

Slide Deck



Smart Health Age Friendly Environments: an opportunity to achieve a triple win through a collaborative and interdisciplinary approach. Sharing lessons with NET4Age-Friendly network

HOST



Prof. Maddalena Illario

Federico II University and Hospital
Dept. of Public Health



Funded by the Horizon 2020 Framework Programme
of the European Union

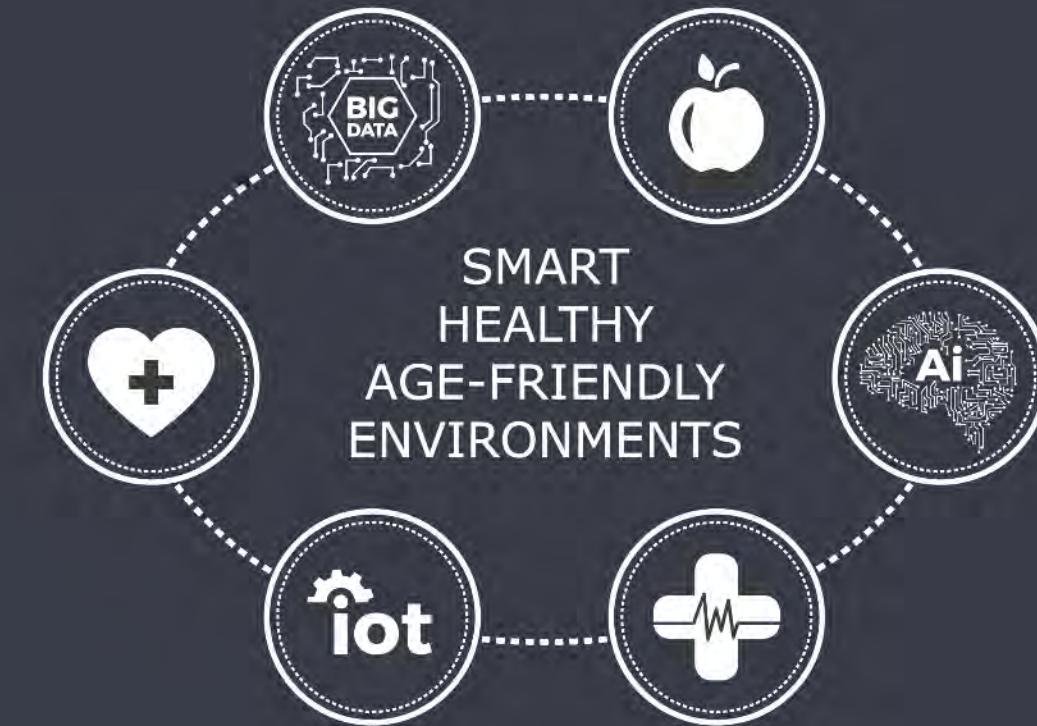
This video is based upon work from COST Action NET4Age-Friendly, supported by COST (European Cooperation in Science and Technology), a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation

www.cost.eu





Carina Dantas



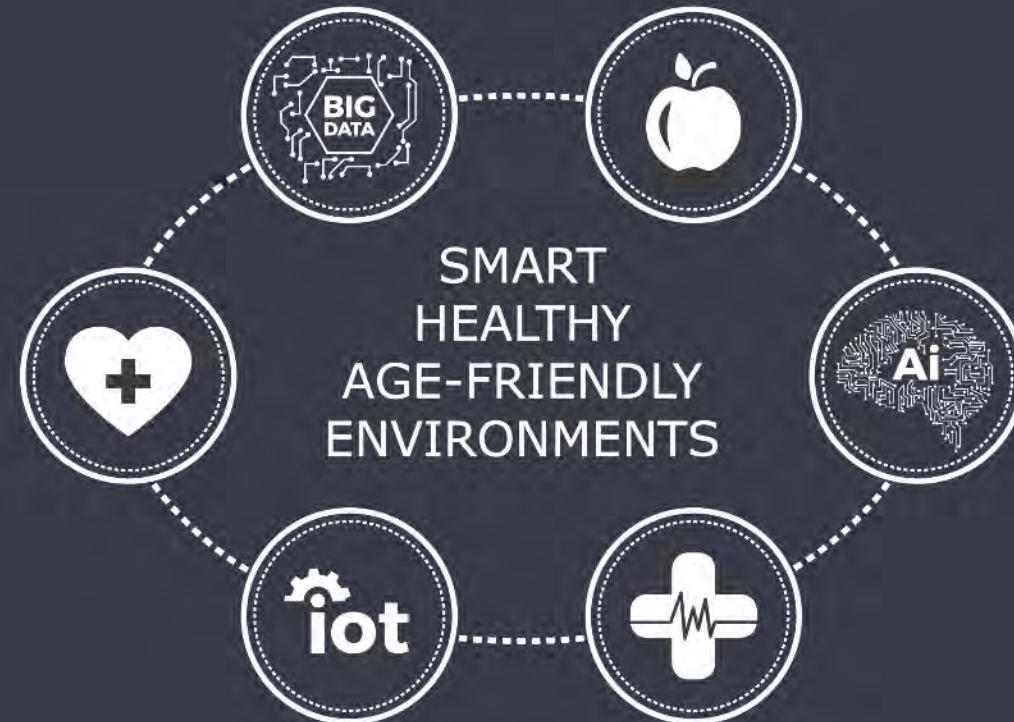
STAKEHOLDERS NETWORK
SHAFFE



Willeke van Staalduin

A photograph of a man and a woman on a boat. The man, on the right, has grey hair and is wearing an orange life vest over a dark sweater. He is smiling and looking towards the woman. The woman, on the left, is wearing a blue beanie and a denim jacket, also smiling and looking at the man. They are on a wooden boat on a body of water with trees in the background.

If people should age at their own homes, how to align **technological** development with the **building** industry for smart environments in terms of **POLICY** and **FUNDING**, enhancing a **more efficient health care system** that may add better quality for less investment?



STAKEHOLDERS NETWORK

SHAFE

A new concept was created since 2017, based on the desire to implement Smart Healthy Age-Friendly Environments (SHAFe) across Europe, fostering happier and healthier people in all communities. This idea took shape and became a solid movement.



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COORDINATORS



Cáritas Diocesana
de COIMBRA



MAIN PARTNERS



European Innovation
Partnership on Active
and Healthy Ageing



ECHAlliance



EURO CITIES



Towards an Age-Friendly
Europe
Sustainable Development Change



EIP ON AHA
RSCN



EHTEL



ECTP
INNOVATIVE BUILT
ENVIRONMENT



EIP-SCC
European Innovation Partnership
on Smart Cities and Communities



EIP on Social Care
Research

SHAFe began as a Thematic Network, approved by the European Commission, with the ambition to draw policy makers, organisations and **citizens'** attention to the need of better alignment between health, social care, built environments and ICT, both in policy and funding.

The conclusions of this extensive work in 2018, gathering over 160 organisations as partners, was delivered to the European Commission and Member States in a Joint Statement and a Framing Paper in December 2018.

After this, SHAFe evolved to a European Stakeholders Network, which is currently working to achieve better COOPERATION and IMPLEMENTATION, as the major challenges for this next period.

ASSOCIATED PARTNERS

~170 ORGANISATIONS



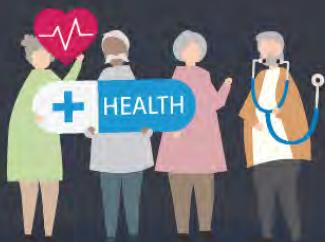
JOINT STATEMENT ON SMART HEALTHY AGE-FRIENDLY ENVIRONMENTS



RECOMMENDATIONS TO CITIZENS



**WE EXPECT YOU TO
PARTICIPATE**



+ HEALTH LITERACY



+ PHYSICAL EXERCISE



+ ADAPTED ENVIRONMENTS



+ ACTIVE CITIZENSHIP

**CITIZEN
EMPOWERMENT**

THE AIM

SHARED RESPONSIBILITY ON COMMON GOOD

The challenges of different sectors, such as ICT, the building industry and urban planning and the health and social care, as well as those of citizens and their communities are interlinked.

Responding to these challenges will foster awareness and support for the creation and implementation of smart, healthy and inclusive environments for present and future generations that enable them to learn, grow, work, socialise and enjoy a healthy life, benefiting from the use of digital innovations, accessibility solutions and adaptable support models in the European context.

SMART HEALTHY AGE-FRIENDLY ENVIRONMENTS



Single digital solutions are not the panacea to all issues:

CITIZENS
need to improve:

- digital skills
- health literacy
- engagement and democratic participation
- less inequalities on access

ENVIRONMENTS
have as major challenges:

- house retrofitting
- digital infrastructures
- public spaces and transport
- climate neutral solutions
(in the area of environments)

and, finally,
HEALTH AND CARE need:

- reliable and accessible big data
- integrated and person-centered solutions (new pathways)
- implementation guidelines and long-term funding solutions/business models

We acknowledge that all these challenges are interconnected
and that a global approach is needed!

WHAT'S MISSING?

COOPERATION

and

IMPLEMENTATION

MAIN GOALS

By 2022, the Stakeholders Network on SHAFE aims to achieve mainly **COORDINATION** and **IMPLEMENTATION**, specifically the following higher-level goals:

- Promote **training of formal and informal caregivers** (communities) on SHAFE, creating a toolkit and implementing training actions in multiple countries;
- Raise awareness on the need to coordinate Health and social care, building infrastructure and environment conditions in order to move aging and wellbeing towards home care and prevention – to a **Health and Wellbeing value-based approach**;
- Jointly develop **sustainable business cases** with governments, insurance companies and investors to foster future investments on smart healthy environments;
- **Modernise education** of urban planners, architects and ICT-developers in general to focus on **PEOPLE** and **PLACES** and focus research on lifelong learning, evidence-based design, smart healthy environments and empowerment;
- **Support public authorities and health and social care providers on implementing SHAFE**, especially regarding building or restructuring the built environment to include ICT solutions with integrated health and care provision.

How to scale-up and implement SHAFE?

7 POLITICAL MEASURES TO IMPLEMENT IN REGIONS / MS

Policy makers

What financial incentives can you approve to foster the implementation of SHAFE?

Insurance companies

What measures can be included in insurance packages that foster SHAFE?

Citizens

What commitment is fair to ask on taking the lead on healthy habits and digital&health literacy?

Financers

What measures do you need to invest or develop SHAFE?

Health & care providers

What measures are lacking to implement SHAFE and what can you contribute?

Researchers/Academia

what can you bring on lifelong learning/digital skills and research for prevention?

Building industry

What can you bring and what you need to integrate smart built environments?

International Interdisciplinary Network on Smart Healthy Age-friendly Environments

With **researchers and
stakeholders** from all sectors.



Chair

Carina Dantas



Vice-Chair

Willeke van Staalduin



Funded by the Horizon 2020 Framework Programme
of the European Union

Parties

NET4's main goal is to foster awareness and support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations.



MANAGEMENT COMMITTEE
83 MEMBERS | 49 Substitutes
7 Observers
39 COST Countries + 7 international

FULL NETWORK 311 participants

OBJECTIVES

Learn from interdisciplinary and transnational approaches to understand what are the **good practices** for the integration of SHAFE currently in place, particularly **where, why and how they work, what barriers and successes they meet** and what is the associated role of different stakeholders.

Collect and **share knowledge among different disciplines** to promote collaborations, addressing the design and implementation of SHAFE.

OBJECTIVES

Give a **boost to local and regional stakeholders** (citizens, research, public administration and companies) to design and implement SHAFE in urban, rural and remote settings by providing a holistic approach.

Actively contribute with indicators to **shaping call programmes relevant to ageing into smart and healthy environments**, embedding the inclusion of interdisciplinary cross-national research and markets creation.

MAIN APPROACH

Establishment of local or regional ecosystems in each COST country involved, to work on health and wellbeing in an age-friendly digital world.

With citizens, public authorities, businesses, NGOs and researchers.

They will be supported by the **4 Working Groups**.

The outcomes of the thematic Working Groups will be integrated by a dedicated WG – **Reference Framework** to create a synergised output.



More than 700 submissions were reviewed by a team of experts from United Nations entities and "[SHAFE implemented through NET4Age-Friendly](#)" was one of the recognized good practices.

Our [COST Action International Interdisciplinary Network on Smart Healthy Age-friendly Environments](#) (NET4Age-Friendly) is built upon the SHAFE concept and is exponentially increasing the networking, the dissemination and knowledge exchange among scientists, business, public, local administrations, policy makers, professionals, and citizens.

