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FIT-OLD



Cracow University
of Technology



FIT-OLD





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Interventions in the Elderly's Mobility Modes for Promotion of their Physical Activity and Fitness

<u>Pn</u>	<u>Organisation</u>	<u>City</u>	<u>Country</u>	<u>Role</u>
1	Technische Universität Berlin	Berlin	Germany	Applicant
2	University of Lisbon (UL)	Lisbon	Portugal	Partner
3	Cracow University of Technology (CUT)	Cracow	Poland	Partner
4	University of Zagreb (UZ)	Zagreb	Croatia	Partner
5	Mine Vaganti NGO (MVNGO)	Sassari	Italy	Partner
6	The Northern Greece Physical Education Teachers' Association (EGVE)	Thessaloniki	Greece	Partner
7	SPELL	Malatya	Turkey	Partner

(Project Number: 622623-EPP-1-2020-1-DE-SPO-SCP)





About FIT-OLD

Fit-Old is a 30-month Collaborative Partnership for *enhancing the health levels among elderly people utilizing interventions in the elderly's mobility modes within European Partnerships*. One of the main **purposes** of the Fit-Old project is to **enhance the health levels among elderly people utilizing interventions** in the elderly's mobility modes within European Partnerships. Mobility and more sustainable modes of transport have advantages for elderly people, including achieving access to desired people and places, psychological benefits like feeling independent, physical benefits such as direct impacts on muscle and bone strength, health, social interaction, and involvement in cardio-vascular improvements and overall health, social interaction, and involvement in the community.

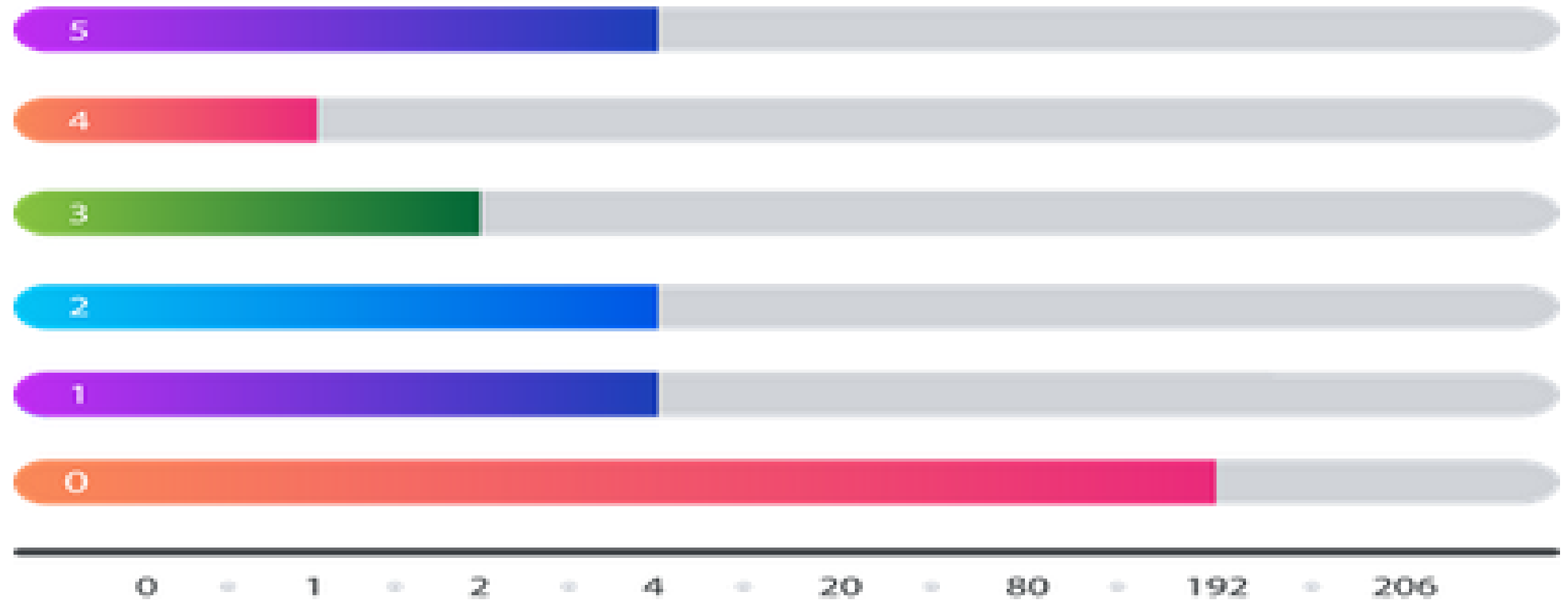


While mobility limitation is common in elderly people, there is a lack of plans and studies in intervention programs as well as academic studies directed at this age group. On one hand, active and sustainable mobility is associated with health improvements in older people directly. On the other hand, it has some benefits in the scale of cities and countries by reducing air pollution, increasing efficiency in the elderly population, comprehensive policies for urban areas and neighborhoods based on sustainable mobility and considering all disability groups.



PROCESSING RESULTS OF 206 WP3 QUESTIONNAIRES (Turkey)

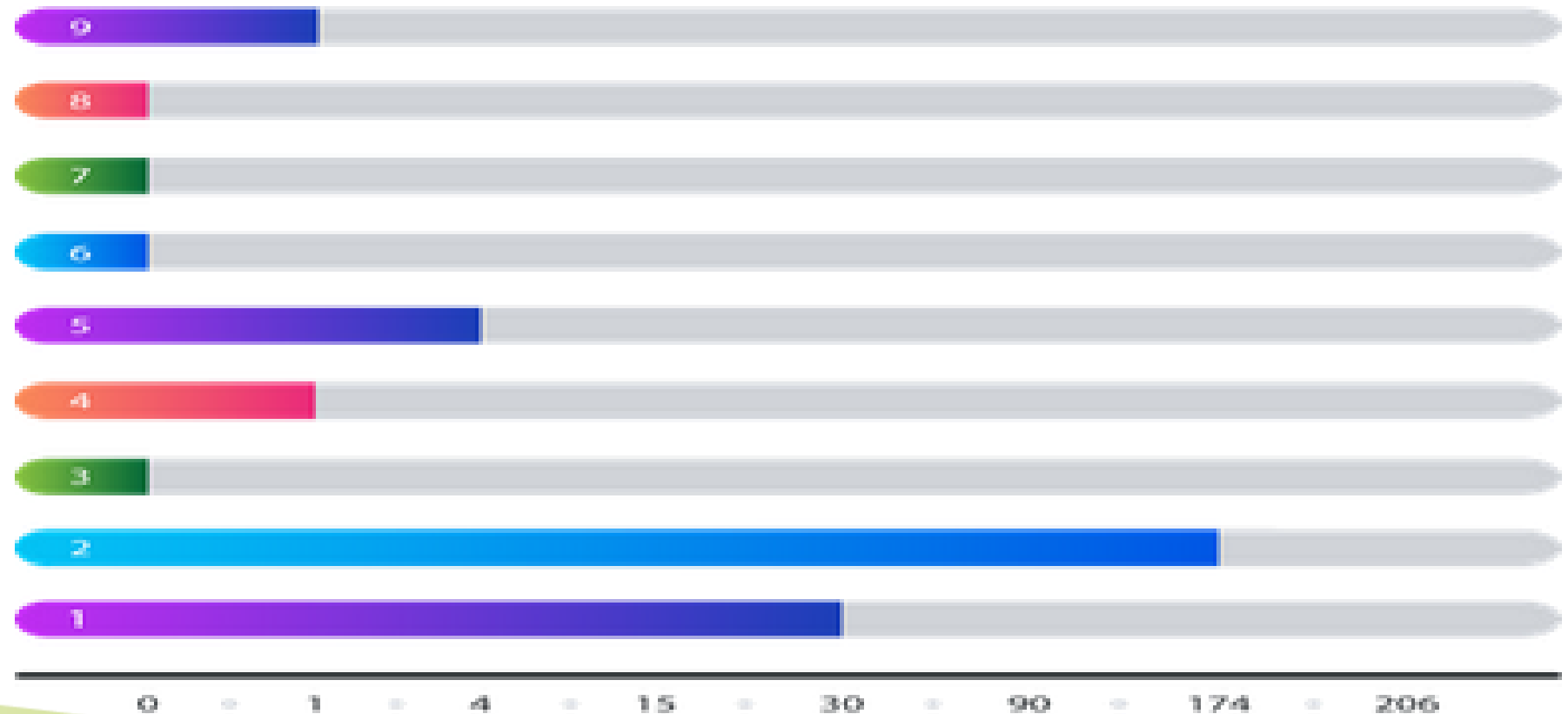
During the last 7 days, on how many days did you walk for at least 10 minutes at a time to go from place to place?





