by regular physical activity.

Mobility in **Parkinson's disease** and **fatigue syndrom** can be improved significantly by physical training.

Type of physical activity

Physical activity should be recommended and prescribed with the help of the „**FITT**“ rule: **F**requency, **I**ntensity, **T**ime and **T**ype of activity.

The first step of physical exercise is daily life activity (e. g. use of staircase or bike, walking to shopping area if feasible). Regular brisk walking is one of the most important activities, especially in the elderly. At least 10.000 steps per day are strongly recommended. Also, intensive gardening is helpful.

Endurance training should be complemented by resistance and flexibility training 2-3 time per week.

Resistance training is important in patients with cardiac failure, diabetes mellitus, chronic obstructive lung disease and for prevention of falls.

Amount of physical activity (Minimal amount, FITT)

In keeping with current recommendations, endurance training should be performed with moderate intensity. This details **150 minutes per week of aerobic activity** or **75 minutes per week of vigorous activity** at least on 3 – 4 days of the week. Additional health benefits may result from greater amounts of exercise.

Exercise should be prescribed for both healthy subjects and patients with help of the FITT components.

References and informations: www.efsma-scientific.eu

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