



**11
JUNE
2025** | **Cancer Prevention
through Physical Activity
& Public Health Engagement
– How Can Europe Act?**

10:30 - 13:00 | European Parliament | Room SPAAK 7C50

Hosted by:

MEP Kathleen **FUNCHION**

MEP Giorgos **GEORGIU**



Co-funded by
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ROLE OF PHYSIOTHERAPY IN CANCER CARE

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<https://www.erwcpt.eu/>



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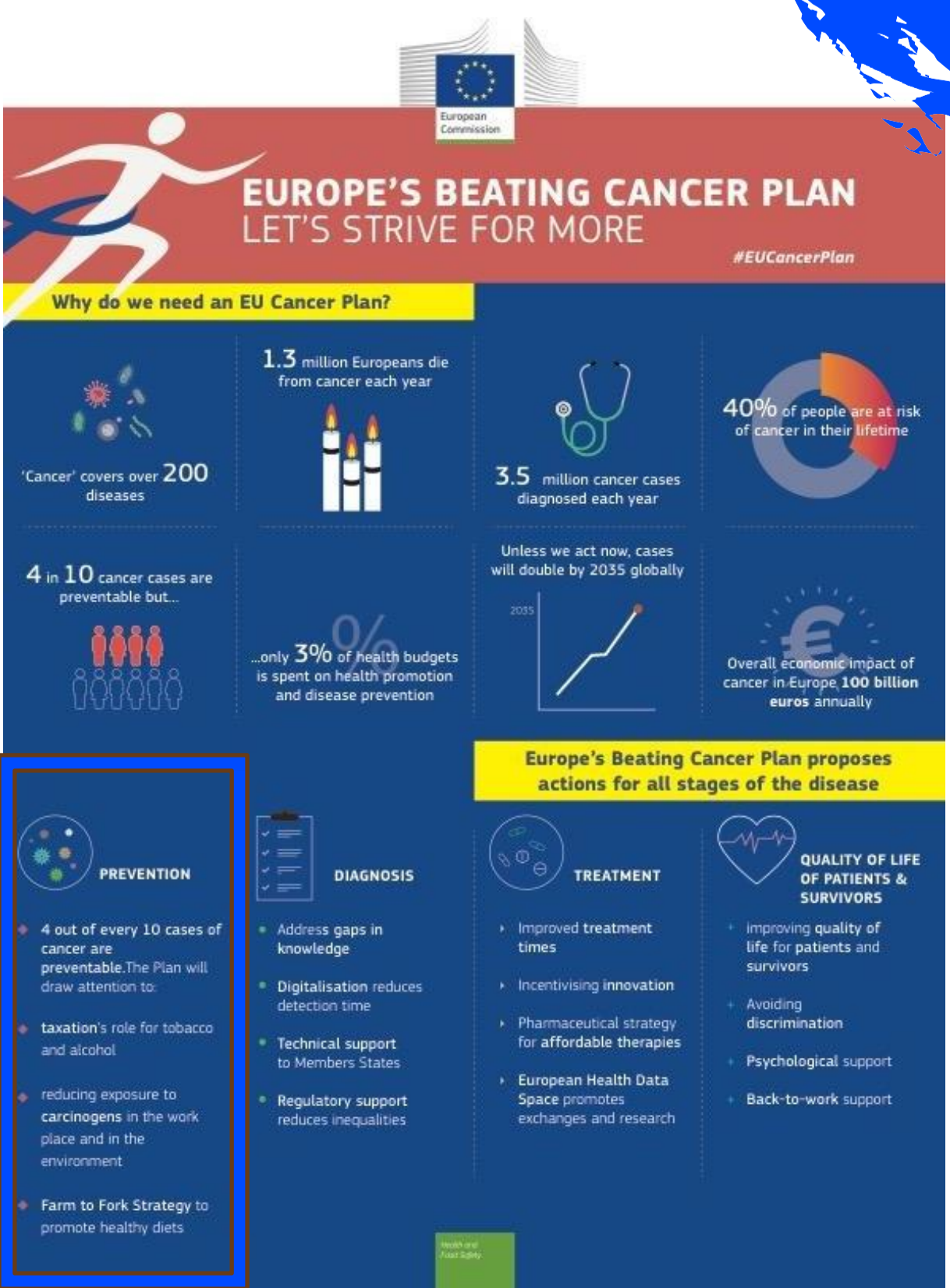
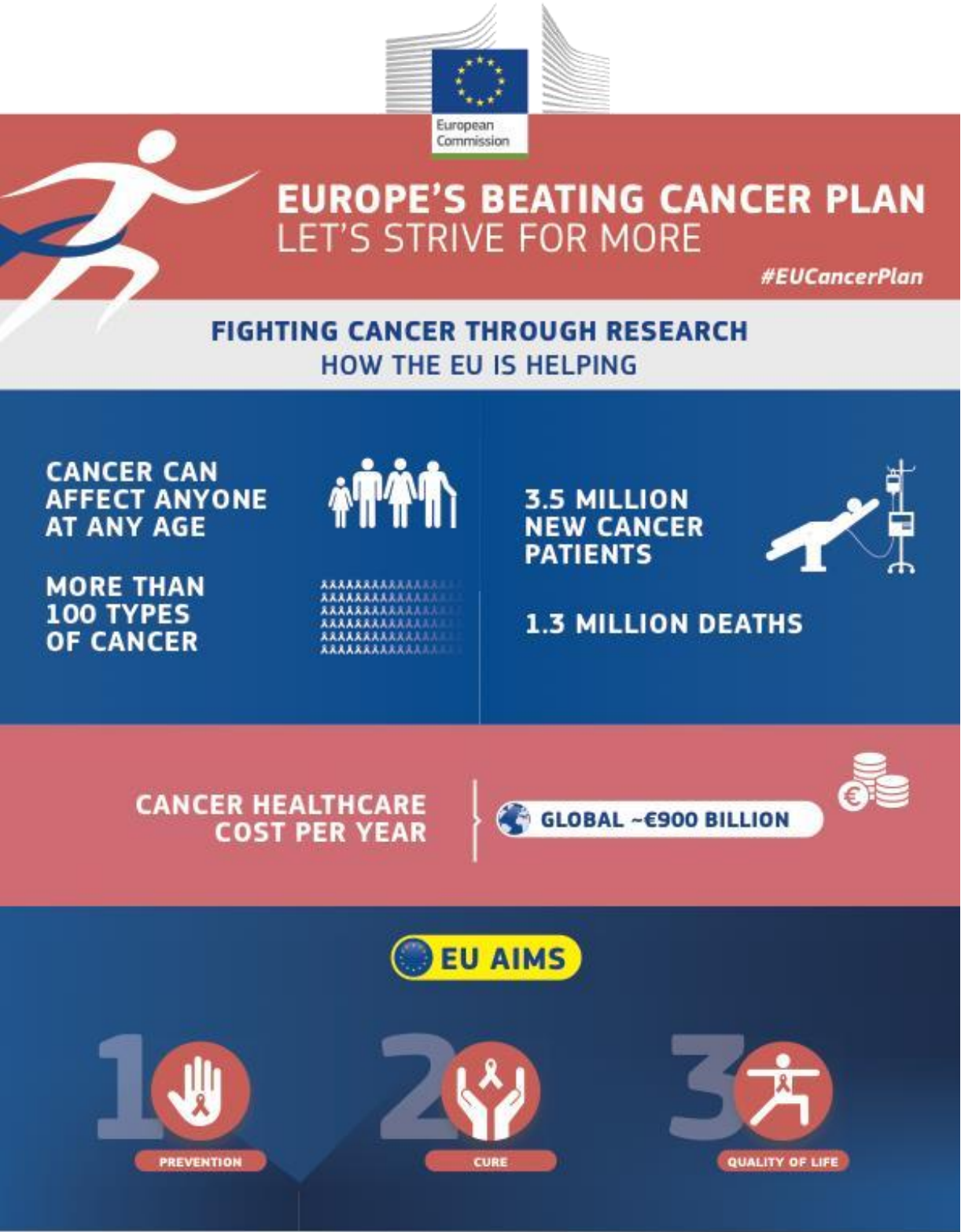


Europe Region

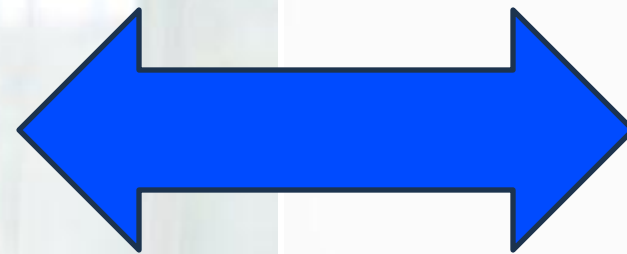


World Physiotherapy

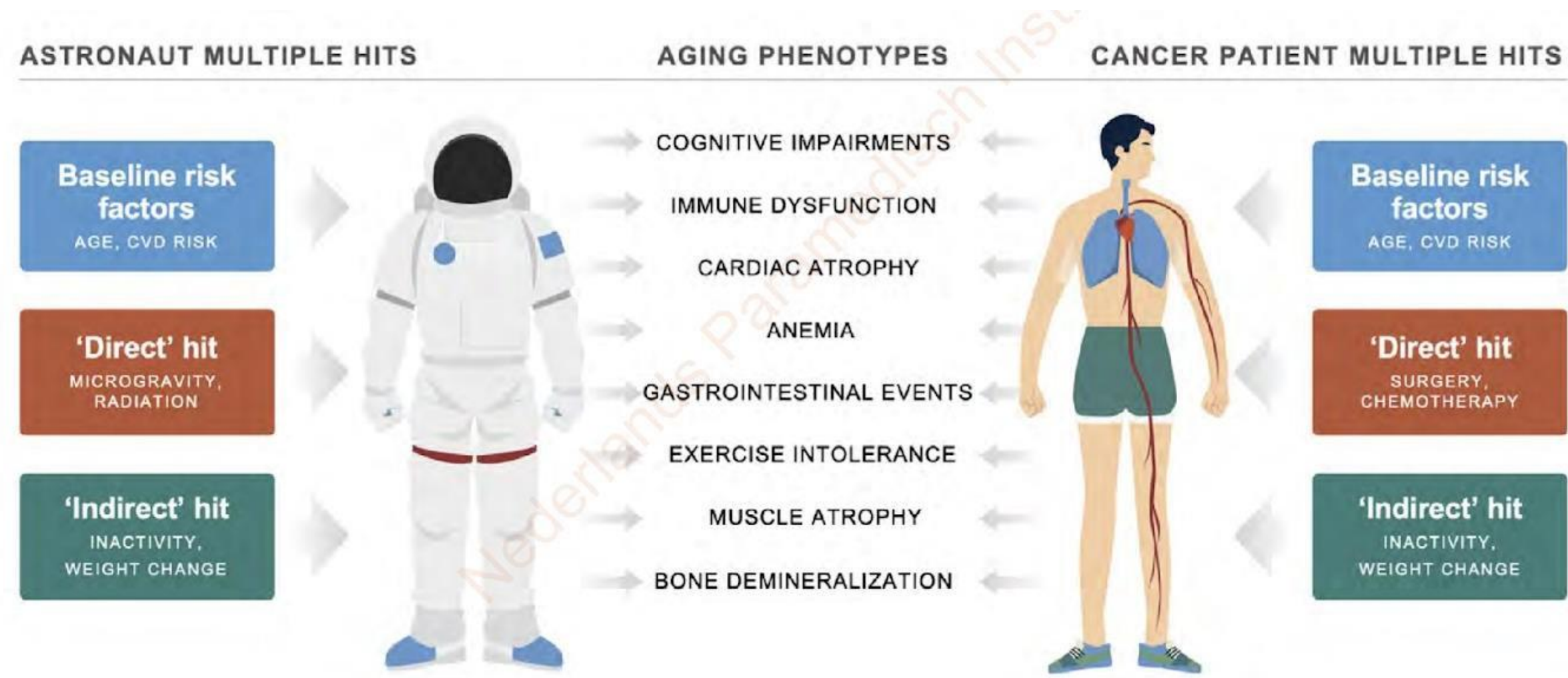
INTRODUCTION



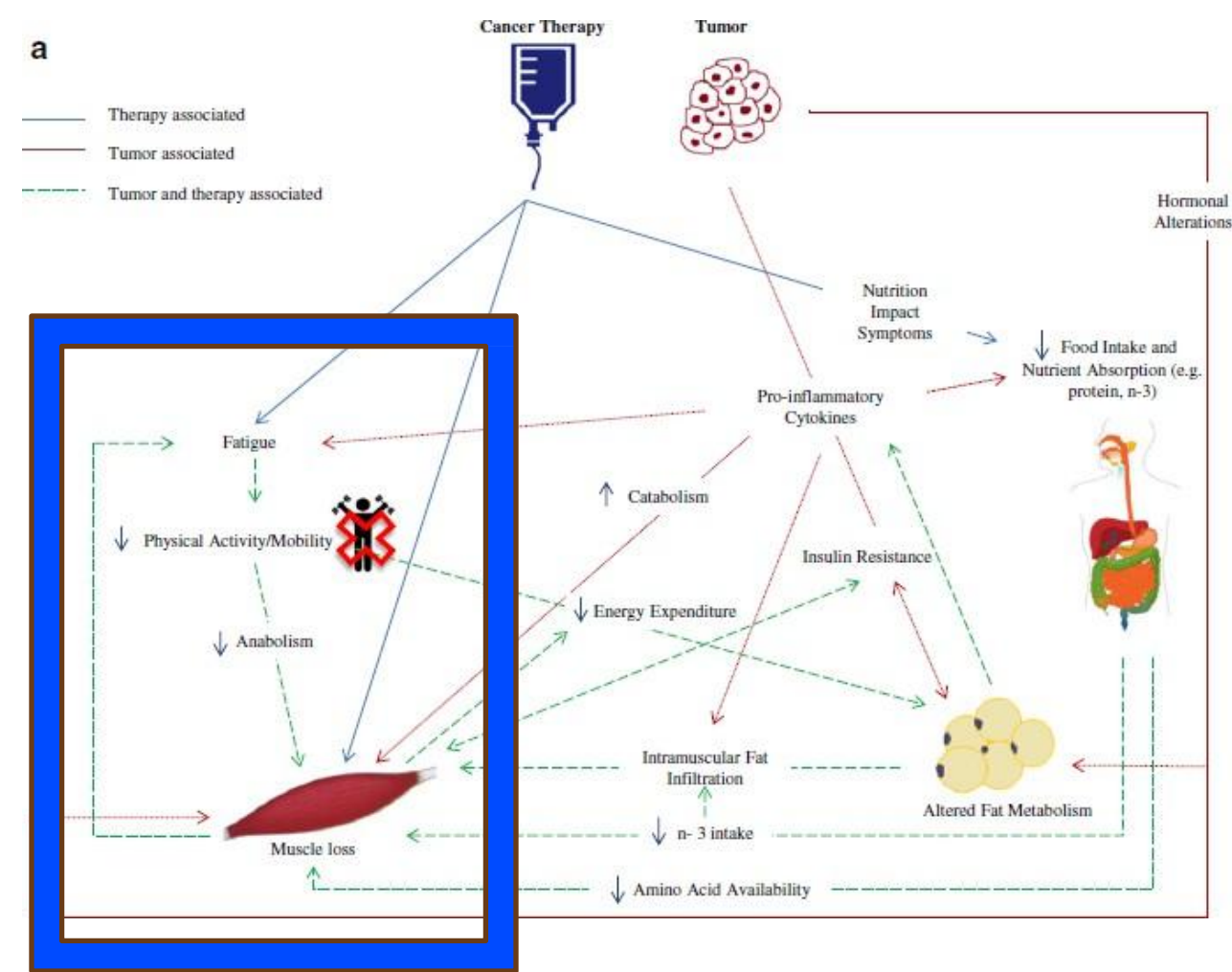
INTRODUCTION



INTRODUCTION



SCOTT ET AL. *CELL*, 2019



Carneiro et al., *Curr Oncol Rep*, 2016

INTRODUCTION

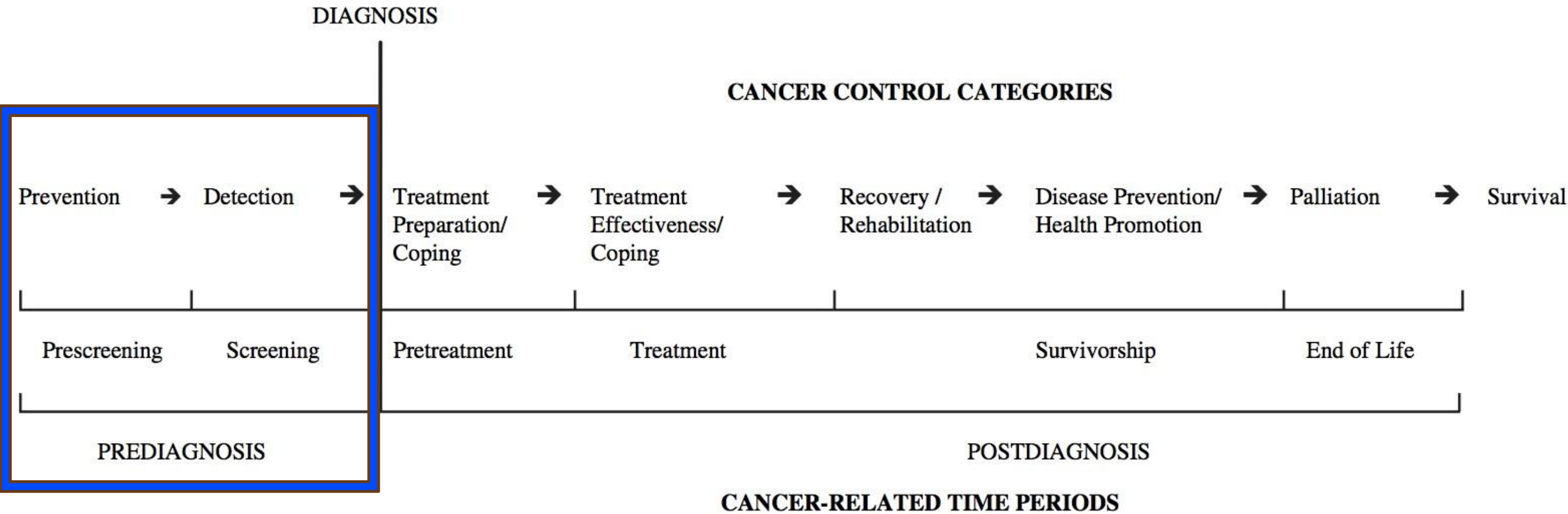
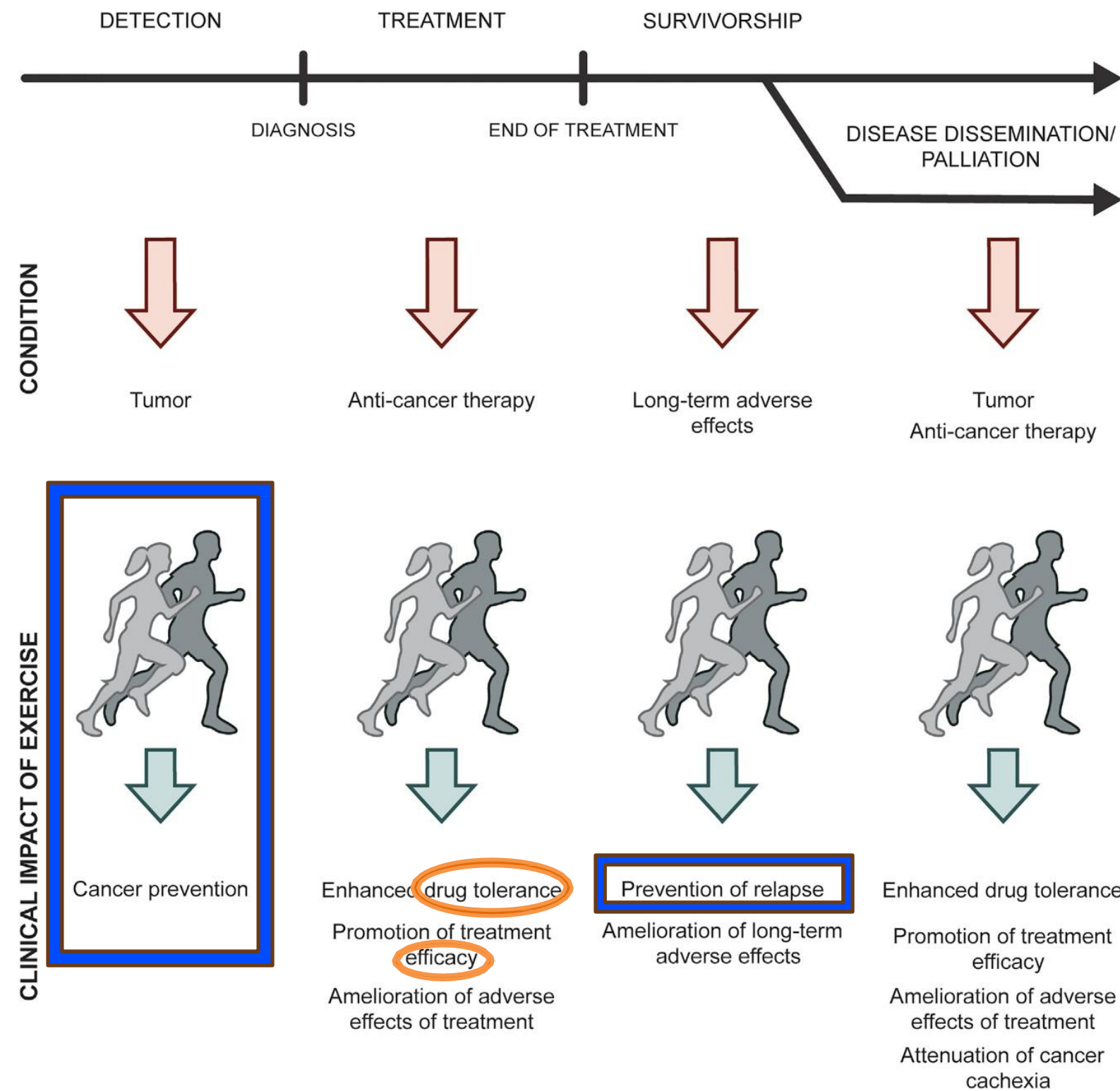


FIGURE 1. Physical activity and cancer control framework.

INTRODUCTION



INTRODUCTION

Exercise observed to reduce the relative risk of:

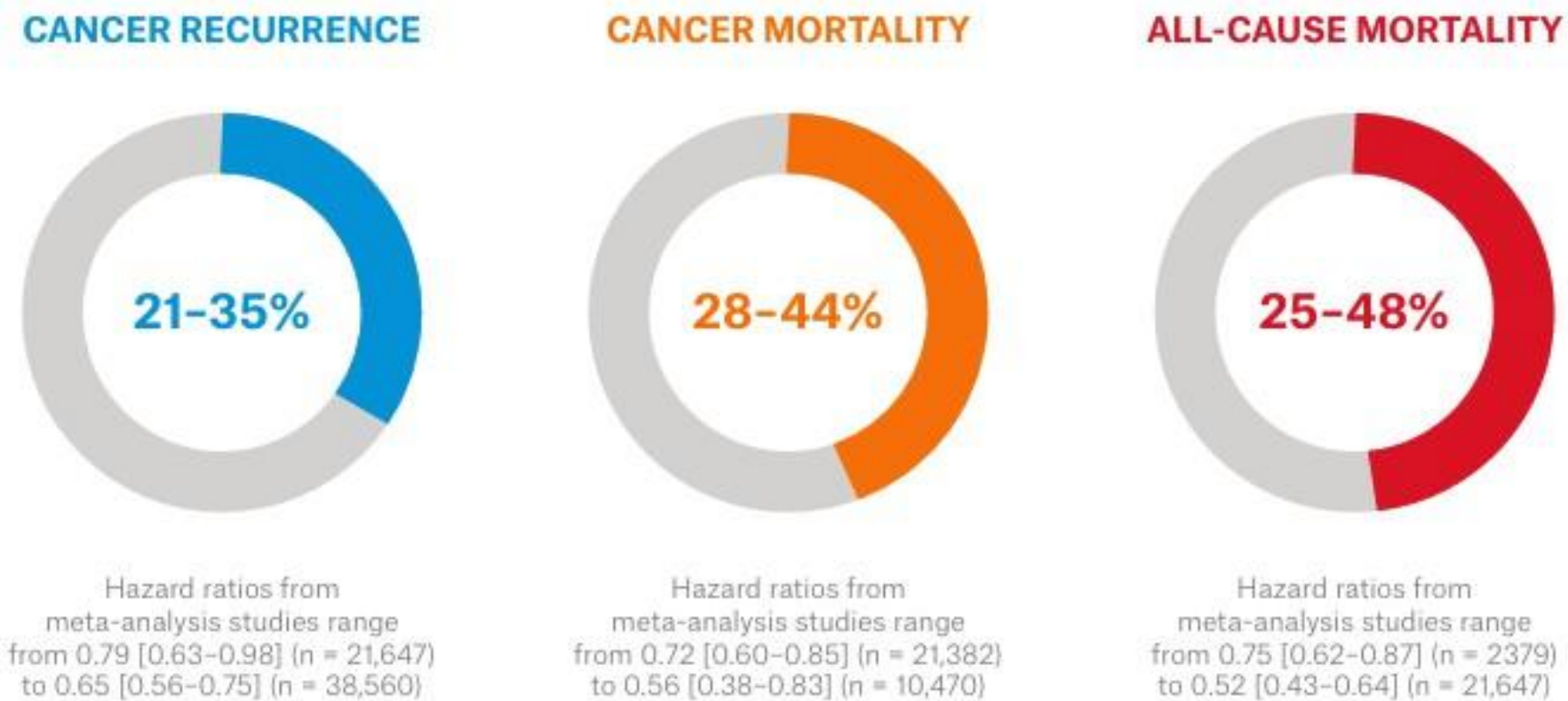


Figure 2. Exercise confers a protective effect against cancer recurrence, cancer-specific mortality and all-cause mortality in some cancers (data arises from studies involving predominately patients with breast, colorectal and prostate cancer).³