PROCESSING RESULTS OF 206 WP3 QUESTIONNAIRES

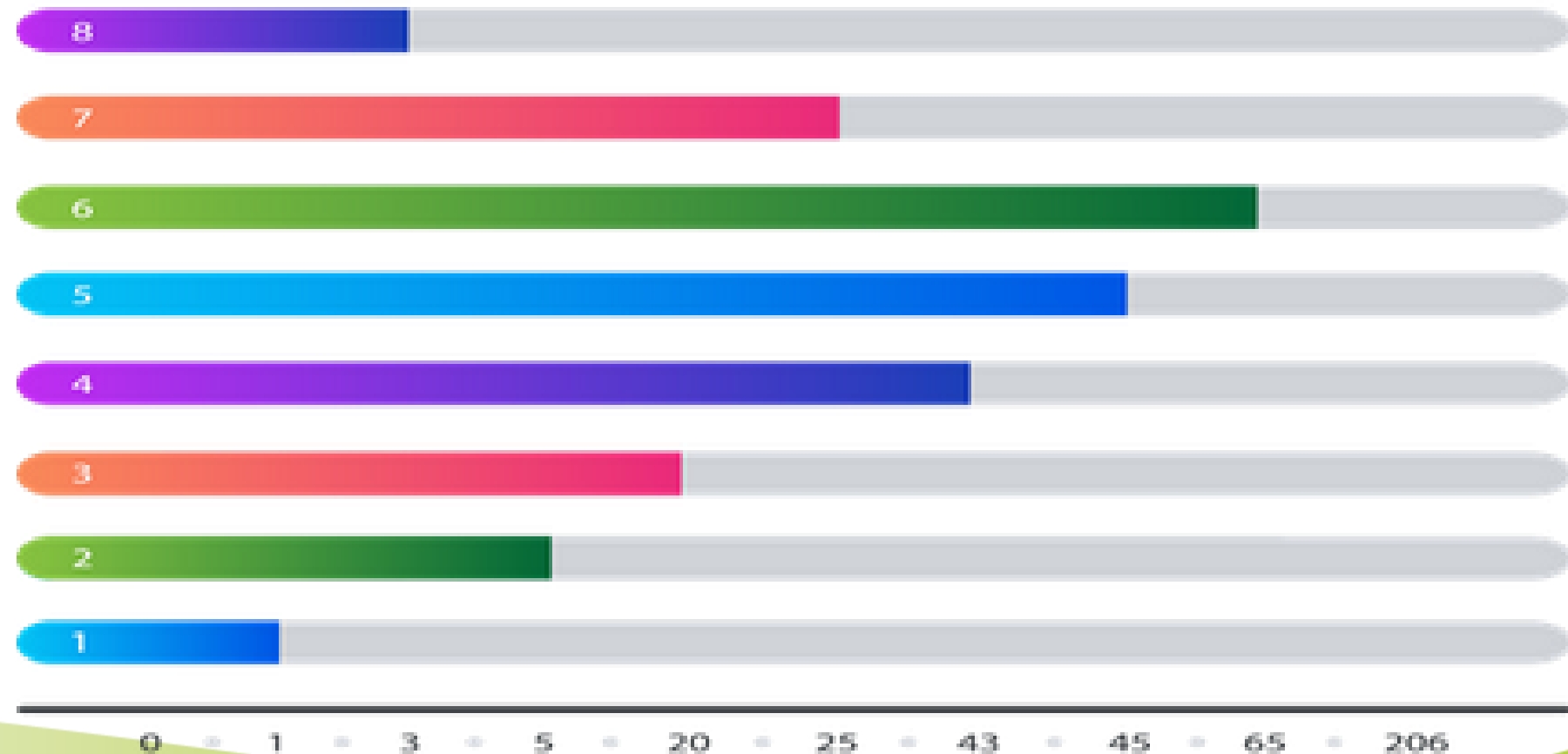
Do you cycle to your near destinations inside your neighbourhood?





PROCESSING RESULTS OF 206 WP3 QUESTIONNAIRES

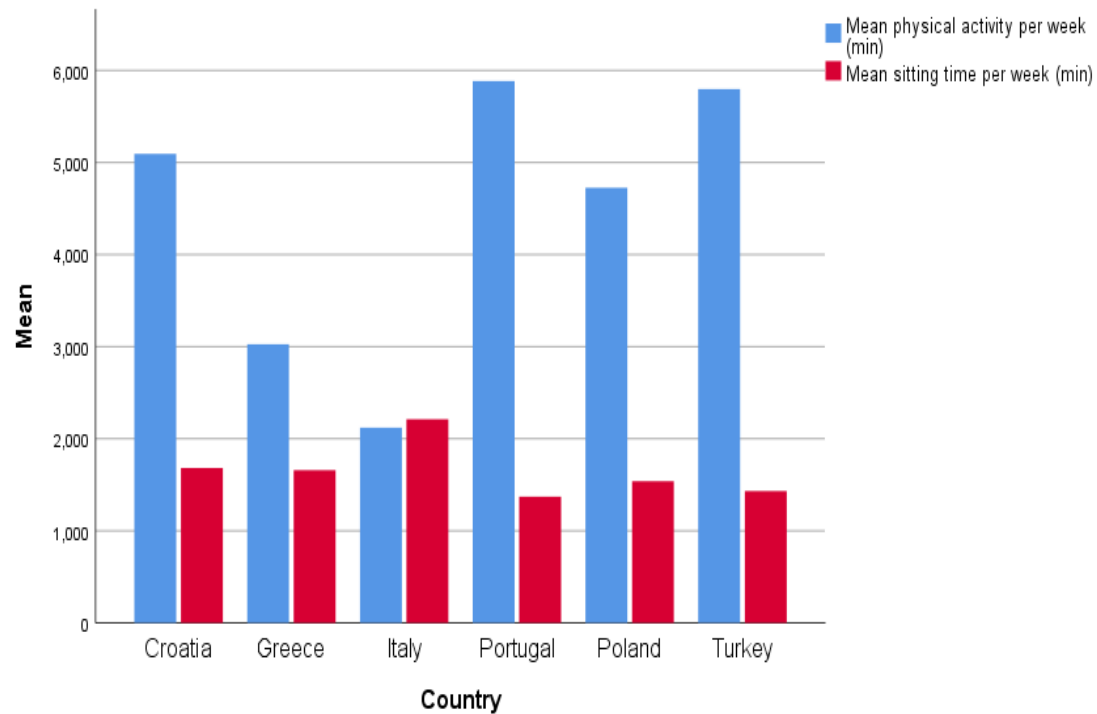
Please indicate how much you intend to reduce sedentary modes of transportations and walk more during the next 9 months.



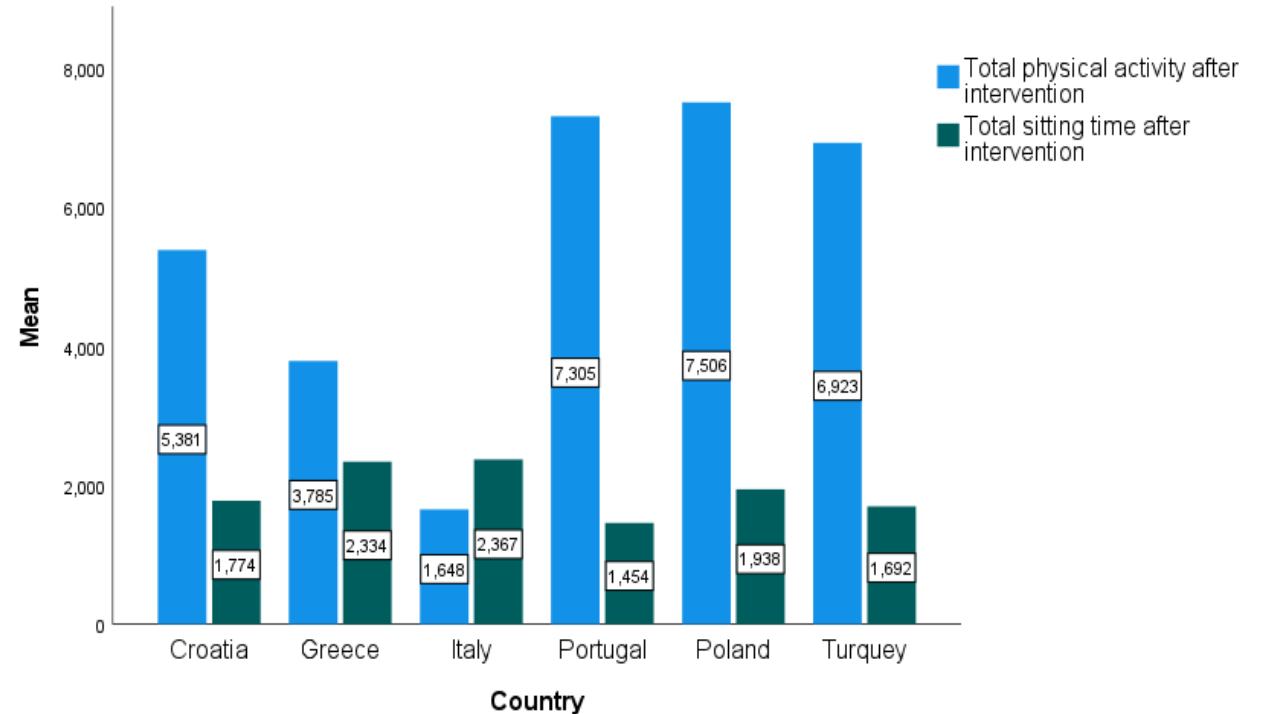


Comparison mean of physical activity and sitting time before and after the intervention in 6 partner countries

Comparison mean of physical activity and sitting time by countries



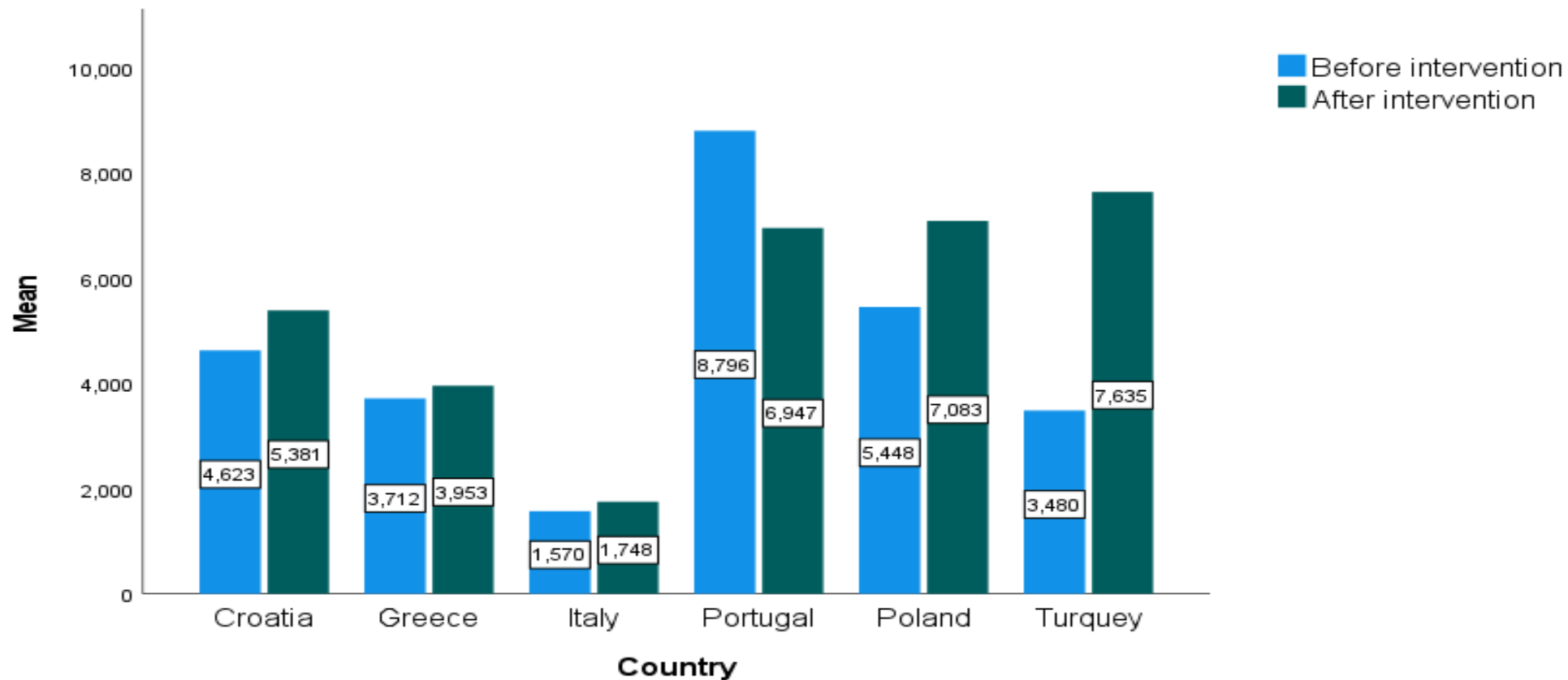
Comparison of total physical activity and sitting time after intervention by country