It brings an inspiring and fruitful new way of cooperation that fosters knowledge and promotes grassroot implementation at a broader scale, combining top-down and bottom-up perspectives.

The meaning and notion of SHAFE as a holistic approach that promotes the alignment of policies and strategies is a unique roadmap for the implementation in and across Europe.

The screenshot shows the United Nations Department of Economic and Social Affairs Sustainable Development website. The main title is "SHAFE implemented through NET4Age-Friendly". Below the title are three tabs: "DESCRIPTION", "SDGS & TARGETS", and "FEEDBACK".

Intro

A new concept was created in 2017 based on the desire to implement Smart Healthy Age-Friendly Environments (SHAFE) across Europe, fostering happier and healthier people in all communities. This idea took shape and became a solid movement. This is how SHAFE was born and further launched, as a Thematic Network, approved by the European Commission, with the ambition to draw policymakers, organisations and citizens' attention to the need for better alignment between health, social care, built environments and ICT, both in policy and funding. Gathering over 160 organisations as partners, SHAFE delivered a joint Statement and a Framing Paper to the EC and MS in 2018.

Description

In 2018, SHAFE evolved a European Stakeholders Network, which is currently working to achieve better 'Cooperation' and 'Implementation', as the major challenges for the next period, towards the development of healthier environments for all citizens that are accessible, sustainable and reachable for all, with the support of ICT. The SHAFE Network focus on the narrative, debate, disclosure and knowledge translation of smart digital solutions and of solutions to optimize the physical and social environments of individuals in a concerted manner, bringing together also the domains of health and social care. The Network currently counts with several funded projects implementing different perspectives of SHAFE, namely a COST Action with almost 300 stakeholders (quadruple helix) from 43 countries.



This initiative belongs to SDG Good Practices

Organization/entity



SDGs



Geographical coverage

Worldwide, with main focus in Europe



NET4

Age-Friendly

The logo features the word "NET4" in large, bold, dark blue letters. To the right of the "4" is a circular graphic divided into eight segments of different colors: light blue, white, pink, orange, green, yellow, light blue, and white again.

Thank you!



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7th October, 2021 - Complesso di San Marcellino e Festo

International Workshop

Smart Health Age Friendly Environments: an opportunity to achieve a triple win through a collaborative and interdisciplinary approach.
Sharing lessons with NET4Age-Friendly network

FROM URBAN DISTRICTS TO ECO-DISTRICTS: NEW APPROACHES TO IMPROVE THE IMPACT OF THE BUILT ENVIRONMENT ON HEALTH

prof. arch. Mario Losasso



Funded by the Horizon 2020 Framework Programme
of the European Union

ECO-DISTRICTS WHY?

To shape cities for health, action needs to be taken “**outside the building**” at a district scale.

The district is the optimal scale to accelerate sustainability, small enough to innovate, quickly and big enough to have a **meaningful impact** and significant **health outcomes**.



© Serge Noiret, San Francisco, 2014.

ECO-DISTRICTS HEALTH & WELLBEING

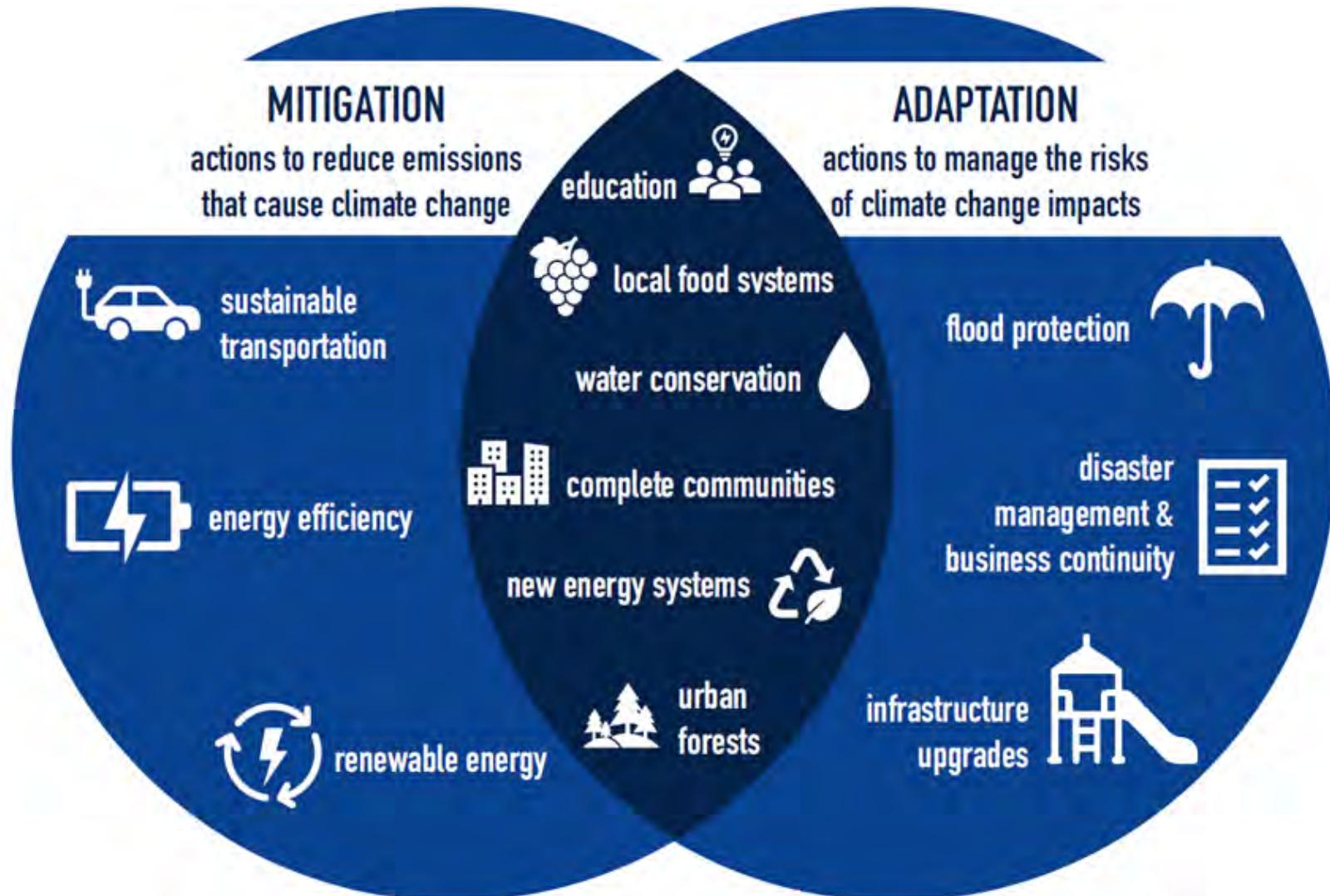
Main Goals:

1. Reduce **environmental impacts**
2. Provide access to safe and functional local **recreation and natural areas**
3. Improve **urban comfort**
4. Reduce **CO2 emissions**
5. Provide access to **healthy, local and affordable food**
6. Improve **smart strategies and urban digital transformation**
7. Expand **economic opportunities** to support a socially and economically diverse population
8. Improve **indoor and outdoor air quality**



© Sergio Grazia - Clichy-Batignolles Eco-District, Paris

ECO-DISTRICTS HOW?



ECO-DISTRICTS HOW?

Eco-District strategies can take many forms, depending on the **unique characteristics of a neighborhood and a community's priorities.**

ECO-DISTRICT STRATEGIES

- Smart grid
- District energy and water management
- Bike sharing
- Rainwater harvesting
- Green streets
- Zero waste programs
- District composting
- Waste to energy
- Safe routes to schools
- Tree planting campaigns
- Transportation demand management
- Car sharing
- Bike lanes
- Sidewalk improvements
- Urban agriculture
- Public art
- Green maps
- Multi-modal transit

ECO-DISTRICTS HOW?

Topics for climate proof and healthy urban districts

- Self sufficient city (energy, food, etc.)
- 15-minute city
- Proximity spaces
- Building and urban greening
- Ecological mobility
- Energy efficient networks and communities
- Zero carbon district
- Climate proof architectural quality
- Decarbonization and integration renewable energy sources
- Zero-km supply chain
- Circular economy
- Life cycle thinking
- High health and environmental standards
- Affordability
- Twin challenges of green and digital transition

ECO-DISTRICTS HOW?

15-minute city



Ecological mobility

Zero carbon district



Zero-km supply chain



Self-sufficient city: energy, food, low tech production

Proximity spaces



ECO-DISTRICTS 15 MINUTE CITY

In 2019, professor Carlos Moreno at Sorbonne coined the "**15-minute city**" concept.

He advocates a reorganisation of the French capital's arrondissements into a network of **self-sufficient districts**.

A successful **15-minute neighbourhood** is 'complete' with **core services** and amenities that residents can easily **walk or cycle to**. This includes **community-scale education and healthcare**, essential retail like grocery shops and pharmacies, parks for recreation, working spaces and more.

THE 15-MINUTE PARIS

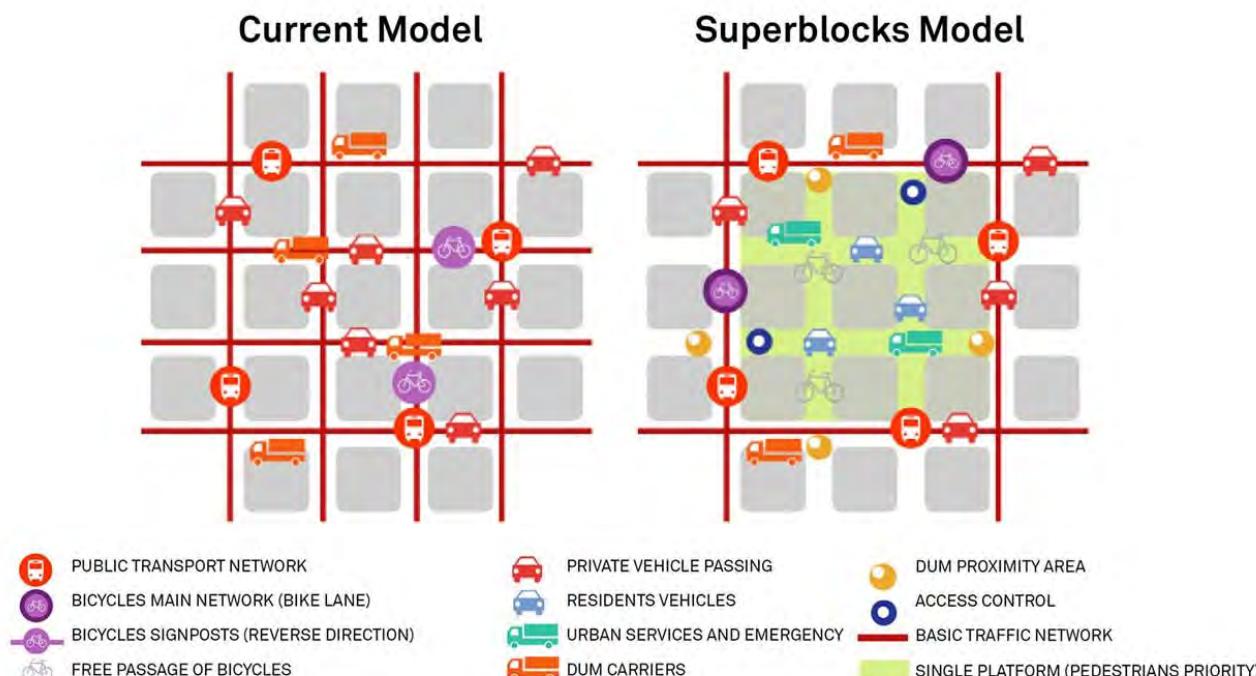


ECO-DISTRICTS 15 MINUTE CITY

In Barcelona, where central areas are dominated by a grid of large blocks, work has been underway for several years to create these **superblocks**, with the streets between them being closed off to cars.

The plan is to create a full 500 superblocks in the Spanish city. So far, five superblocks have been created. The goal is to make **70 per cent of Barcelona's streets free from cars**.

Barcelona's superblocks are estimated to save close to 700 lives each year through **reduced emissions, less noise, heat relief, more green areas, and inhabitants' increased physical activity**.