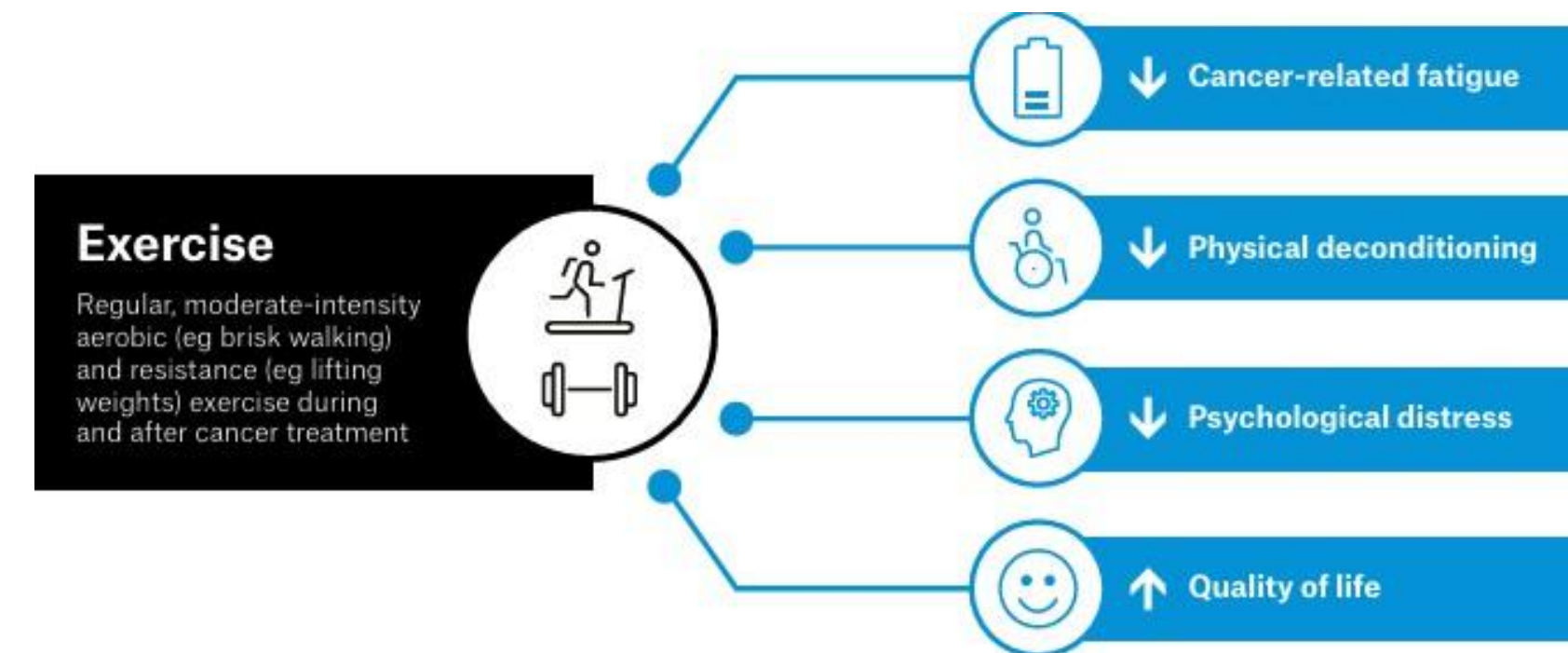
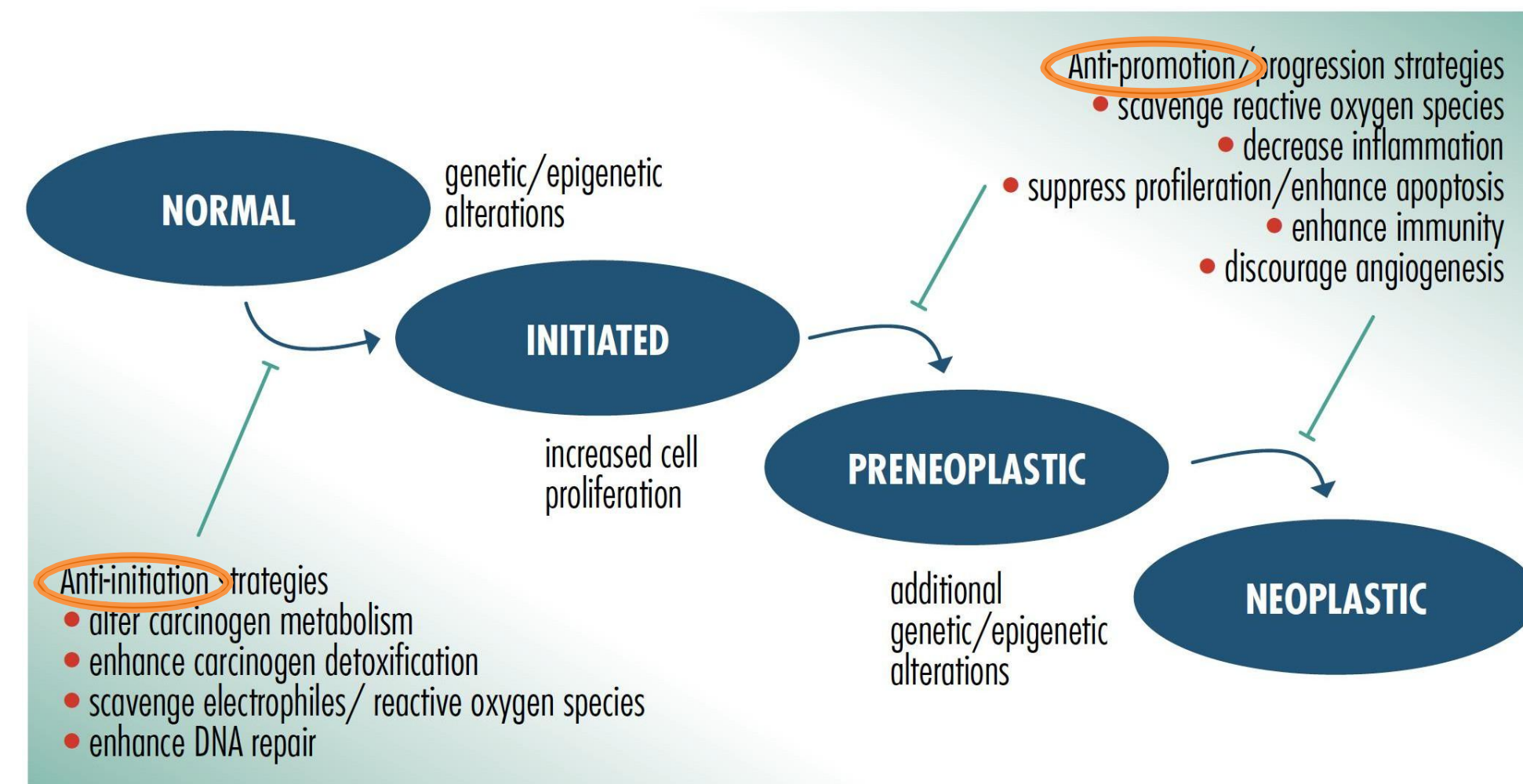
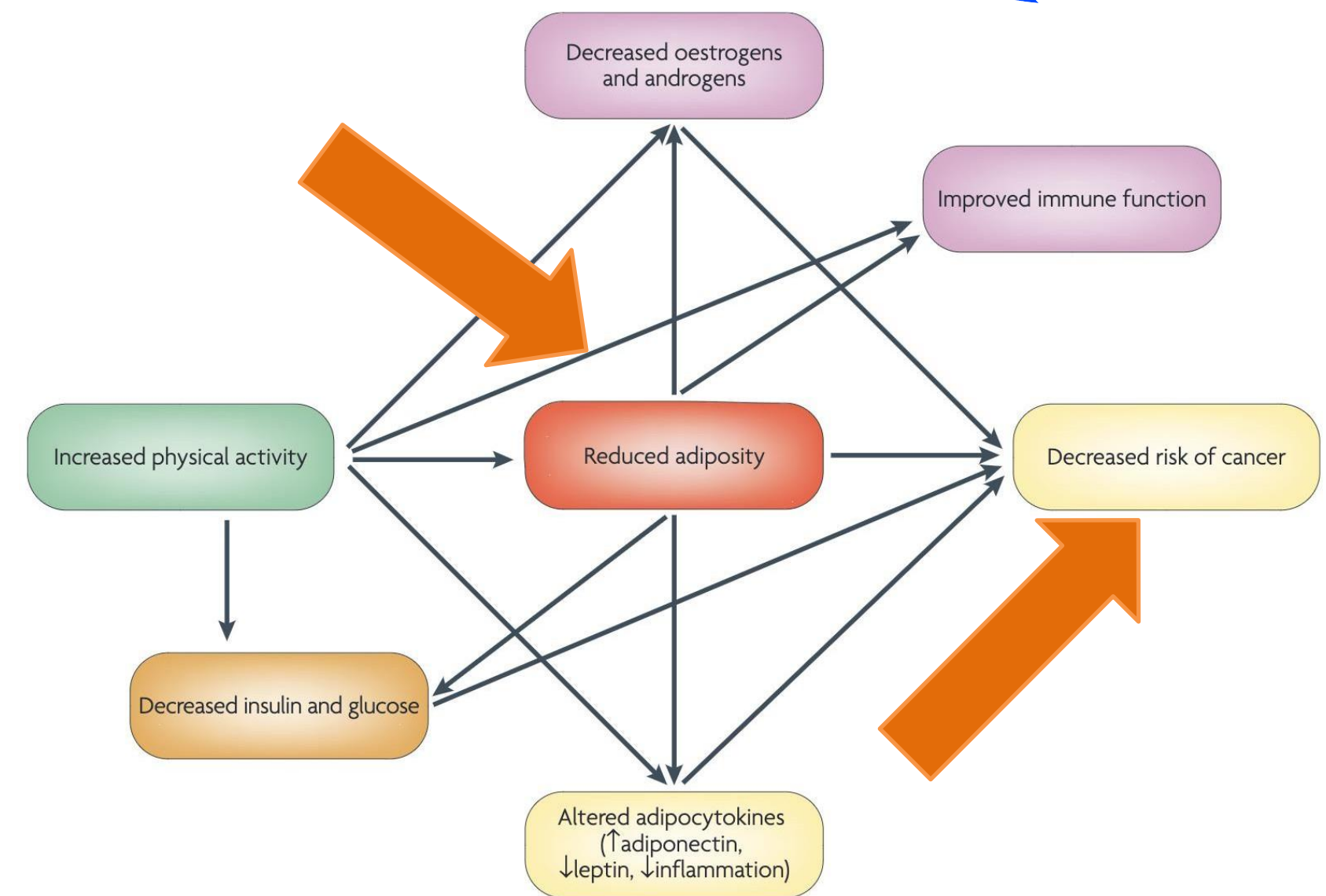


Figure 1. Exercise effectively counteracts the most common side effects of cancer and its treatment.³⁻¹⁶

PREVENTION

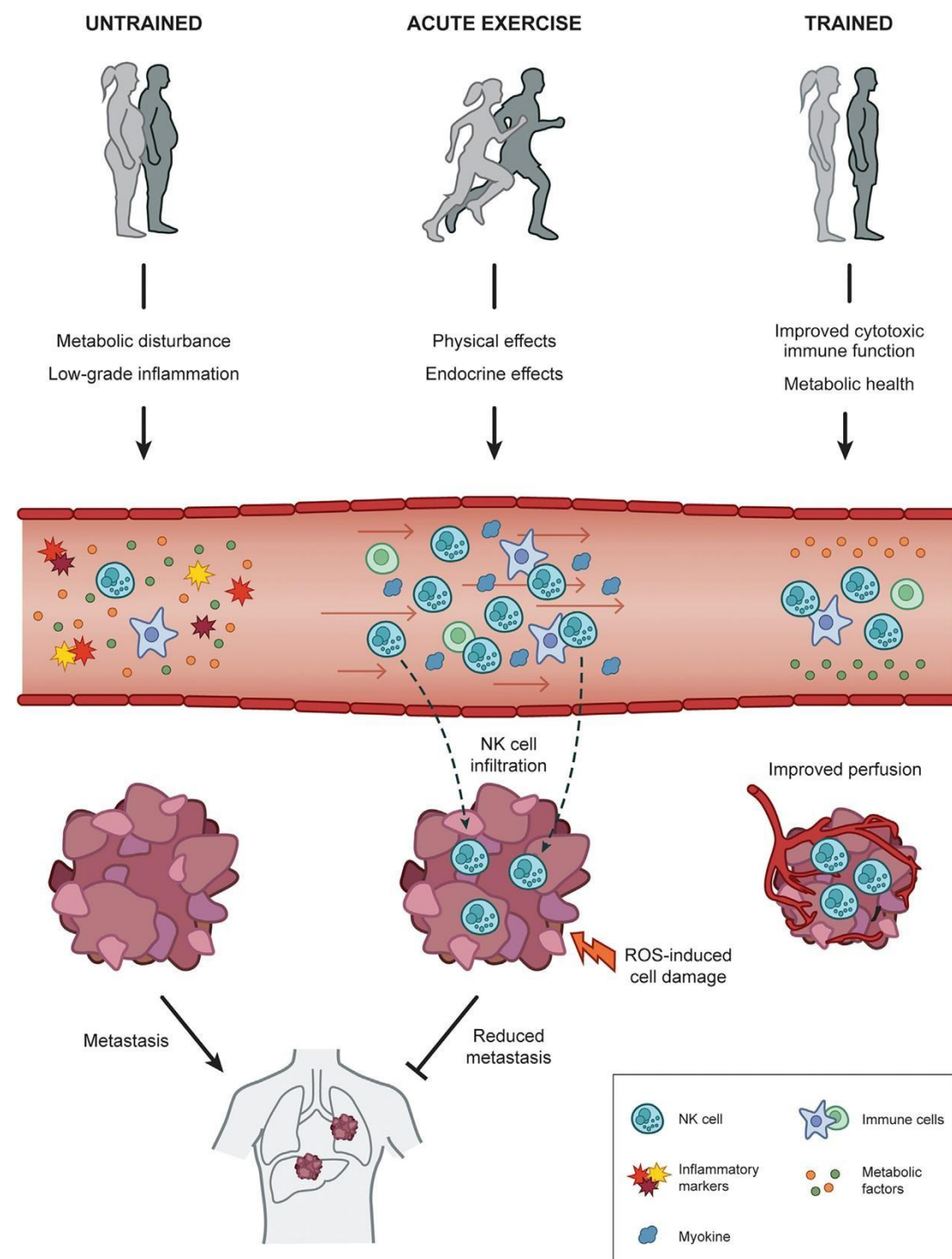


Rogers et al., Sports Med, 2008



Nature Reviews Cancer, 2008

PREVENTION



molecular mechanisms:

- ACUTE effects

- signaling pathways prevent metastasis

- CHRONIC training adaptations

- systemic alterations
- intratumoral changes

POSITION STATEMENT 2023

JCR

THE ROLE OF PHYSIOTHERAPY IN CANCER CARE IN THE EUROPE REGION: A POSITION PAPER OF THE CANCER WORKING GROUP OF EUROPE REGION WORLD PHYSIOTHERAPY

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ABSTRACT

Background
Physiotherapists have strong knowledge and skills to deal with many of the functional problems that result from cancer treatment. The role of physiotherapy spans from cancer prevention to palliative and end of life care. Physiotherapeutic interventions offer a solution for many of the impairments experienced by patients living with and beyond cancer such as declines in physical function and quality of life. Specialized physiotherapeutic interventions can manage complex cancer-related side effects. The aim of this position paper is to outline the role of physiotherapy in the cancer journey.

Material and methods
The research was performed by eleven physiotherapy experts in oncology between May and October 2021 by using PubMed, PeDro and clinical guidelines databases. The search was divided according to the phases of the cancer journey: primary and secondary prevention, prehabilitation, during cancer treatment, post-treatment cancer rehabilitation, long-term rehabilitation of people living after cancer and advanced cancer. The role of physiotherapy is described and statements for each phase are developed. The final text was reviewed by three external reviewers, who provided feedback to improve the final version.

Results
Ten statements were developed by the authors, including general statements and statements for the different phases of the cancer journey. An infographic compiles all the statements providing a general and graphic vision of the role of physiotherapy in cancer care, based on the evidence.

Conclusions
Physiotherapists play an increasingly important role in the multidisciplinary care of cancer survivors. Many oncology physiotherapists have skills that can help to manage cancer-related impairments such as lymphedema, functional decline and cancer-related fatigue. Physiotherapists have strong knowledge and skills to deal with many of the functional problems that result from cancer treatment. Rehabilitation services, including physiotherapy, should be integrated at the point of diagnosis to assess an individual's baseline functional performance status and inform about the cancer care plan.

KEY WORDS

CANCER. ONCOLOGY. PHYSIOTHERAPY. EXERCISE-ONCOLOGY. REHABILITATION. PREHABILITATION

Received 16/06/2023
Accepted, after revision 23/06/23

70

J Cancer Rehabil 2023; 6 issue 2: 70-79 | DOI 10.48252/JCR78

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KEY WORDS

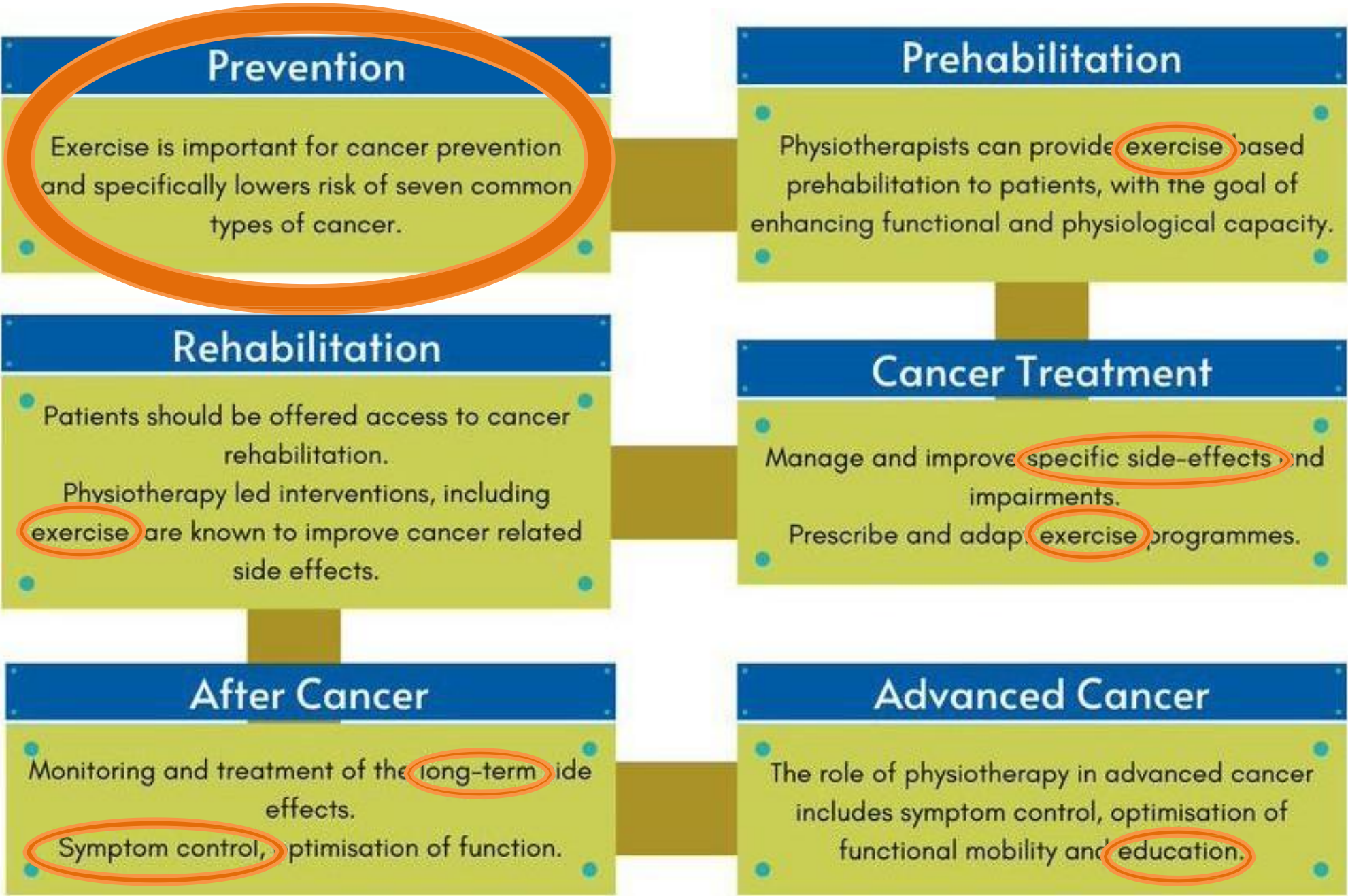
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Cancer Related
Fatigue



How do you assess fatigue?



Fatigue is a symptom that can coincide with other symptoms such as disturbed sleep, anxiety, depression, pain and cognitive issues. If your patient scores a high level of fatigue, they should have these issues mapped as outlined in the ESMO guidelines. Scan the QR code to access the ESMO guidelines.



How can fatigue be treated?



General activity

Patients with cancer should be encouraged to be physically active as recommended for all adults.

Physical exercise

- **Phase of treatment:** during and after cancer treatments
- **Type:** supervised aerobic and resistance exercise and their combination.
- **Intensity:** moderate to vigorous
- **Frequency:** 2 to 3 times per week
- **Time or duration:** 30 minutes or more and with 12 weeks or more of program duration.



Patient education

It is important to provide information and advice to cancer patients and caregivers about cancer-related fatigue, its prevention and management. Evidence has shown that for patients with cancer, there is a positive effect on fatigue and QoL with self-management education.



15/04/2023



What is Cancer
Related fatigue?

Is a subjective multidimensional experience considered the most frequent symptom related with cancer, that may appear at diagnosis and usually increases during the course of treatment.

Symptoms

Persistent or recurrent feeling of lack of energy and exhaustion on physical, emotional and/or cognitive domains not proportional to recent activity that interferes with functioning and overall quality of life.

Etiology

Its etiology is not clear but it has been described:

- **Predisposing factors:** comorbidities, biological sex, genetic, body composition, cancer treatments, depression history.
- **Precipitating factors:** metabolic dysregulation, systemic chronic inflammation, accelerated cells aging.
- **Perpetuating factors:** modifiable lifestyle behaviors such as dietary pattern, physical activity level.

Cancer-Associated
Secondary
Lymphedema



? What is Cancer-Associated
Secondary Lymphedema?

It is a frequent side effect of cancer and its treatments, as a result of mechanical damage to the lymphatic system (e.g. surgery and radiotherapy), creating insufficiency and impaired lymph transport, or as a result of physiological changes (e.g. capillary leakage due to taxane-based chemotherapy), producing excess extracellular fluid and proteins in the interstitial space, which leads to swelling of the affected body part and chronic inflammation. The proteins are hydrophilic and when they do not get removed from the interstitial space, they attract more fluid to the interstitial space, worsening swelling.



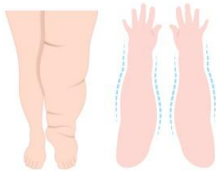
Risk Factors

- BMI > 25 kg/m2
- High number/ratio of lymph nodes dissected
- Infection
- Extent of surgery (iatrogenic damage)
- Combination of surgery with both chemotherapy and radiotherapy.

How Physiotherapists Evaluate Lymphedema?

VOLUMETRICS

- Water displacement method
- Perimetrics
- Opto-electronic volumetrics



SEGMENTAL BODY COMPOSITION

- Bioimpedance analysis/spectroscopy
- Tissue dielectric constant
- Medical imaging

How can Physiotherapy Prevent Lymphedema?



PATIENT EDUCATION



MANUAL LYMPHATIC
DRAINAGE



PHYSICAL EXERCISE

How to Manage Lymphedema through Physiotherapy?

COMPREHENSIVE PHYSIOTHERAPY:

- Manual lymphatic drainage
- Compression therapy
- Skin and wound care
- Physical exercise



07/12/2023











ACSM & KNGF GUIDELINES IN ONCOLOGY

Effects of Exercise on Health-Related Outcomes in Those with Cancer

What can exercise do?

- **Prevention of 7 common cancers***
Dose: 2018 Physical Activity Guidelines for Americans: 150-300 min/week moderate or 75-150 min/week vigorous aerobic exercise
 - **Survival of 3 common cancers****
Dose: Exact dose of physical activity needed to reduce cancers-specific or all-cause mortality is not yet known; Overall more activity appears to lead to better risk reduction
- *bladder, breast, colon, endometrial, esophageal, kidney and stomach cancers
**breast, colon and prostate cancers

Overall, avoid inactivity, and to improve general health, aim to achieve the current physical activity guidelines for health (150 min/week aerobic exercise and 2x/week strength training).

Outcome	Aerobic Only	Resistance Only	Combination (Aerobic + Resistance)
Strong Evidence	Dose	Dose	Dose
 Cancer-related fatigue	3x/week for 30 min per session of moderate intensity	2x/week of 2 sets of 12-15 reps for major muscle groups at moderate intensity	3x/week for 30 min per session of moderate aerobic exercise, plus 2x/week of resistance training 2 sets of 12-15 reps for major muscle groups at moderate intensity
 Health-related quality of life	2-3x/week for 30-60 min per session of moderate to vigorous	2x/week of 2 sets of 8-15 reps for major muscle groups at a moderate to vigorous intensity	2-3x/week for 20-30 min per session of moderate aerobic exercise plus 2x/week of resistance training 2 sets of 8-15 reps for major muscle groups at moderate to vigorous intensity
 Physical Function	3x/week for 30-60 min per session of moderate to vigorous	2-3x/week of 2 sets of 8-12 reps for major muscle groups at moderate to vigorous intensity	3x/week for 20-40 min per session of moderate to vigorous aerobic exercise, plus 2-3x/week of resistance training 2 sets of 8-12 reps for major muscle group at moderate to vigorous intensity
 Anxiety	3x/week for 30-60 min per session of moderate to vigorous	Insufficient evidence	2-3x/week for 20-40 min of moderate to vigorous aerobic exercise plus 2x/week of resistance training of 2 sets, 8-12 reps for major muscle groups at moderate to vigorous intensity
 Depression	3x/week for 30-60 min per session of moderate to vigorous	Insufficient evidence	2-3x/week for 20-40 min of moderate to vigorous aerobic exercise plus 2x/week of resistance training of 2 sets, 8-12 reps for major muscle groups at moderate to vigorous intensity
 Lymphedema	Insufficient evidence	2-3x/week of progressive, supervised, program for major muscle groups does not exacerbate lymphedema	Insufficient evidence
Moderate Evidence			
 Bone health	Insufficient evidence	2-3x/week of moderate to vigorous resistance training plus high impact training (sufficient to generate ground reaction force of 3-4 time body weight) for at least 12 months	Insufficient evidence
 Sleep	3-4x/week for 30-40 min per session of moderate intensity	Insufficient evidence	Insufficient evidence

Citation: bit.ly/cancer_exercise_guidelines

Moderate intensity (40%-59% heart rate reserve or VO_2R) to vigorous intensity (60%-89% heart rate reserve or VO_2R) is recommended.



KNGF Guideline on Oncology

Edited by:
Dr M.G. Sweegers; M.C.M. van Doormaal, MSc; D. Conijn, MSc; Dr M.M. Stuiver

IMPLEMENTATION: MOVING THROUGH CANCER

Timeline for Major Goals of the Moving Through Cancer Initiative

2020	<ul style="list-style-type: none">• Development of a service-costing template for all programs to be made freely available on the Moving Through Cancer website (exerciseismedicine.org/movingthroughcancer)• Develop marketing materials for an awareness campaign for exercise oncology directed toward patients, caregivers, and health care professionals• Assess availability of cancer exercise and rehabilitation programming across the United States
2021	<ul style="list-style-type: none">• Carry out awareness campaign for exercise oncology• Assess current landscape of the available exercise oncology workforce in the United States• Conduct a review of the policy landscape that affects exercise and rehabilitation within the setting of oncology• Identify 2 national brand gyms to take on training of staff to work with individuals living with and beyond cancer
2022	<ul style="list-style-type: none">• Approximately 25% of patients who are newly diagnosed with cancer will recall being advised to exercise by their oncologist• Measure improvement in level of knowledge as well as level of engagement among patients and oncology providers
2023	<ul style="list-style-type: none">• Develop a policy action plan for exercise oncology• Host an influencer conference of researchers and oncology providers to align agendas and determine how to leverage the strengths of each organizational and individual partner toward the goal of coordinated, forward progress
2024	<ul style="list-style-type: none">• Create and disseminate training for health professionals to teach the value of exercise, knowledge of where to refer, and use of pathways to make an appropriate (supervised/unsupervised) referral
2025	<ul style="list-style-type: none">• Approximately 80% of exercise and rehabilitation professionals will have specialized training to work with individuals living with and beyond cancer• Ensure that there is at least 1 cancer exercise or rehabilitation program in each city in the United States with a population of 50,000

Schmitz et al.



HHS Public Access
Author manuscript
Cancer. Author manuscript; available in PMC 2022 February 01.

Published in final edited form as:
Cancer. 2021 February 01; 127(3): 476–484. doi:10.1002/encr.33245.

Moving Through Cancer: Setting the agenda to make exercise standard in oncology practice

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CANCER PHYSIOTHERAPY: SURVEY 2023

aim

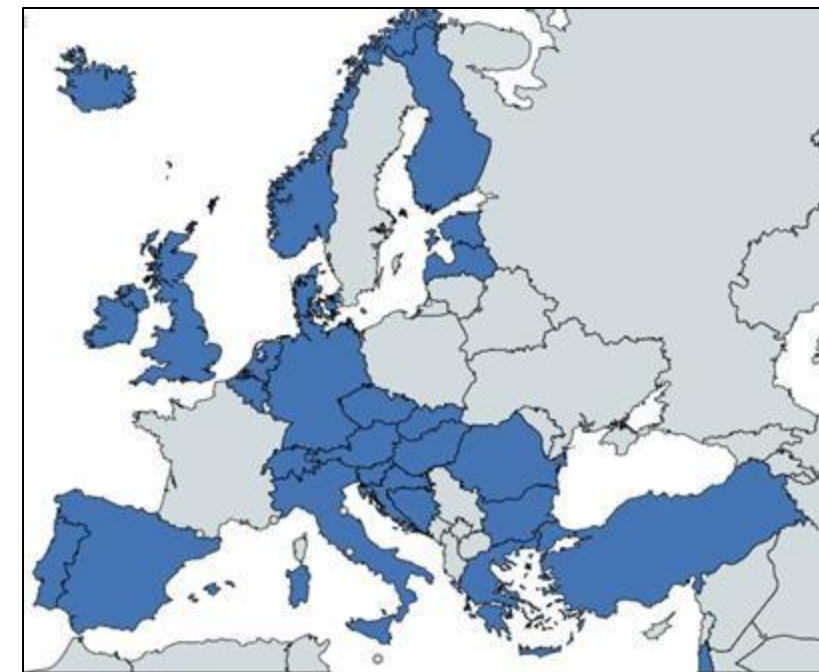
To collect information from physiotherapy Member Organisations (MOs) regarding **cancer physiotherapy services** and **education** in the **Europe region**.

methods

- **Online survey** instrument, developed by the Cancer Working Group for this purpose.
- Email to all **37 MOs** in Europe.

results

- Response rate = **89%** (n = 33/37)



SURVEY PART I: SERVICE AVAILABILITY

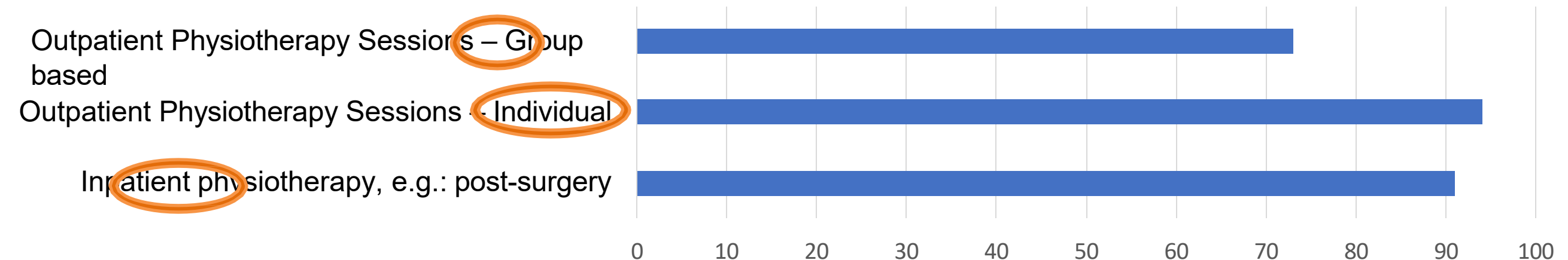
100% provide services to people with cancer

- as standard care in the **public health** system (**55%**, n=18)
- as **private** services (**36%**, n=12)
- through cancer **support centres** or **charities** (**64%**, n=21)
- as part of **research** programmes (**42%**, n=14)

self-referral to physiotherapy

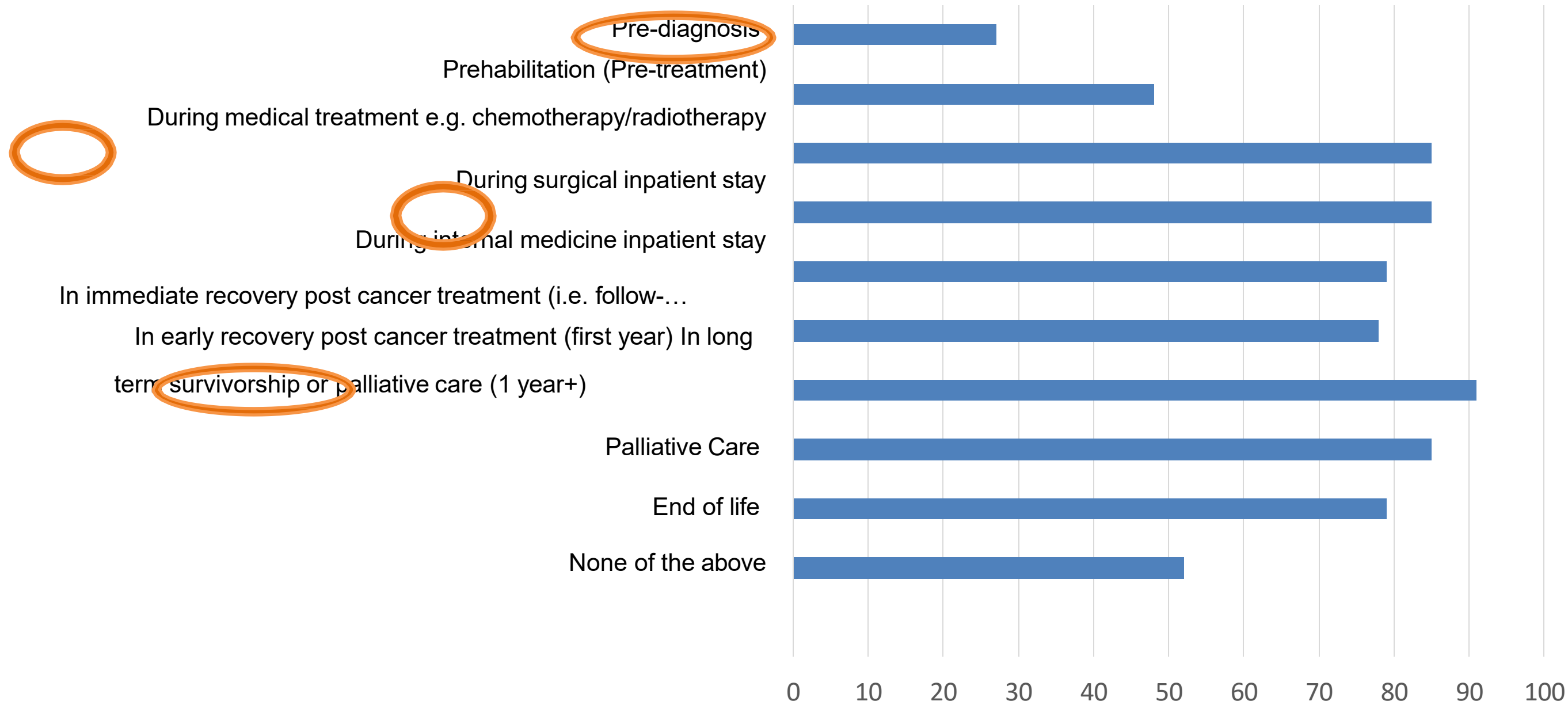
- Only 36% (n = 12) of respondents reported patients could **self-refer**

how cancer care is delivered



SURVEY PART I: SERVICE AVAILABILITY

Timing of physiotherapy services within the cancer continuum



SURVEY PART I: SERVICE AVAILABILITY

re-imburement

- Patients can claim for re-imburement of **all** costs spent on physiotherapy cancer care. (**36%**, n = 12)
- Patients can claim for **some** physiotherapy services. (**36%**, n = 12)