Total of physical activity time before and after the intervention in 6 partner countries

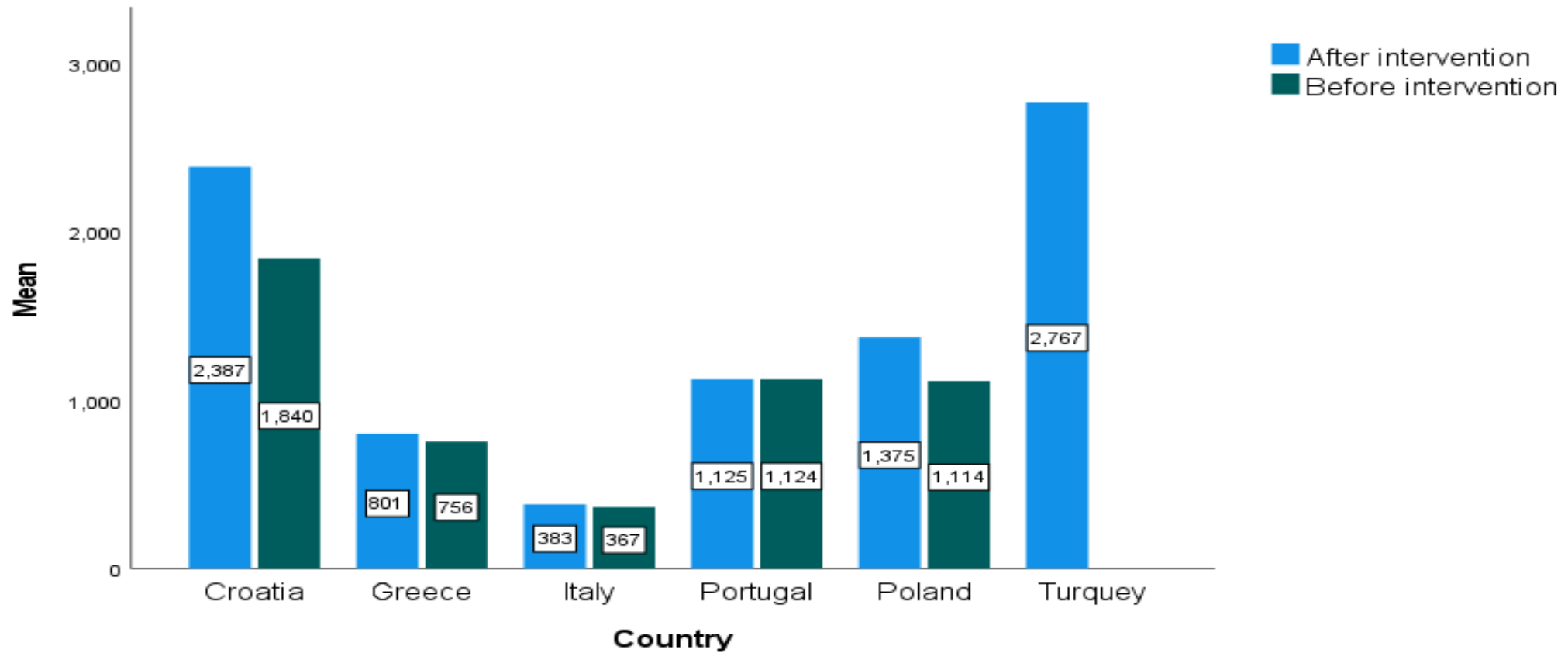
Total physical activity time (min) before and after the intervention





Total of walking in leisure time before and after the intervention in 6 partner countries

Total walking (min/week) in leisure time before and after the intervention





The activity in percentage

76,9 %



aktywność

LEKKA

- spanie lub leżenie
- siedzenie
- prasowanie
- sprzątanie i wycieranie kurzu

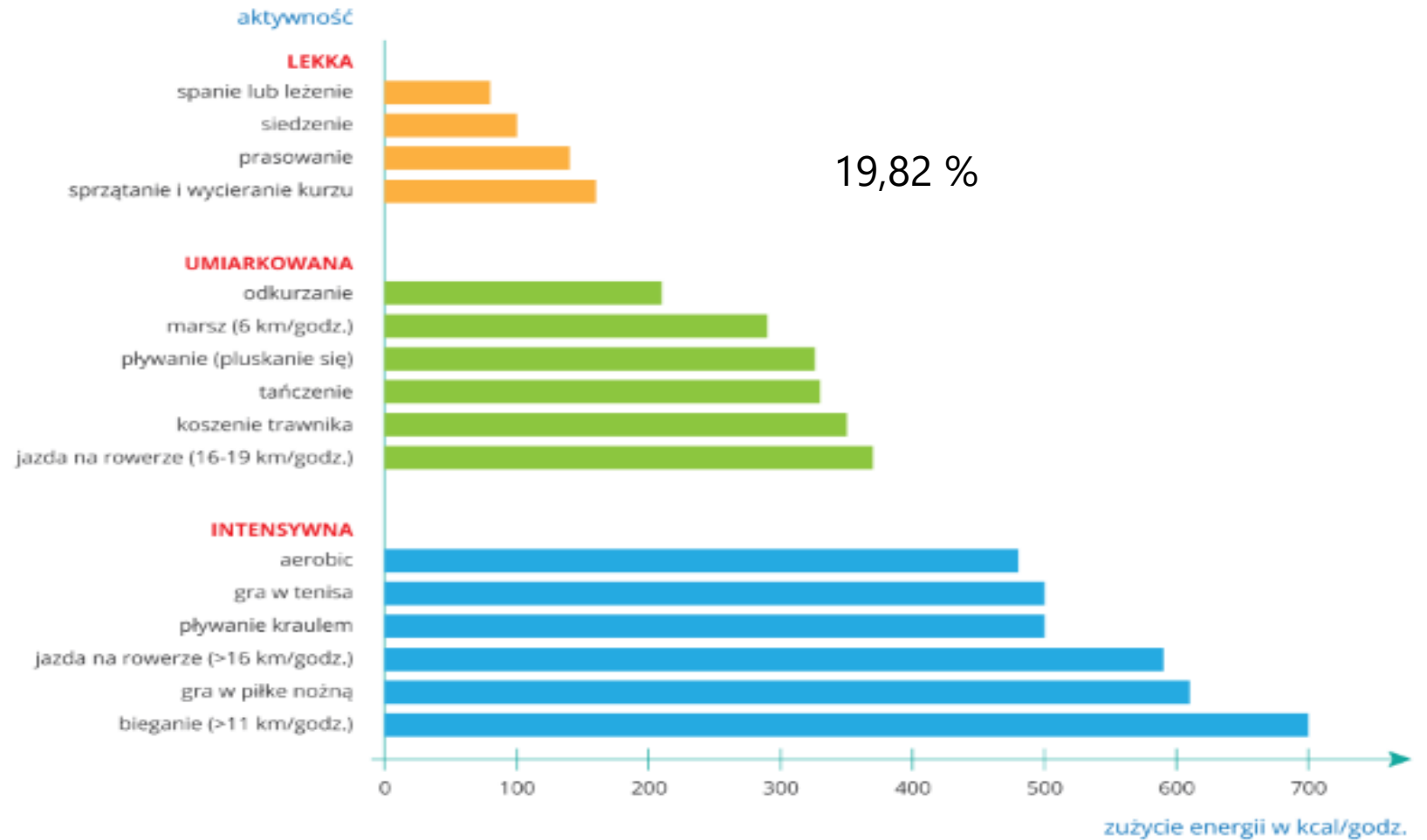
UMIARKOWANA

- odkurzanie
- marsz (6 km/godz.)
- pływanie (pluskanie się)
- tańczenie
- koszenie trawnika
- jazda na rowerze (16-19 km/godz.)

INTENSYWNA

- aerobic
- gra w tenisa
- pływanie kraulem
- jazda na rowerze (>16 km/godz.)
- gra w piłkę nożną
- bieganie (>11 km/godz.)