© Ajuntament de Barcelona

ECO-DISTRICTS GREENING



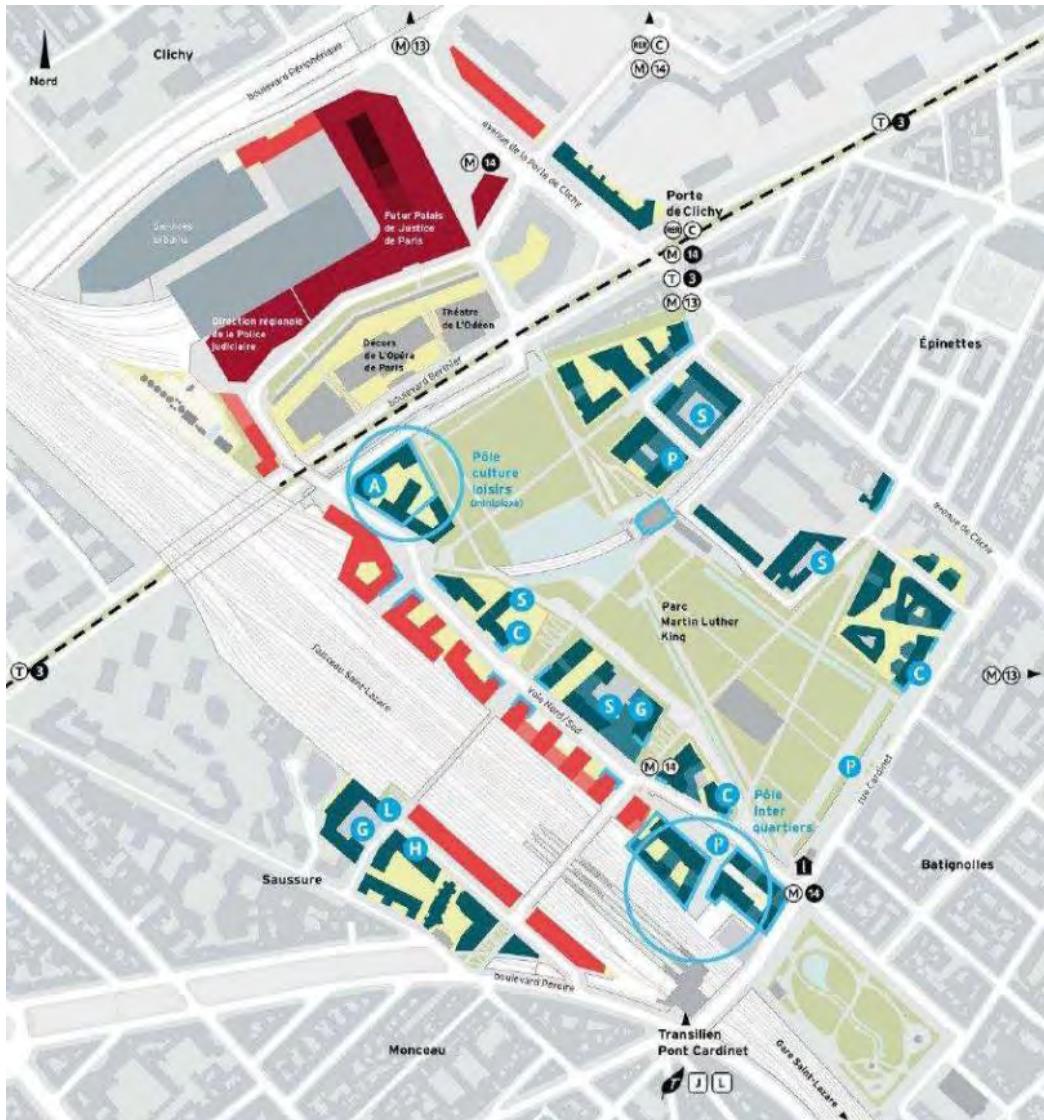
© PLAT - Blue Kunshan: A Livable Innovation District - ASLA-NCC 2020 MERIT AWARD for Urban Design

ECO-DISTRICTS GREENING



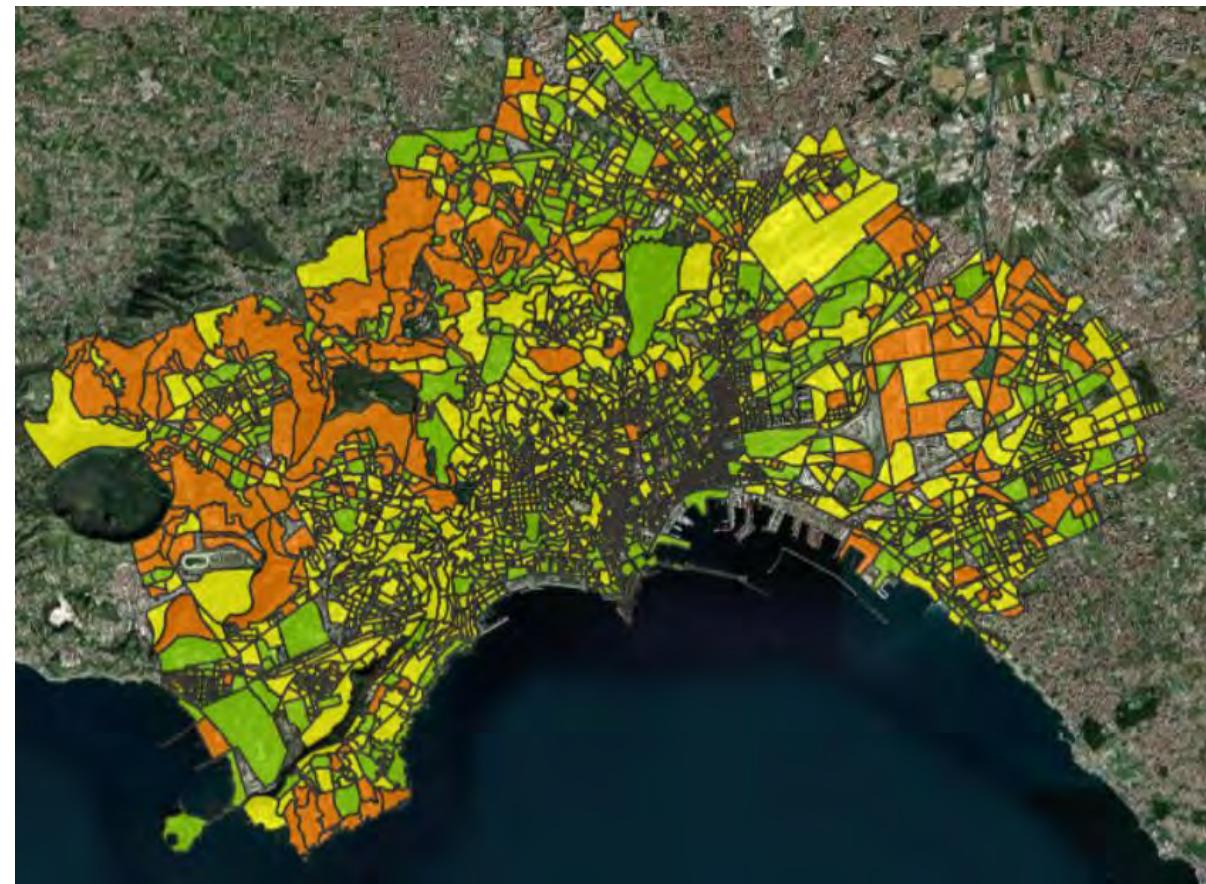
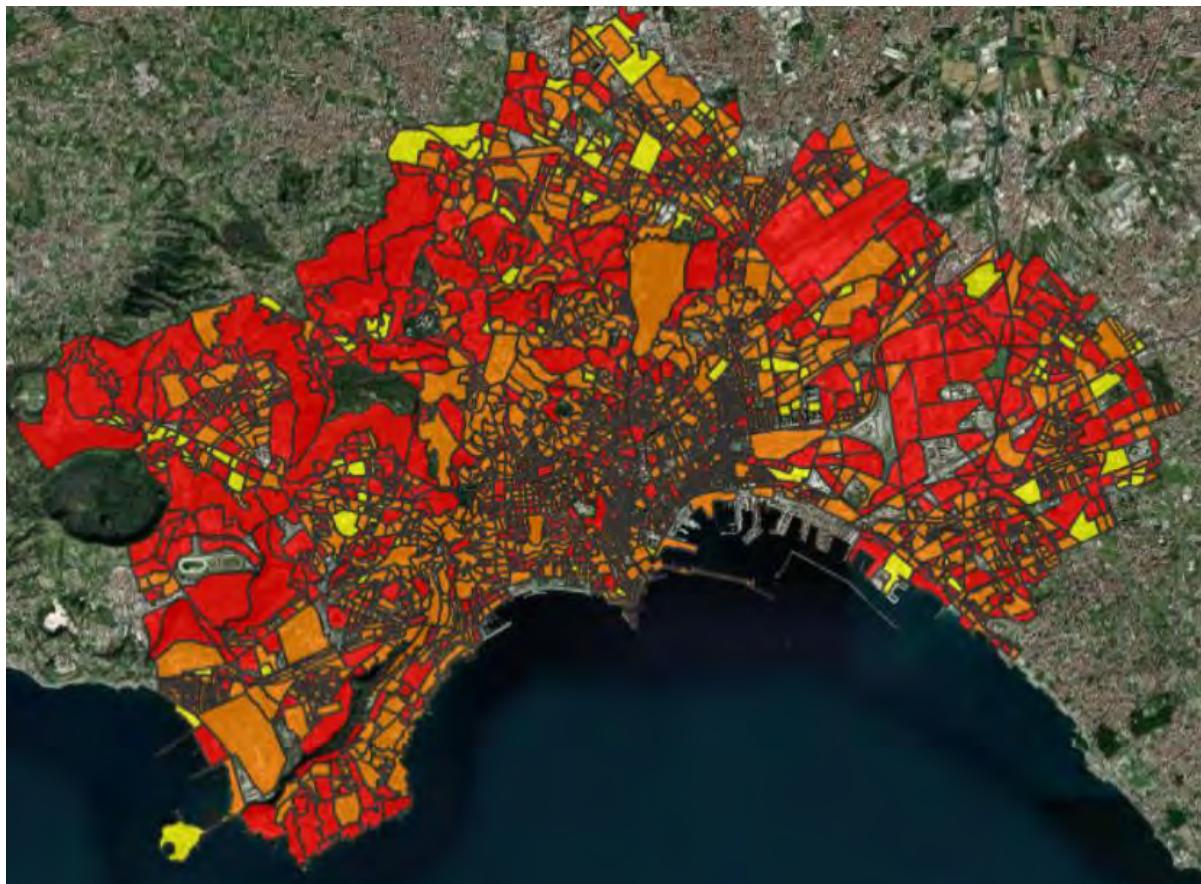
© Fredrik Johansson - Improving quality and flexibility for healthier places

ECO-DISTRICTS CARBON NEUTRAL



Clichy-Batignolles Eco-District, Paris

ECO-DISTRICTS CARBON NEUTRAL



CO₂ emissions levels before (on the left) and after the application of climate proof interventions (on the right) © PLANNER Research, DiARC, UNINA, Scientific Responsible: V. D'Ambrosio

RESEARCH GAP FURTHER STEP

Greater linkages between the environmental design and health risk assessment-related fields need to be implemented within interdisciplinary, multi-stakeholder collaborations.

The engagement in collaborative activities with networks such as Hands-on SHAFE and Net4Age-Friendly play a key role in building valuable synergies between different fields of knowledge, towards the creation of **new ecosystems** working on **health and well-being** towards a digital age-friendly world.