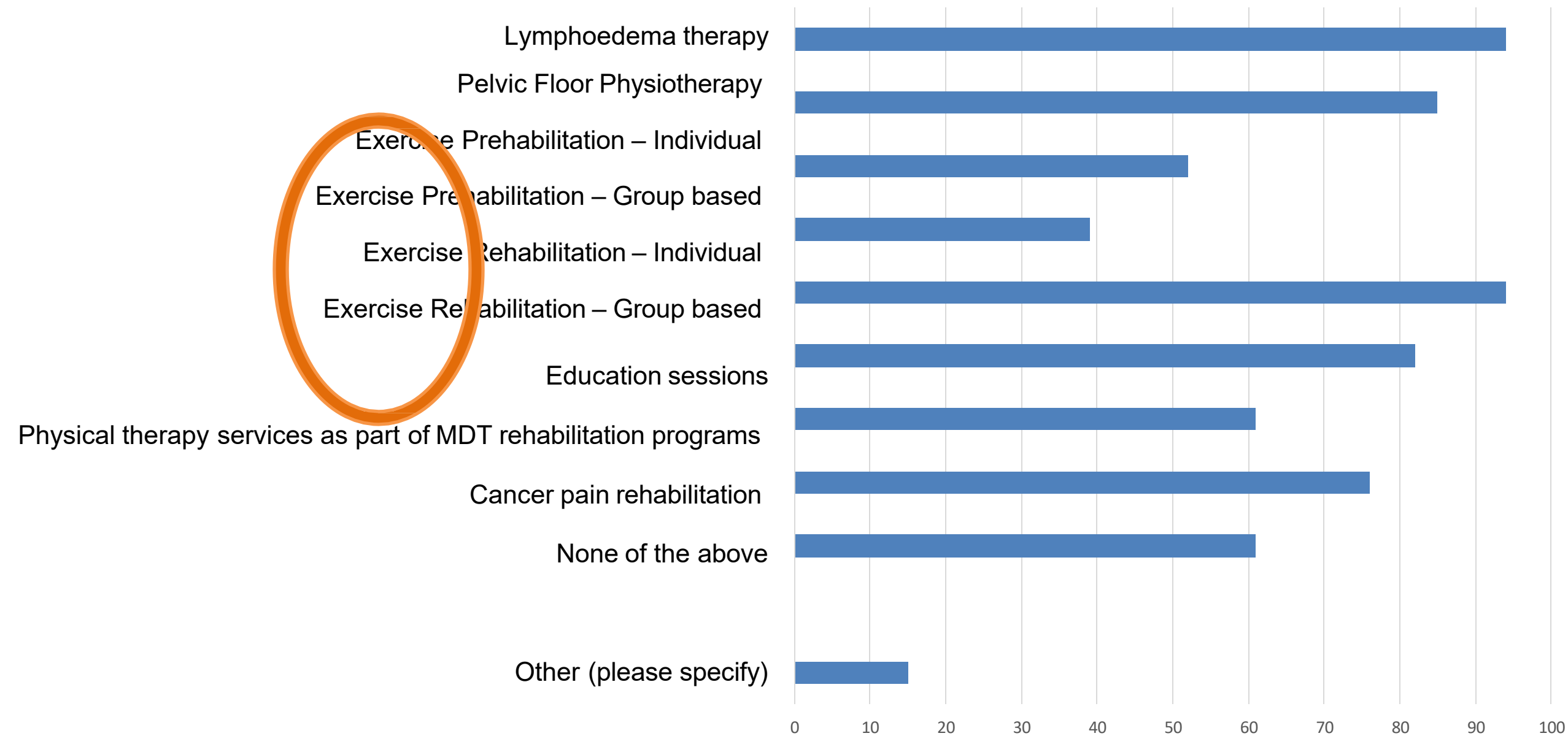
barriers to developing services

- A lack of **knowledge/understanding** of the role of physiotherapy in the area of cancer care (**73%**, n = 24)
- A lack of **funding** for services (**70%**, n = 23).
- A lack of **resources** for services (**70%**, n = 23).
- A lack of **demand** for services from people with cancer (**24%**, n = 8).

Additional barriers included a lack of referrals, lack of clinical pathways, difficulty changing clinical practice, political barriers and lack of support from doctors.

SURVEY PART II: CANCER PT SERVICES

description of cancer physiotherapy services



SURVEY PART III: CANCER PT EDUCATION

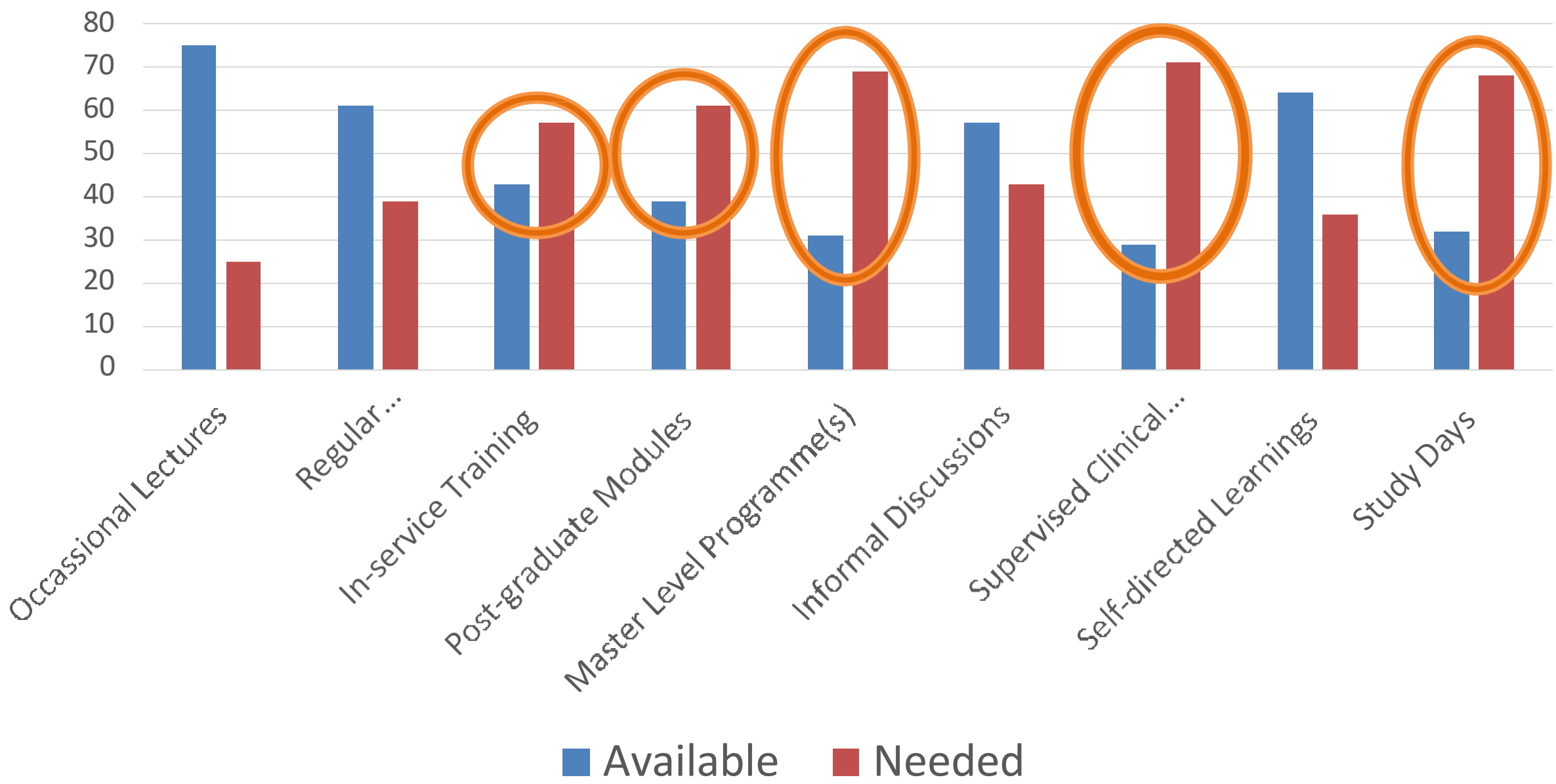
oncology course/training included in PT education

- **45%** (n = 15) reported oncology is included in **undergraduate** training.
- **15%** (n = 5) reported oncology is included in **post-graduate** training.
- **15%** (n = 5) reported specific oncology training/courses are **not included** as part of physiotherapy education.
- **25%** (n = 8) other

“PTs have the required skills to treat patients across the cancer care continuum in my country.”

SURVEY PART III: CANCER PT EDUCATION

continuous professional development in oncology available/needed in MOs



SURVEY PART III: CANCER PT EDUCATION

oncology specialist interest group

- ✓ **special interest group** in the area of oncology for PTs within the MOs: **62%** (n = 20)

register of oncology physiotherapists

- ✓ a **register** of physiotherapists who have **recognised oncology** as their speciality = **27%** (n = 9)
The requirements for recognition varied between MOs from a 3-year master's degree to general post-graduate CPD in oncology.
- ✓ One MO reported a register only for those practicing lymphoedema management.

CANCER PHYSIOTHERAPY: SURVEY 2023

CONCLUSION

- ✓ PT are **providing care to patients with cancer** throughout the Europe Region.
- ✓ There are **vast differences** within the region, and in some instances within countries, in the **level** of PT cancer care provided.
- ✓ There appears to be a **large reliance** on cancer **charities** and **research** to provide PT cancer care to patients.
- ✓ Respondents feel there is a **lack of understanding** of the **role of physiotherapy** in **cancer care**.
- ✓ PTs **require professional development opportunities** in cancer care.

THANK YOU!

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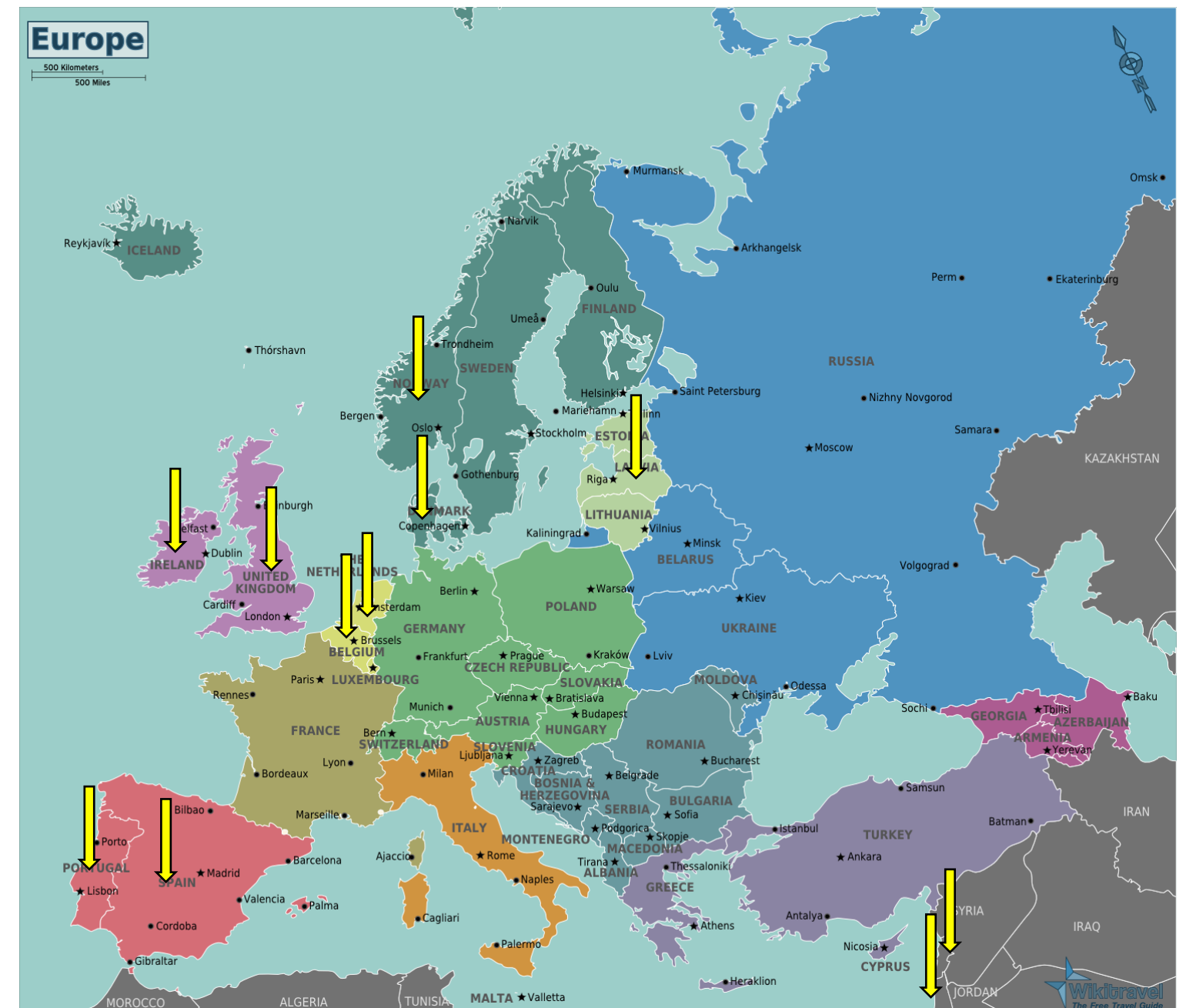

Physical Activity Affects Cancer Prevention

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Mission IPT-HOPE



Advancing physiotherapy management and prevention of HIV/AIDS, oncologic, and palliative care related functional impairments throughout the world and across cultural groups.



Why focus on community-based activity in Europe?



- Over **2.78 million new cancer cases** are diagnosed in Europe each year.
- Overall, **cancer is the second leading cause of death** and morbidity in Europe, after cardiovascular diseases.
- Up to **40% of cancers** are preventable through healthy lifestyle changes.
- **Physical inactivity** is a modifiable risk factor, there is evidence for breast, colon, and endometrial cancer.



How physical activity helps prevent cancer



When you move your body regularly (like walking, cycling, or doing sports), it:

- keeps your weight healthy (extra weight increases cancer risk);
- reduces harmful hormones (like estrogen and insulin);
- lowers inflammation (which can damage cells);
- strengthens your immune system (to help fight abnormal cells).

You don't need to run marathons — even 30 minutes of moderate activity (like brisk walking) most days of the week can make a big difference.

Being physically active lowers your risk of getting cancer.



Physical activity influences cancer prevention



Mechanism

Effect

Hormonal
Regulation

↓ Estrogen, progesterone, insulin, IGF-1

- Exercise helps reduce **circulating insulin** and **insulin-like growth factor-1 (IGF-1)** levels. These hormones can promote tumor growth by stimulating cell proliferation and inhibiting apoptosis.
- In postmenopausal women, physical activity lowers **estrogen and progesterone** levels, thereby reducing the risk of hormone-sensitive cancers such as **breast** and **endometrial cancer**.

Inflammation

↓ IL-6, TNF- α , CRP; ↑ IL-10

- Chronic low-grade inflammation is a known risk factor for cancer. Physical activity reduces levels of **pro-inflammatory cytokines** (e.g., IL-6, TNF- α , CRP) and increases **anti-inflammatory cytokines** like IL-10.
- Muscle contractions produce **myokines** (such as IL-6, in its anti-inflammatory role) that help regulate inflammation throughout the body.

Immune Function

↑ NK cells, ↑ cytotoxic T-cells

- Moderate regular exercise boosts **natural killer (NK) cell** activity and enhances **T-cell function**, improving the detection and elimination of pre-cancerous or cancerous cells.

Body Composition

↓ Visceral fat, improved metabolic profile

- Physical activity reduces **visceral fat**, which is metabolically active and produces hormones and inflammatory molecules that can promote carcinogenesis.

Oxidative Stress

↑ Antioxidant capacity, improved DNA repair

- Although intense exercise can generate reactive oxygen species (ROS), regular moderate activity enhances the body's **antioxidant defenses** and improves **DNA repair capacity**, helping to reduce the risk of DNA mutations.

Gut Function

↓ Carcinogen exposure in colon

- Faster gut transit reduces the duration of contact between potential carcinogens and the intestinal mucosa, which is protective against **colorectal cancer**.
- Exercise may also beneficially influence the **gut microbiota**, promoting immune-regulatory and anti-inflammatory profiles.

Physical activity before & during cancer treatment



Mechanism

- ↑ VO₂ max
- ↑ Muscle strength
- ↓ Inflammation
- ↑ Immune function
- ↓ Psychological stress
- ↑ Neurotransmitter balance

Effect

- Better oxygen delivery during/after surgery
- Lower sarcopenia risk, better mobilisation
- Reduces surgical stress and complications
- Improves resistance to infections
- Improves resilience and mental health
- Improves mood and sleep

Key benefits

- Accelerates functional recovery
- Quicker ambulation after surgery
- Less pulmonary infections, delirium, and intensive care unit (ICU) admission
- Better wound healing
- Shorter hospital stay
- Reducing anxiety, depression, and fatigue
- Better mood and sleep



Community-based physical activity programmes



Partner with Local Governments & Health Systems

- Collaborate with municipalities, **GPs and physiotherapists**.
- Integrate with **Green Prescriptions** or **Exercise Referral Schemes**.

Design Inclusive, Culturally Adapted Activities

- Offer programs suitable for **multilingual and multicultural populations**.
- Tailor for **age, gender, fitness level**, and **urban/rural settings**.
- Examples: walking groups, cycling tours, Nordic walking, dance classes, gardening collectives.

Use Safe, Accessible Public Spaces

- Promote active transport (e.g., **bike-to-school/work days**) and reclaim public spaces for movement.
- Ensure safe **walking/cycling infrastructure** and inclusive urban planning.

Train Community Leaders & Volunteers

- Empower **local champions**, health coaches, or cancer survivors to lead or co-facilitate sessions.
- Provide short training on **motivation, and inclusion**.

Promote Social Connection

- Frame programs as **social gatherings with health benefits**.
- Include post-activity coffee, cultural events, or family-friendly games.

Engage via Digital & Local Channels

- Use **social media, community newsletters**, and **radio or WhatsApp/Signal groups**.
- Offer a mix of **in-person and hybrid options** (e.g., YouTube tutorials, Zoom classes) for rural or housebound individuals.



Example initiatives in Europe



Country	Initiative	Description
Netherlands	BeweegKuur	Lifestyle intervention for chronic disease and cancer prevention via GP referral
Finland	UKK Institute’s “Every Move Counts”	Public health campaign and tools to measure physical activity
Spain	PASOS Study	National campaign promoting youth movement and obesity prevention
Germany	EU-PAPA Project	Physical Activity Promotion for Adolescents with community engagement



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Let's keep on moving



The impact of physical activity on population health and the economy

Cancer Prevention through Physical Activity
& Public Health Engagement

Dr Caroline Berchet, Health Economist (PhD) OECD
11 June 2025





The European Cancer Inequalities Registry at a glance

The European Cancer Inequalities Registry at a glance



Cancer burden and care
between EU countries and regions

Identification
of trends

Identification
of disparities

Identification
of inequalities

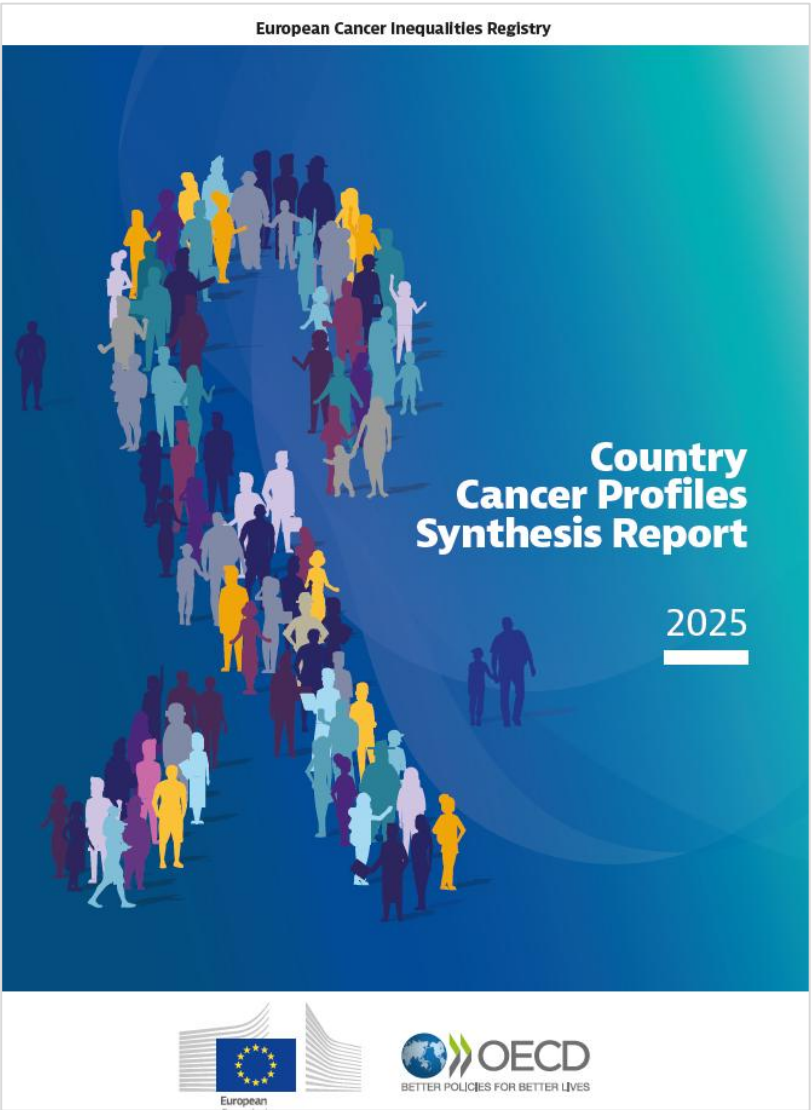
29 cancer profiles, a synthesis report and 29 Performance Trackers have been published in 2025



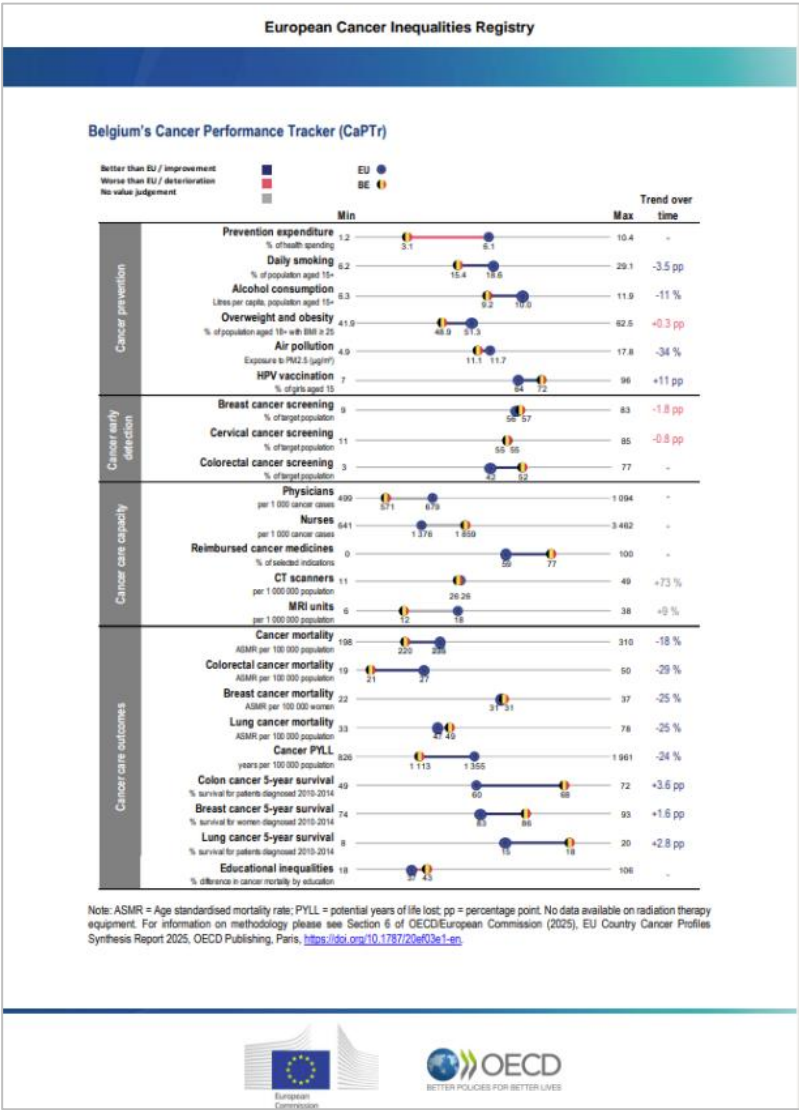
29 Country Cancer Profiles



Synthesis Report



Cancer Performance Tracker (CaPTr)

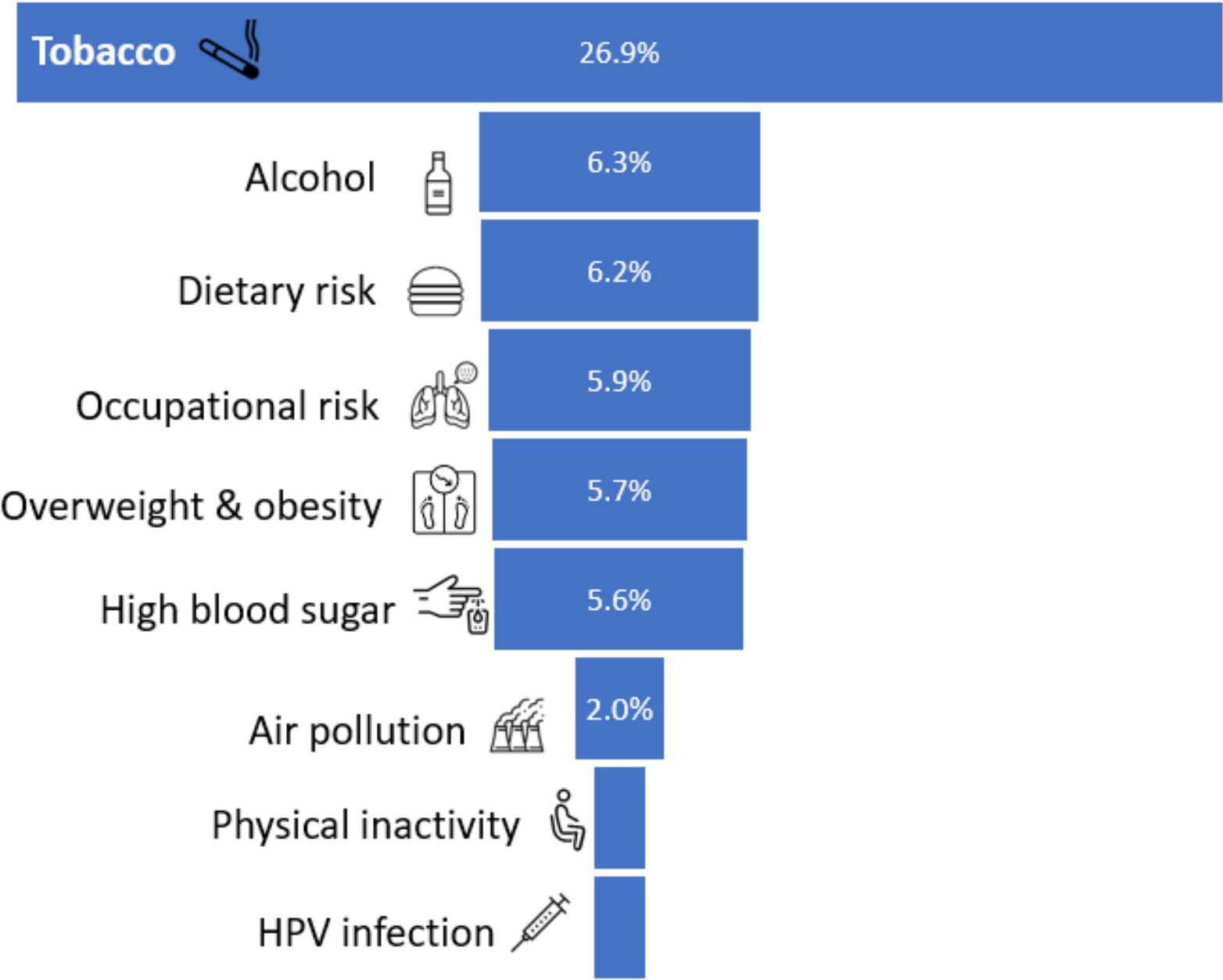




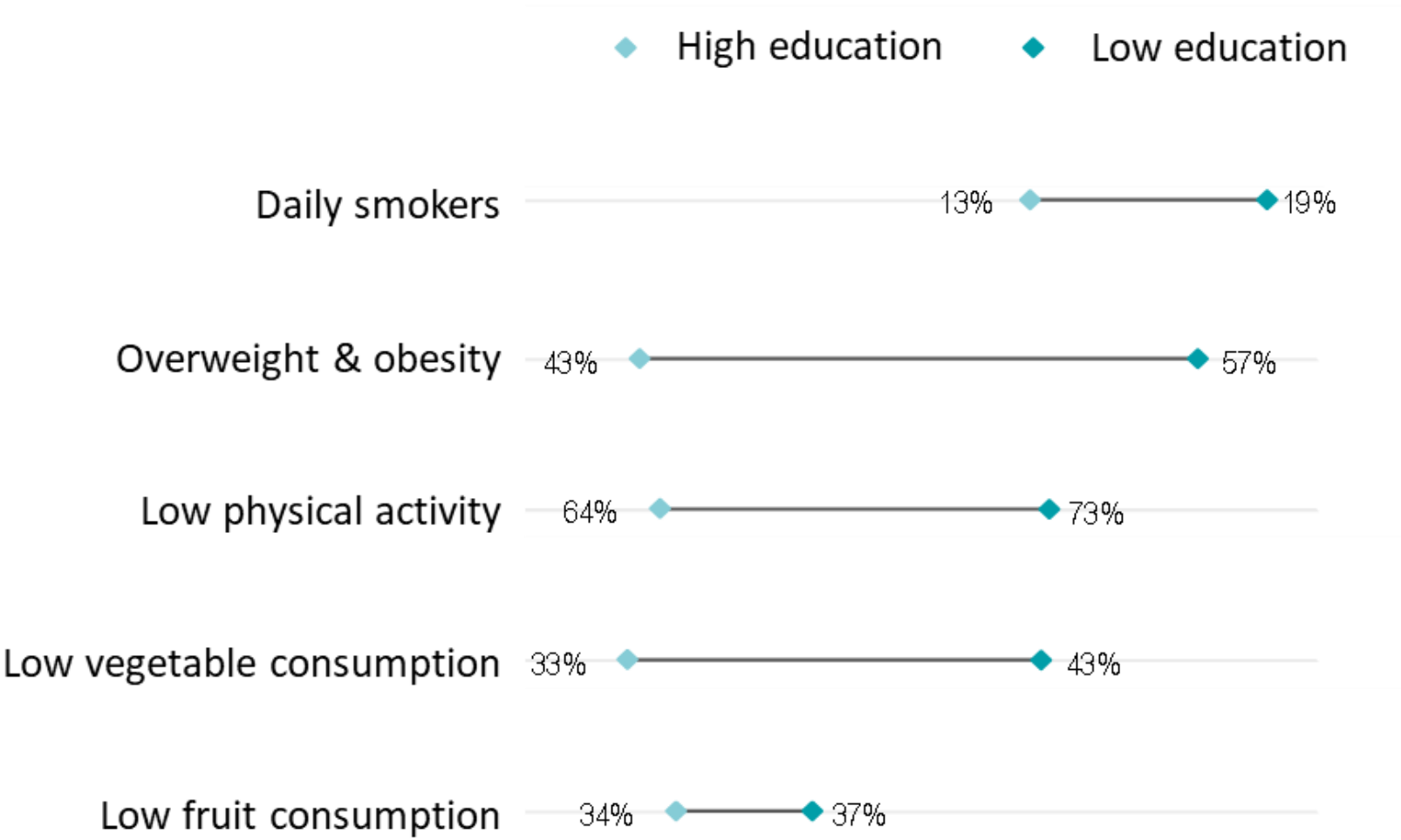
Insufficient physical activity is a leading risk factor for non-communicable diseases, including cancer