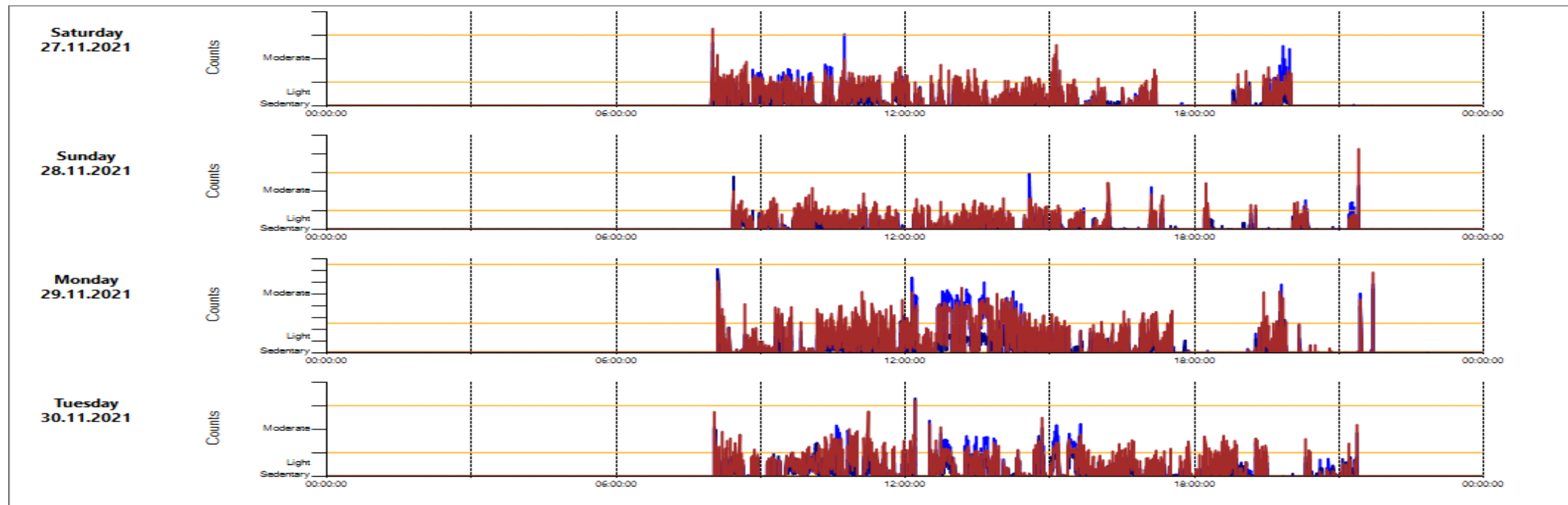
19,82 %





The activity in percentage and graphs

% in Sedentary	% in Light	% in Moderate	% in Vigorous	Total MVPA	% in MVPA
51,05%	43,12%	5,80%	0,04%		36,255,84%
68,59%	30,73%	0,68%	0,00%		5,250,68%
60,30%	32,18%	7,52%	0,00%		53,257,52%
60,34%	34,20%	5,46%	0,00%		43,255,46%





Benefits of active mobility

Less traffic and air pollution

Cardiovascular fitness and reduce obesity

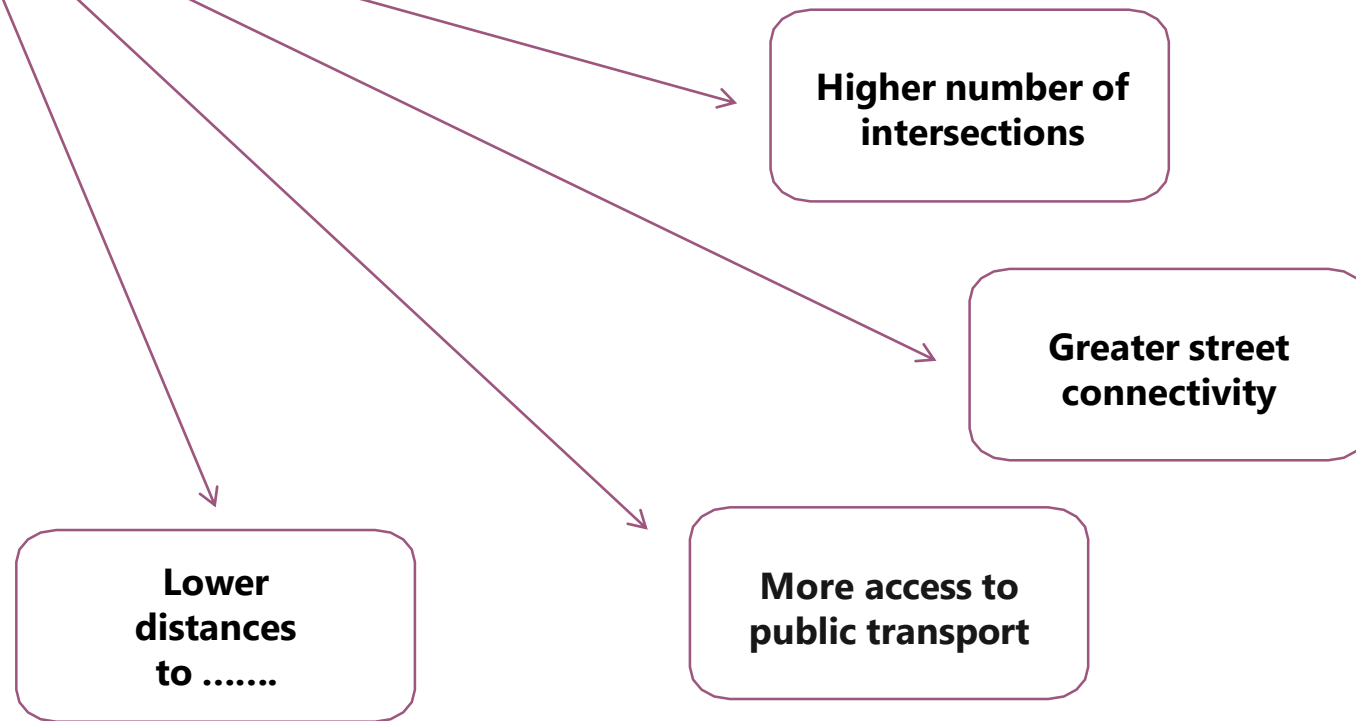
Cognitive performance and spatial awareness

Independence, positive emotions, and social inclusion

Habits that carry on into



Barriers to active mobility



Within our project several built environment characteristics were shown to be linked to positive physical health.





- **500 million cases of chronic diseases due to lack of exercise.**
 - **Countries may be planning policies to support physical activity, but only 40% are working and 28% are not funded.**

- **Nearly 500 million people will develop heart disease, obesity, diabetes or other non-communicable diseases due to a lack of physical activity during the decade 2020-2030, burdening health systems worldwide with an additional 27 billion. Dol. annually if governments do not take their measurements to encourage the physical activity of their population.**



- This highlights World Health Organization report on physical activity, which includes data from 194 countries on government programs and recommendations to increase the physical activity of the population at all ages, but also depending on the exercise capacity of the population.
- The aim is to accelerate the implementation of policies that increase the levels of exercise of the population with a view to preventing diseases and reducing the burden on health systems already burdened by non-communicable diseases.



According to the WHO report:

- ✓ Less than 50% of countries have a national physical activity policy, but less than 40% of these policies are operational.
- ✓ Only 30% of countries have developed national guidelines on physical activity for all age groups.
- ✓ Almost all countries report a system for monitoring physical activity in adults, but 75% of countries monitors the physical activity of adolescents and under 30% has a physical activity program for children under 5 years old.
- ✓ Just over 40% of countries have standards for road design to make walking and cycling safer.

The WHO Global Action Plan on Physical Activity 2018-2030, aimed at enhancing physical activity in countries, had included 20 policy recommendations addressing the creation of safer roads to improve transportation, **the creation of more programmes for physical activity at key points such as schools**, primary health care facilities and workplaces.



One in four American adults spend more than eight hours a day sitting

People who sit for more than 7 hours per day or more are much more likely to develop depression, dementia and Alzheimer's

A sedentary lifestyle increases death rate by 71%

Sedentary behavior increases the risk of some types of cancer by up to 66%

Women are more likely to be Physically Inactive than Men

People who sit for 30 minutes or less at a time have a 55% lower risk of death compared to those who sit longer



Cardiovascular disease risk goes up by 147% for people with high levels of sedentary behavior

The US ranks 143 out of 168 Countries in Physical Fitness

4.6% of Deaths Globally are linked to Physical Inactivity

Since 1950, sedentary jobs have increased by 83%

Sitting for long periods of time is linked to a 112% increase in the risk of diabetes



One in four American adults spend more than eight hours a day sitting

According to the Centers for Disease Control and Prevention (CDC), 1 in 4 Americans sit for more than **8 hours a day**. A summary of the findings:

- ✓ 25 % of Americans spend more than 8 hours a day sitting.
- ✓ 44% report doing no moderate to vigorous physical activity at all weekly.
- ✓ 11% spend 8 hours or more a day sitting whilst doing little leisure-time physical activity.
- ✓ Only 4% spend less than 4 hours a day sitting while being active as well.





Physical activity levels have dropped in UK

Physical activity levels have dropped with less than 40% of men and 28% of women in England (NHS Information Centre 2008) not meeting UK Government guidelines of 30 min or more of moderate or vigorous activity on at least 5 days per week.

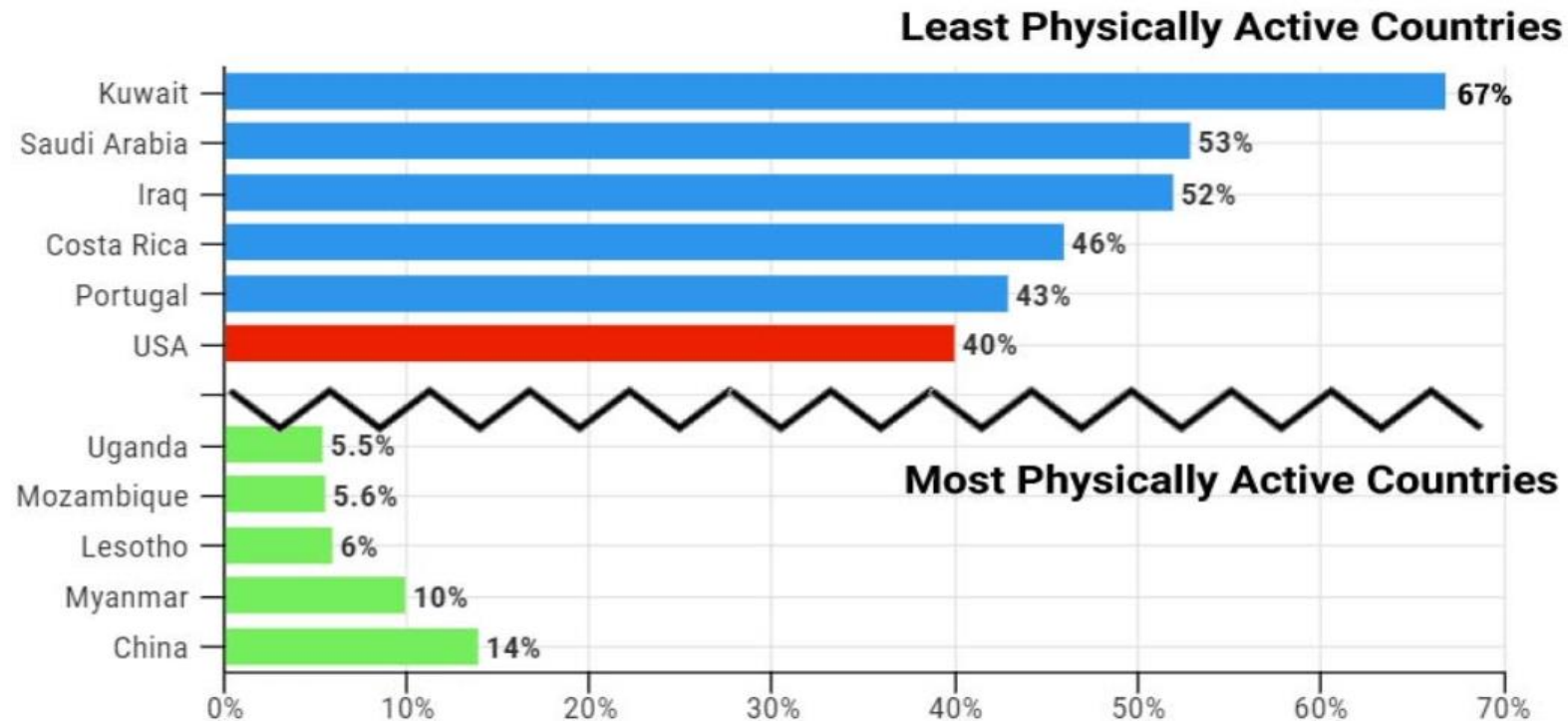
- ✓ The percentage of children aged 5–10 years who walked to school, during 1985–1986 (67%) to figures collated in 2006 (52%).
- ✓ The percentage of primary school children travelling by car increased from 22 to 41% during the equivalent period.
- ✓ In the UK, the distance walked per year by each individual has fallen from 410 km /year in 1975–76 to 323 km /year in 2006.