**International Workshop
Naples, 7th October, 2021
16.00-18.00 CEST**

Smart Health Age Friendly Environments: an opportunity to achieve a triple win through a collaborative and interdisciplinary approach. Sharing lessons with NET4Age-Friendly network

Building local ecosystems for innovation: the case of quadruple helix Reference Sites for Active and Healthy Ageing

Maddalena Illario, MD, PhD
Federico II University & Hospital
Department of Public Health, R&D Unit
RSCN

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The current framework

CHALLENGES

2020



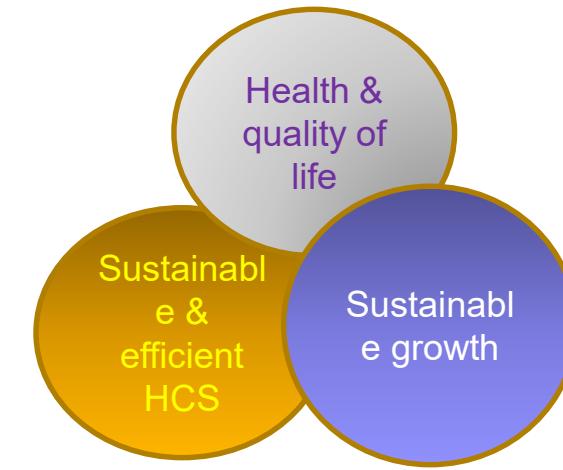
2021

Growing health inequalities

Growing social needs

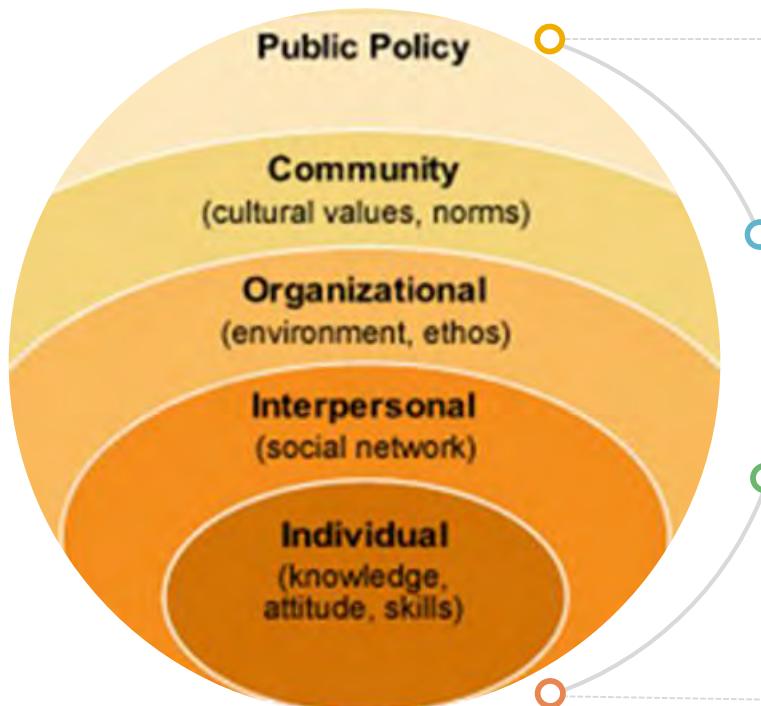
Increasing cost for complex needs

Aligning investments





Our core values



REDUCING HEALTH GAPS

Tackling social determinants of health outcomes

LIFE-COURSE APPROACH TO ACTIVE & HEALTHY AGEING

Ensuring support throughout the lifecourse to achieve the best health possible to each person

SPEAKING ONE LANGUAGE

HEALTH DISCOURSE

SUSTAINABLE DEVELOPMENT

DIGITAL TRANSFORMATION OF HEALTH AND CARE

Scaling-up digital innovation through peer adoption between regional eco-systems



Becoming a key player in driving regional innovation in active and healthy ageing across Europe.

Established in 2013 following 1st Call for Reference Sites

- Bottom Up initiative by Reference Sites for Reference Sites
- Supported by Commission
- **39** original Reference Site Members

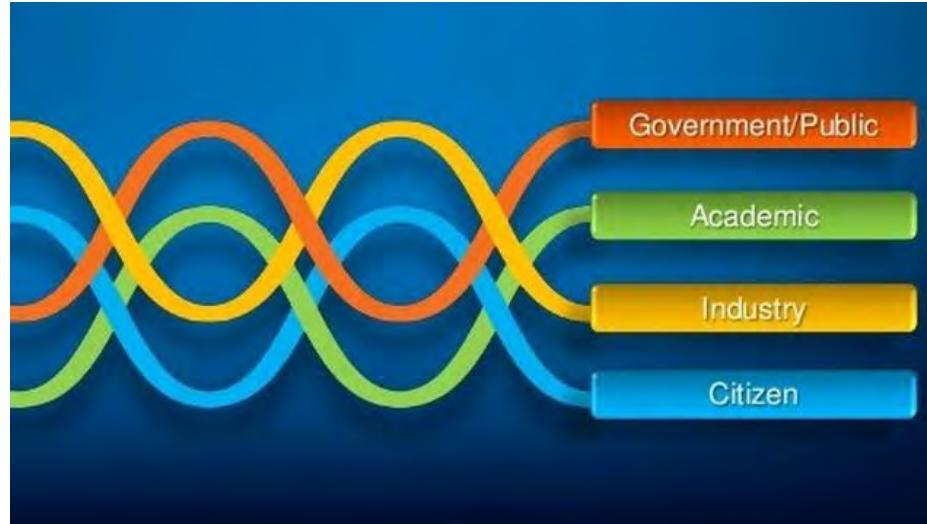
2nd Call for Reference Sites 2016

- Policy and criteria for Reference Sites developed by RSCN
- **74** Reference Site Members