Over 40% of the cancer burden is from preventable risk factors

Share of cancer deaths attributed to each risk factor, EU + 2



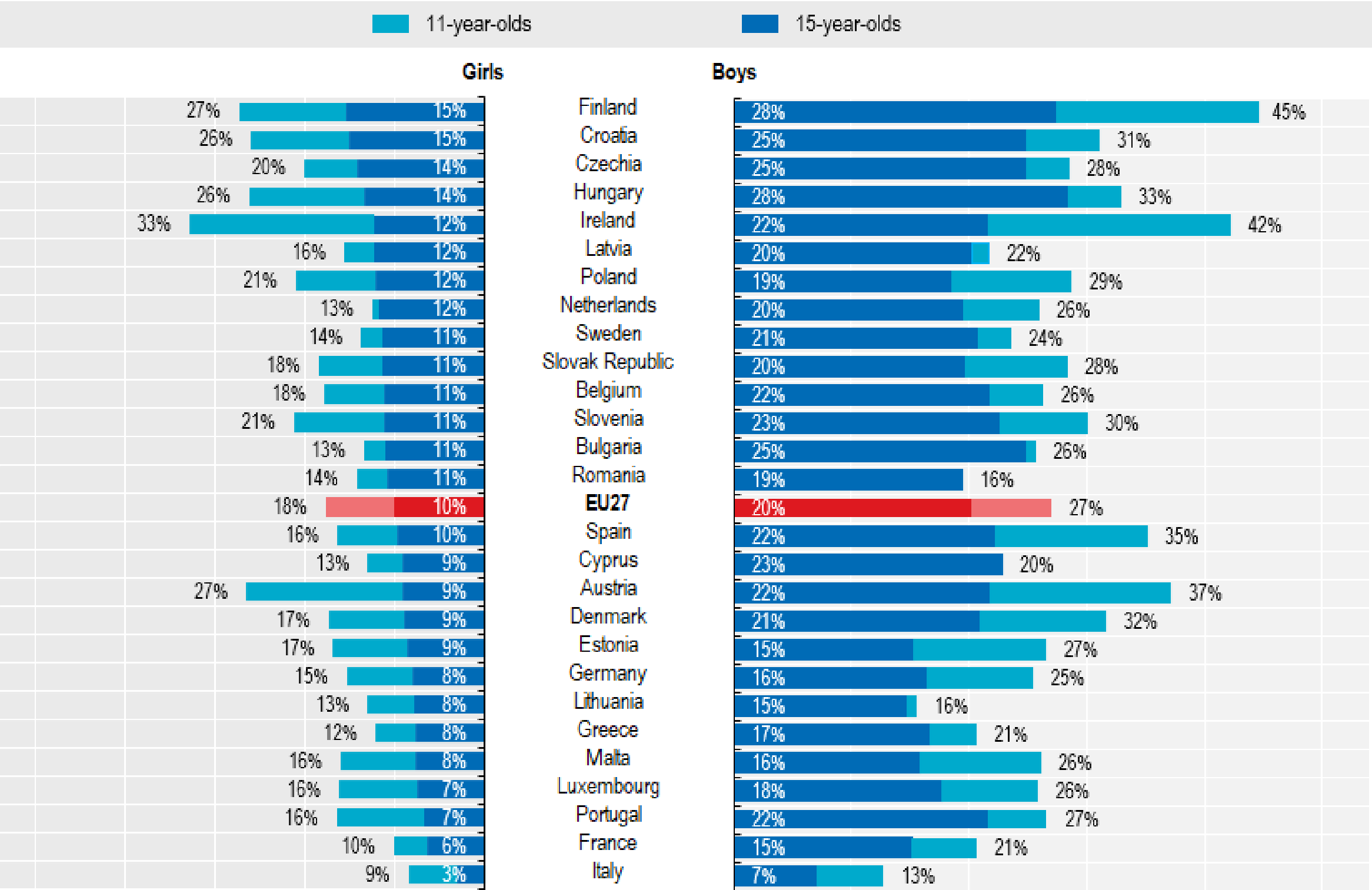
Lower educated individuals have higher cancer risk factors



Fewer than one in five adolescents in EU countries meets the recommendation of 60 min of physical activity per day



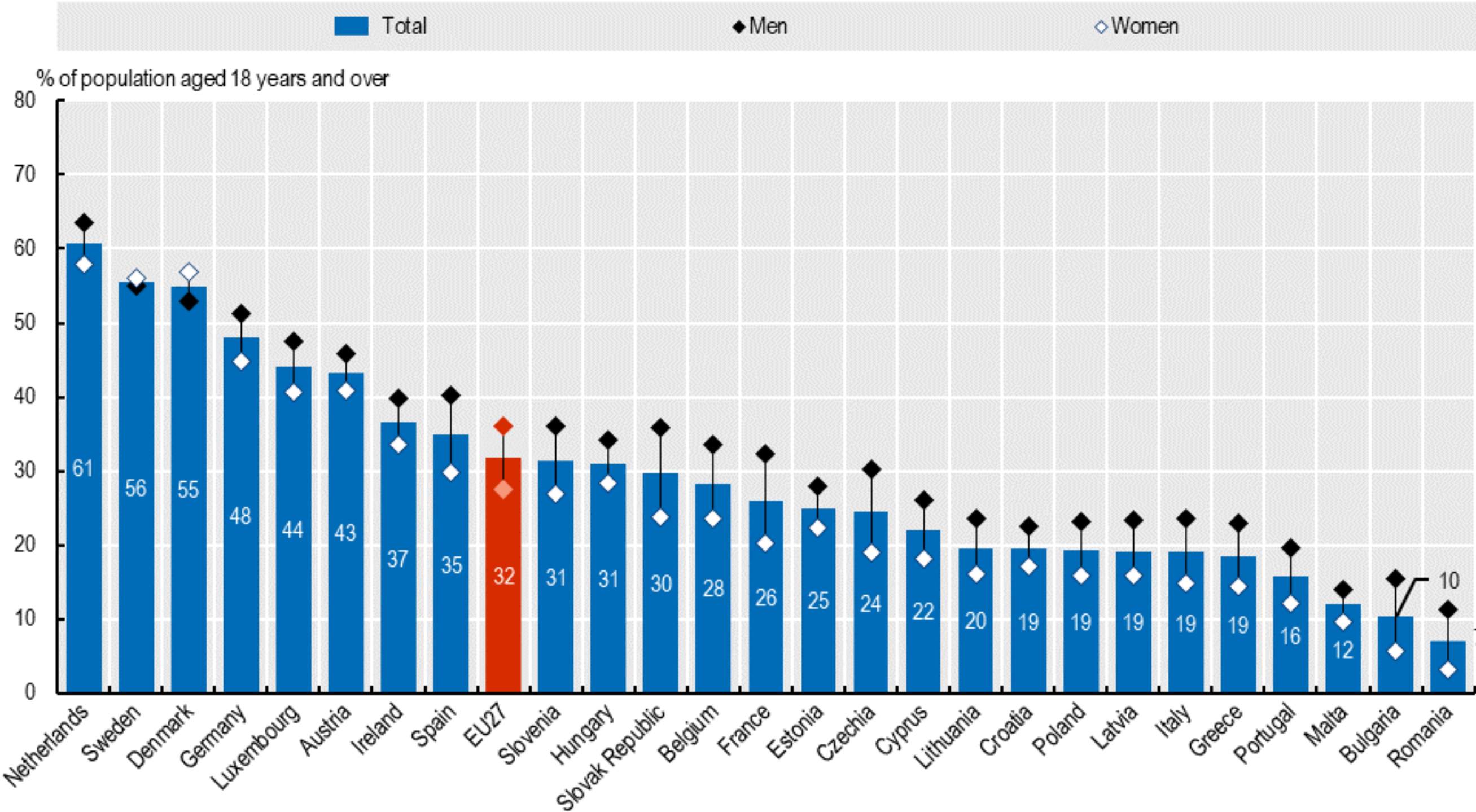
Share of 11- and 15-year-olds meeting WHO recommended daily physical activity (at least 60 minutes of moderate-to-vigorous physical activity per day)



- On average, only 22% of 11-year-olds and 15% of 15-year-olds reported meeting WHO guidelines in 2022
- There is a notable gender gap in physical activity levels among adolescents

Only one-third of adults meet the recommendation of at least 150 minutes of physical activity

Population spending over 150 minutes per week on physical activity



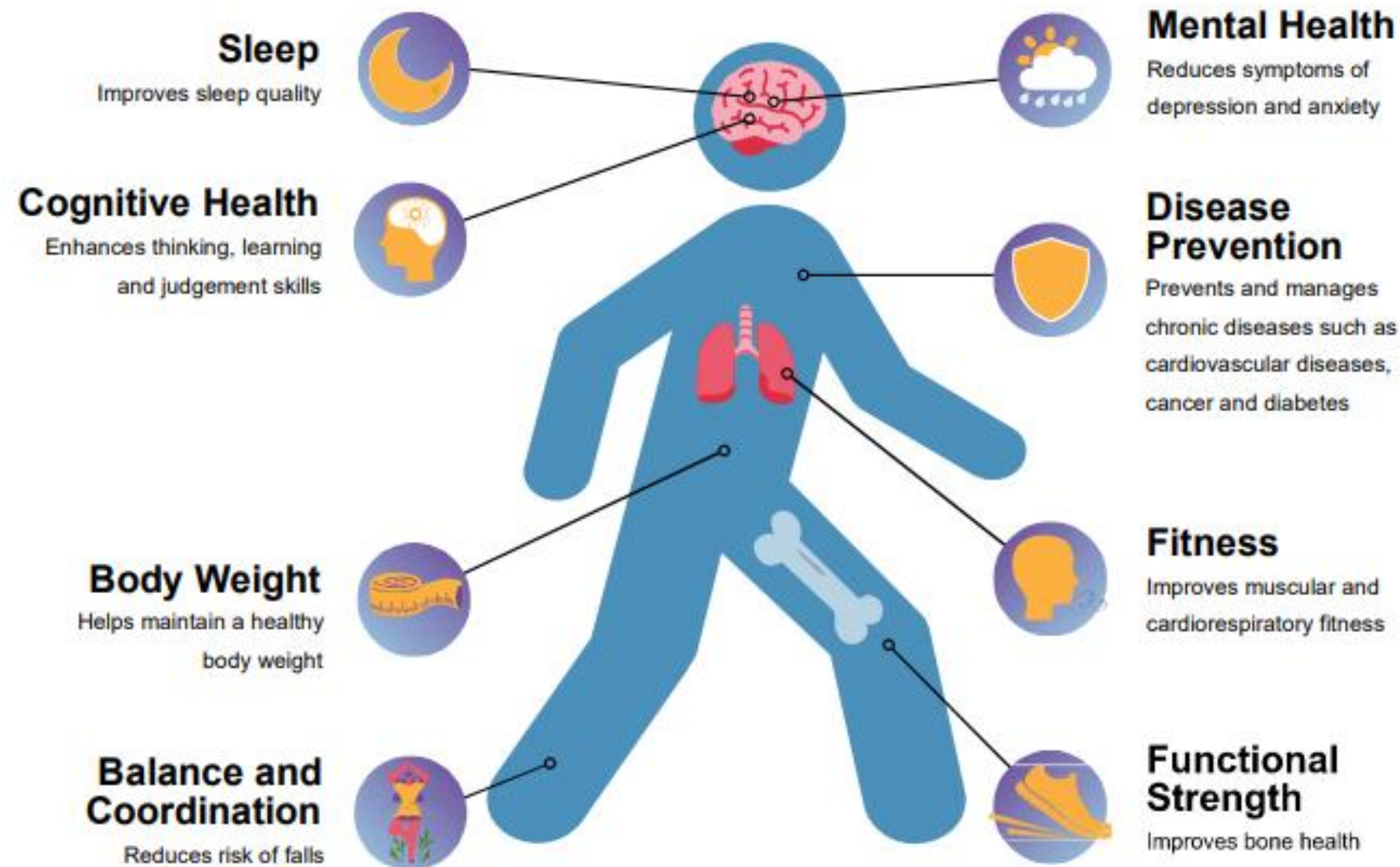
- Rates varied more than eight-fold across EU countries
- The prevalence of sufficient physical activity was higher among men (36%) than women (28%)



**Increasing physical activity will
bring many health and economic
benefits**

Physical activity has significant health benefits for bodies and minds

The health benefits of physical activity



The many health and economic benefits of increasing physical activity

Meeting the WHO guidelines of 150 minutes of moderate-intensity physical activity per week across 27 European countries would:



Increase the life expectancy of people who are insufficiently active by 7.5 months



Increase average life expectancy by 2 months



Prevent over 10 000 premature deaths per year



Save EUR PPP 14 per capita in healthcare expenditure – a total of EUR PPP 8 billion per year



Reduce total health expenditure by 0.6%



Avoid 11.5 million cases of non-communicable diseases over the next three decades, including:



3.5 million cases of depression



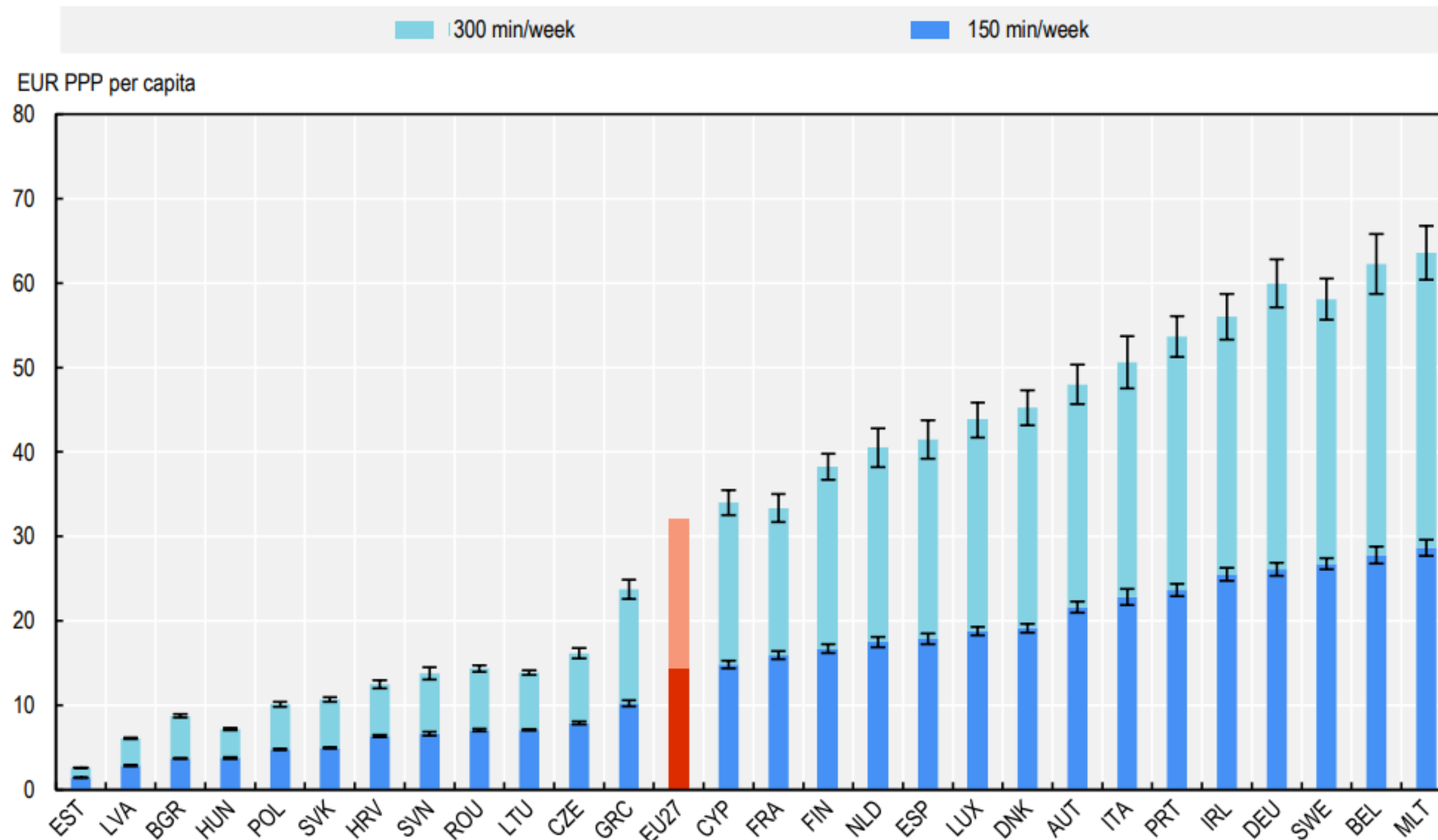
3.8 million cases of cardiovascular disease



400 000 cases of cancer

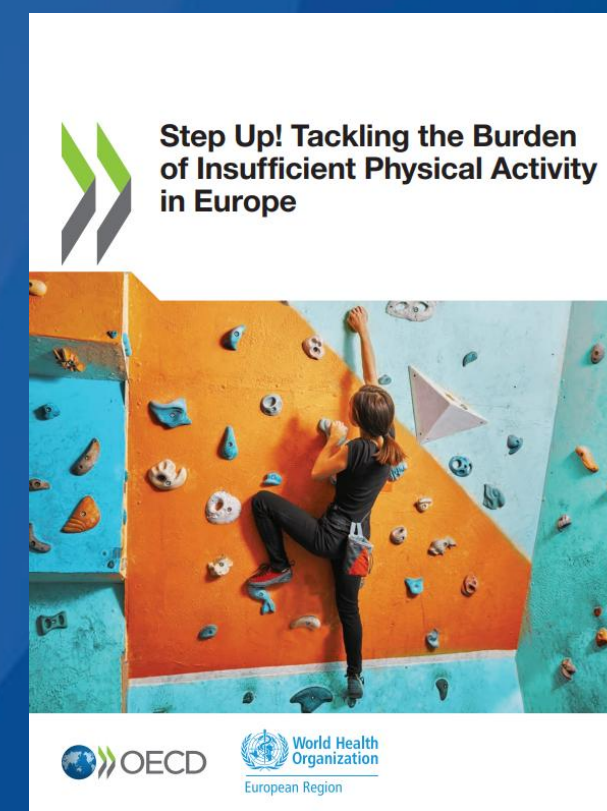
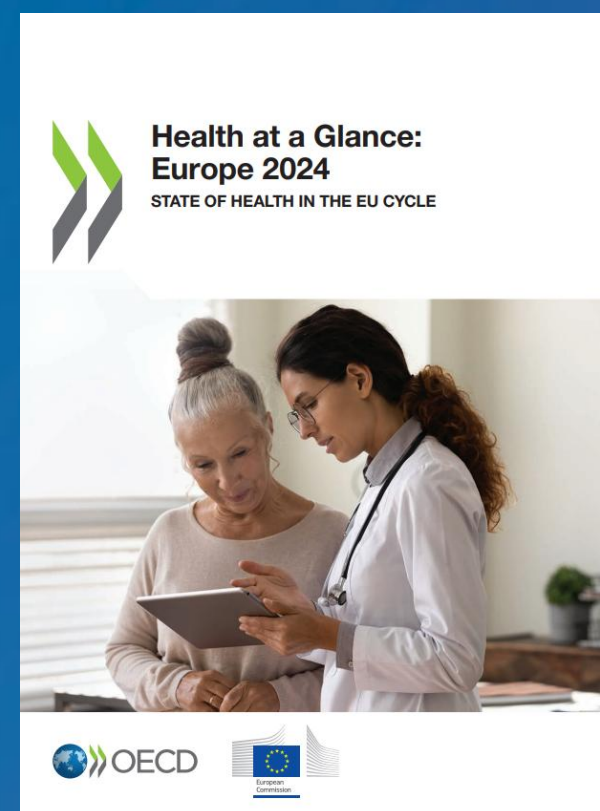
Meeting the higher guideline of 300 minutes of physical activity per week would result in more than double the economic savings

The impact of insufficient physical activity on annual per capita health care expenditure in EUR PPP, average over 2022-50



Thank you

Caroline.berchet@oecd.org





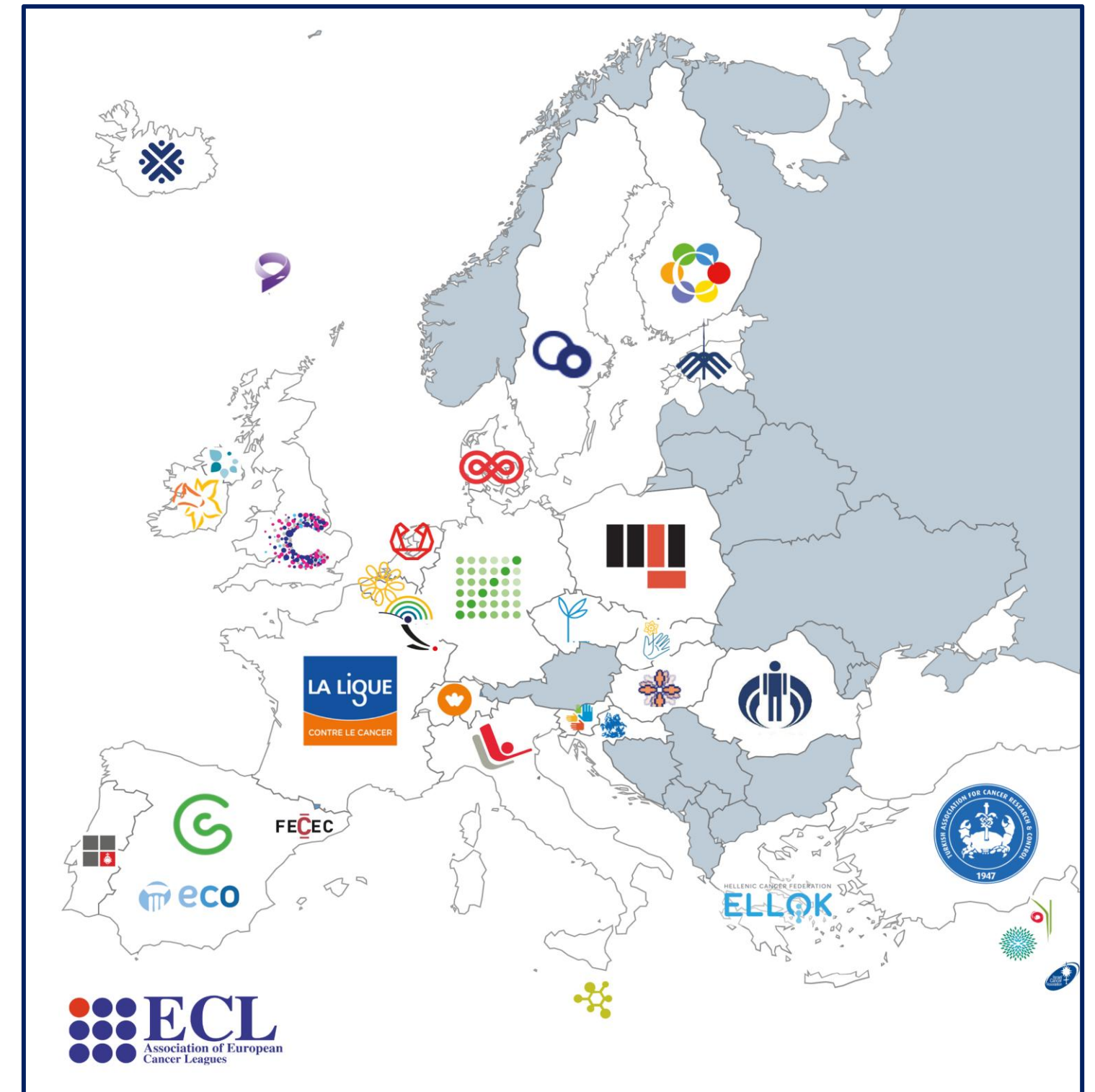
Physical activity: a cornerstone for cancer prevention and health equity

Alba GIL, Policy officer
alba@cancer.eu

About ECL

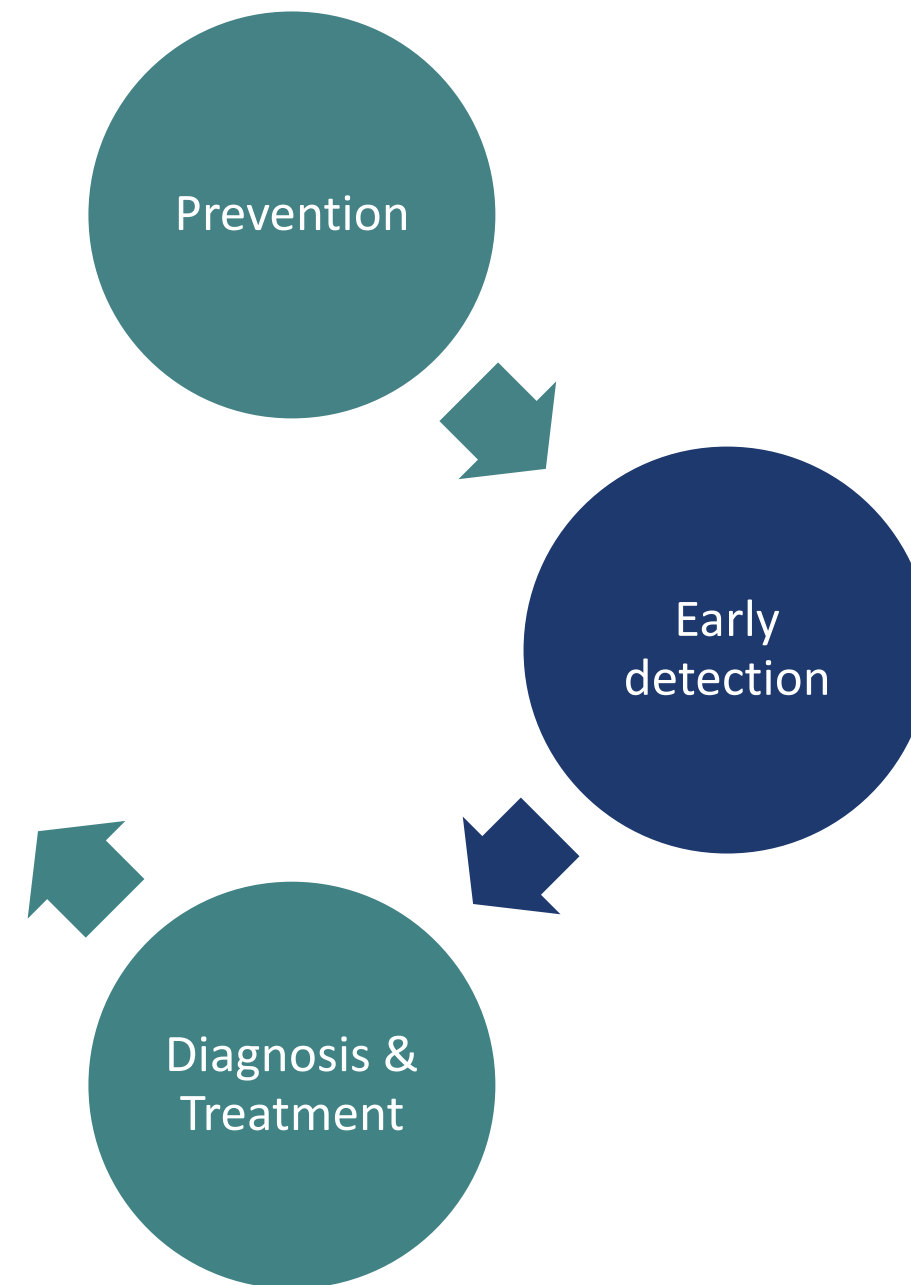
The voice of national and regional cancer leagues in Europe

- **34 members** in **28 countries**
- Our members are non-profit organisations operating **across the whole cancer continuum and patient pathway**
- Cancer leagues/societies are the **main resource** for the public for **cancer information and services**
- ECL focuses on all **4 pillars** of cancer control: **prevention**, early detection and **diagnosis**, **treatment**, and **quality of life** for survivors and carers