A sedentary lifestyle increases death rate by 71%

- ✓ A study with 184,190 participants reported that people who spent more than 6 hours per day sitting with low levels of physical activity have a 71% increase in mortality rate.
- ✓ Even more alarmingly, another comprehensive study showed that even with 4-7 hours of moderate to vigorous exercise weekly, sitting for 5-6 hours a day watching TV still increases mortality rate by 50%.
- ✓ The takeaway is that physically activity does not completely offset the negative effects of a sedentary lifestyle centered around sitting.





* Percentage of Population Not Meeting Minimum Recommended Physical Activity Guidelines

Source: UN Lancet Global Health

Compiled by ErgonomicTrends.com



Women are more likely to be Physically Inactive than Men

- ✓ Women are more likely to lack sufficient physical activity compared to men, according to an extensive UN report.
- ✓ In 159 of 168 countries surveyed, the prevalence of insufficient physical activity was 10% or higher in women compared to men. In 9 countries, the difference is a startling 20% or higher.



So what are the risks of sitting for too long and living a sedentary lifestyle?

According to the WHO (World Health Organization), physical inactivity is the fourth leading risk factor for global mortality. It accounts for:

- ✓ 6% of deaths globally
- ✓ 22% of heart disease
- ✓ 22% of colon cancer
- ✓ 12% diabetes and hypertension



People who sit for 30 minutes or less at a time have a 55% lower risk of death compared to those who sit longer

- ✓ The duration of sitting sessions can greatly influence the risk of premature death.
- ✓ People who sat in 30-minute stretches had a 55% lower death risk compared to those that sat for longer periods at a time.
- ✓ People that often sit at for more than 90 minutes at a time have a nearly two-fold greater risk of death.



A sedentary lifestyle can cause premature death.

- ✓ One of the conditions most associated with lack of physical activity is heart disease.
- ✓ High levels of sedentary behavior increases the risk of cardiovascular disease by up to 147%.
- ✓ People who sit more than 10 hours daily have higher troponin levels.
- ✓ Obesity is another reason for high risk of cardiovascular disease is obesity. The more inactive people are, the harder it is to manage their weight (Patel et al., 2010).



A sedentary lifestyle has been linked to:

- ✓ Subclinical cardiac injury
- ✓ risk of some types of cancer by up to 66%
- ✓ a 112% increase in the risk of diabetes
- ✓ Additionally, People who sit for more than 7 hours per day or more are much more likely to develop depression, dementia and Alzheimer's





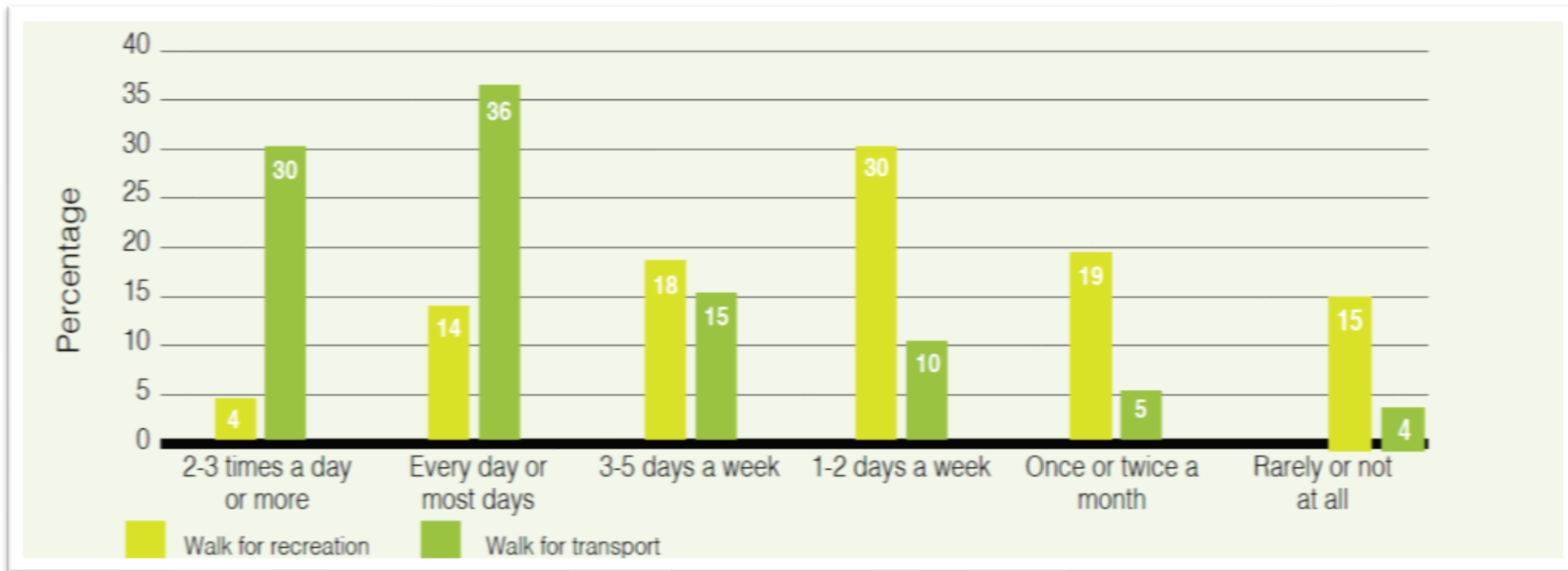
Since 1950, sedentary jobs have increased by 83%

- ✓ Due to technology, **active jobs** are now either done by robots or made easier by automation. This has greatly contributed to the sedentary lifestyle and physical inactivity of the majority of people today.
- ✓ The **American Heart Association** reported that only **20%** of the current workforce possess physically active jobs.
- ✓ Sedentary jobs have seen an **83%** increase since 1950.





Frequency of walking for recreation and transport



Frequency of walking for recreation and transport



Solution to sedentary lifestyle: a five-minute walk every half hour

Walking evenly distributed throughout the day and at work, especially when sedentary, achieves *significant improvement in cardiometabolic indicators*

Endless hours in a chair – a feature of modern lifestyle – endangers our health, even if we exercise regularly.

Given this, doctors advise all adults to ***sit less and move more***.



But how often do we need to get up from our chairs to neutralize the impact of a day on the chair? And for how long?

Few studies have been done to finally answer the question.

A new study by physiologists at Columbia University gives an answer: ***just five minutes of walking every half hour during periods when sitting is prolonged can offset some of the most harmful effects.***

The study, led by Keith Diaz associate professor of behavioral medicine at Columbia University, was published online in the American College of Sports Medicine journal *Medicine & Science in Sports & Exercise*.



"Small" exercises

Unlike other studies that researched one or two types of activities, Diaz's study looked at five different kinds of "small" exercises: one minute of walking after every 30 minutes of sitting, one minute after 60 minutes; five minutes every 30 minutes of sitting and five minutes every hour and no walking.

"If we hadn't compared the above options with each other and differentiated the frequency and duration of the exercise, we could only speculate on the best routine choice," says Diaz.

The study involved 11 adults, who sat in an ergonomic chair for eight hours, and only got up for a small exercise they had been prescribed, such as walking on a treadmill or a toilet break.



Pressure and sugar

The researchers monitored each participant to ensure they did not do too much exercise or less than suggested, and periodically measured the participants' blood pressure and blood sugar, as these measurements are key indicators of **cardiovascular health**.

Participants were able to work on a laptop, read and use their phones during the sessions, and were provided with specific meals.

The optimal option, as the researchers found, was five minutes of walking every 30 minutes. This frequency of movement was the only one that significantly reduced both blood sugar and blood pressure.

In addition, this walking schedule had a drastic effect on how participants responded to large meals, **reducing blood sugar peaks by 58% compared to sitting all day**.



And one minute "works"

Moderate benefits also provided a ***one-minute walking break every 30 minutes for blood sugar levels during the day***, while walking every 60 minutes – either for one minute or five minutes – had no benefit.

All walking options significantly reduced blood pressure by 4 to 5 mmHg compared to sitting all day.

"This is a significant decrease, comparable to the reduction we would expect with daily exercise for six months." Diaz noted.

The researchers also periodically measured participants' levels of mood, fatigue, and cognitive performance during the test. All walking patterns, except for walking one minute per hour, led to a significant reduction in fatigue and significant improvements in mood. None of the gait regimens affected cognitive function.



Eliminates fatigue

"The effects on mood and fatigue are significant. People tend to repeat behaviors that make them feel good and are pleasant." Diaz pointed out.

Columbia researchers continue the research with 25 different walking "doses" for health outcomes and participants with different characteristics from each other. In the present study, participants were between 40 and 60 years old and most did not have diabetes or high blood pressure.

Concluding, the professor pointed out that *"What we know now is that for optimal health, you need to move regularly at work, beyond daily exercise. While this may sound impractical, the findings suggest that even small 'doses' of walking evenly distributed over the workday can significantly reduce the risk of heart disease and other chronic diseases."*



Many of us use smartwatches with a pedometer, but do we know exactly how many steps we need to take to benefit the silhouette and above all our ***health***? We may have read that the "perfect number" is 10,000 steps per day, but this is not so easy, especially if we have a full daily schedule.