3rd Call for Reference Sites 2019

- **104** Reference Site Members

Became a legal entity (ASBL) under Belgian Law November 2017





Synergic ecosystems

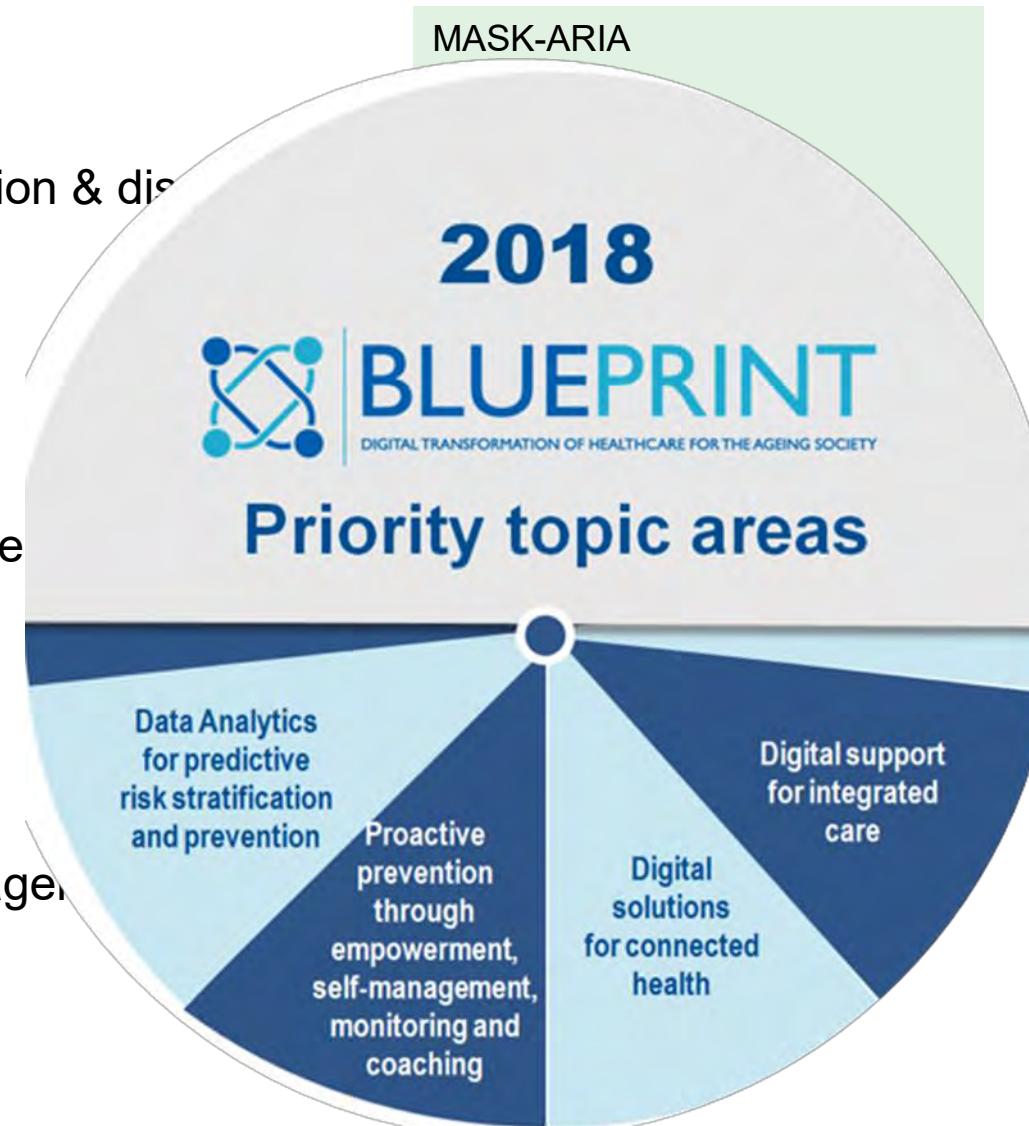


Implementing a shared Blueprint through coherent Project Streams

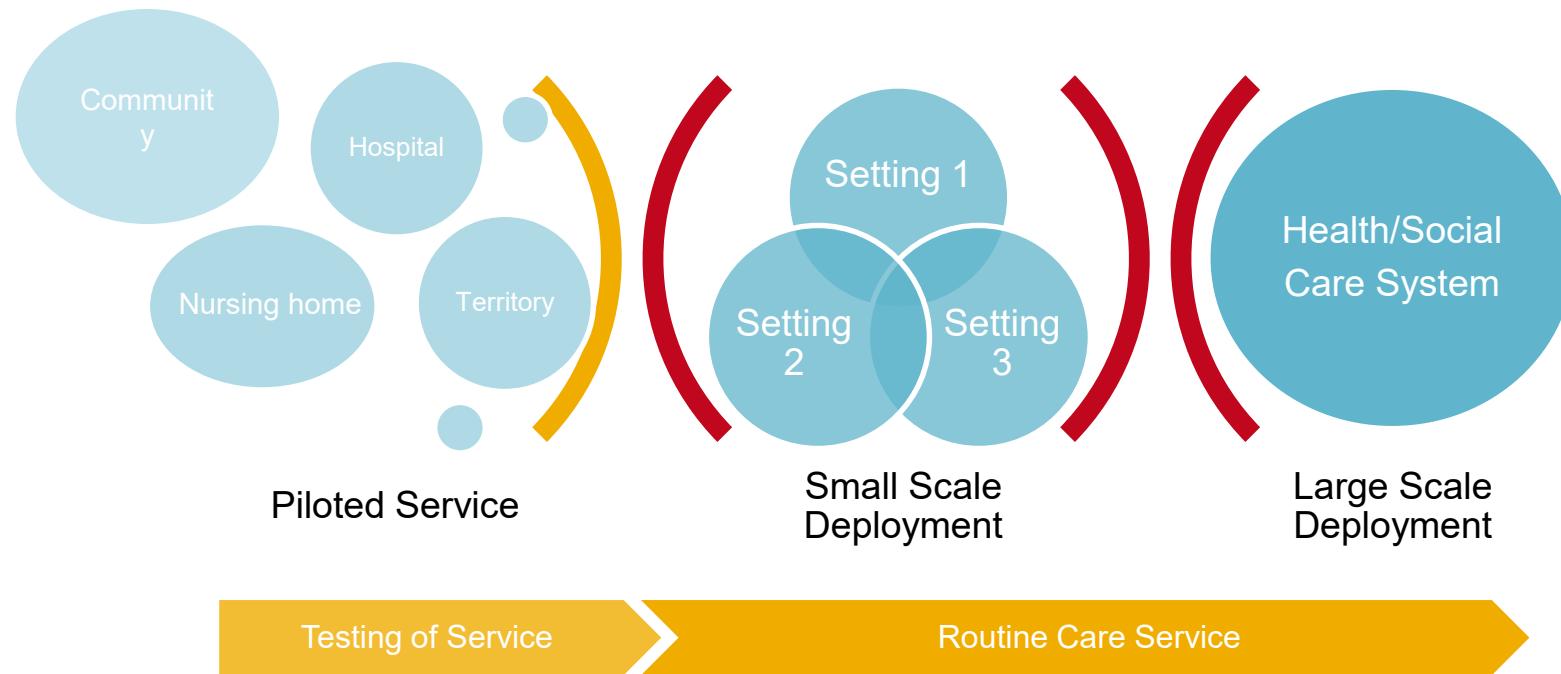
- Health promotion & disease prevention

- Integrated Care

- Change Management

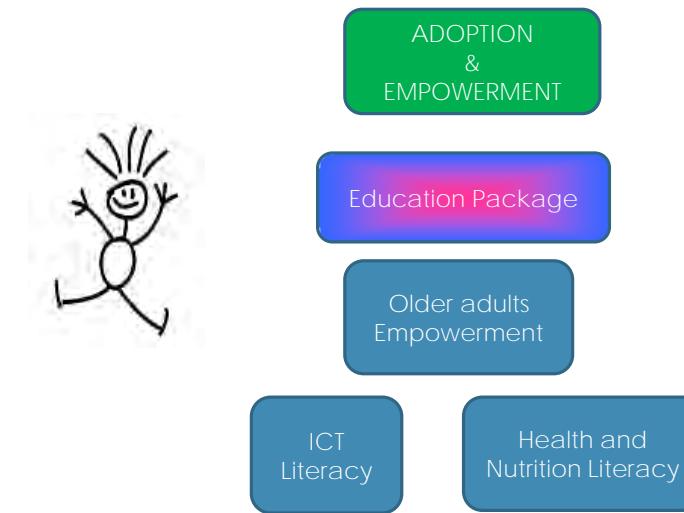
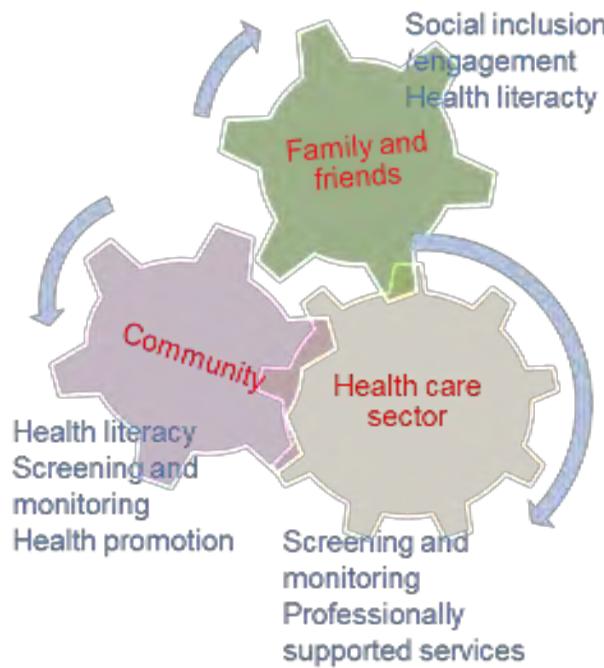


Bridging the gap from pilot to routine care service





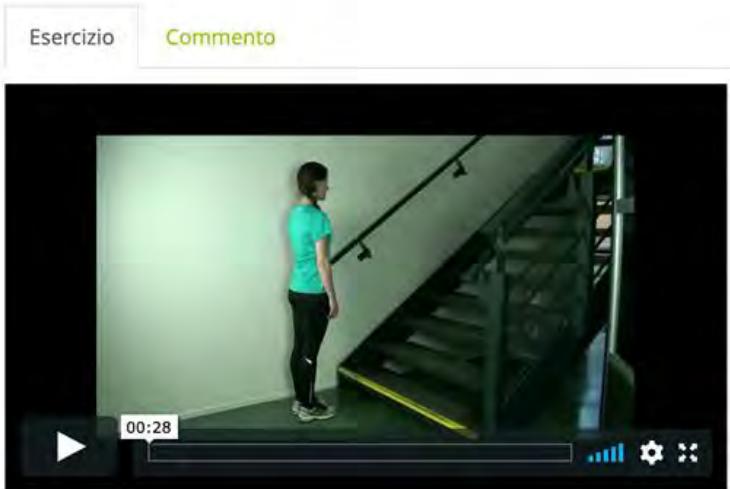
PERSSILAA Campania: an example of ICT-driven societal innovation addressing frailty in older adults



Scaling up TELEREVALIDATIE at Federico II University Hospital: from PERSSILAA project to routine care

Outpatient multidimensional evaluation

Con solo piede sulla scala



Program «Attività Fisica Adattata» AFA- Federico II University Hospital

PIANO NAZIONALE DI
RIPRESA E RESILIENZA



PIANO
NAZIONALE
DI RIPRESA
E RESILIENZA

#NEXTGENERATIONITALIA



New long-term
budget and
recovery plan

#EUBudget #StrongerTogether



Destinazione delle risorse ipotizzata nella nuova bozza in discussione*



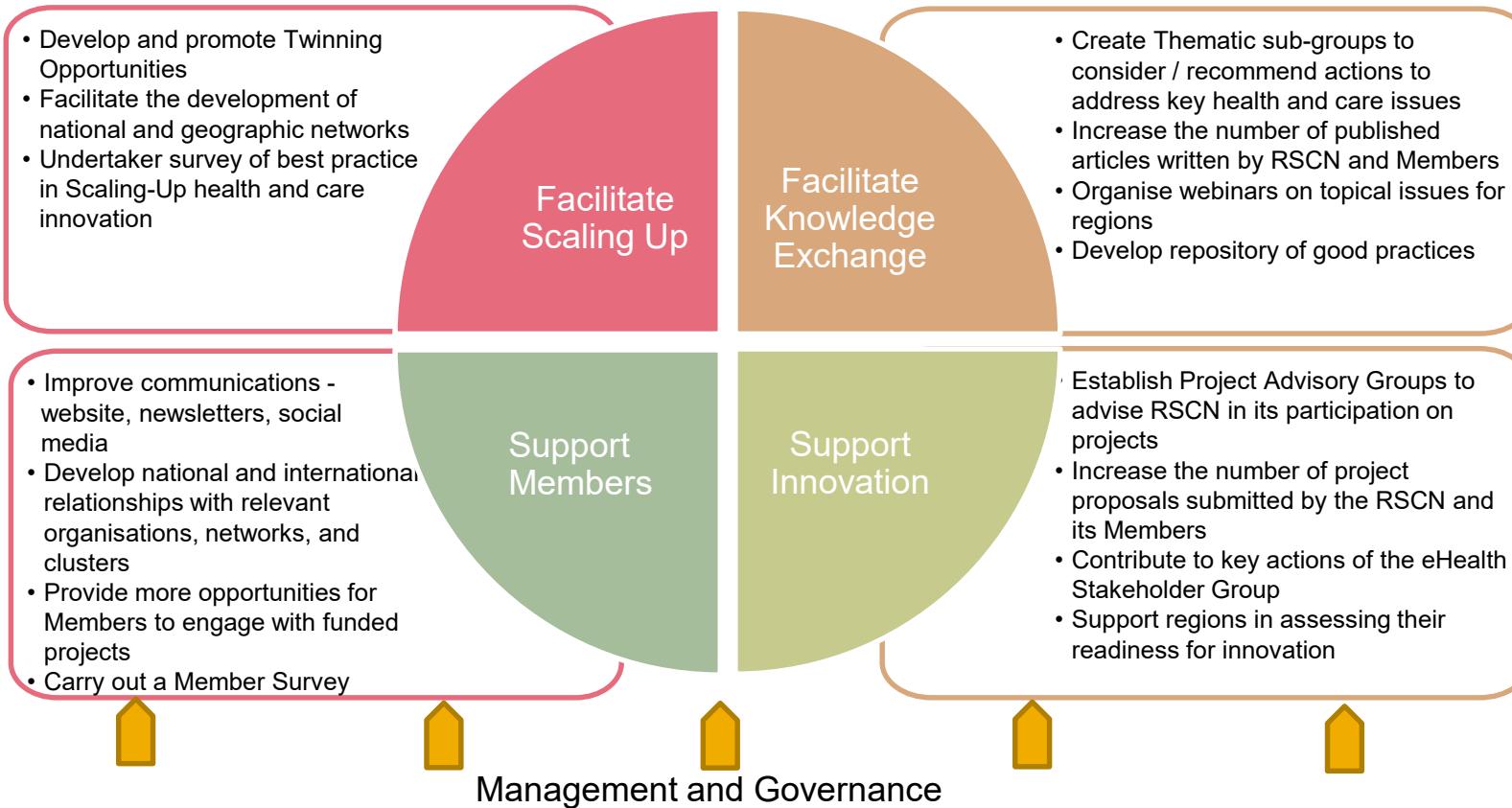
*also extra Next Generation Eu-Recovery Fund for 8.2 billion

L'Ego-Hub

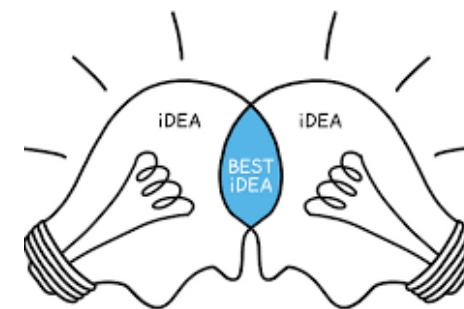
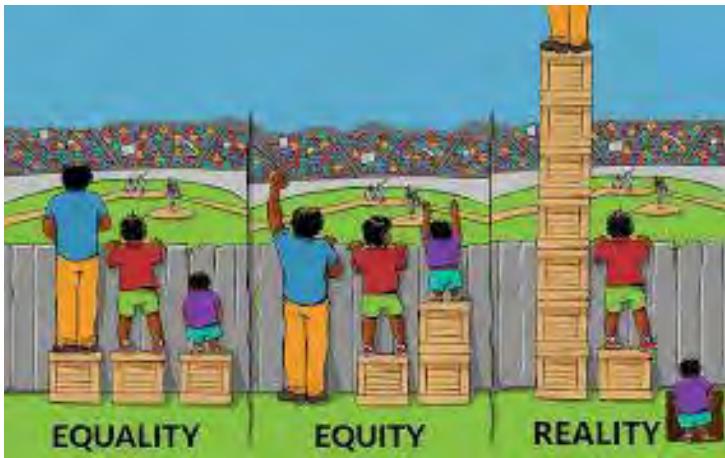


Reference Site Collaborative Network

Strategic Objectives 2020 - 2023



Conclusions





International Workshop Naples, 7th October, 2021 16.00-18.00 CEST

Smart Health Age Friendly Environments: an opportunity to achieve a triple win through a collaborative and interdisciplinary approach. Sharing lessons with NET4Age-Friendly network

Implementing the digital transformation of health and care: enabling role of national networks

Nicola Scomparin, *Mattone Internazionale Salute Programme – ProMIS*

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Italian Ministry of Health



Italian Regions/Autonomous Provinces
(coordinated by Veneto Region)

**INTERNATIONALIZATION
OF THE NATIONAL
HEALTH SYSTEMS**



AGENAS - Italian National Agency
for Regional Healthcare Services





★ OBJECTIVES

1

Consolidating the structured link for the internationalization of the Italian health system between the regional and national levels aimed at supporting a continuous process of innovation

2

Contributing to the strengthening of the internationalization strategies of the actors involved

3

Supporting and promoting actions to intervene through a strategic national systematic approach to affecting the European programming

4

Promoting a coordinated and competitive participation in projects funded by European calls

5

Promoting and supporting the European "Health in All Policies" strategy



GOVERNANCE

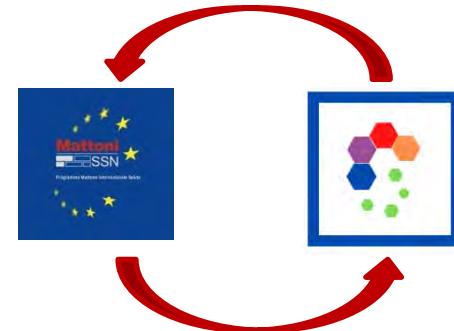


<ul style="list-style-type: none">- Representatives appointed by the Ministry of Health pertaining to: General Secretariat, DG for Medical Devices and Pharmaceutical Service, DG for Research and Innovation in Health, DG Health Planning, Cabinet Office and Agenas- Regional / Autonomous Provinces representatives appointed by the Health Committee: Lombardy, Piedmont and Tuscany Regions along with Autonomous Province of Trento- Representative of the ProMIS coordinating Region	Representative of the coordinating Region and in charge of managing the financing	<ul style="list-style-type: none">- Group of Regional / Autonomous Provinces contact persons (technicians nominated by the Health Regional Ministers with a possible deputy)- Representatives nominated by the Ministry of Health	In charge by the coordinating Region	Under the responsibility of the coordinating Region and/or specificity entity	Staff of the coordinating region
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★ THEMATIC GROUPS – NATIONAL COORDINATION - 1

DIGITAL INNOVATION HUB



AIM OF THE NATIONAL NETWORK

Creating an ecosystem which encourages the matching of supply and demand for "digital innovation" in the health and social field

OBJECTIVES

- Strengthening relationships between technology providers and possible end-users of the healthcare
- Leveraging resources and connections across Europe
- Aligning Digital Hubs initiatives with regional RIS3 strategies by promoting health topics
- Participating in European calls and including Italian pilot/cases at European level

PROMIS GOAL

Including as many Italian Regions as possible in this process





★ THEMATIC GROUPS – NATIONAL COORDINATION - 2

TECHNICAL SUPPORT INSTRUMENT



AIM OF THE LIGHTHOUSE PROJECT (technical support)

Presenting measures for the digital transformation of the Healthcare Systems

OBJECTIVES

- Supporting the creation of a National/Regional Roadmap for Digital Skills for the Health Workforce to support the health systems transformation
- Providing a baseline knowledge in order to make understand to the health workforce the requirements for the digital capability
- Implementing workforce e-skills through education/training & relevant European and National initiatives

PROMIS GOAL

Regional Health Systems improved





THANK YOU FOR THE ATTENTION



CONTACTS

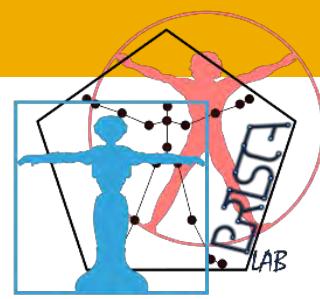
promisalute@regione.veneto.it



ADDRESSING THE CHALLENGES FOR PERSONALIZED TECHNOLOGY-DRIVEN SERVICES.