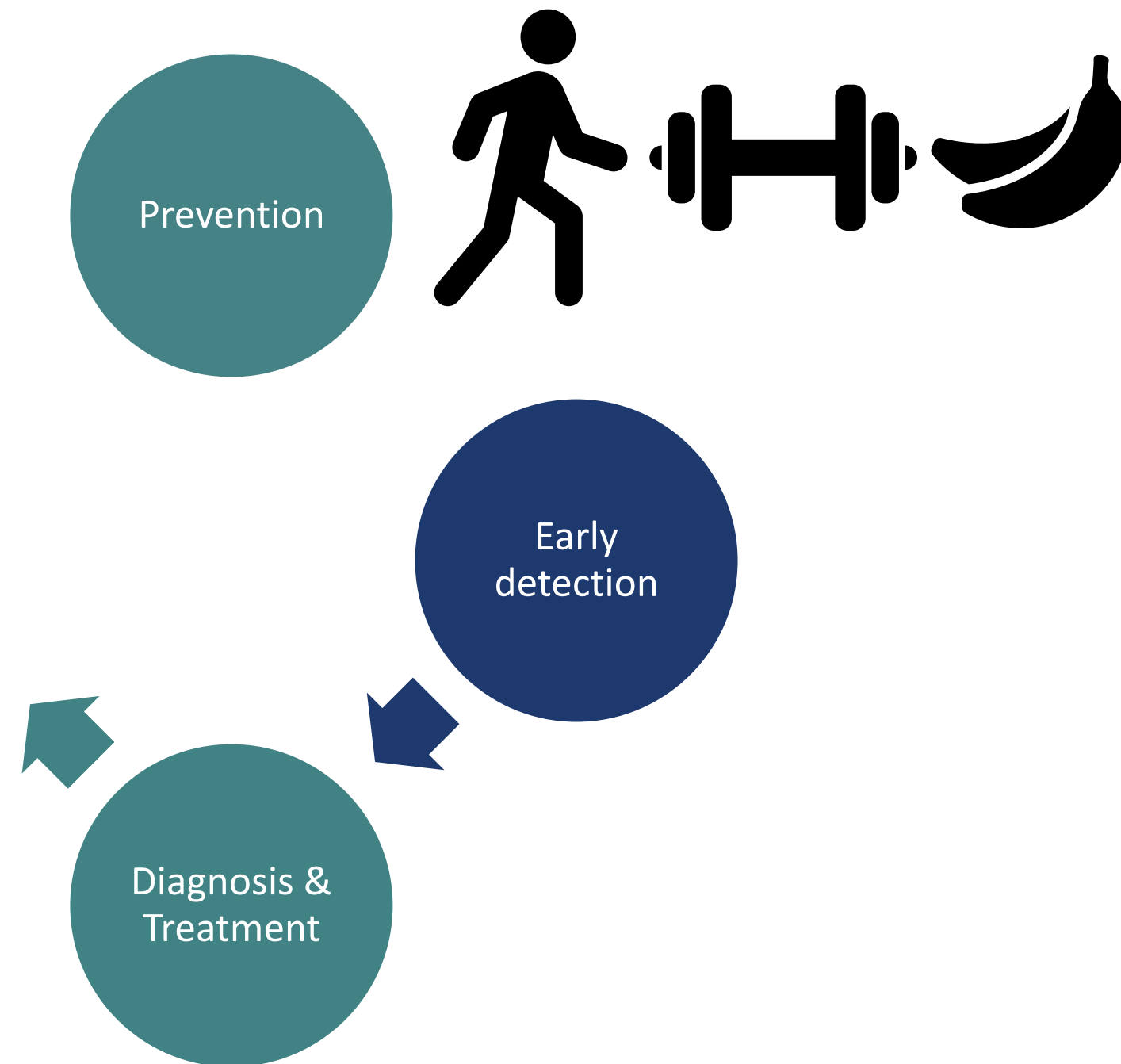


A Europe free of cancer

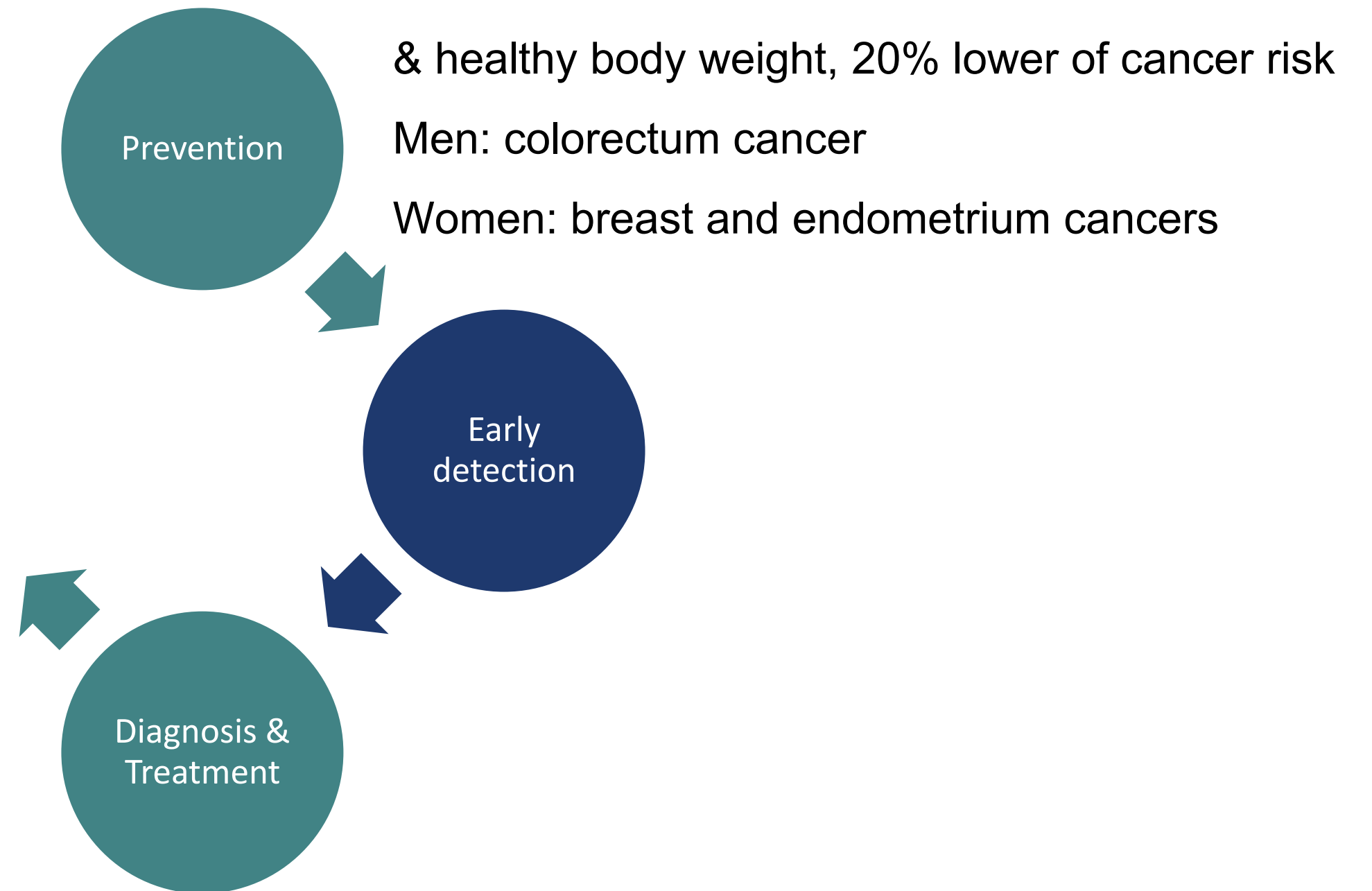
Physical activity and cancer



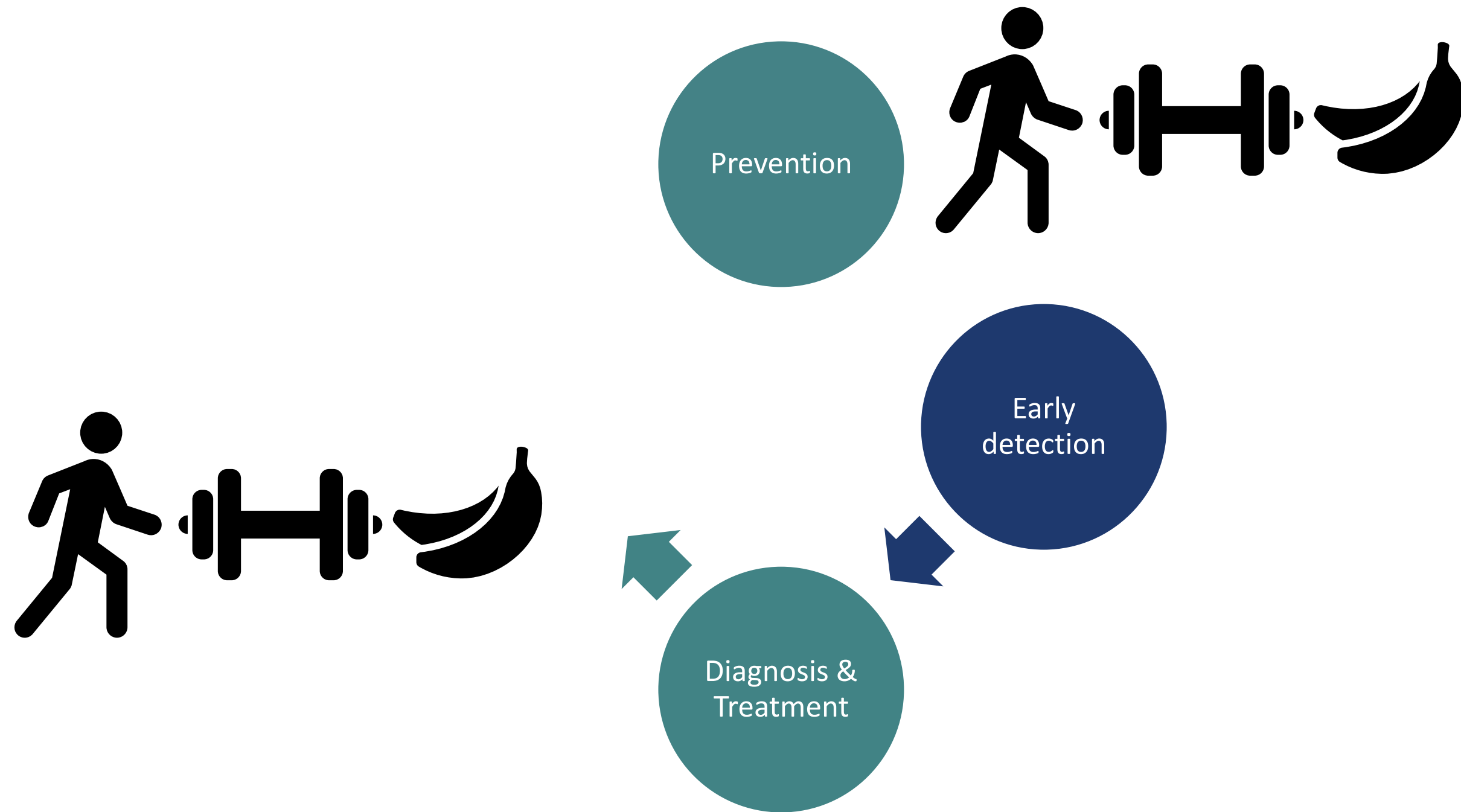
Physical activity and cancer



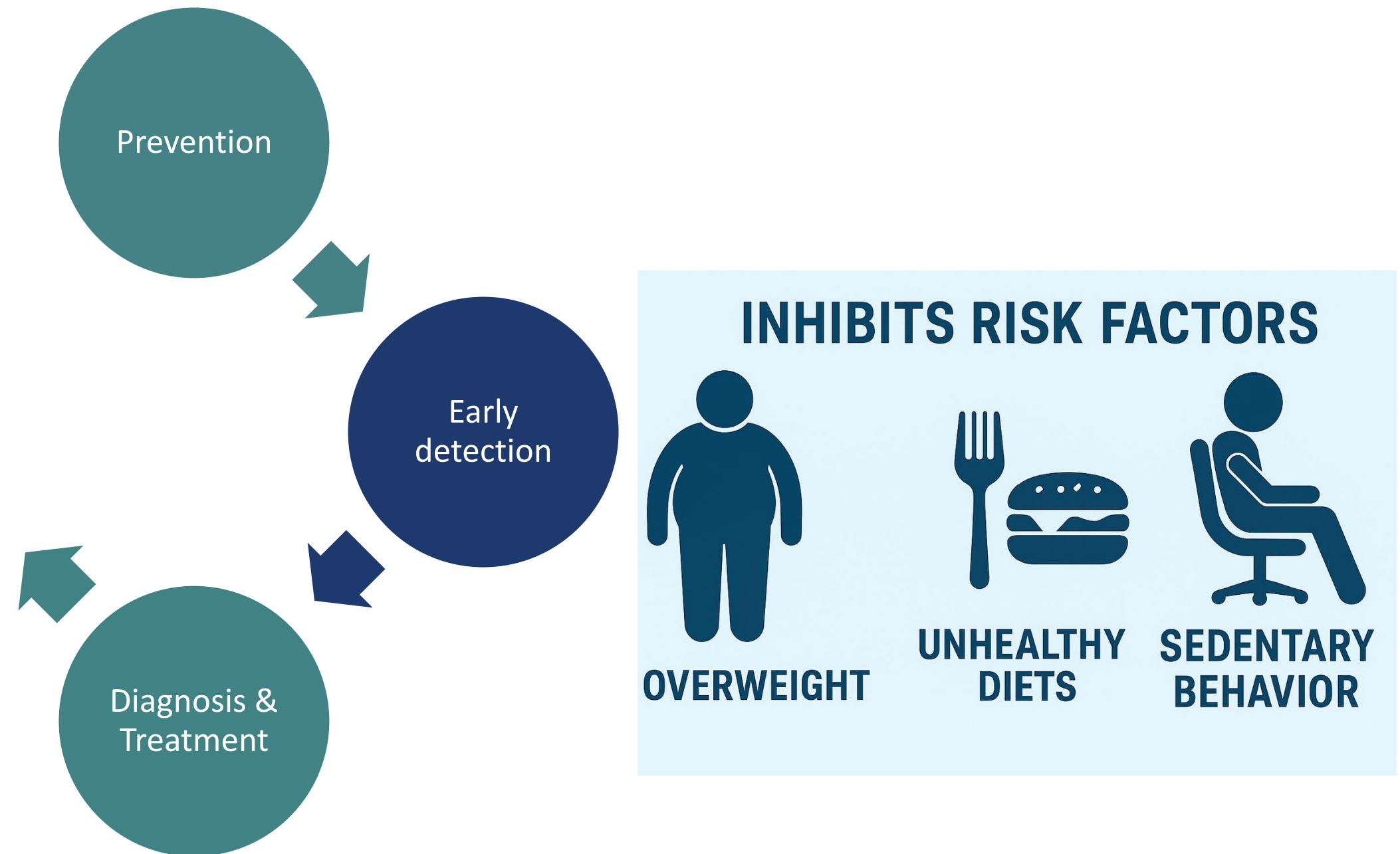
Physical activity and cancer



Physical activity and cancer



Physical activity and cancer



Physical activity and cancer

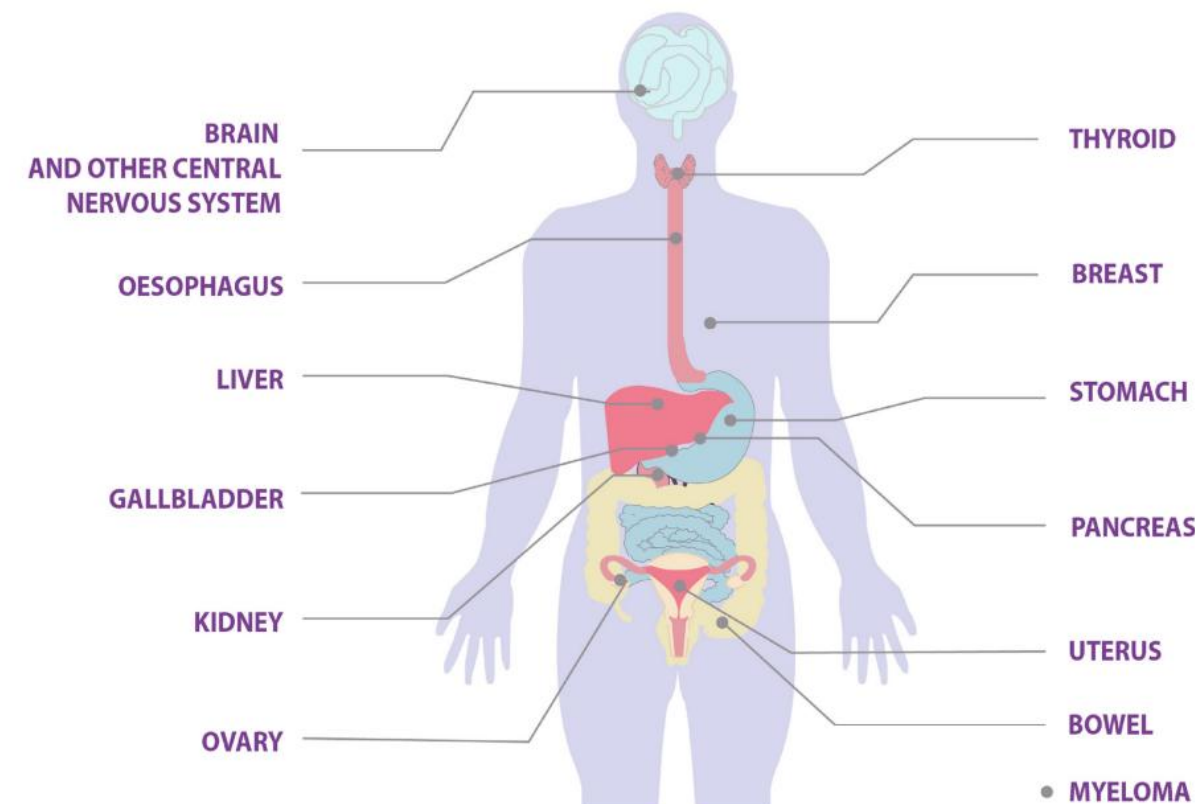
LET'S TALK ABOUT **WEIGHT & CANCER**

A fact sheet for health advocates and workers

ECL PREVENTION &
EARLY DETECTION
WORKING GROUP

Weight and cancer are inextricably linked.

Helping people to reach and maintain a healthier weight contributes to reducing their risk of developing at least **13 types of cancer**.



Physical activity and cancer

The more, the better

Why physical activity matters

The more, the better

- As much **light activity** as possible

Physical activity and cancer

The more, the better

- As much **light activity** as possible
(and)
- 150 minutes/week of **moderate intensity**
(or; a combination of)
- 75 minutes/week of **vigorous intensity**

Physical activity and cancer

The more, the better

- As much **light activity** as possible
(and)
- 150 minutes/week of **moderate intensity** → 20 minutes/day
(or; a combination of)
- 75 minutes/week of **vigorous intensity** → 11 minutes/day

Europe's Beating Cancer Plan

3.4. Improving health promotion through access to healthy diets and physical activity



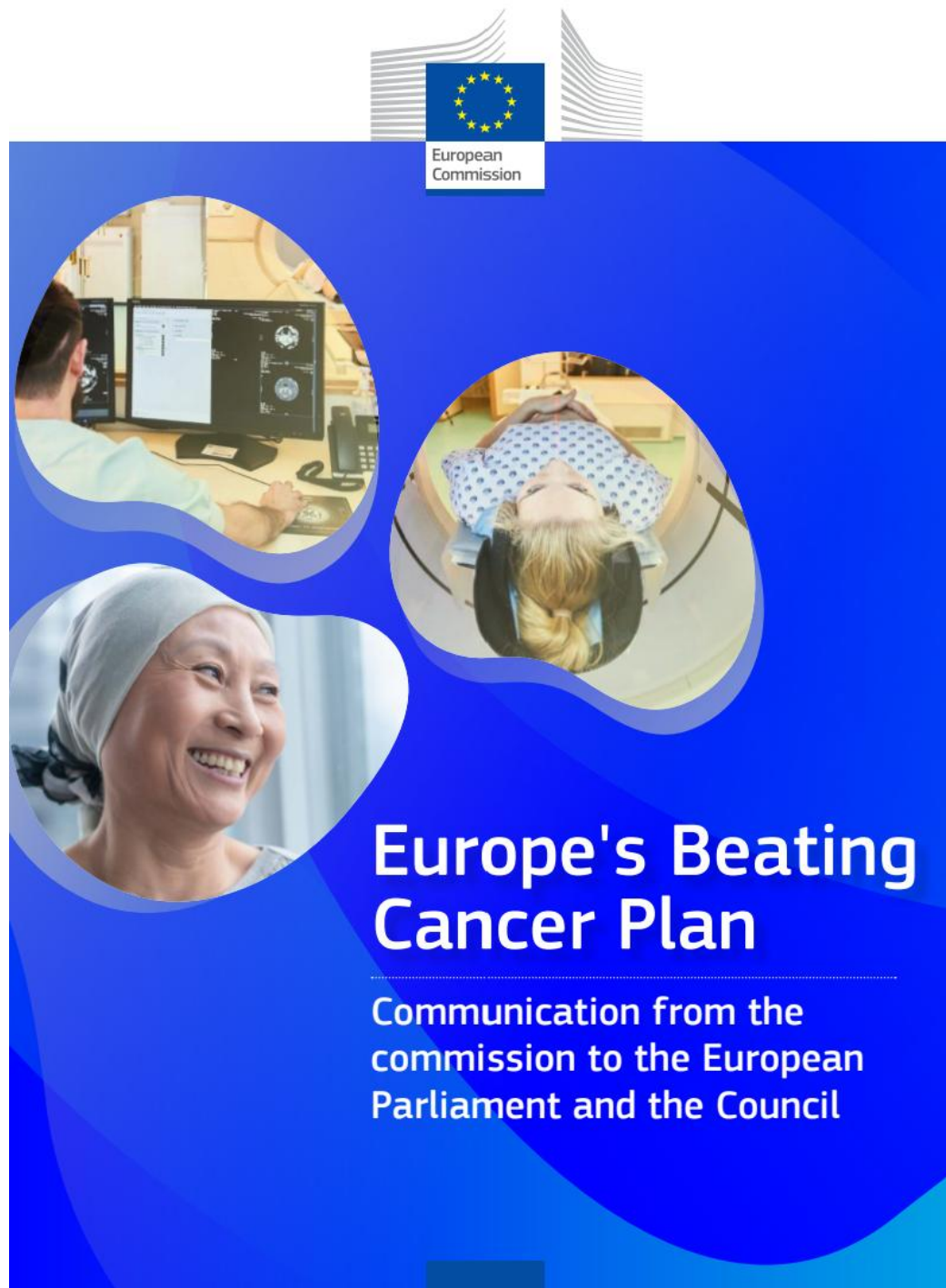
Europe's Beating Cancer Plan

3.4. Improving health promotion through access to healthy diets and physical activity

Improving health promotion through access to healthy diets and physical activity (3.4)

- (1) **HealthyLifestyle4All** support to promotion of healthy lifestyles for all generations;
- (2) Initiatives under the **Sustainable Urban Mobility Planning Guide** on linking transport and health;
- (3) Revision of the **Urban Mobility Package** to promote and support sustainable and healthy transport and mobility.

2021-2023



HealthyLifestyle4All



Pillar 1

Increased awareness
of a healthy lifestyle across
generations

50 pledges



Pillar 2

Easier access to sport,
physical activities and
healthy diets, with special
focus on inclusion and non-
discrimination to reach
disadvantaged groups

30 pledges



Pillar 3

**Teaming up for a holistic
approach** to food, health,
well-being and sport

19 pledges



21 pledges from Member States



40 pledges from the Sport Movement



**38 pledges from EU institutions, Civil Society organisations,
cities, regions and others**



Mapping on Healthy Lifestyles

*A report to the European
Commission*

Sport

HealthyLifestyle4All

- **Difficulties** in reaching out to specific stakeholders and target groups
(i.e., **marginalised groups**)
- Lack of **visibility** and **political recognition** of the importance of healthy lifestyle for all
- Lack of **financial** and **human resources**

Key healthy diets initiatives are still missing

- **Proposal for mandatory front-of-pack nutritional labelling**
- Guidance for codes of practice on reducing **unhealthy food marketing to children**
- Review of the **EU Action Plan on Childhood Obesity 2014-2020**
- Proposal for **mandatory labelling** of the list of ingredients and nutrition declaration on **alcoholic beverage products**
- Proposal for **health warnings** on **alcoholic beverage products**

European Code Against Cancer



International Agency for Research on Cancer



European Code Against Cancer



International Agency for Research on Cancer



TOBACCO



SUN/UV EXPOSURE



SECOND-HAND SMOKE



POLLUTANTS



HEALTHY BODY WEIGHT



RADIATION



PHYSICAL ACTIVITY



BREASTFEEDING

HORMONAL THERAPY



DIET



VACCINATION AND INFECTIONS



ALCOHOL



SCREENING

European Code Against Cancer



International Agency for Research on Cancer



TOBACCO



SUN/UV EXPOSURE



SECOND-HAND SMOKE



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HEALTHY BODY WEIGHT



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ALCOHOL



SCREENING

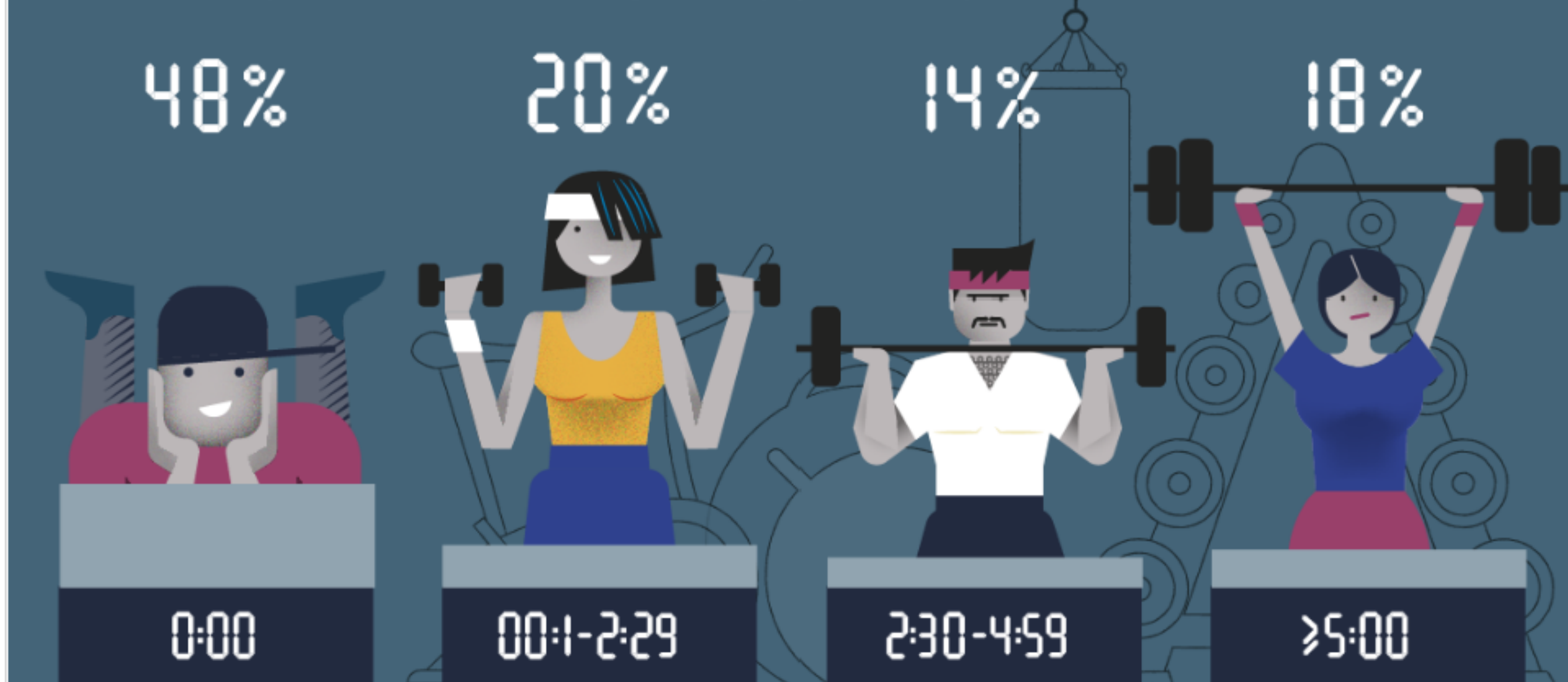
European Code Against Cancer

The more, the better

- As much **light activity** as possible
(and)
- 150 minutes/week of **moderate intensity** → 20 minutes/day
(or; a combination of)
- 75 minutes/week of **vigorous intensity** → 11 minutes/day

How much do Europeans exercise?