However, new research, published in the journal "JAMA Network in Nutrition, Obesity, and Exercise", suggests a more realistic goal: It concluded that with 7,000 steps per day we reduce the risk of premature death and pave the way for a longer and healthier life.



Scientists, from the University of Massachusetts, conducted a long-term study of 2,110 people, men and women with an average age of **about 45 years**, from 2005 to 2018. By the end of it, 3% of the participants had died. Experts observed that those who took **about 7,000 steps per day** were at **50-70% lower risk of premature death than those who did not walk much**. The pace of the steps did not seem to be particularly linked to the health status of the participants – only their number.

But people who took more than 10,000 steps per day were not observed to enjoy additional benefits in terms of longevity. So the more we walk every day, the better, but there is no need to "overdo it", at least if we are in the so-called middle age.



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THE BENEFITS OF WALKING



Moving just 2 minutes every hour can decrease premature death risks by 33%.

- Offsetting the negative effects of prolonged sitting can start with just 2 minutes every hour.
- Just two minutes of physical activity for every hour of sitting can lower the risk of premature death by as much as 33% (stretching or walking).



45 minutes of moderate exercise, such as brisk walking, a day can give us more and better years of life

- * A new study, recently published in the prestigious international scientific journal *Circulation*, evaluated the association between time and intensity of long-term physical activity in leisure time and mortality from all causes.
- * Data from 116.221 people were analyzed and the correlation between time and intensity of physical activity was evaluated.
- * This study is very important, because it originates from a 30-year perspective of monitoring tens of thousands of people and demonstrates in simple terms that even 45 minutes of moderate exercise, such as brisk walking, a day can give us more and better years of life.



- ❑ People who did intense physical activity in the long run for 75-149 minutes/week versus those who did not had 19% lower all-cause mortality, 21% lower mortality from cardiovascular disease, and 15% lower mortality from non-cardiovascular disease (such as cancer).
- ❑ People who did moderate-intensity physical activity in the long run in their spare time for 150-299 minutes/week had similarly lower mortality, namely from 19% to 25% lower risk of death from any cause, cardiovascular disease and non-cardiovascular disease.



- ❏ Participants who reported 2 to 4 times more intense exercise intensity (150-299 minutes/week) or moderate-intensity exercise (300-599 minutes/week) experienced 2% to 4% and 3% to 13% lower mortality, respectively.
- ❏ Higher levels clearly showed no further lower mortality or harm from any cause, cardiovascular disease and non-cardiovascular disease (such as cancer).
- ❏ The researchers concluded that the maximum association with lower mortality was achieved by performing 150 to 300 minutes/week of intense intensity exercise or 300 to 600 minutes/week of moderate-intensity exercise in leisure time or an equivalent combination of both.



To walk or to run?



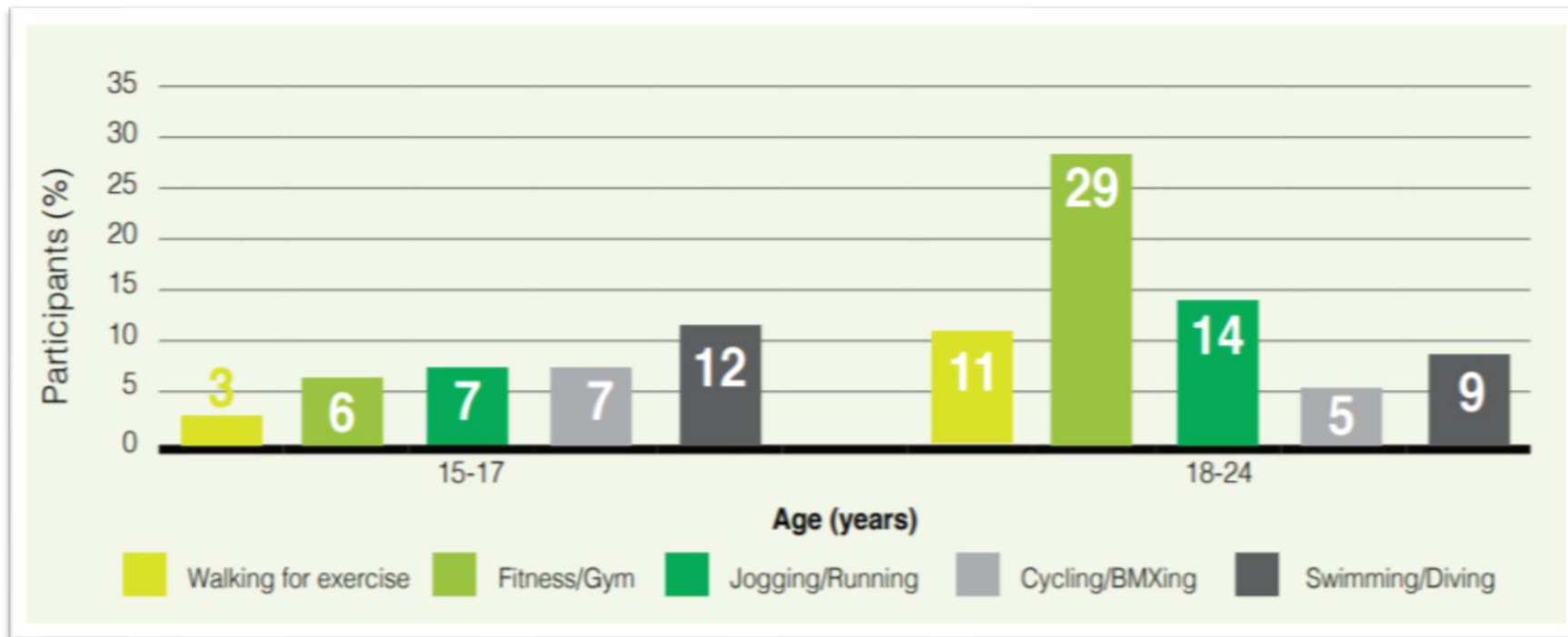
To walk or to run?



- ✓ It doesn't matter as long as the activity is aerobic – in that it raises the heart rate and gets people moving and sweating for a sustained period.



Walking as form of leisure-related physical



Participation¹ in the top five forms of sport and physical recreation, Victoria

(Source: Australian Bureau of Statistics, 2012)



Walking and health





**Running is for aerobic
exercise.**

**It really is marvelous for
fitness and health. But it's
not the only way to
exercise for health.**

**In fact, though, moderate
exercise is excellent for
health — and walking is
for moderate exercise.**





Why walk ? Why not!



Why walk? Why not!

- The ***Physical Activity Guidelines for Americans*** recommend that adults get at least 150 minutes of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity physical activity, or an equivalent combination each week. The guidelines also recommend that children and adolescents be active for at least 60 minutes every day. Following these guidelines can contribute to overall health and decrease the risk of chronic diseases such as heart disease, cancer or diabetes.
- Walking is a great way to get the physical activity needed to obtain health benefits. Walking does not require any special skills. It also does not require a gym membership or expensive equipment.



Walking is for moderate exercise

- ❖ Walking as a moderated-intensity physical activity, began to receive attention in the 1990s.
- ❖ The substantial health benefits can accrue from moderate-intensity physical activity (3-6 METs) of at least 30 min·d (Centers for Disease Control (CDC) and the American College of Sports Medicine ACSM, 1995).
- ❖ The CDC/ACSM recommendation also stated that **30** or **more** minutes of activity could be accumulated from multiple bouts, as long as each bout was 10 min or more.



Just 500 extra steps per day saves the hearts of the 70-year-olds

Additional walking by less than half a kilometer per day appeared to reduce the risk of heart disease, stroke and heart failure in people aged 70 and older, according to a new study.

Just 500 additional steps a day – less than half a kilometer – are associated with a 14% reduction in the risk of heart disease, stroke or heart failure, according to early results of a study presented at the American Association of Cardiology's "Epidemiology, Prevention, Lifestyle & Cardiometabolic Health Scientific Sessions 2023" conference in Boston.



Unattainable goal of 10,000 steps for many seniors

"Steps are an easy way to calculate a person's physical activity, and as we've seen a few more steps a day are associated with a lower risk of a cardiovascular event in older people" said Erin Dooley, assistant professor of Epidemiology at the Birmingham School of Public Health of the University of Alabama and lead author of the new study and added: "However, most studies to date have focused on young adults and middle-aged people setting a target of 10,000 or more steps per day – a goal that probably cannot be achievable for older people."



The "profile" of the study

The participants in the latter analysis were part of a larger study group of 15,792 adults participating in the ongoing ARIC (Atherosclerosis Risk in Communities) study. The new study evaluated health data collected as part of the ARIC in 2016-2017 to assess the possible link between the number of daily steps and the prevention of cardiovascular disease.

Specifically, the researchers analyzed data from 452 people who wore an accelerometer (a device similar to the pedometer) on their hip, which measured the steps they took daily. The average age of the participants was 78 years, of which 59% were women.



3,500 the average number of steps

Volunteers wore the device for three days or more, for ten or more hours a day, and the average number of steps they took was around 3,500 per day.

During the follow-up period of 3.5 years, 7.5% of the participants experienced a cardiovascular problem, such as coronary heart disease, stroke or heart failure.



Significant reduction in the risk of cardiovascular event

According to the analysis, compared to those who took less than 2,000 steps a day, volunteers who took about **4,500 steps a day faced a 77% lower risk of developing a cardiovascular event**. Nearly 12% of older people who took less than 2,000 steps a day had a cardiovascular event compared to 3.5% of their peers who took about 4,500 steps a day. At the same time, the study showed that every 500 extra steps a person took per day was associated with a 14% reduction in risk of cardiovascular disease.



Many benefits with less than half a kilometer of extra walking

"It is important to maintain good levels of physical activity as we age, but the goals we set for how many steps we will take each day must be achievable. We were surprised to discover that every almost half kilometer of walking extra, or 500 steps, had such great benefits for heart health," Dr. Dooley noted, adding: "While we don't want to underestimate the importance of higher-intensity physical activity, encouraging older people to increase their daily step count a little can also have significant cardiovascular benefits. If you're over 70, start by trying to take 500 extra steps a day."