Silvia Rossi

University of Napoli Federico II, ITALY

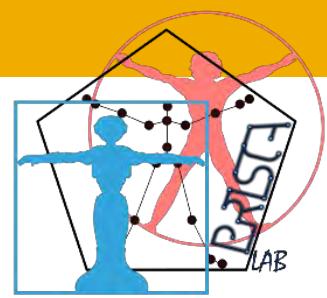


PRISCA Lab@Federicoll

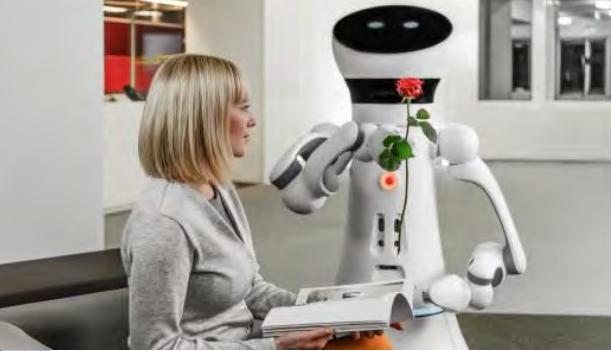
INTRODUCTION

- Socially Assistive Robotics
- Artificial Intelligence
 - Multi-agent Systems
 - Decision Making
- Human-Machine Interaction
 - Cultural Heritage and Natural Interfaces
- Different disciplines
 - Computer scientists
 - Control
 - Linguistics
 - Psychology



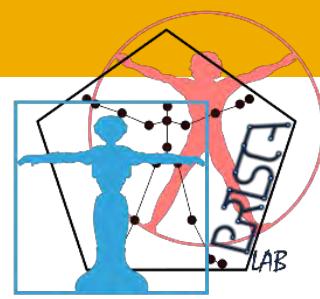


ROBOTICS IN HEALTH-CARE



- Socially assistive robotics





Robots for the Elderly



Telepresence

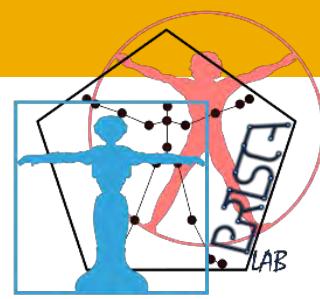
Robotic Pets

Service Robots

Social Robots

Min Autonomy, Social Intelligence
Lower Expectancy
Max Reliability

Max Autonomy, Social Intelligence
Higher Expectancy
Min Reliability



Social Assistive Robots in Aging Society

INTRODUCTION

- Social robots will be used in the next future in many application domains, which span from entertainment, education to health-care
 - **Socially Assistive Robots** focuses on helping human users through social rather than physical interaction
-
- SECURITY
 - **Real time monitoring**
 - Online Reports
 - **Alarms and Warning**
 - PERSONAL ASSISTANCE
 - Telepresence -> reduces isolation and loneliness
 - **Medical Reminders -> keep the wellbeing**
 - ENTERTAINING
 - **Activity Suggestions -> Prevent Cognitive Reserve**
 - STIMULATION
 - Cognitive exercises -> keep the wellbeing

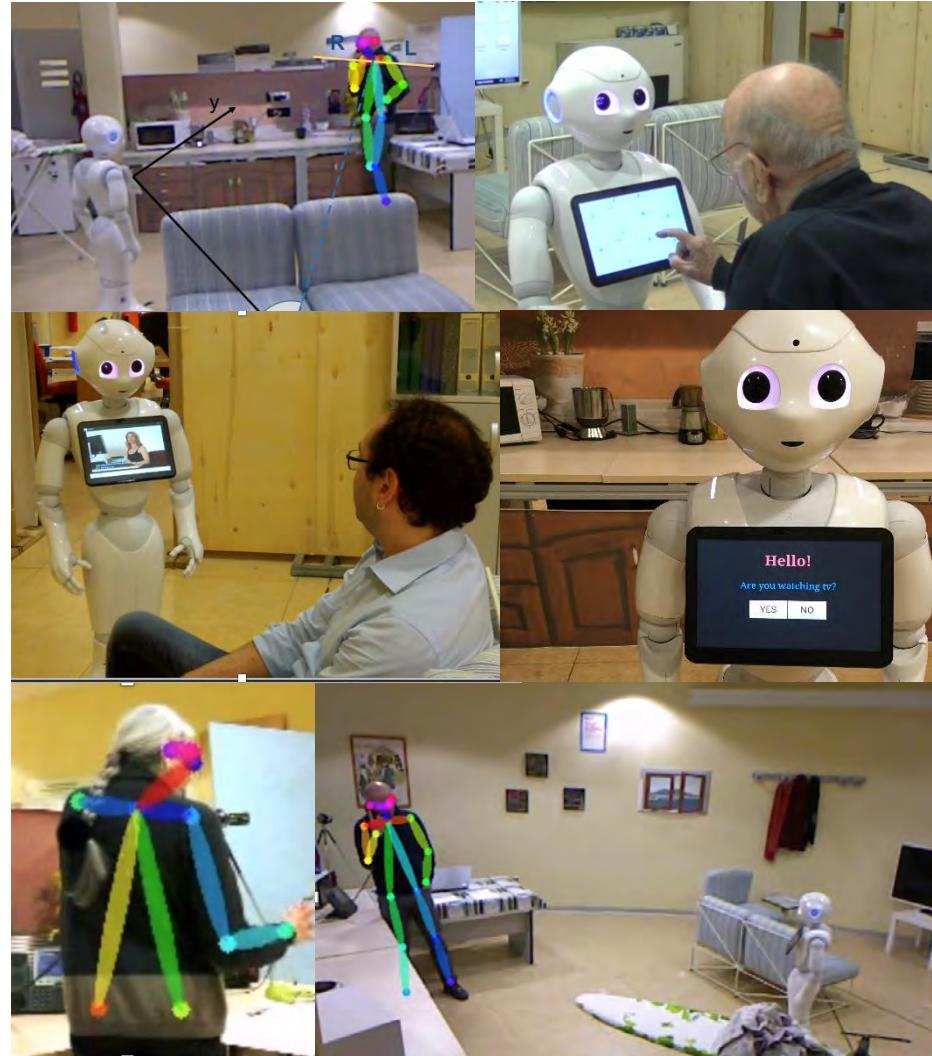


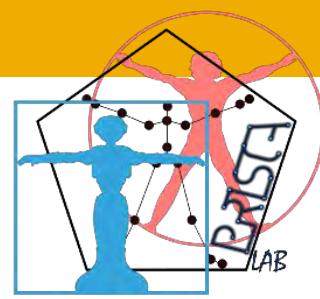


Our Project: UPA4SAR

INTRODUCTION

- **UPA4SAR** - User-centered Profiling and Adaptation for Socially Assistive Robotics
 - www.upa4sar.unina.it
- We focus on Assistive Technology for Monitoring
 - A robot system that acts as an **Active Sensor** in order to track and recognize the **Activities of Daily Living**
 - **Mild Cognitive Impairment** (Alzheimer's Disease)
- A monitoring technology has to be carefully introduced **not to cause discomfort**
 - Both the definition of the proper set of sensors to be used, the machine learning algorithms for events classification...
 - ... and the privacy, comfort, and easy to configure issues have to be taken into account





Robots for Psychometric Assessment

COGNITIVE PROFILING

Cognitive Level Assessment Process: *detecting early signs of dementia for prompt intervention with non-pharmacological treatment*

Current Practice:

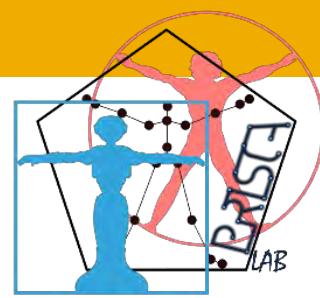
- Must be done by a trained practitioner
- It is still mostly done "paper and pencil"

Limitations:

- Long time to interpret the test scores
- Subjective evaluation
- Results influenced by boredom

S. Rossi, G. Santangelo, M. Staffa, S. Varrasi, D. Conti, and A. Di Nuovo
Psychometric Evaluation Supported by a Social Robot: Personality Factors and Technology Acceptance
in RO-MAN 2018

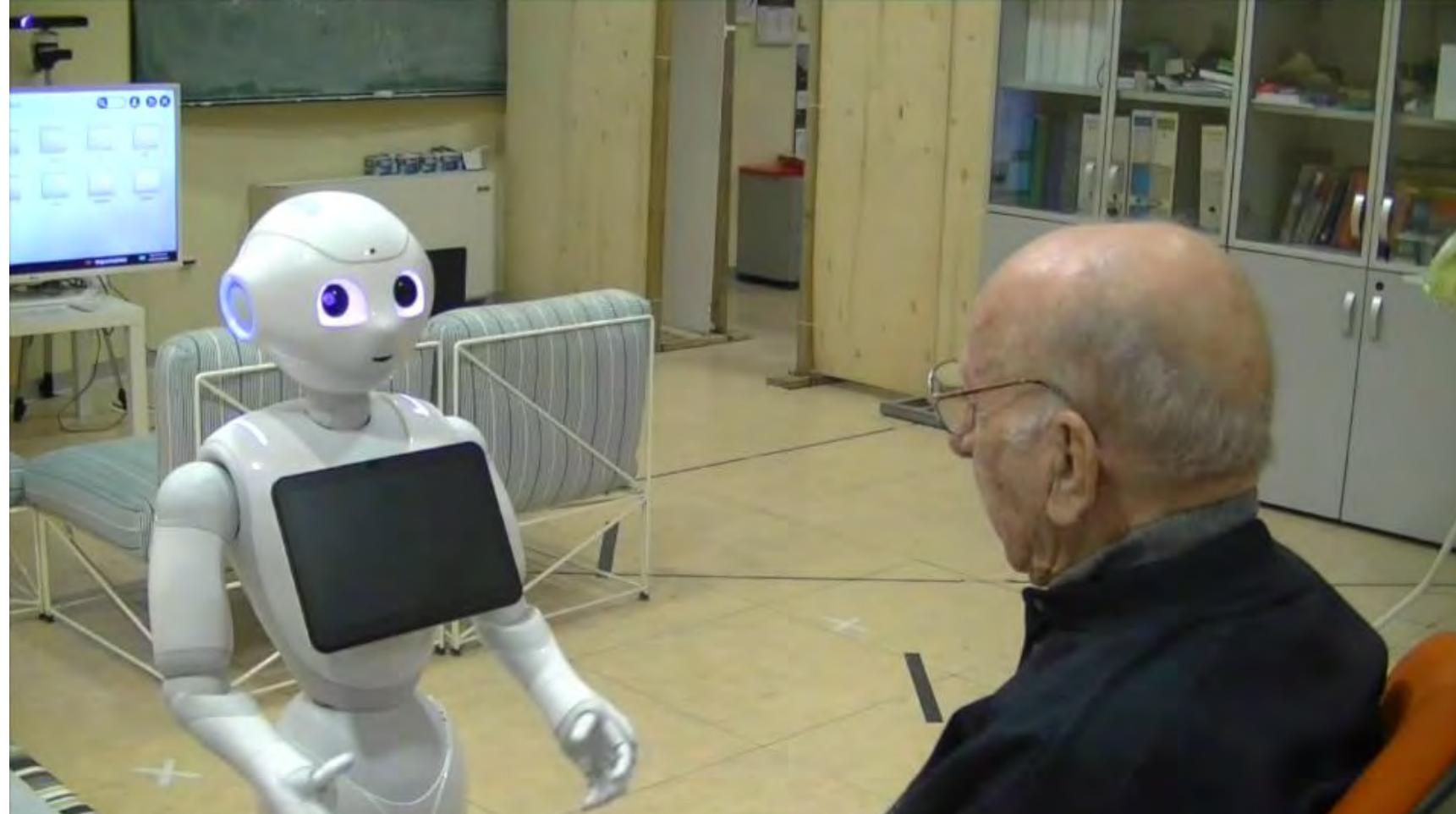


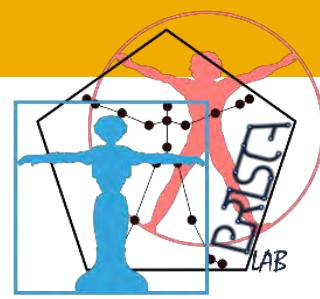


Robots for Psychometric Assessment

COGNITIVE PROFILING

- N=21 Italian senior volunteers
(M=12, F=9)
 - Age between 53 and 82 years old (61.0 ± 7.6)
 - Years of education from 8 to 18 (12.5 ± 3.6)
 - No previous experience with robots