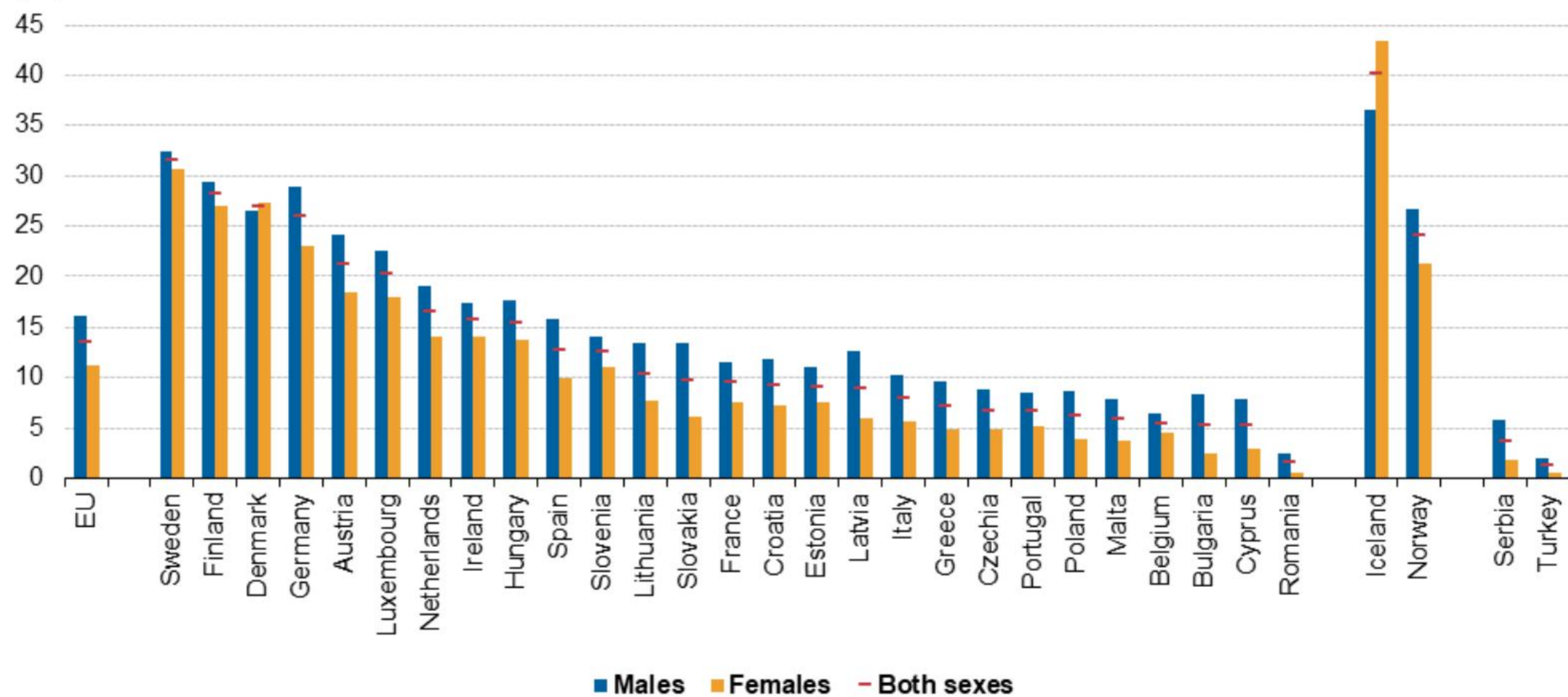
(hours:minutes per week, health-enhancing aerobic physical activity outside work, 2019)



ec.europa.eu/eurostat 

Share of persons aged 18 and over performing health-enhancing aerobic and muscle-strengthening physical activities in a typical week, by sex, 2019

(%)

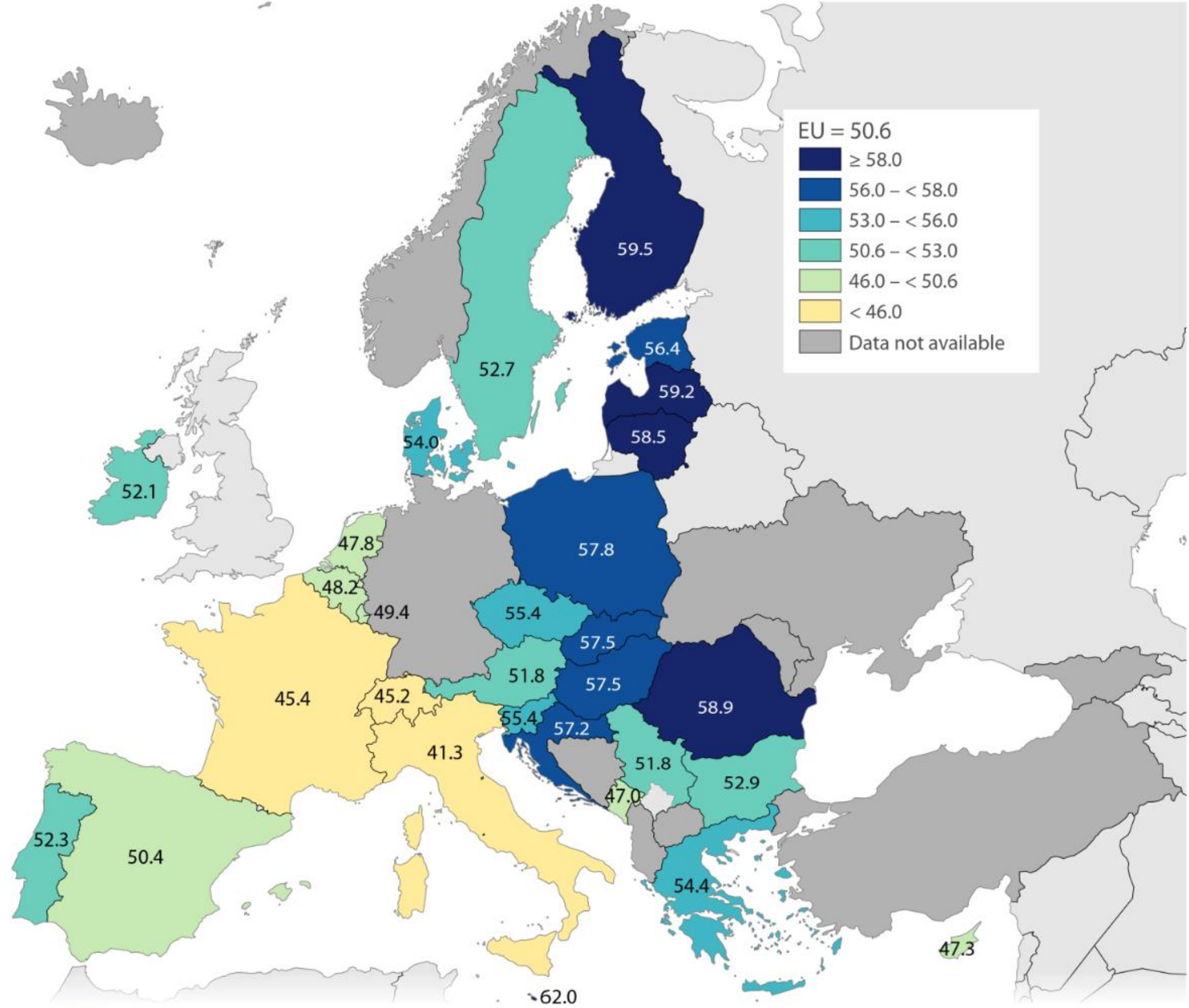


Note: ranked on the share for both sexes combined.

Source: Eurostat (online data code: hlth_ehis_pe9e)

eurostat

Share of overweight people aged 16 years or over, 2022
(%)



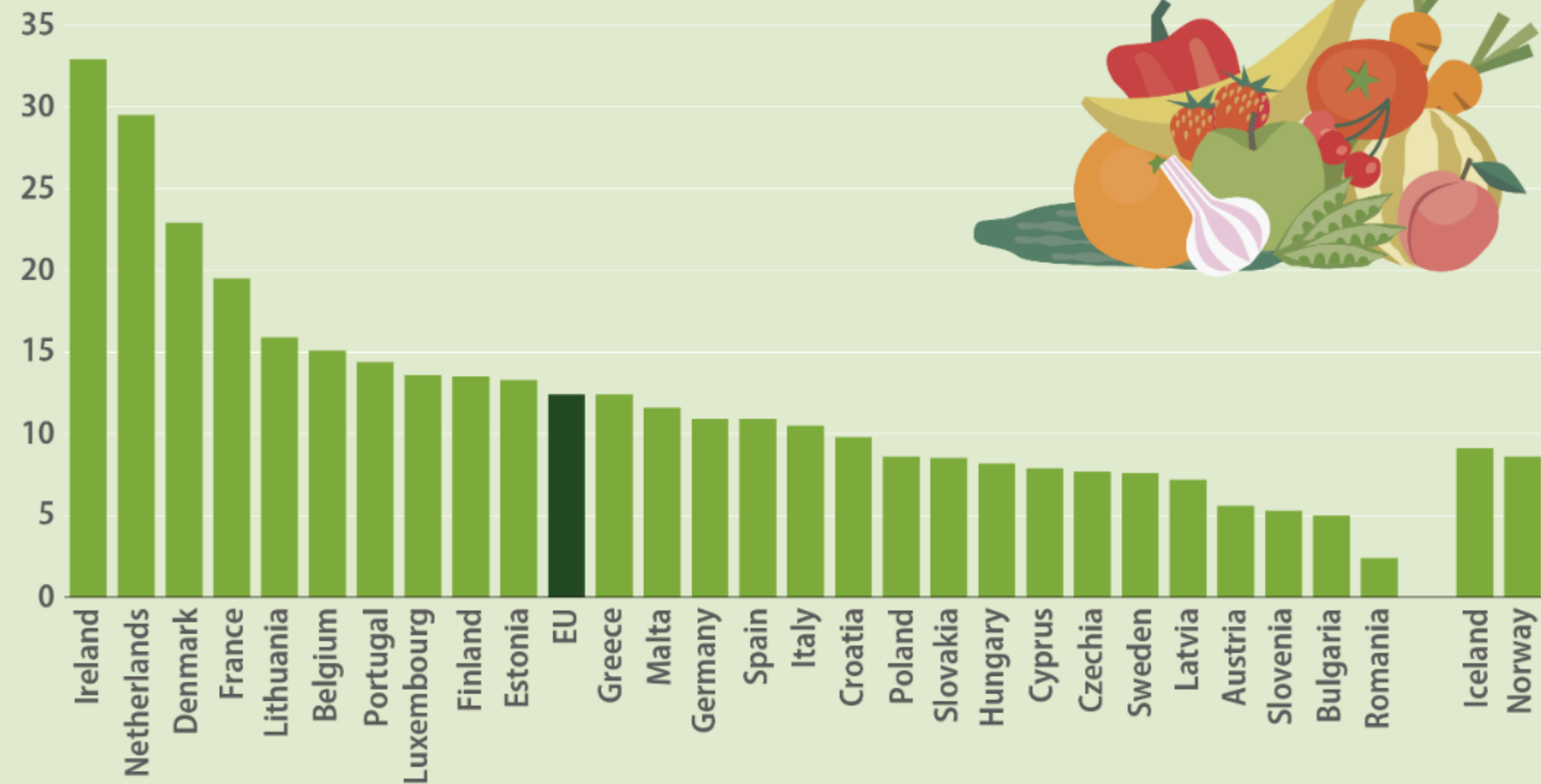
eurostat

Note: EU, estimate. Ireland, Lithuania, Poland and Switzerland: low reliability.
Source: Eurostat (online data code: ilc_hch10)

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Daily consumption of 5 portions or more of fruit & vegetables, 2019

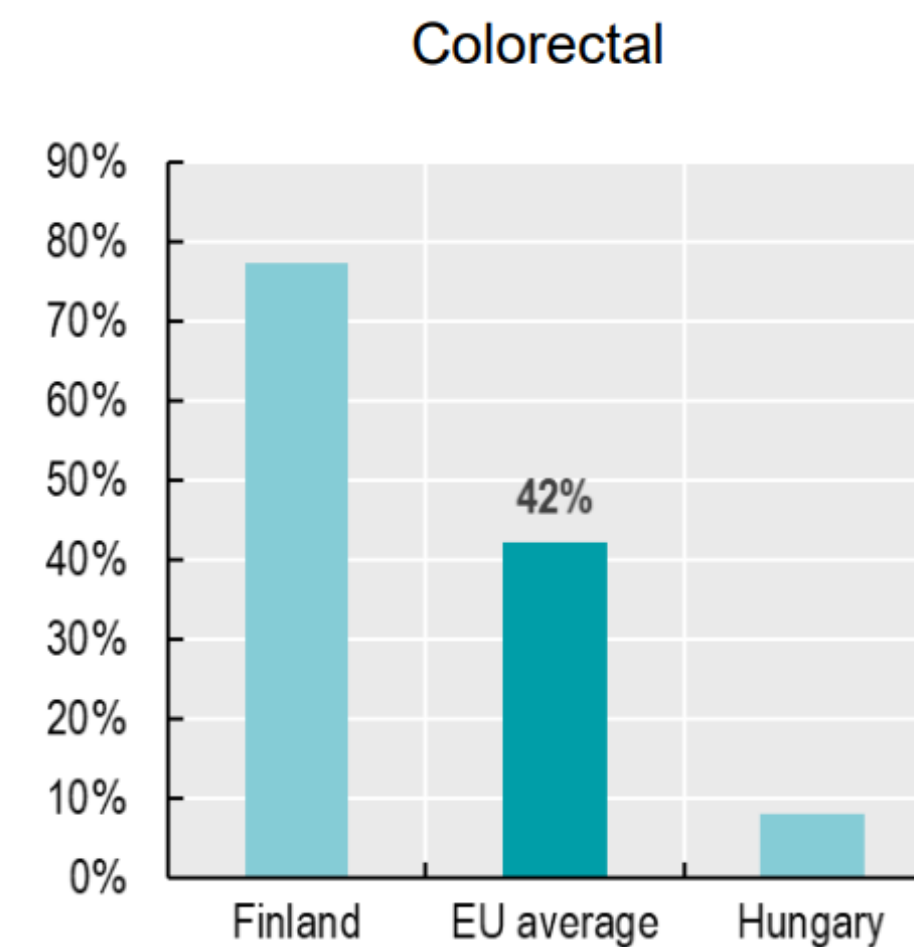
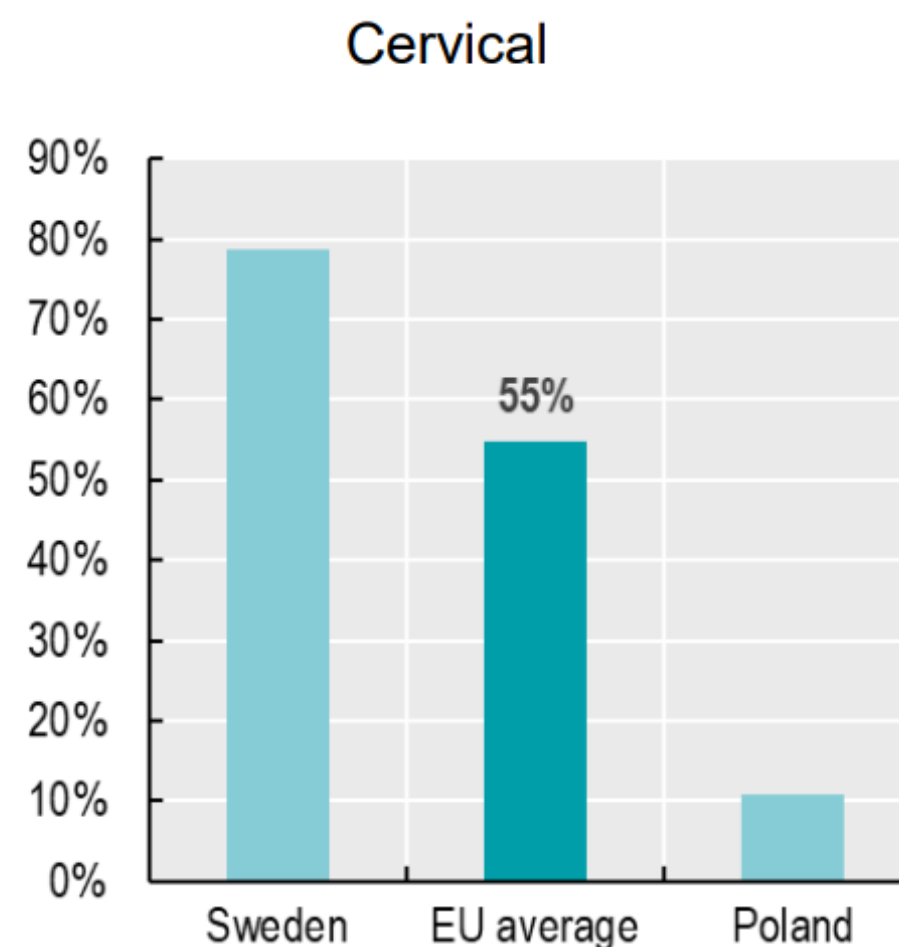
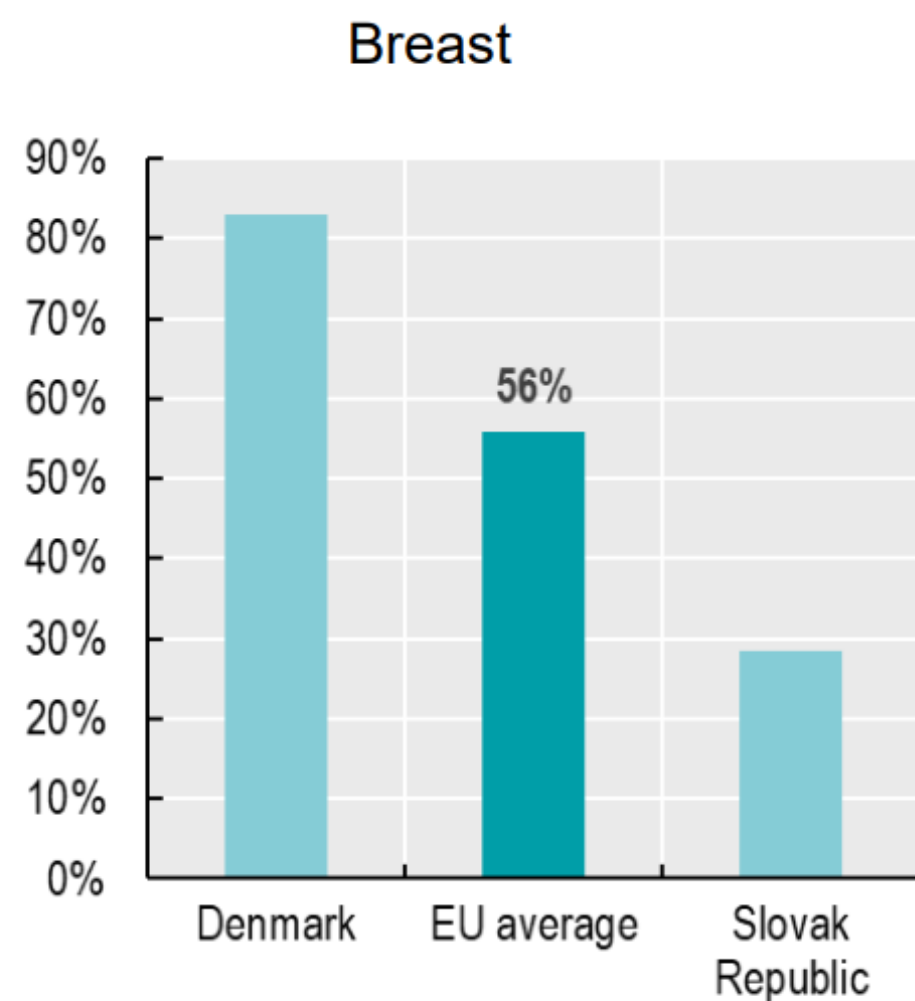
(% of the population aged 15 and over)



ec.europa.eu/eurostat

Screening programmes only engage half of target populations, and rates have fallen across programmes

Screening participation rates (2022 or nearest)



% of countries with
rates falling (2014-22)

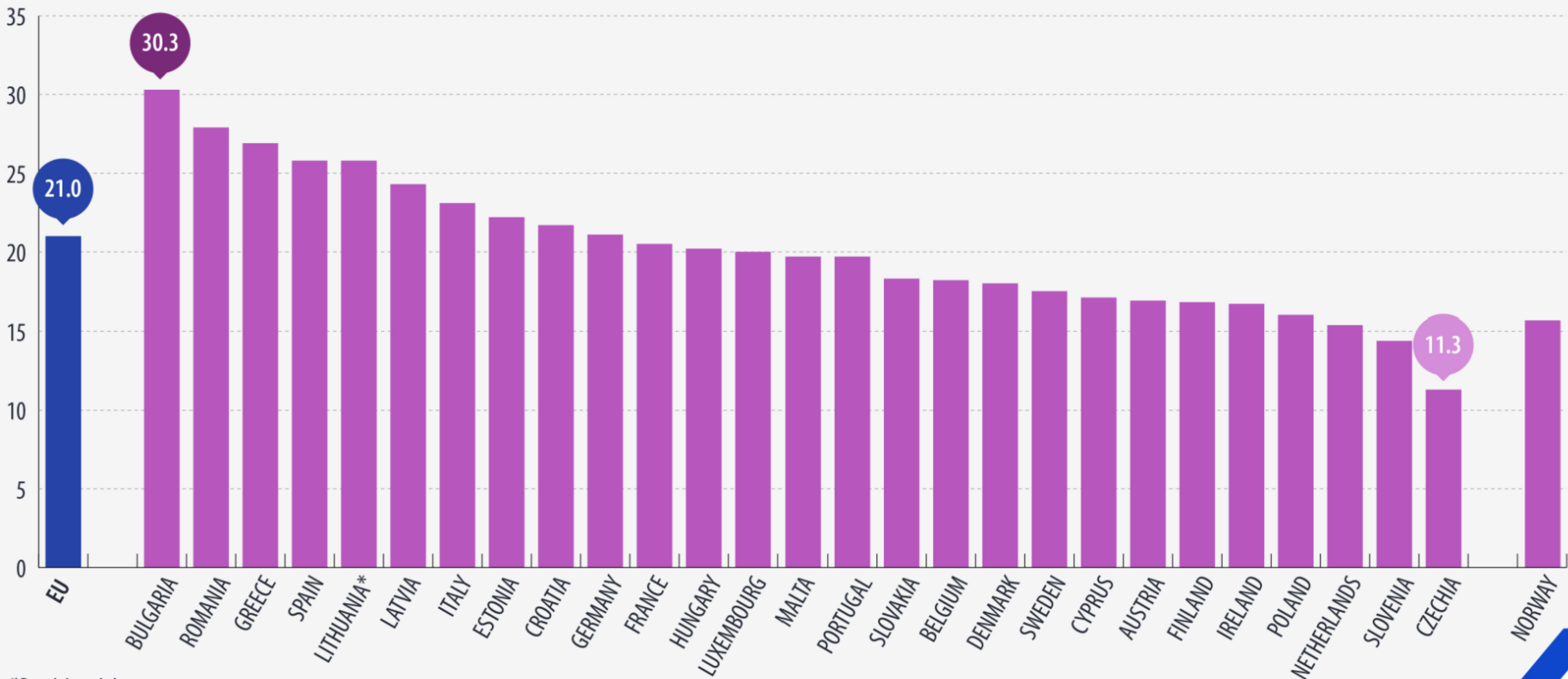
58%

65%

56%

People at risk of poverty or social exclusion, 2024

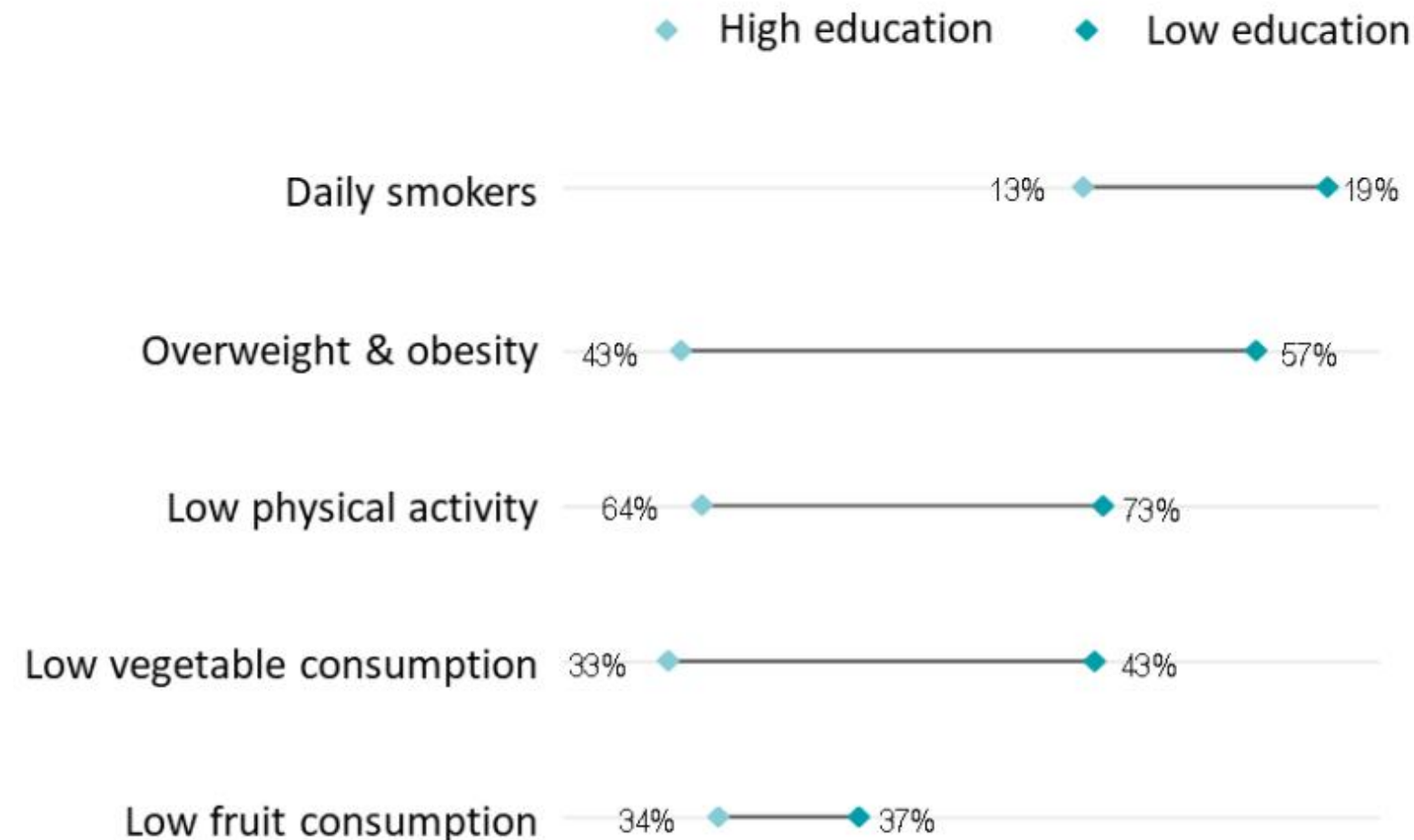
(% of total population)



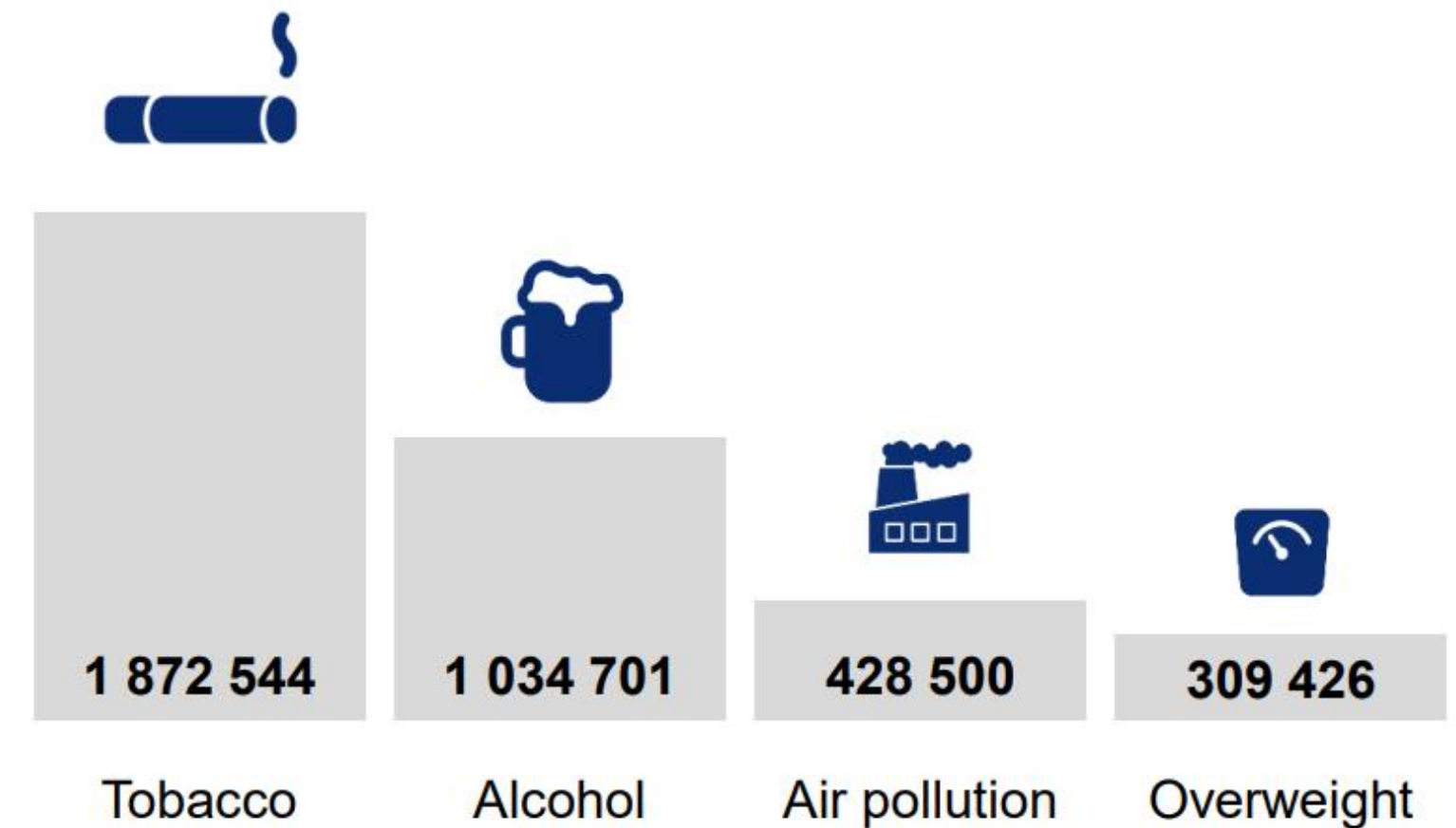
*Provisional data

Gaps in mortality are driven by persistent inequalities in cancer risk factors

Lower educated individuals have
higher cancer risk factors



Millions of cancer cases could be prevented
in EU countries in 2023-50 by meeting
international risk factor policy targets



Inequalities in access to physical activity mirror the systematic inequities observed across the cancer continuum

Inequalities in access to physical activity mirror the systematic inequities observed across the cancer continuum

Political inaction perpetuates inequity

Inequalities in access to physical activity mirror the systematic inequities observed across the cancer continuum

Political inaction perpetuates inequity

The social contract must be restored

Inequalities in access to physical activity mirror the systematic inequities observed across the cancer continuum

Political inaction perpetuates inequity

The social contract must be restored

Public health interest must be prioritised. Health in All Policies

Alba GIL, Policy officer
alba@cancer.eu

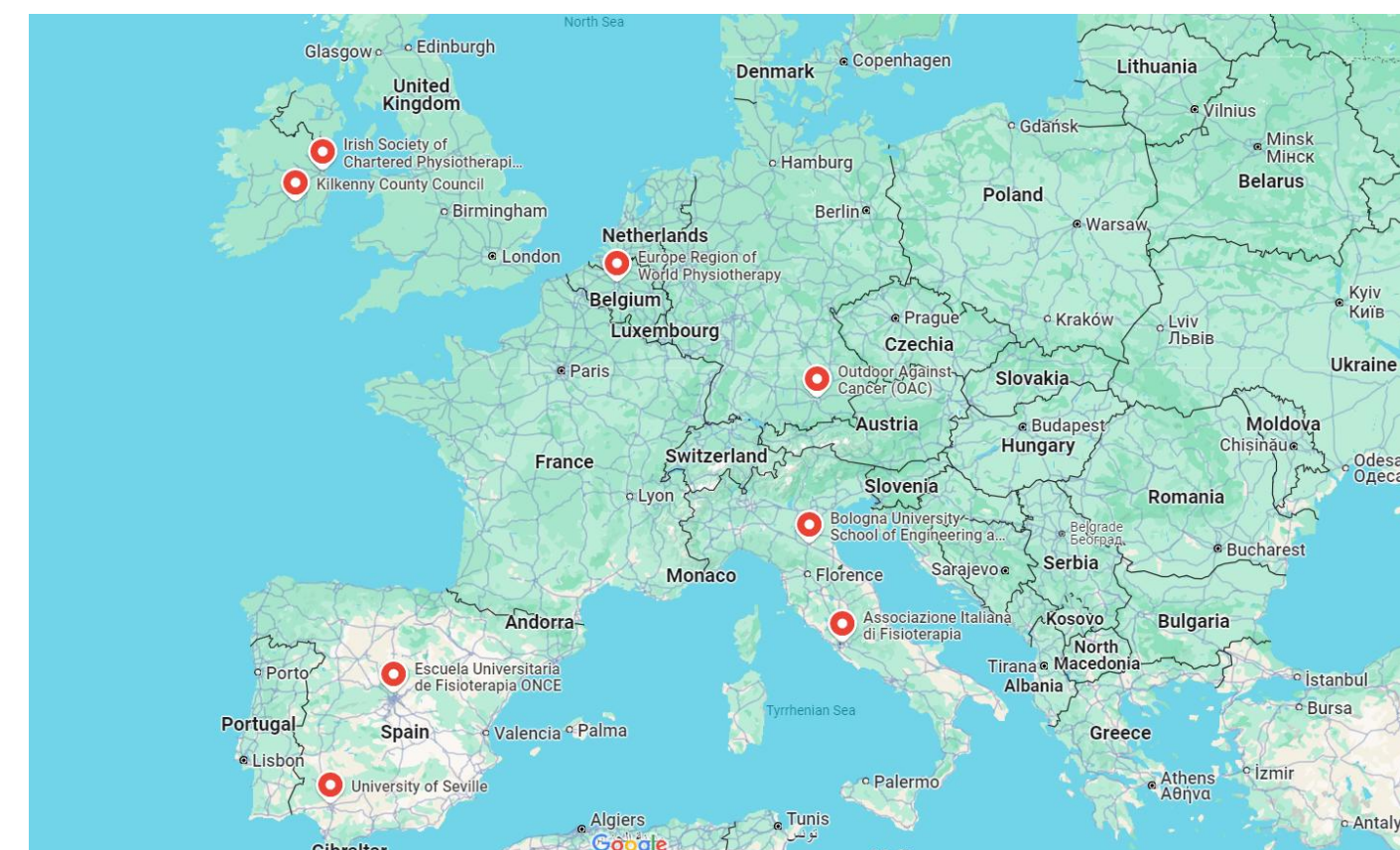


PROJECT OVERVIEW



Co-funded by
the European Union

| UcanACT a transnational intersectoral initiative



Work plan

Research:

- Evidence on PA for cancer prevention - Study on positive benefits of PA for CPPA for PIM
- Good practices in organising CPPA sessions within PUGs - Study describing efficient measures for engagement
- Needs analysis - Describing barriers for CPPA within PUGs

Design of Pilot Programme Methodology and Tools:

- Development and implementation of the:
 - Practical Intervention Methodology on delivering CPPA within PUGs
 - Massive Open Online Course (MOOC)
 - App
 - Design of Citizen Engagement Strategy (CES) for implementation
 - Development of Evaluation Methodology

Implementation and Evaluation of Pilot Programme

- Kick off training in pilot territories
- Information session for community managers
- Implementation of Pilot CPPA actions within PUGs
- Implementation of Citizen Engagement Session (CES)
- Evaluation of Pilot CPPA actions
- Economic value and cost effectiveness of CPPA

Participants:

Medically cleared
IPAQ-SF – baseline activity level

2022

2023

2024

2025



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Prevalence of Cancer

- Second leading cause of death in Europe after cardiovascular disease.
- Third highest prevalence of cancer cases - 470 cases per 200,000 population. ¹
- Every minute, five people in the EU are diagnosed with cancer. ²
- In 2022:
 - the estimated number of deaths due to cancer amounted to 1.26 million. ¹
 - cases diagnosed estimated at almost 2.7 million cases (excluding non-melanoma skin cancers).
- 31% of men and 25% of women are expected to be diagnosed with cancer before reaching the age of 75 years. ³
- 14% of men and 9% of women are estimated to die from cancer before reaching 75 years. ³



¹ [Cancer in Europe - Statistics & Facts | Statista](#)

² [EU Country Cancer Profiles Synthesis Report 2025](#)

³ [Cancer cases and deaths on the rise in the EU - European Commission](#)



European Plan to Fight Cancer



- Priority of the European Commission in the health domain.
- Between 30-50% of cancer deaths could be prevented by modifying or avoiding key risk factors and implementing evidence-based prevention strategies.
- Encouraging participation in sports and physical activity as a tool for health aligns with the Erasmus Plus Programme Horizontal Priority.
- Nearly half of Europeans never exercise or play sport, with illness one of the main reasons not to engage in PA.⁵
- A 3-year structured exercise program initiated soon after adjuvant chemotherapy for colon cancer resulted in significantly longer disease-free survival and findings consistent with longer overall survival.⁶

4 World Cancer Report, WHO 2020

5 European Commission Special Barometer on Sports and Physical Activity (2018)

6 DOI: 10.1056/NEJMoa2502760



European Green Deal Sustainable Development Goals



- 2030 Agenda for Sustainable development.
- Global Sustainable Goal 3 – **Global health and well-being** - to ensure healthy lives and promote well-being for all at all ages.
- Global Sustainable Goal 11 – **Sustainable Cities and Communities** – make cities and human settlements inclusive safe resilient and sustainable.
- Global Sustainable Goal 13 – **Climate Action** – action to combat climate change and its impact.
- Engaging in physical activity in urban spaces contributes to delivery of sustainable practice through Prevention, Promotion, Lean Service Delivery & Low Carbon Alternative.