Types of walking



Types of walking

- Treadmill walking
- Mall walking
- Nature walks
- Hiking
- Nordic walking
- Power walking
- Park walking
- Race walking
- City walking





Type of Walking

- Brisk walking at 3 to 4 mph for most adults.
- A minimum frequency ("most days of the week," at least 5 d·wk⁻¹).
- A minimum duration each day (30 min).
- A minimum time for each activity bout (10 min).
- A minimum intensity (moderate intensity) (*Lee and Buchner 2008*).





Why Walking;

- ✓ Walking is one of the least expensive and most broadly accessible forms of physical activity.
- ✓ It is rarely associated with physical injury and can easily be adopted by people of all ages, including those who have never participated in physical activity.
- ✓ Studies have shown that walking has higher levels of adherence than other forms of physical activity.



Does your route pass the walkability test?

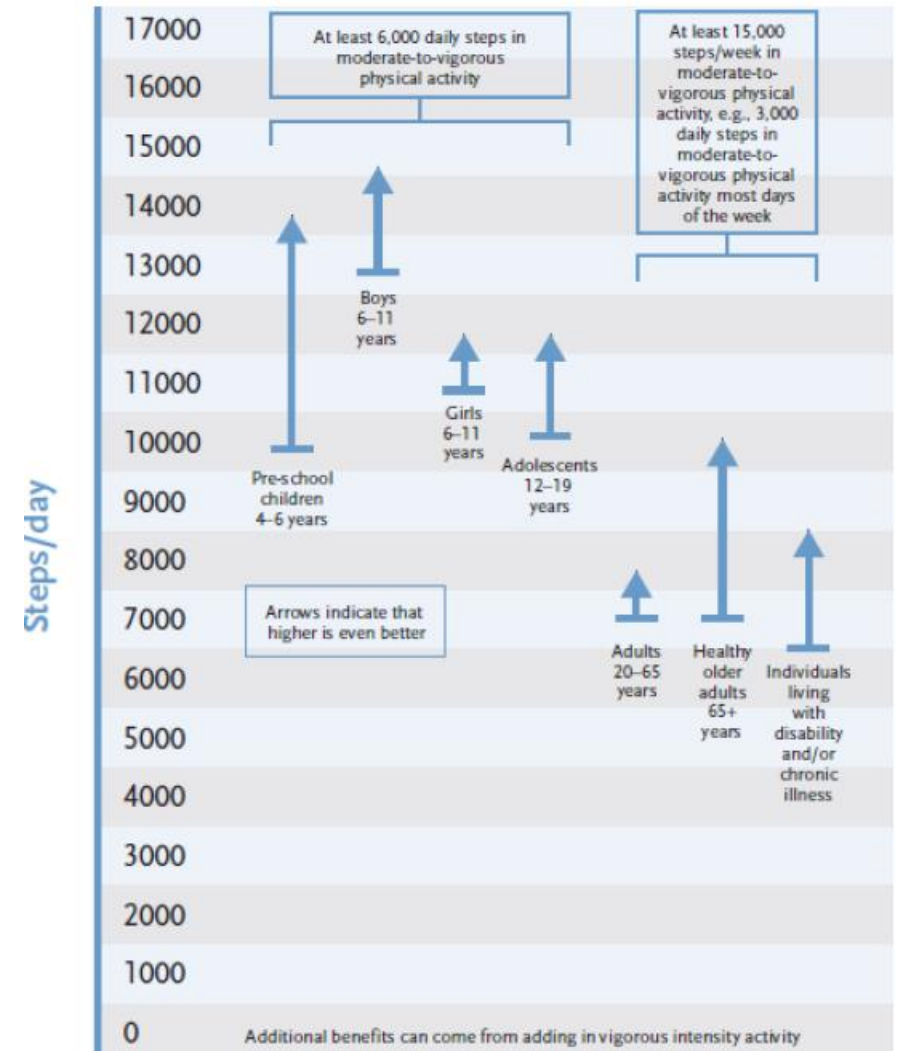
- Do you have room to walk?
- Is it easy to cross streets?
- Do drivers behave well?
- Is it easy to follow safety rules, such as using crosswalks and walking on sidewalks or shoulders facing traffic?
- Is your walk pleasant and safe?





How many steps per day are enough;

- Adults usually walk between 4,000 and 18,000 steps per day. Traditional rural communities, are at the upper end of this scale, while sedentary, obese adults would be at the lower end of the scale.
- Older adults and special populations (including individuals suffering from chronic conditions and disabilities), currently average between 2,000–9,000 steps/day, and 1,200–8,800 steps/day respectively.
- Children between the ages of 6 and 12 typically average between 10,000 and 16,000 steps per day, while adolescents only average approximately 8,000–9,000 steps per day.



<http://www.cdc.gov/physicalactivity/everyone/measuring/index.html>



How active are you?

Researchers have also established pedometer-determined physical-activity thresholds for adults categorized by their activity level:

- < 2,500 steps/day (sedentary – **basal activity**)
- 2,500–4,999 steps/day (**limited activity**)
- 5,000–7,499 steps/day (**low active**)
- 7,500–9,999 steps/day (**somewhat active**)
- 10,000–12,499 steps/day (**active**)
- $\geq 12,500$ steps/day (**highly active**)



The advice on walking depends on the age of the individual.



What is Physical Activity??

- Physical activity is a broad term that includes “any bodily movement produced by skeletal muscles that results in energy expenditure”. Thus, physical activity includes exercise, sport, and the activities of daily living. Activities of daily living include gardening, climbing the stairs, walking the dog, doing household chores and some occupational activities.
- **Exercise** is a subcategory within physical activity and involves planned sessions of large muscle activity, which generally are of moderate to high levels of intensity



- **Exercise** often is performed for specific goals such as health, physical fitness, weight management, “feeling better,” fun, and enjoyment. It also occurs in settings that may be group or individual, formal or informal, and in locations such as a fitness facility for organized classes; a home exercise area; or a residential neighborhood for fitness walking.
- These locations have implications for initial exercise adoption and adherence.



Benefits of Exercise

1. Reduction of stress, anxiety, and depression
2. Increases Self-Esteem
3. Positive "eye" on Social Environment (Socialization)
4. Mind "occupation" on difficult times
5. Healthier body & mind
6. Use of positive "Sport/Role Model"
7. Relief, decompression
8. Creation of positive emotions through healthy competition
9. Opportunity to express point of view, feelings, and emotions



Five minutes a day is enough for spectacular results

Exercise increases energy, burns calories and can prevent or minimize complications from chronic diseases.

As well-known as its benefits are, as much as we love it, there are also those days when our schedule is busy and there is no time left for the gym.

If you belong to this category, find out that just 5 minutes of exercise a day is enough. So steal some time and do a quick workout at home or go out for a run and you won't regret it.



What does five-minute exercise give us?

As with any exercise routine, consistency is key. So instead of feeling pressured to devote a large part of the day to your fitness, experts recommend doing as much as you can, even if it's a five-minute mini workout.



Less hunger

It is equally effective to divide your workout into several smaller sessions during the day instead of doing a long workout.

A scientific study published in the journal Obesity observed a group of people who performed one hour of exercise each day (group one), along with another group that completed 12 five-minute workouts a day (group two). Both groups had very comparable results.

But it is interesting to note that participants in the interval exercise group (group two) had a greater feeling of fullness during the day – they felt 32% fuller to be precise – than those who did not exercise. So by performing five-minute exercise sessions daily whenever they wanted, the participants felt fuller.



You live longer (and better)

According to a scientific study, published in the Journal of the American College of Cardiology, running five to 10 minutes daily is enough to help you live longer. This popular form of physical activity was found to reduce deaths due to cardiovascular and other causes by 29% to 50% in active runners.

For this, even if the health indicators are at good levels, put on your sportswear and do a leisurely run for just five minutes. The benefits are indeed many and the time you will spend is minimal.



What if you increase the volume for five minutes?

According to a scientific study, published in the American Journal of Health Promotion, University of Utah, doing short periods of exercise above a certain level of intensity can positively affect your weight as much as the recommended 10+ minutes. So five minutes can really help you.

To prevent weight gain, intensity of activity matters more than duration, according to the researchers behind the study. Knowing that even short periods of "intense" activity can have a positive effect is an encouraging signal to promote better health.



Effect of walking on all-cause mortality

A recent study of 400,000 people found that just **15 minutes** a day of **moderate exercise** (which includes brisk walking) can have significant health benefits, **adding up to three years to life expectancy**. Every additional 15 minutes of daily exercise reduced all-cause death rates by a further 4 per cent

The most significant reduction in mortality was associated with walking 20km per week while a reduction of 19 per cent was associated with 2.5 hours of brisk walking per week.



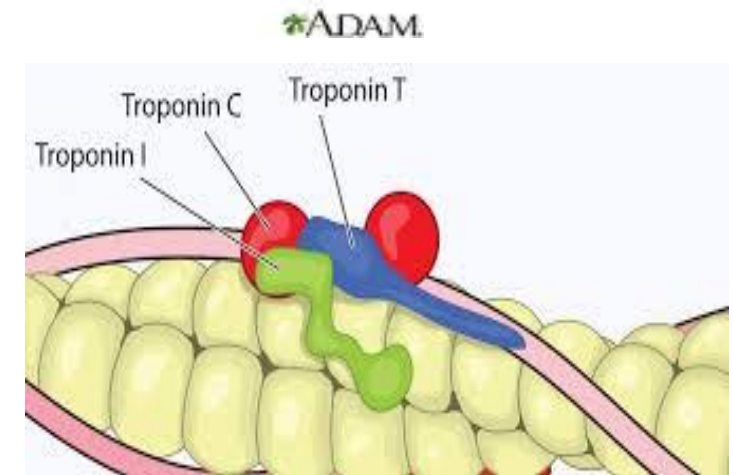
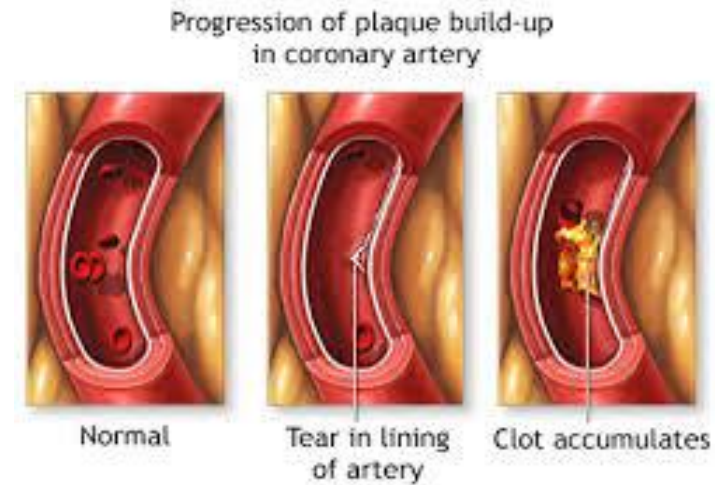
There is an association between walking and a reduction in deaths from all causes, ranging from 19–30 percent depending on the frequency and length of walking activities.