Robots for Psychometric Assessment

COGNITIVE PROFILING



TABLE V
SPEARMAN CORRELATIONS AMONG GLOBAL SCORES AND NEO-PI-3 PERSONALITY FACTORS

	Automatic score	Supervised score	ACE-R
Neuroticism	-0.32	-0.22	-0.21
Extraversion	0.37	-0.02	0.09
Openness	0.58**	0.44	0.34
Agreeableness	0.12	0.15	-0.14
Conscientiousness	-0.08	-0.32	-0.08

** $p < .01$

TABLE IV
SPEARMAN CORRELATIONS AMONG GLOBAL SCORES

	ACE-R	Automatic score	Supervised score
ACE-R	1		
Automatic score	0.42	1	
Supervised score	0.46*	0.45	1

* $p < .05$



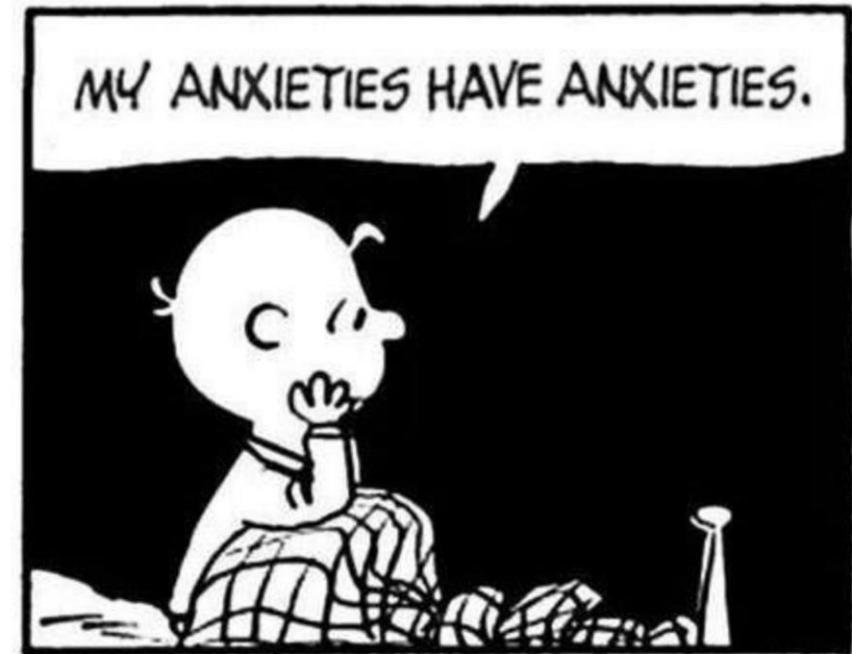


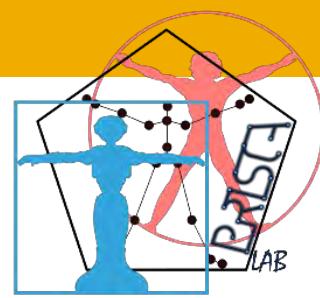
Social Robot in Hospitals

Emotional Distraction for Children Anxiety Reduction During Vaccination

- Effective interaction strategies and the ability to keep the engagement during the interaction
 - Reducing the anxiety for the medical procedure can have an impact of the children state and also on the perceived pain

- The current, not pharmacological, method used by the clinicians to cope with pain is the distraction.
- It could be difficult to attract the child's attention when he/she is in a state characterized by a high level of anxiety due to the incoming procedure.



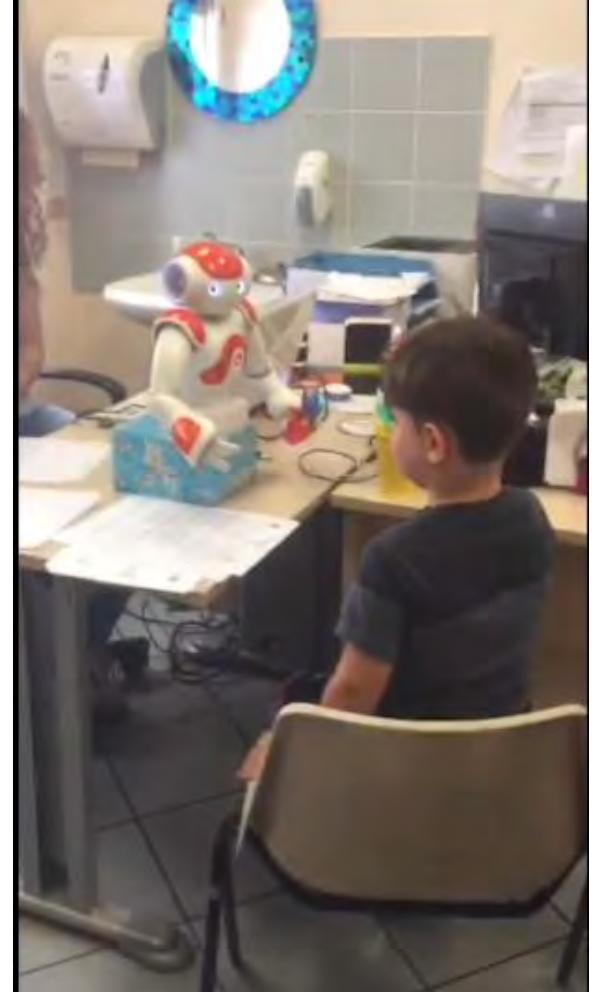


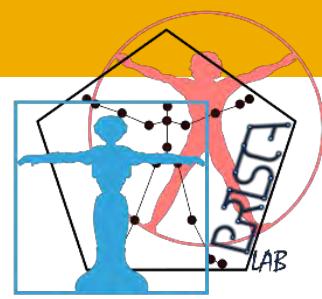
Case Study

Emotional Distraction for Children Anxiety Reduction During Vaccination

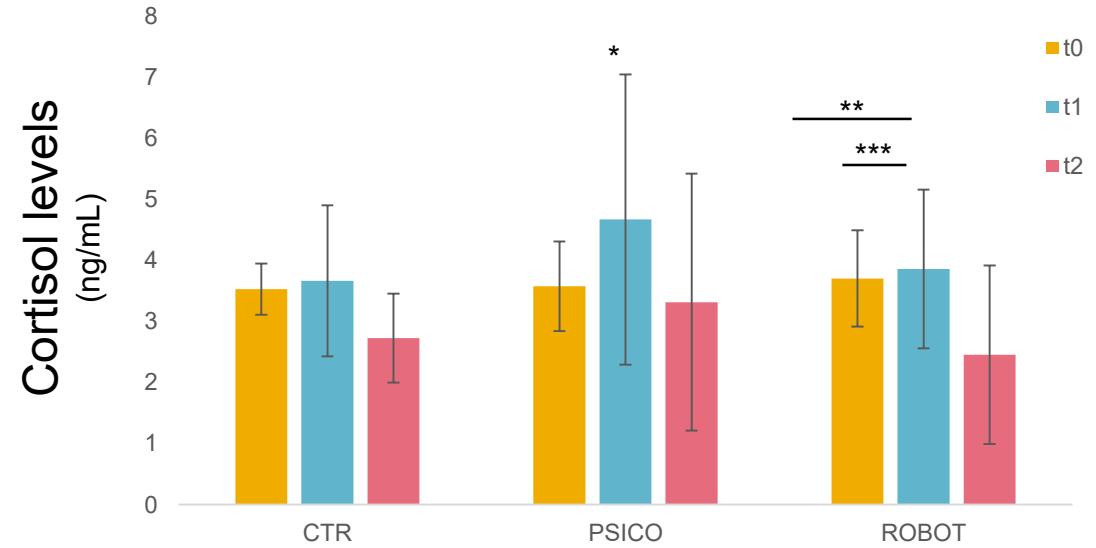
- Experimental Settings:
 - Softbank's social robot NAO
 - N=69 children aged between 3 to 12 years
 - Conducted in a Health-Vaccines Center

- Measures:
 - Children distress as reported by a parent (before, during, and after)
 - Children self-reported pain (Wong-backer Scale)
 - Children pain as rated by a nurse (FLACC)

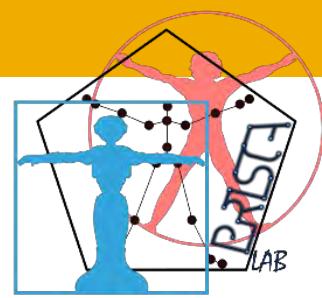




Cortisol

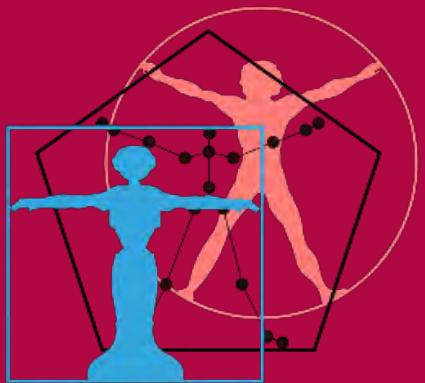


Tukey's multiple comparisons test: $*P < 0.05$, $**P < 0.01$,
 $***P < 0.001$



- To be successful in the market, **personal robots** need of a **high degree of personalization** of the robot behaviour with respect to the specific user's needs and preferences
 - Also address **social, legal, and ethical** issues that arise
- A set of **interdisciplinary skills** to investigate different robot's capabilities:
 - **Understanding and modelling the interaction with human beings**
 - **Adapt the robot's behaviour to the context**
 - Software integration mechanisms that allow an **easy, personalized configuration** approach (plug and play)





PRISCA

PROGETTI DI ROBOTICA INTELLIGENTE E SISTEMI COGNITIVI AVANZATI

PRISCA.UNINA.IT ☺





**International Workshop
Naples, 7th October, 2021
16.00-18.00 CEST**

PSYCHO-PHYSIC PARADIGMS IN HEALTH: THE CASE FOR PSORIASIS, STRESS AND ENVIRONMENT

Prof. G. Fabbrocini
Chairman of the Dermatology Department
University of Naples Federico II

COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.





The skin... our interface with the world

- ✓ Most external organ of the integumentary system
- ✓ Surface of about 2 m^2

The skin: the border organ

It represents the border of the body: divides the interior from the exterior; it protects us and at the same time puts us in contact with the world.

It exercises numerous functions (immunological, sensorial - tactile, perceptive: heat, pruritus, pain, sensibility).

There is a strong relationship between the skin manifestations and «psychological and emotionally» aspects.

The skin appears to be closely related with our central nervous system and its health to our lifestyle



THE ROLE OF STRESS, DIET AND PHYSICAL ACTIVITY IN PSORIASIS PATIENTS

- ✓ Psoriasis: skin pathology strongly related to lifestyle (a typical dermatosis of **the Western countries**)
- ✓ In particular, the cutaneous lesions of psoriasis seem to be linked to a state of systemic inflammation favored by a **sedentary lifestyle, hyperglycemic diet, and high stress levels.**

KEY POINTS

PSORIASIS AND PSYCHE: THE ROLE OF STRESS

PSORIASIS AND LIFESTYLE: THE ROLE OF SPORTS

PSORIASIS AND DIET: THE ROLE OF INSULIN RESISTANCE

Emotional aspects as risk factors:

Shame

- Mainly experienced by women
- Strongly influences social and intimate life

Anger

- Frequently associated to depression
- Affects capability to deal with stress

Worrying

- When severe, can affect the patient's treatment outcome



WWW.LAFABBRICADEISOGNIWEB.IT

Frequent psychological aspects in patients with psoriasis:

Low self esteem

Distort image of his/her own body

Sexual dysfunction

Anxiety

Depression

Suicidal ideation



Not only Stress...