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Environmentally sustainable practice and promotes sustainable healthcare



Prevention

- Promoting health, preventing disease and tackling the cause of illness and inequalities, reducing long-term needs.

Promotion

- Empowering patients to take a greater role in managing their own health and healthcare.

Lean Service Delivery

- Lean service delivery methods, streamlining care systems to minimise wasteful activities.

Low Carbon Alternatives

- Prioritising treatment and technologies with a lower environmental impact to reduce the healthcare carbon footprint.



PILOT TERRITORY MUNICH



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Numbers:

PUGS: 5

CPPA sessions: 29 (11 in PR1 and 18 in PR2)

Participants: 61

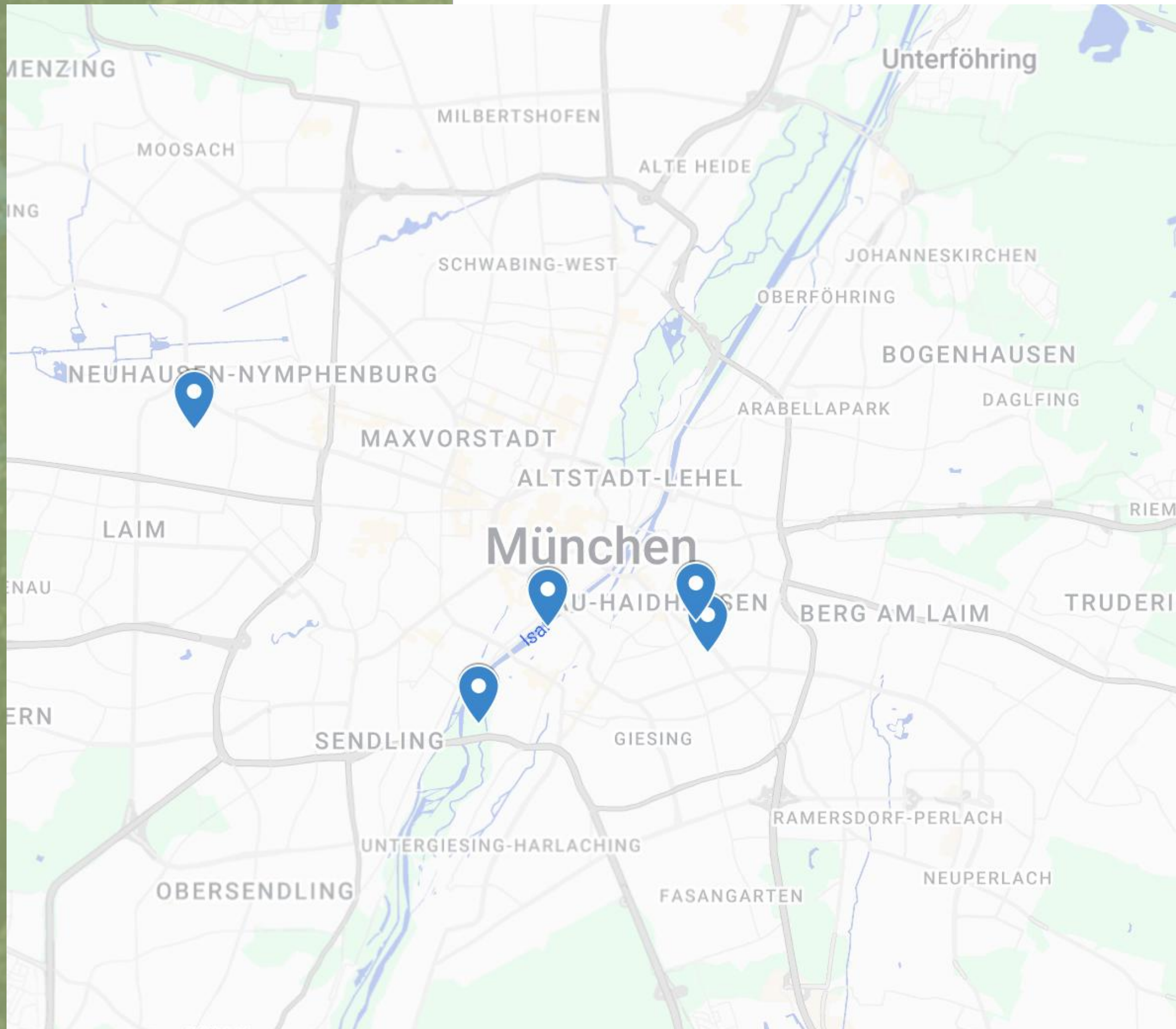
PTs – 15 in total:

PR1: 6

PR2: 9



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PUGS in Munich:

Hirschgarten

Isarpark

Isar/Candidplatz

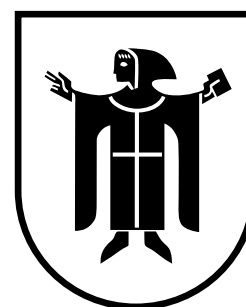
Kustermannpark

Postwiese



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the European Union

| **Special thanks to:**



Landeshauptstadt
München



Testimonials:

"I found it very good, engaging, varied, and versatile. I appreciated how well you catered to the different needs and activity levels of the participants. I'd love to join again! The medical background explanations for each exercise were very interesting and helpful!" – Rita (59)

"UcanACT offers a diverse program that is well-suited to the participants. The exercises are well explained and demonstrate good expertise. I'll be back in September. Best regards!" – Marinesse (72)



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Thank you!



@UcanAct



@ucanacteu

Visit our website!



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BOLOGNA TERRITORY

Past – Present - Future



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INTRODUCTION

1. BOLOGNA is an **advanced** territory vs other Italian ones
2. Municipality organises events and citizens are used to be part of it

CHALLENGE

- To be part of the big picture
- To be recognised among stakeholders as an impactful project

HOW

- Numbers
- Quality of services
- Impeccable organisations & communication
- Impact on people's lifestyle
- Sustainability



Michele Cannone

- LEAR Project UcanACT
Ufficio Esteri AIFI

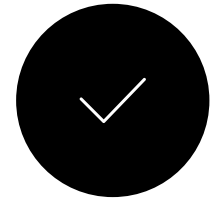
- Executive Committee member
Europe Region of World Physiotherapy

- Chair Cancer Working Group
Europe Region of World Physiotherapy



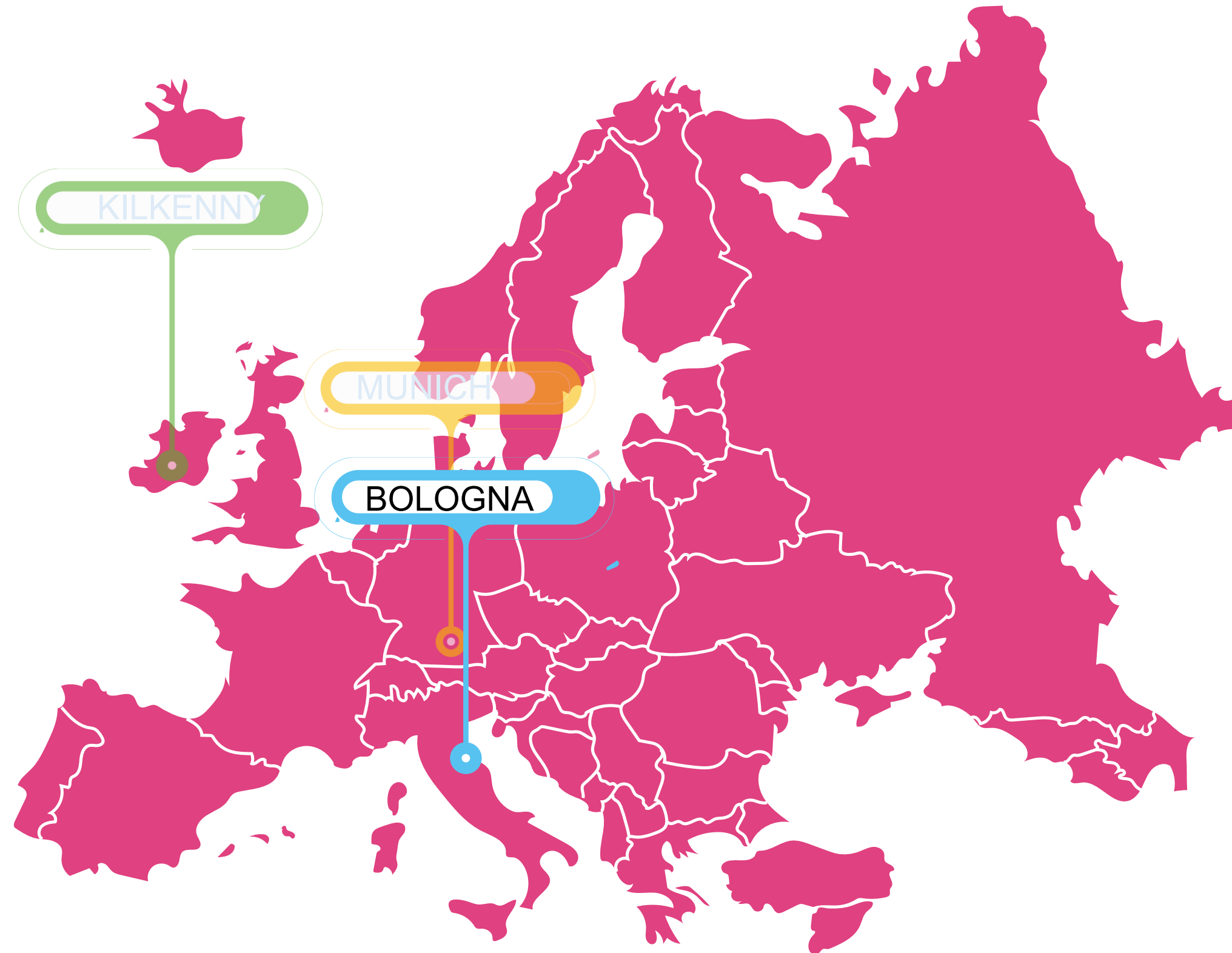
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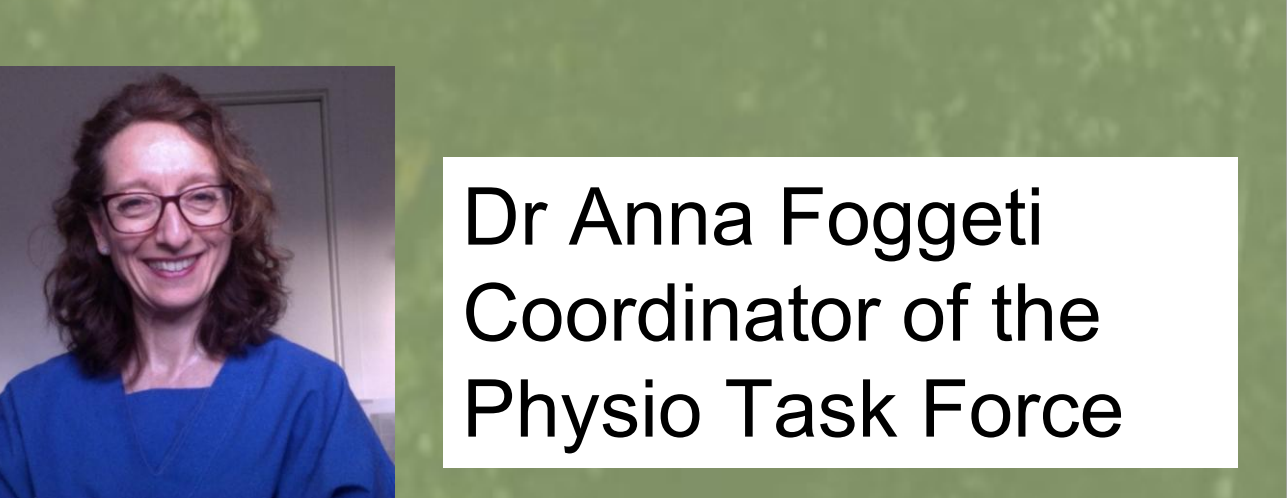
NUMBERS AND FIGURES



BOLOGNA

- Participants: 88
- Physios: 15
- PUGS: 4
- Sessions: 65

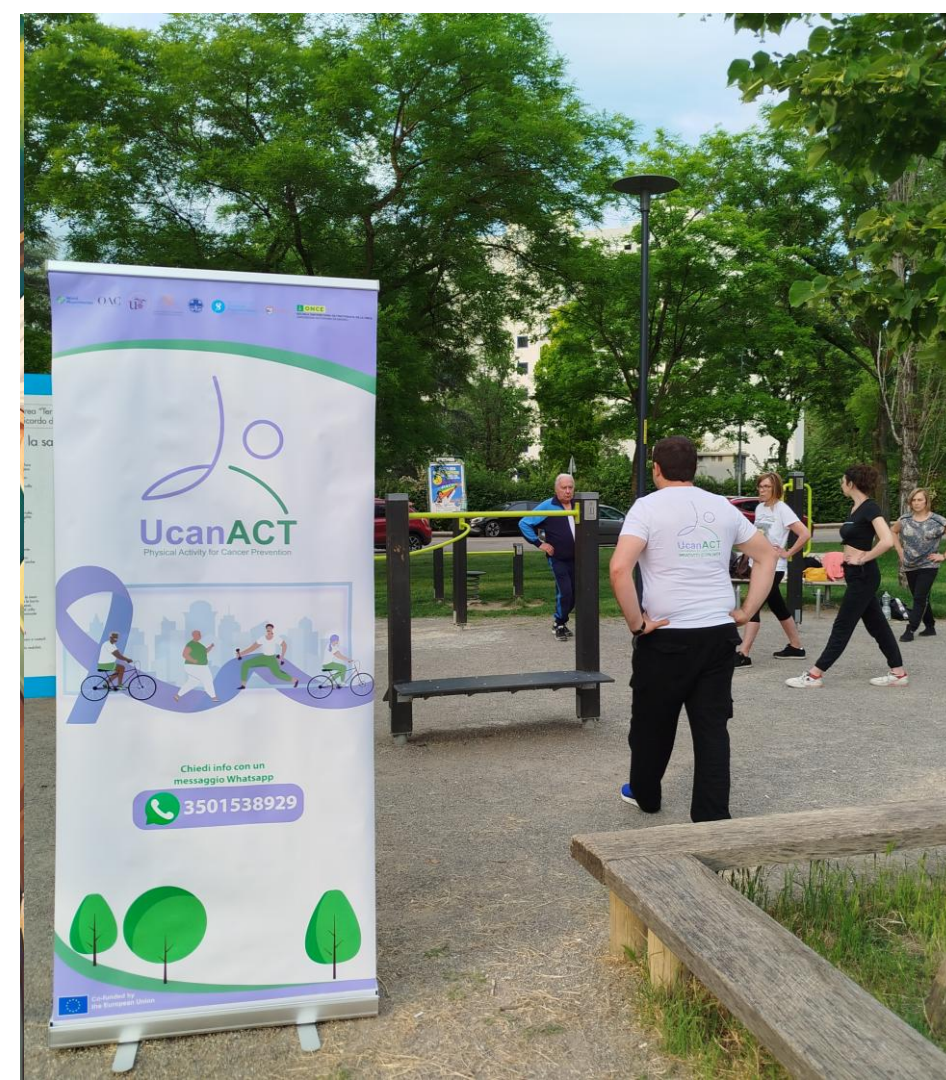




Dr Anna Foggeti
Coordinator of the
Physio Task Force

TASKFORCE PHYSIOS

- Senior and junior physiotherapists willing to improve
- Oncological physios
- They studied the Online Course (MOOC)
 - Practical Intervention Methodology (PIM)
 - Citizens Engagement Strategy (CES)
- Various focus groups
- Continuous feedback



RESULTS

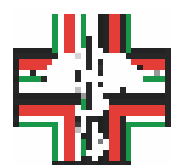
We provided such a **game-changer experience**. People now are part of yoga classes, gyms; they keep moving in PUGS, and keep asking for future development.



WHO DO THEY NEED NOW?



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Ordine Farmacisti
Provincia di Bologna



CITTADINANZA *ATTIVA*
EMILIA-ROMAGNA



Comune
di Bologna

UcanACT
Physical Activity for Cancer Prevention



Comhairle Chontae Chill Chainnigh
Kilkenny County Council

OAC
outdooragainstcancer.com



STAKEHOLDERS



ONCE
ESCUELA UNIVERSITARIA DE FISIOTERAPIA DE LA ONCE
UNIVERSIDAD AUTÓNOMA DE MADRID

UcanACT
Physical Activity for Cancer Prevention



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

FUTURE PLANS

1. **Citizens** will establish a private contract with physios to keep having sessions in PUGS.
2. **Bologna Order of Physio and AIFI** are discussing the strategy to talk with the **Municipality** to find a solution that does not impact citizens pockets.
3. Other **Regions** with **OFIs** are interested in exporting the model.
4. We went to the Campania region to show the project.
5. We are looking for follow-up projects to keep impacting in this direction.





UcanACT

Physical Activity for Cancer Prevention

KILKENNY TERRITORY

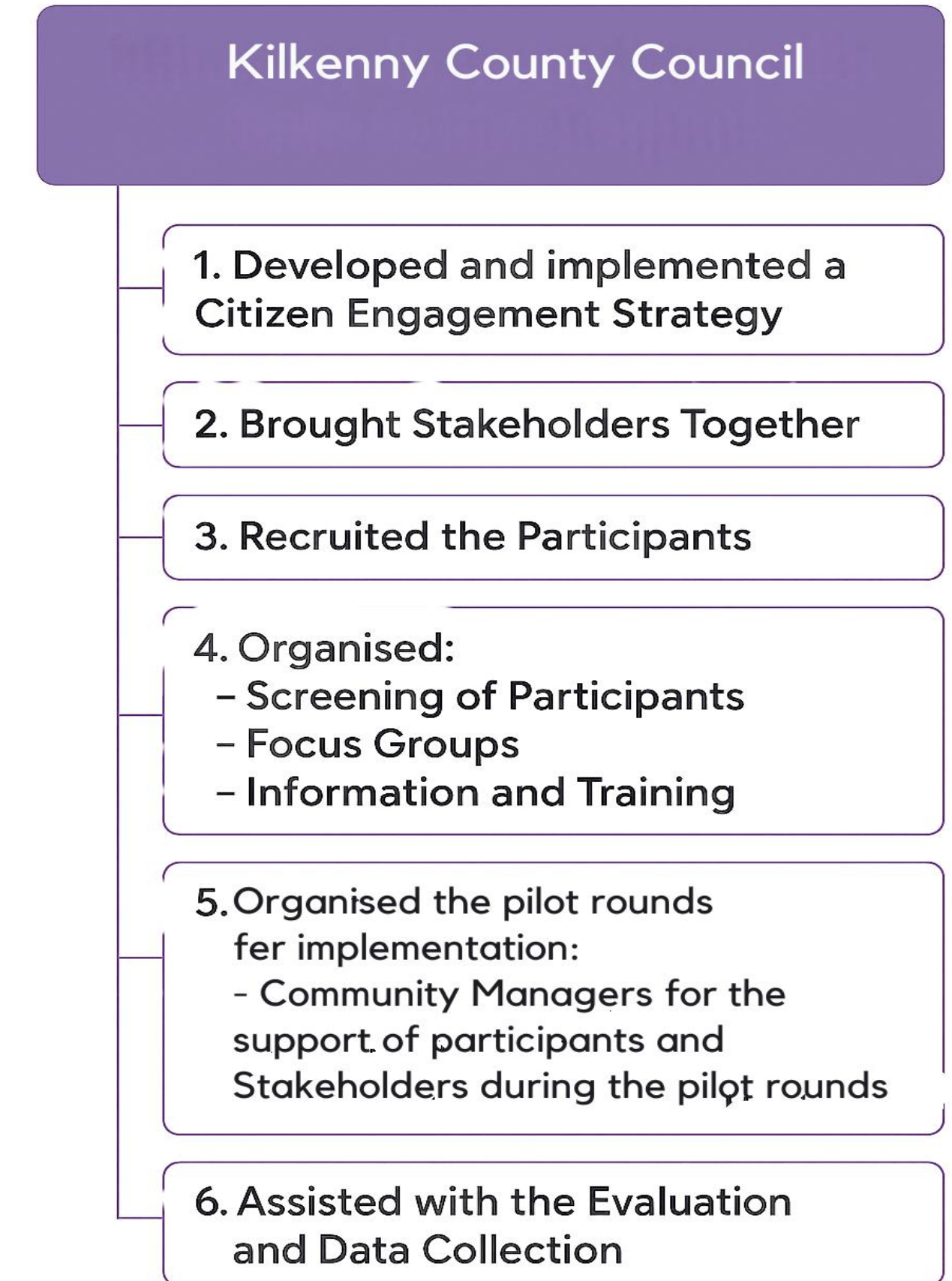


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UcanACT Kilkenny

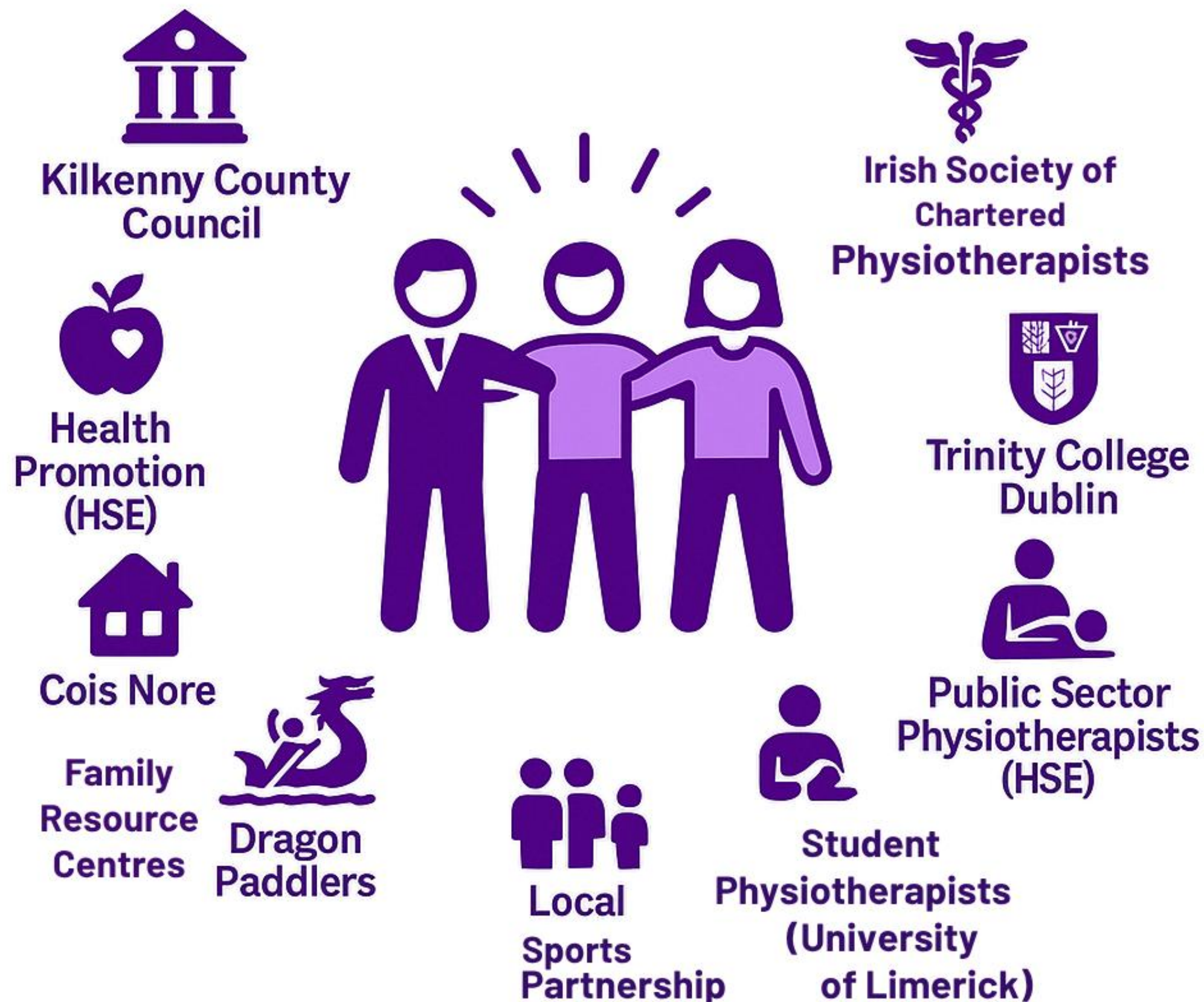
Irish Partners:

- **Kilkenny County Council (1 of 31 Local Authorities in Ireland)** are responsible for the provision of an extensive range of public services and infrastructure which promote the interests of local communities. Local Authorities play a crucial role in maintaining and enhancing the quality of life for citizens.
- **The Irish Society of Chartered Physiotherapists** is the national, professional body representing over 4,000 Chartered Physiotherapists in Ireland.



UCanACT

Stakeholder Team in Kilkenny



Stakeholder Engagement



Mapping Stakeholders

Identify key organisations, groups and individuals involved.



Information and Awareness

Communicate about the UcanACT pilot to raise understanding.