While the usual recommendation for physical activity for adults is 30 minutes at least five times a week, the health benefits of brisk walking begin to be seen at levels well below this level.



Subclinical cardiac injury

Based on research called *Sedentary Behavior and Subclinical Cardiac Injury*, sitting all day can cause troponin buildup. This is a protein that the heart muscle cells release when they get damaged (*Harrington et al., 2017*). Not enough to cause a heart attack, but still quite high that researchers have called it as “subclinical cardiac injury.”



How to Maintain Normal Troponin Levels
By [Jillian Levy, CHHC](#) December 28, 2019



Sedentary behavior increases the risk of some types of cancer by up to 66%

Sedentary behavior was linked to a greater risk of many types of cancers, including:

- Increases risk of colon cancer by 24%
- Increases risk of endometrial cancer by 66%
- Increases risk of lung cancer by 21%

Additionally, each 2-hour increase in sitting time increases the risk of colon cancer by 8%, endometrial cancer by 10%, and lung cancer by 6%.

When the researchers took a closer look at common sedentary pursuits, watching TV stood out, showing a 54% higher risk of colon cancer and a 66% greater risk of endometrial cancer (*Schmid & Colditz, 2014*).



Sitting for long periods of time is linked to a 112% increase in the risk of diabetes

- Being sedentary can have negative effects on one's glucose levels and increases insulin resistance.
- Frequent continual bouts of sitting can increase your chances of developing diabetes by 112%.
- The researches even say that, among the different chronic conditions, diabetes is the most consistent when it comes to the strength of association to long periods of sitting (Wilmot et al., 2012).



People who sit for *more than 7 hours per day or more* are much more likely to develop *depression, dementia and Alzheimer's*

- Sitting for more than 7 hours daily increases the risk of depression by 47% compared to those who only sit for 4 hours a day or less. The decrease in blood circulation makes it harder for happiness hormones like endorphins, dopamine, and serotonin to reach receptors (van Uffelen et al., 2013).
- A lack of regular exercise and prolonged sitting has also been linked to dementia and Alzheimer's.
- A sedentary lifestyle can increase the risk of developing Alzheimer's by up to 12 times, on par with people genetically predisposed to developing Alzheimer's due to possession of the APOE e4 gene.



Twenty minutes of daily exercise reduce the risk of hospitalization in middle age

What are the beneficial effects of exercise.

If you are over 40 years old and exercise regularly, not only does they maintain good physical condition, but it also reduces the likelihood of needing hospitalization for an illness, according to a new major British-American scientific research.

The researchers, led by Dr. Eleanor Watts of the US National Cancer Institute, who made the relevant publication in the American medical journal "JAMA Network Open", analyzed data on 81,717 adults 42 to 78 years old. Physical exercise time was associated with the risk of hospitalization due to pneumonia, stroke, diabetes complications, thrombosis, iron deficiency anemia, bowel polyp, severe urinary tract infections and other conditions.





The beneficial effects of exercise

It was found that only 20 minutes of daily exercise reduced – depending on the health problem – the risk of hospitalization from 4% (in the case of bowel polyps) to 23% (in the case of complications of diabetes) within the next seven years. There was also a great reduction in the risk of hospitalization for urinary tract infections and gallbladder diseases.

"Studies show that physical activity can improve immune system, lung and heart function, as well as reduce inflammation," Dr. Watts said.

Experts recommend at least 150 minutes of moderate-intensity exercise during the week or 75 minutes of high intensity. The key message of the new study is that "***almost any activity is better than inactivity.***"



Effect of walking on NCDs (non-communicable diseases)



Type 2 diabetes

Cardiovascular health

And other NCDs



Effect of walking on NCDs (non-communicable diseases)

Type 2 diabetes

Walking has been shown to:

- reduce significantly the risk of developing type 2 diabetes;
- adults with diabetes who walk at least a mile each day are less than half as likely as inactive adults with diabetes to die from all causes combined;
- increase fitness (heart and respiratory system) in adults with type 2 diabetes;
- effectively control fasting and post-walk blood-sugar levels.



Effect of walking on NCDs (non-communicable diseases)

Cardiovascular health

Walking has been shown to:

- result in reductions in CVD risk (especially for ischemic stroke), as a result of duration, distance, energy expenditure and pace (i.e. the benefits are dose-responsive – the benefits increase as the amount of walking increases);
- lower coronary heart disease risk, with as little as one hour of walking per week (including those who are overweight, smokers or have high cholesterol)
- walking for 30 minutes a day on five days of the week can lead to a reduction in coronary heart disease risk of 19 per cent;



Effect of walking on NCDs (non-communicable diseases)

Cardiovascular health (continue...)

Walking has been shown to:

- lower blood pressure, although more research is needed to determine the specific walking intensity that results in the greatest blood-pressure improvements;
- increase maximum aerobic capacity and aerobic endurance;
- decrease body weight, BMI, body fat percentage and waist perimeter;
- increase HDL ('good') cholesterol;
- increase muscle endurance



Effect of walking on NCDs (non-communicable diseases)

Other NCDs

Walking has been demonstrated to have relation with cancer, chronic lung disease, arthritis and lower-back pain :

- halve the risk of people with chronic lung disease being admitted as an emergency admission;
- increase aerobic capacity and capacity for functional exercise for people with arthritis;
- reduce pain for people with arthritis by between a quarter and a third;
- have a low to moderate effect on the treatment of lower-back pain;



The impact of walking on mental health

Walking has been verified to:

- **reduce physical symptoms of anxiety associated with minor stress;**
- **increase self-reported energy levels when older adults set their own pace;**
- **improve sleep quality;**
- **elevate affective response (e.g. pleasure), resulting in increased psychological well-being for individuals with type 2 diabetes;**



- **be associated with better cognitive performance at school;**
- **improve the cognitive functioning of older adults (compared to stretching and toning);**
- **improve cognitive performance and reduce cognitive decline among older people;**
- **increase the size of the hippocampus and prefrontal cortex, potentially beneficial for memory.**



The impact of walking on psychological health

The psychological benefits of walking have been found in social contexts with specific features:

- The outdoor environment (greenery & water), and walking has a greater affective and cognitive restorative affect for adults of poor mental health in rural settings.
- UK mental-health charity MIND ran a small study of 'green exercise' (physical activity outdoors), questioning people involved in gardening, conservation and cycling as well as walking groups. 90 per cent of those surveyed said that they feel that green exercise benefits their physical health – but an even higher proportion, 94 per cent, felt that it improves their mental health and psychological wellbeing.





Walking in green space

- The environment plays an important role in facilitating physical activities and helping to address sedentary behaviors.
- Walking can serve many purposes including exercise, recreation, travel, companionship, relaxation and restoration.
- Walking in greenspaces may offer a more sustainable option, through both exposure to nature and participation in exercise.





A study focuses on evaluating changes in **self esteem and mood** after walking in four different National Trust sites of natural and heritage value in the East of England. The standardized measures of both self-esteem and mood were administered immediately pre- and post-activity.

Self esteem scores for visitors leaving the sites were significantly higher than those just arriving and overall mood also significantly improved. Feelings of anger, depression, tension and confusion all significantly reduced and vigor increased.



Barriers to physical activity



Barriers to physical activity

Using existing and providing effective walking programs have the potential to address barriers to physical activity and to improve public health among many communities, including diverse communities.

Barriers to Physical Activity (Lattimore, et al, 2011)

Weather (too hot, too cold, too inclement)	Lack of social support
Neighborhood safety. Fear of crime	Lack of skills or experience with exercising
Fear of injury	Lack of available and clean restrooms
Lack of resources or accessibility to a gym or health club	



Overcoming barriers to walking

► What factors would encourage people to walk more;

**New and improved walks
for pleasure (74%)**

**Knowing that walking was
as quick as the bus for
short distances (73%)**

**If there were more facilities
in the local area (61%)**



Physical Barriers to walking

High-speed traffic

Few places to sit

Air pollution / traffic fumes

**Lack of attractive places to
walk (e.g. green space)**

**Lack of walking paths /
pavements**

Too many steps

Weather



Personal barriers to walking

**Unsafe: fear of injury, crime
(especially after dark) and
getting lost**

Boredom

Lack of time

Too tired

Lack of family support

Unfit / health problems

**Some cultures may see
exercise as inappropriate for
women/girls**



Physical enablers to walking

Improve the number and quality of walking paths

Engineering improvements

Walk during the middle of the day when it is cold, and in the early mornings/late evenings in hot climates

If the weather is a barrier, buy appropriate clothing

Improvements to facilities, such as seating in parks



Personal enablers to walking

Walk locally

Taking more walking

Walking with other people

**Through Social media
i setting up walking groups**

**Walking may be quicker
than you think for short
trips**

**Dog-walking can also be a
strong motivator**

Start small – even walking



Walking promotion

Health promotion messages aimed at increasing recreational walking for young people should focus on:

- The psychological and social wellbeing benefits of walking.
- The flexibility, convenience and low cost of walking.





Walking promotion

Health promotion messages aimed at increasing walking for transport for young people should:

- a. Highlight the cost, convenience, health, environmental and community benefits of walking for transport.
- b. Recognize the different influences on walking for:
 - i. Children, adolescents and young adults versus the elderly's.
 - ii. Women's and men's.
 - iii. Recreational and transport walking.
 - iv. Different trip purposes, times and locations.
- c. Be based on an understanding of the advantages and disadvantages of walking, driving and using public transport in order to maximise the advantages of walking and minimise the barriers to walking.
- d. Be well informed of the systemic and structural pressures and social context that impact upon young people's decisions to walk for transport.



Walking promotion

- ❑ Develop a program to encourage and support women's, particularly those who are not involved in sport, to walk in their neighborhood and engage in their local community, that can be implemented in local settings.
- ❑ Working with professionals and/or seniors mentoring programs to develop active travel programs to help maintain or establish a walking "habit".
- ❑ This could be complementary to programs seeking to increase social connection (e.g. "walking buddies" programs).



THIS IS THE END OF THE PRESENTATION !

Thank you for your time...

and remember the benefits of WALKING...!!