Recruitment

Invite participants to take part in the pilot



Screening Clinics

Assess eligible participants for inclusion and set exercise level



Implementation of the UcanACT Pilot Rounds

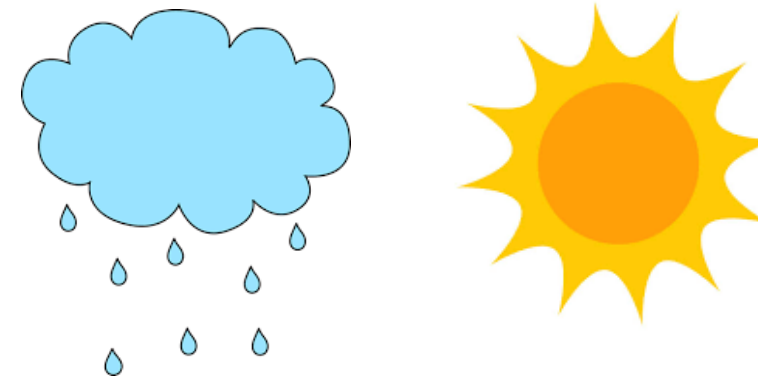
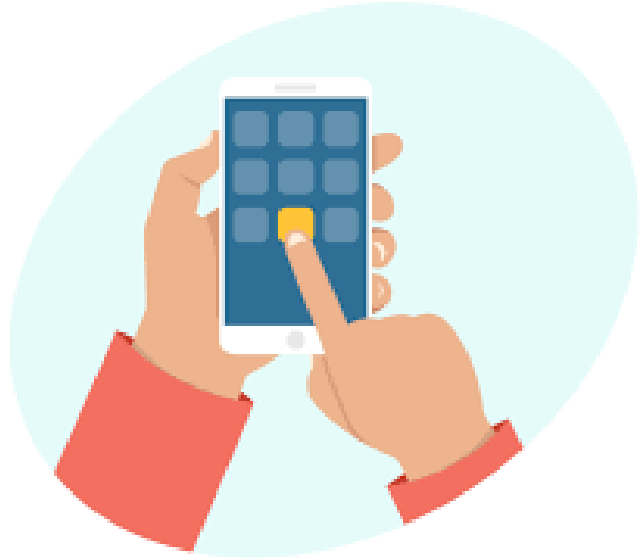
Conduct the pilot activities in public urban green spaces



Evaluation

Evaluate outcomes and assess the impact of the pilot programme

| Participant Engagement

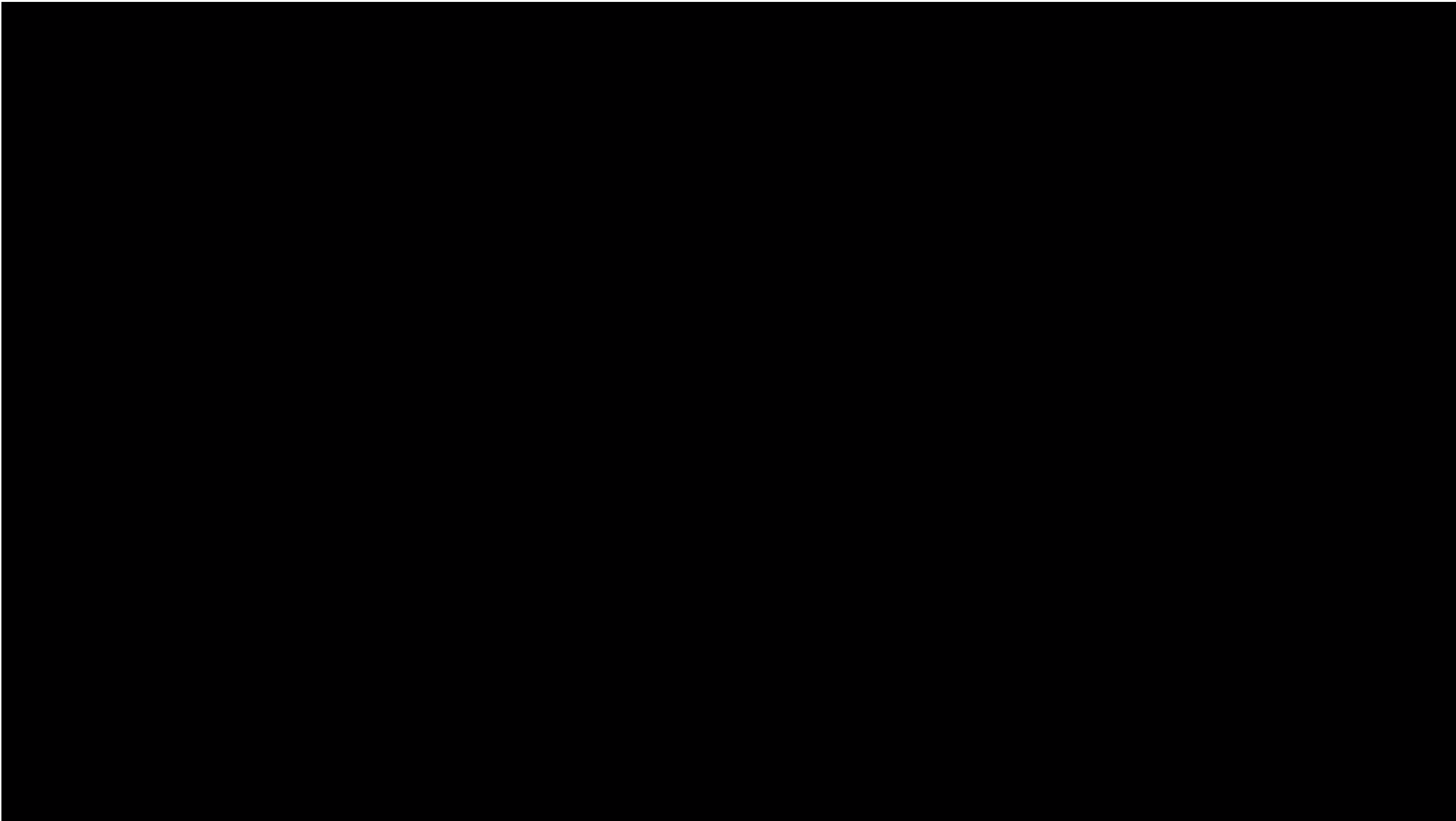






63 Participants
6 Physiotherapists
10 Physiotherapy Students
3 Public Urban Green Spaces
38 Exercise Sessions





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EVALUATION METHODOLOGY AND MAIN FINDINGS



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EVALUATION METHODOLOGY

COMPREHENSIVE EVALUATION STRATEGY

QUANTITATIVE EVALUATION



QUALITATIVE EVALUATION

Participants
Evaluation

From Participants

UcanACT App
Evaluation

From Community
Managers

Intervention
Evaluation

From
Professionals



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QUANTITATIVE RESULTS

212 PARTICIPANTS

↳ 47 completed both interventions

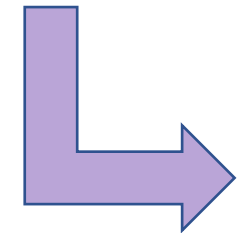
PR1 + PR2		Kilkenny	Bologna	Munich	TOTAL
PRE / POST	Pre	63	88	61	212
	Post	53	55	46	154
HISTORY OF CANCER	Yes	35	37	14	86
	No	28	47	44	119
GENDER	Male	11	18	11	40
	Female	51	70	50	171
	Non-binary	1	0	0	1



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QUANTITATIVE RESULTS

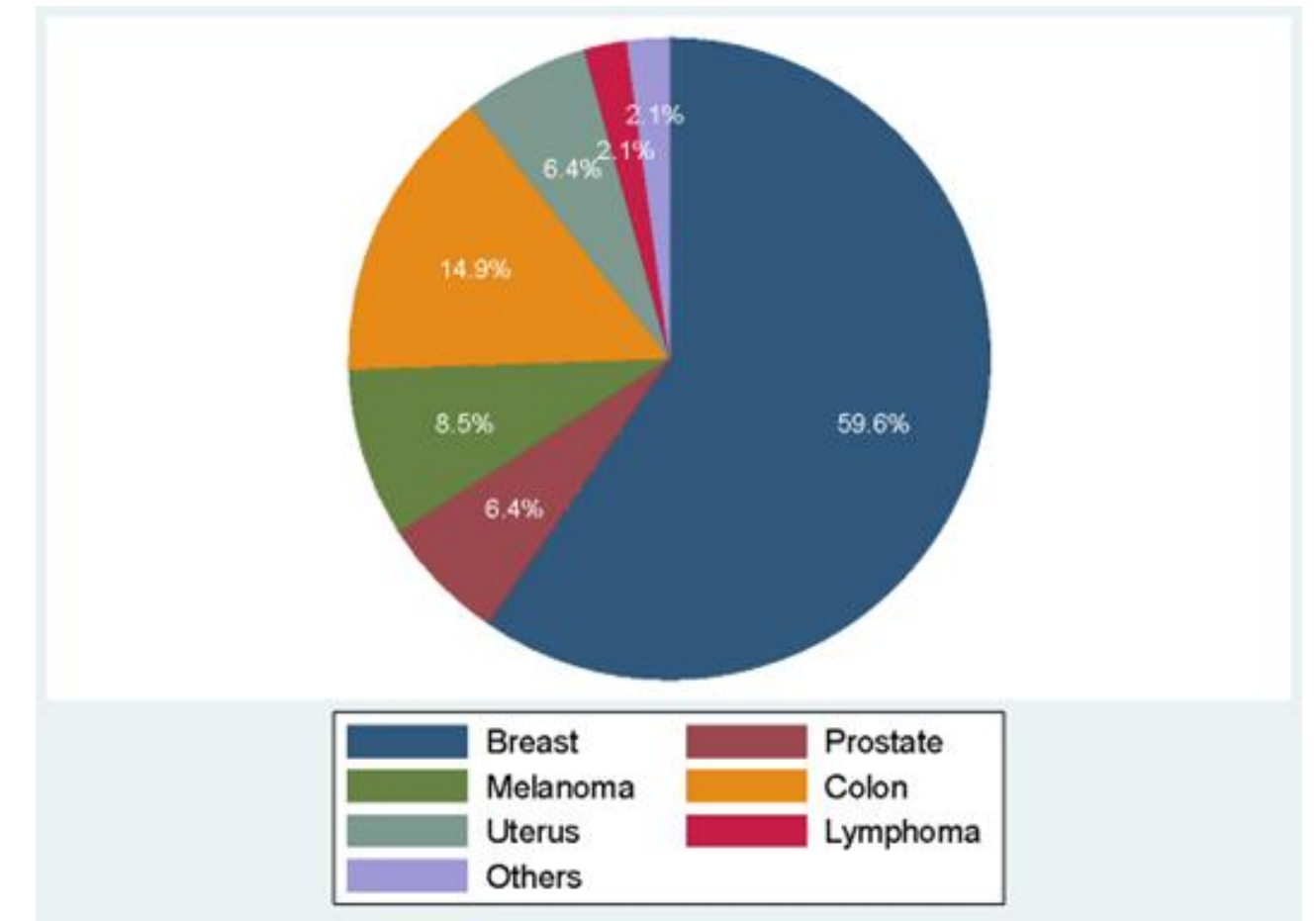
PILOT ROUND 2



146 participants

Average age: 66.1 (\pm 8.2) years

57 (39%) patients with history of cancer



	No history of cancer		History of cancer		Total	
	N	%	N	%	N	%
Goal 1 - Increase fitness level	68	76,4%	53	93,0%	121	82,9%
Goal 2 - Improve balance	45	50,6%	30	52,6%	75	51,4%
Goal 3 - Increase activity level	56	62,9%	43	75,4%	99	67,8%
Goal 4 - Socialising	44	49,4%	32	56,1%	76	52,1%
Goal 5 - Meet people with similar health issues	9	10,1%	14	24,6%	23	15,8%
Goal 6 - Spend more time outdoors	45	50,6%	40	70,2%	85	58,2%

99.2%
REPORTED
ACHIEVING
THEIR GOALS



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QUANTITATIVE RESULTS

HEALTH OUTCOMES

Variable (Quality of life)	N	Results PRE	Results Post	p value
QLQ-C30 + EQ-5D-5L*	130	0.79 (0.22)	0.82 (0.18)	0.01

Variable (EQ-5D-5L)	N	Results PRE	Results POST	p value
EUROQOL5D-1	88	1 (1, 1)	1 (1, 1)	0.525
EUROQOL5D-2	87	1 (1, 1)	1 (1, 1)	0.317
EUROQOL5D-3	87	1 (1, 1)	1 (1, 1)	0.939
EUROQOL5D-4*	87	2 (1, 2)	1 (1, 2)	0.013
EUROQOL5D-5	87	1 (1, 2)	1 (1, 2)	0.209
EUROQOL5D-6*	87	80 (70, 90)	83 (75, 90)	0.001
EUROQOL5D-GLOBAL	87	0.9 (0.9, 1.0)	1.0 (0.9, 1.0)	0.349

Variable (QLQ-C30)	N	Results PRE	Results POST	P value
Final Score Global	57	70.9 (22.1)	71.9 (25.6)	0.61
Physical functioning	57	87.1 (13.5)	90.8 (10.1)	0.06
Role functioning*	57	86.3 (23.0)	91.5 (15.8)	0.01
Emotional functioning*	57	73.5 (27.9)	81.0 (19.5)	0.01
Cognitive functioning*	57	77.2 (23.9)	84.3 (16.8)	0.01
Social functioning*	57	81.6 (25.7)	89.5 (17.9)	0.05
Fatigue*	57	22.2 (11.1, 33.3)	11.1 (0.0, 33.3)	0.01
Nausea and vomiting	57	5.8 (25.1)	2.0 (7.2)	0.77
Pain	57	18.1 (20.5)	14.1 (20.6)	0.08
Dyspnea	57	12.9 (17.5)	9.2 (15.0)	0.37
Insomnia	57	32.7 (29.9)	28.8 (26.7)	0.52
Appetite loss	57	4.7 (16.0)	2.6 (9.1)	1.00
Constipation	57	10.5 (20.1)	7.8 (17.1)	0.32
Diarrhoea	57	7.0 (15.1)	5.2 (13.9)	0.42
Financial difficulties	57	14.0 (29.5)	7.2 (20.3)	0.11



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QUANTITATIVE RESULTS

HEALTH OUTCOMES

Variable	N	Results PRE	Results POST	p-value
PHYSICAL ACTIVITY (IPAQ-SF)*	115	1885.50 (954.00, 3039.00)	2444.00 (1392.00, 3546.00)	0.006
FATIGUE (BFI)*	129	1.2 (0.3, 2.6)	1.0 (0.1, 2.4)	0.002
FALL RISK (FRQ)	129	1.0 (0.0, 3.0)	1.0 (0.0, 3.0)	0.515



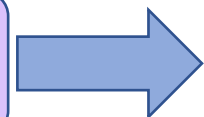
QUANTITATIVE RESULTS

UCANACT APP

Usability (SUS)	N	Mean	p25	p50	p75
SUS-1	148	3.6	3	4	4
SUS-2	147	2.6	2	3	3
SUS-3	146	3.4	3	4	4
SUS-4	147	2.1	1	2	3
SUS-5	146	3.6	3	4	4
SUS-6	144	2.3	1	2	3
SUS-7	145	3.5	3	4	4
SUS-8	145	2.5	2	2	3
SUS-9	144	3.6	3	4	4
SUS-10	146	2.3	1	2	3
SUS TOTAL	145	2.9	2.7	2.9	3.2

Engagement (UES-SF)	N	Mean	p25	p50	p75
UES-SF-FA	143	3.1	2.7	3	3.3
UES-SF-PUS	141	3.7	3	3.7	4.3
UES-SF-AE	142	3.5	3	3.7	4
UES-SF-RW	142	3.9	3.3	4	4.3
UES-SF TOTAL	141	3.5	3.1	3.5	3.9

MODERATE SCORES ACROSS ALL USER GROUPS



App generally functional and acceptable to users



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QUALITATIVE RESULTS

PARTICIPANTS

- **43 participants** interviewed in 6 focus groups.
- **Physiotherapists** as KEY MOTIVATORS.
- Significant improvement in **emotional well-being, self-esteem** and **motivation to stay active**.
- More **confident, socially connected** and **physically capable**.
- Group setting praised for fostering **motivation, mutual support** and **belonging**.
- Physiotherapists encouraged **long-lasting habits**.
- They found the App **appealing** and **motivating**, with good exercises examples.



QUALITATIVE RESULTS

PROFESSIONALS

- **Physiotherapists** described the experience as **professionally enriching** and **emotionally meaningful**.
- Intervention had a **meaningful impact on participants**.
- Practical Intervention Methodology (PIM) permitted **tailoring sessions** to each participant **easily**.
- App: **better prepared** and **more confident**.
- **Physiotherapists** remained the main drivers of **day-to-day impact**.
- Played a dual role as **health educators** and **emotional support providers**.



QUALITATIVE RESULTS

COMMUNICATION MANAGERS

- Intervention's **positive social impact**.
- Notable improvements in **coordination and outreach** (PR2).
- The intervention was seen as **replicable** and **transferable**, with potential for wider **European application**.



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TAKE HOME MESSAGES

- Significant **improvement** in **quality of life** and **physical activity levels**.
- Significant **decrease** in **fatigue**.
- The **qualitative results** highlighted a strong **emotional, motivational, and relational impact** of the programme.
- **Stakeholder** engagement is **key** in **establishing** and **delivering** this type of programme.

Role of **physiotherapists** is a key contributor in the project's **success**.



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TAKE HOME MESSAGES

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Study on economic value and cost-effectiveness of physical activity cancer-preventive measures



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| INDEX

1. Introduction

2. Methods

3. Results

4. Conclusions



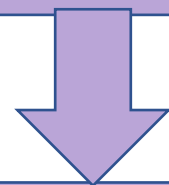
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1. Introduction

Being physically active reduces the risk of several types of cancer. And, in contrast, lack of physical activity is associated with an increased risk of different types of cancer.

Cost-Effectiveness and Cost-Utility of Exercise in Cancer Prevention and Treatment

COST-EFFECTIVENESS



COST OF AN INTERVENTION
IN RELATION TO ITS CLINICAL
EFFECTIVENESS

COST-UTILITY



COST-UTILITY
QUALITY-ADJUSTED LIFE YEARS
(QALYs)

The **purpose** of this report was to systematically review current evidence on the cost-effectiveness of exercise therapy in cancer population.



2. Methods

Search strategies

PUBMED	((("cost analy*[Title/Abstract] OR "cost benefit*[Title/Abstract] OR "cost utilit*[Title/Abstract] OR "cost-minimization"[Title/Abstract] OR "cost-effectiveness"[Title/Abstract] OR "cost-effective"[Title/Abstract] OR "cost efficien*[Title/Abstract] OR "economic evaluation"[Title/Abstract] OR "economic analy*[Title/Abstract] OR "health-economic"[Title/Abstract] OR "value of money"[Title/Abstract]) AND ("exercise"[Title/Abstract] OR "physical activity"[Title/Abstract] OR "training"[Title/Abstract]) AND ("cancer"[Title/Abstract] OR "oncology"[Title/Abstract] OR "palliative"[Title/Abstract] OR "metasta*[Title/Abstract])) AND ((randomizedcontrolledtrial[Filter]) AND (humans[Filter]))
EMBASE	('cost analy*:ti,ab,kw OR 'cost benefit*:ti,ab,kw OR 'cost utilit*:ti,ab,kw OR 'cost minimization':ti,ab,kw OR 'cost effectiveness':ti,ab,kw OR 'cost effective':ti,ab,kw OR 'cost efficien*:ti,ab,kw OR 'economic evaluation':ti,ab,kw OR 'economic analy*:ti,ab,kw OR 'health economic':ti,ab,kw OR 'value for money':ti,ab,kw) AND (exercise:ti,ab,kw OR 'physical activity':ti,ab,kw OR training:ti,ab,kw) AND (cancer:ti,ab,kw OR oncology:ti,ab,kw OR palliative:ti,ab,kw OR metasta*:ti,ab,kw) AND 'human'/de AND 'randomized controlled trial'/de
CINHAL	AB (cost analy* OR cost benefit* OR cost utilit* OR cost minimization OR cost effectiveness OR cost effective OR cost efficien* OR economic evaluation OR economic analy* OR health economic OR value for money) AND AB (exercise OR physical activity OR training) AND AB (cancer OR oncology OR palliative OR metasta*) AND AB random*
SPORTDISCUS	AB (cost analy* OR cost benefit* OR cost utilit* OR cost minimization OR cost effectiveness OR cost effective OR cost efficien* OR economic evaluation OR economic analy* OR health economic OR value for money) AND AB (exercise OR physical activity OR training) AND AB (cancer OR oncology OR palliative OR metasta*) AND AB random*
PSYCINFO	abstract(cost analy* OR cost benefit* OR cost utilit* OR cost minimization OR cost effectiveness OR cost effective OR cost efficien* OR economic evaluation OR economic analy* OR health economic OR value for money) AND abstract(exercise OR physical activity OR training) AND abstract(cancer OR oncology OR palliative OR metasta*) AND abstract(random*)

Systematic Review

Study selection criteria

P
I
C
O

Inclusion criteria	Exclusion criteria
Randomised controlled trials including: <ul style="list-style-type: none"> Adults with a diagnosis of any type of cancer in treatment or survivors Any type of physical exercise intervention as defined by the WHO and apply as a single therapy Any intervention other than exercise or no intervention as comparator Costs and/or incremental cost-effectiveness ratios (ICERs) as economic evaluation outcomes 	Randomised controlled trials including: <ul style="list-style-type: none"> Prehabilitation exercises or multimodal interventions (exercise plus another therapy) General exercise recommendations without clear prescription parameters

2. Methods

Systematic Review

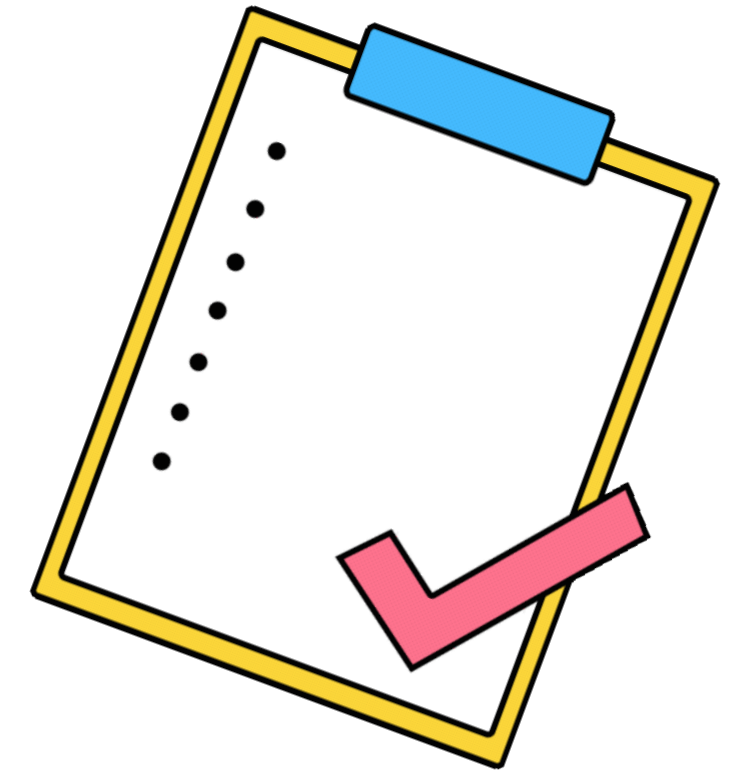
Study selection

Two reviewers independently performed the study selection process:

1) Titles and abstracts screening according to eligibility criteria

Mendeley desktop citation management software (v1.19.8)

2) Full texts assessment. Disagreements between reviewers were resolved by discussion and, if necessary, a third reviewer was consulted.



2. Methods

Systematic Review

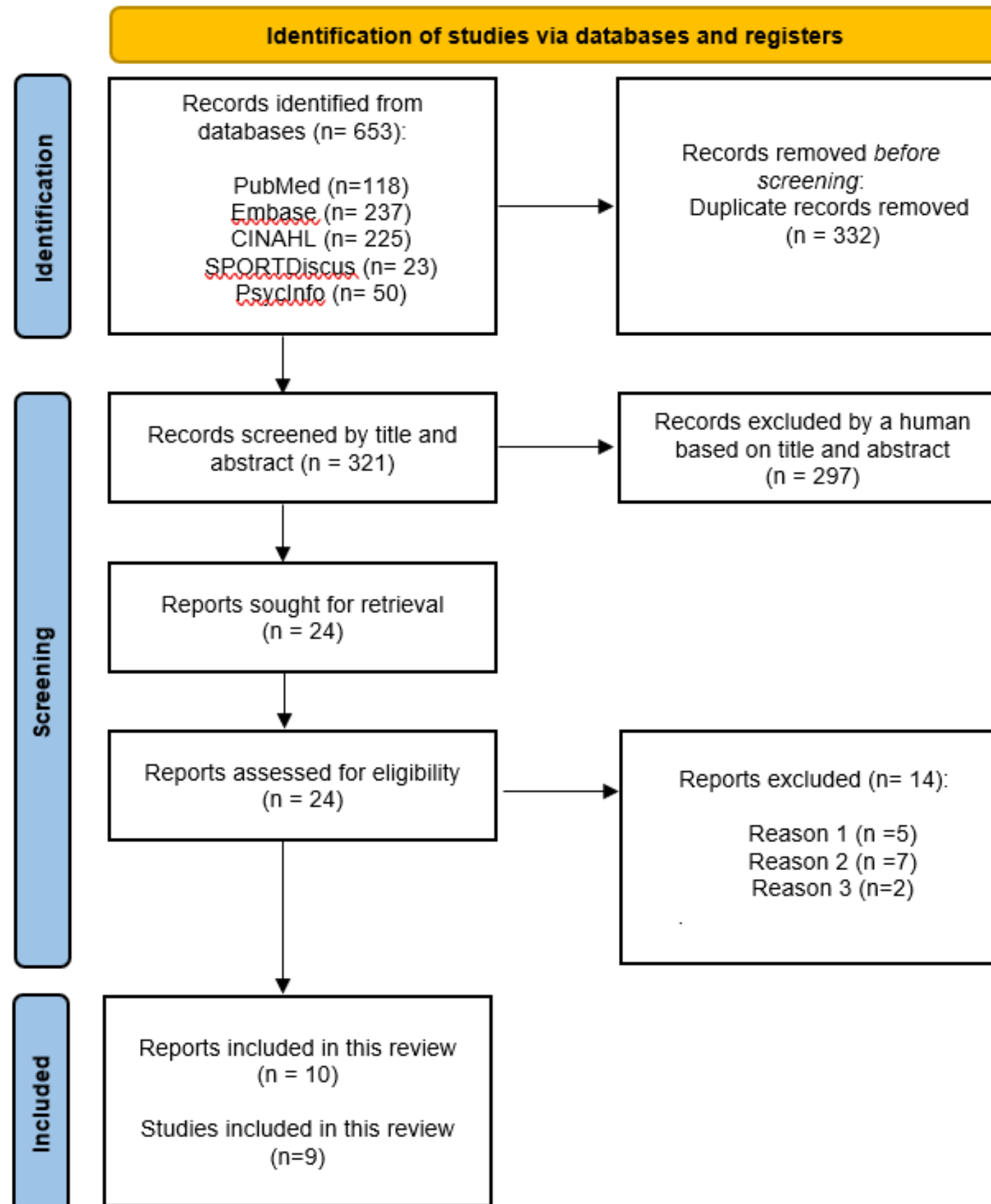
Data extraction
and data synthesis

Author(s), year, country, <u>RoB</u>	Cancer site, sample size (mean age, SD) <i>Undergoing primary adjuvant treatment/survivor phase</i>	<i>Exercise prescription</i> <i>(Un)Supervised, individual/group</i>	Comparison	Clinical outcomes and assessment points	Cost- effectiveness outcomes/analysi s	Main findings in clinical outcomes	Main findings in Cost-effectiveness outcomes/analysis
Ax et al. (2022) <u>Sweden</u>	<i>Breast, colorectal, or prostate cancer (n=619)</i> <u>EG:</u> <i>mean age 59 (+- 10)</i> <i>EG1: high-intensity</i>	<i>Intervention 6 months</i> <i>Follow up 18 months</i> <u>Endurance training:</u> <i>EG1: 2 week/ss of</i>	Usual care	Cancer-related fatigue (CRF): The MFI and the Functional Assessment of Cancer Therapy. Quality of life: The EORTC QLQ-30 and diagnosis specific	Societal costs comprised the costs of the exercise intervention, the participants' health care, and any loss of productivity. Cost was	<u>None</u>	At <u>18 month</u> follow- up. - Disability pension days significantly lower in the EG (p<.001) - Disability pension costs: significantly lower in the EG

Data were extracted from each study by two independent reviewers:

- bibliometric data,
- characteristics of participants,
- intervention details,
- type of control group, health outcomes and points of assessment,
- economic evaluation and main findings.

3. Results



Study selection PRISMA flowchart

3. Results

Results of the exercise interventions on clinical outcomes: effectiveness

Quality of life

Fatigue

Lymphoedema

Upper limb functionality

Physical function: Physical/cardiorespiratory capacity

Pain: postoperative and neuropathic

Body composition



| 3. Results

Key points on clinical outcomes measures:

- Although the experimental interventions varied across the studies included, the majority reported **improvements in patients' quality of life.**
- **Higher-intensity exercise** was associated with **reduced levels of physical fatigue.**
- **Postoperative pain intensity** showed **improvement at 12 months in the intervention groups** compared to usual care. However, evidence supporting the effectiveness of exercise on neuropathic pain remains insufficient, despite some beneficial and clinically meaningful outcomes being reported.
- There is **not enough evidence** supporting the effectiveness of the intervention **in improving upper limb function, lymphoedema, body composition or general physical and cardiorespiratory capacity**, although several studies showed significant differences.



3. Results

Results of economic evaluations: cost-effectiveness

COSTS

Direct results on whether exercise is more costly or saves money are inconsistent

Exercise may be less costly or have similar costs to usual care
(May et al., 2017; Schouten et al., 2025)

Exercise was associated with similar total costs
(Ax et al., 2022; Van Dongen et al., 2019)

Savings in disability pension costs in favour of exercise intervention
(Ax et al., 2022)

Exercise intervention was associated with higher costs, no evidence of cost savings in health services or loss of productivity
(May et al., 2017; Edmunds et al., 2020; Mewes et al., 2015)

INCREMENTAL COST-EFFECTIVENESS RATIOS

The heterogeneity made comparisons difficult. There was no clear trend in the cost-effectiveness results for exercise-based interventions in the cancer population

COST-EFFECTIVE OR DOMINANT

Schouten et al., 2025
Bruce et al., 2021
Haines et al., 2010
May et al., 2017: colon cancer

NO COST-EFFECTIVE

Van Dongen et al., 2019
Gordon et al., 2017
Gordon et al., 2020
May et al., 2017: breast cancer



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| 4. Conclusions

Cost-Effectiveness and Cost-Utility of Exercise in Cancer Prevention and Treatment

Although there have made considerable efforts to evaluate the economic aspects of exercise in oncology, the **heterogeneity** in methodology, study populations and time horizons makes it difficult to draw general conclusions and to directly compare the costs reported in different studies.

Evidence suggests that the **economic impact may be variable**, depending on factors such as the type of cancer, the timing of the intervention and the extent of the costs considered (social vs medical care perspective).

Further research is needed.

This is an opportunity to keep on working and researching in this field.

IMPACT & FUTURE

The UcanACT project was successful for:

- **participants** – health & emotional wellbeing;
- **physios** – wide reaching community-based care;
- **community stakeholders** – collaborative approaches facilitating the programme implementation.



The project is ready for a wider roll-out to different populations across Europe.

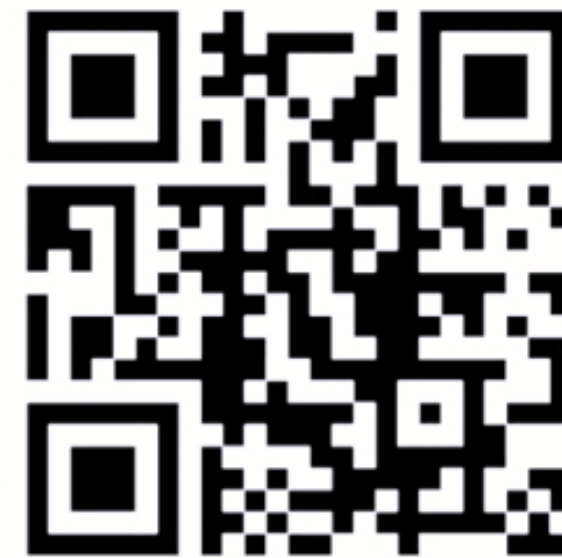
Socio-economic conditions & tailoring the programme to the local needs is to be considered.



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