The onset is multifactorial

Stress certainly plays an important role in the genesis and maintenance of numerous dermatological conditions.

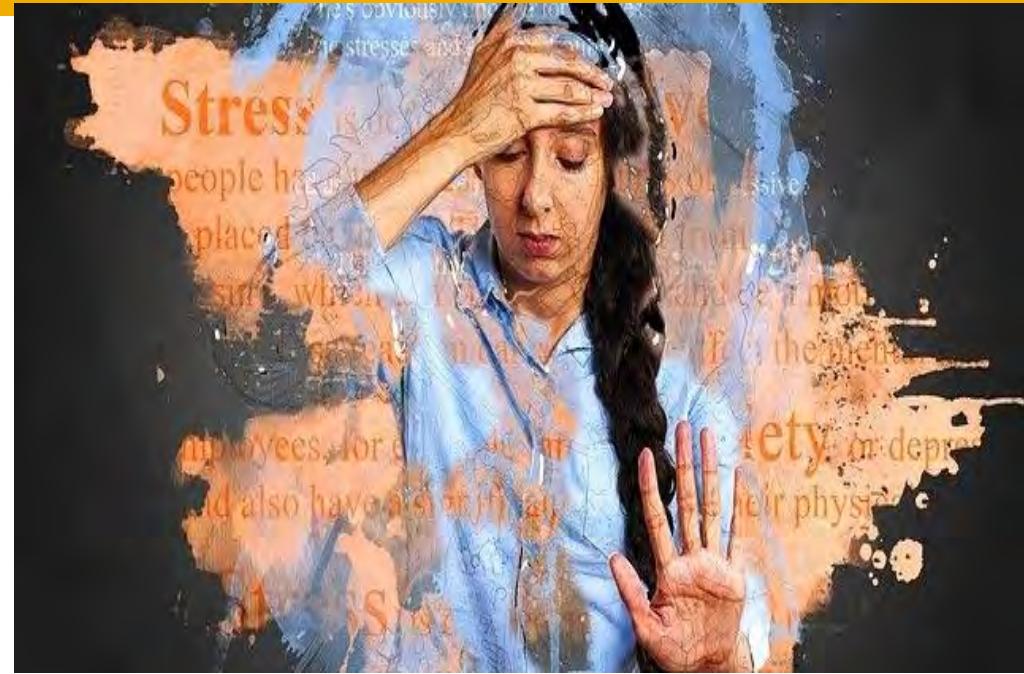


What is Stress?

«Everyone knows what it is and yet nobody knows what it is» (Selye, 1973)

From the latin strictus (narrow, tight and complex). In the XVIII century it took the meaning of strength, tension, effort.

Stress is **a psychophysical response to different ambits, from emotional, cognitive or social nature**, that a persons perceives as excessive.



Distress

Psoriasis
Can become a
stress factor

Negative Stress causes difficulties, including emotional conflicts and anxiety.
(Ex. Mourning, job loss)

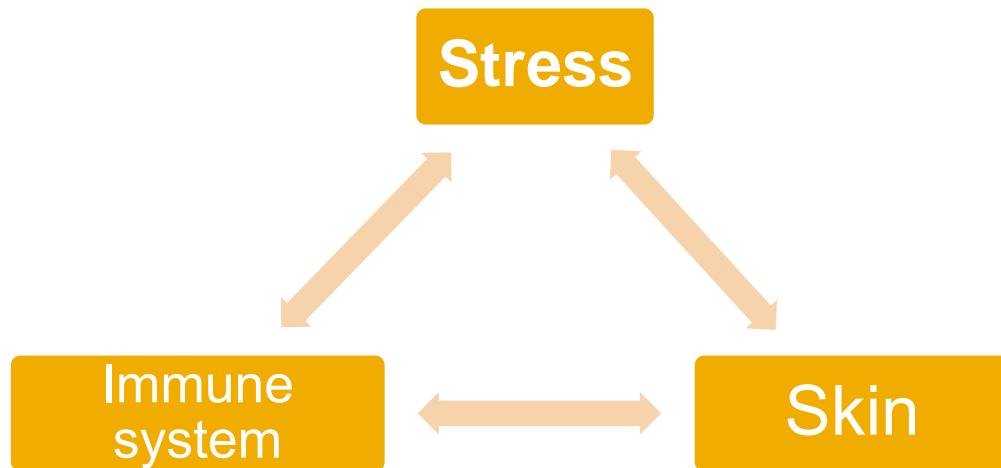
Eustress

Positive Stress manifests itself in the form of constructive and stimulating feelings. Generating the desire to overcome challenges and achieve goals.

Stress and the skin



Numerous scientific studies have highlighted the correlation between



Therefore, stressful events can act on the skin's immune system, if a subject is genetically predisposed to psoriasis then a stressful event can act as a trigger for the disease.

In the Dermatologic Clinic of the University of Naples Federico II

**An integrated
approach is used**



**With the aim of enriching the studies of medical sciences
with other disciplines, encouraging a multidisciplinary
approach**





PSORIASIS AND LIFESTYLE

THE ROLE OF SPORT

PSORIASIS AND SPORT

- ✓ Scientific evidence has demonstrated that **physical exercise** can improve the health of the individual,
- ✓ The beneficial effect is expressed not only in the **prevention** but also in the treatment of different diseases, such as cardiovascular disease, diabetes, hypertension, obesity, tumours, and **PSORIASIS**.
- ✓ Studies confirming this observation are numerous, some examples include....



Manson JE et al. Lancet 1991;338:774-8.

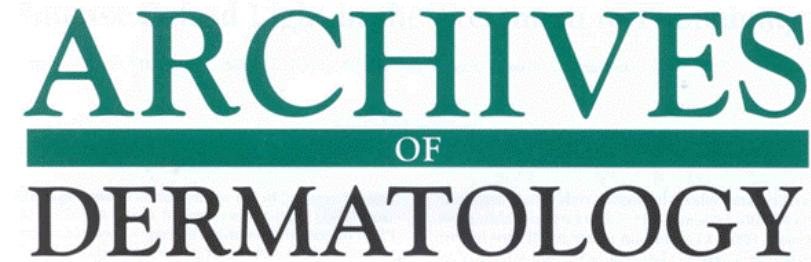
Manson JE, et al. N Engl J Med 1999;341:650-8.

Gaesser GA. Curr Diab Rep 2007;7:14-9.

Arch Dermatol. 2012 Aug;148(8):918-24. doi: 10.1001/archdermatol.2012.943.

The association between physical activity and the risk of incident psoriasis.

Frankel HC, Han J, Li T, Qureshi AA.



- 1026 patients with psoriasis
- Vigorous physical activity (>6 Metabolic Equivalent) was associated with a reduced risk of developing psoriasis.

Review

Mutual Influence of Psoriasis and Sport

Paolo Custurone ¹, Laura Macca ¹, Lucrezia Bertino ¹, Debora Di Mauro ², Fabio Trimarchi ²,
Mario Vaccaro ¹ and Francesco Borgia ^{1,*}

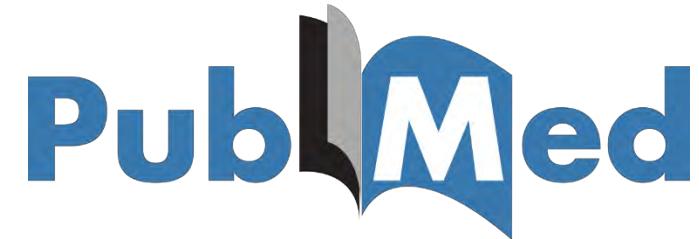
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bertino.lucrezia@gmail.com (L.B.); mario.vaccaro@unime.it (M.V.)

² Department of Biomedical, Dental Sciences and Morphofunctional Imaging, AOU "G. Martino",
98125 Messina, Italy; debora.dimauro@unime.it (D.D.M.); fabio.trimarchi@unime.it (F.T.)

* Correspondence: francesco.borgia@unime.it; Tel.: +39-090-221-3933

Abstract: The link between psoriasis and sport is a controversial issue. The topic has been poorly investigated, and nowadays there are many unsolved questions, dealing with the role of psoriasis in influencing the sporting habits of patients and, vice versa, the impact of sport activity on course, severity and extent of the disease, with particular regard to the indirect benefits on cardiovascular risk and metabolic syndrome. Moreover, the role of physical activity on patients' quality of life and the potential limitations on physical activity due to joint involvement have not been well elucidated until now. In this narrative review we will try to provide answers to these queries.

Keywords: psoriasis; sport; physical activity; exercise; metabolic risk; diet; psoriatic arthritis

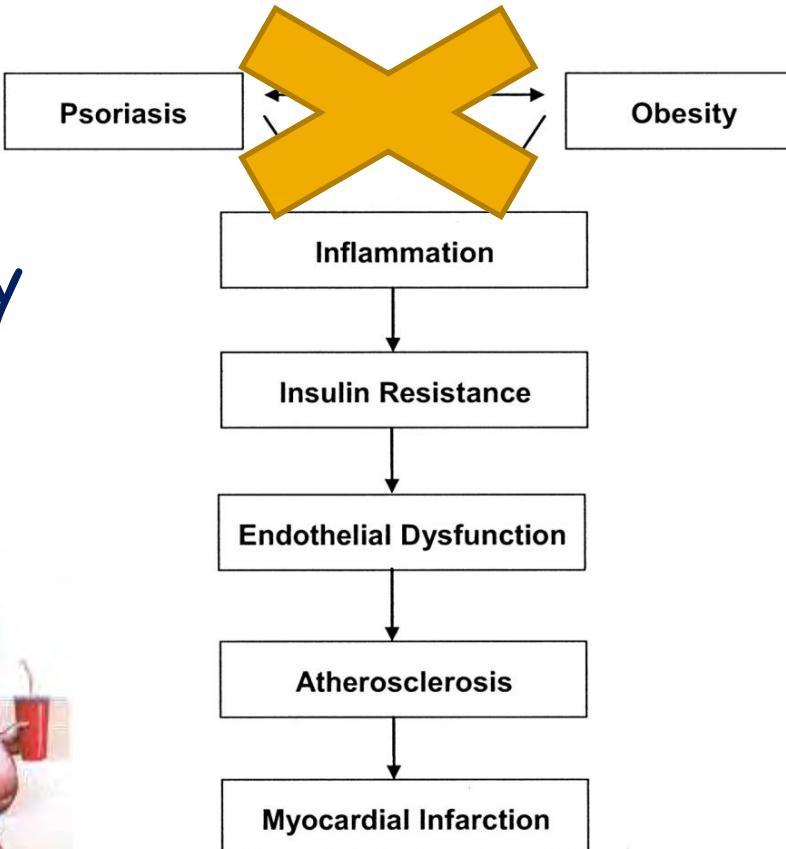
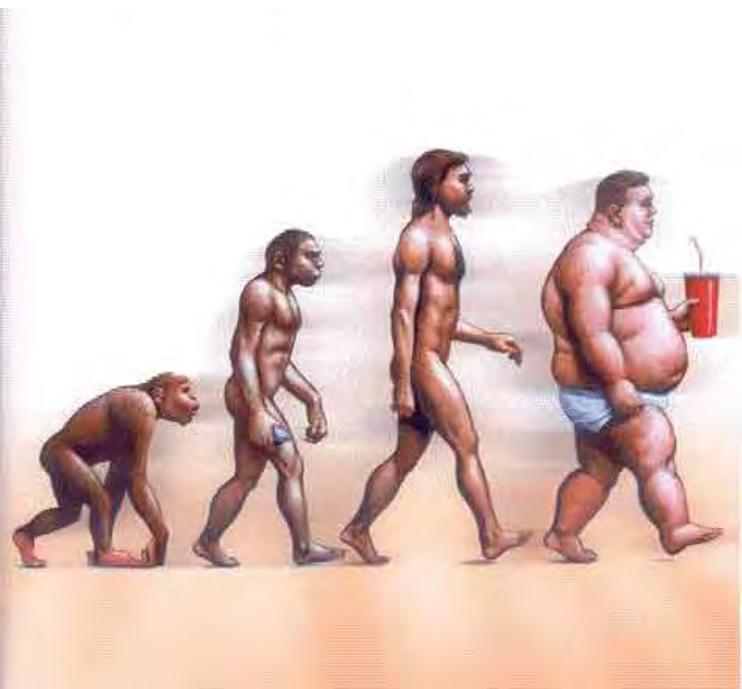


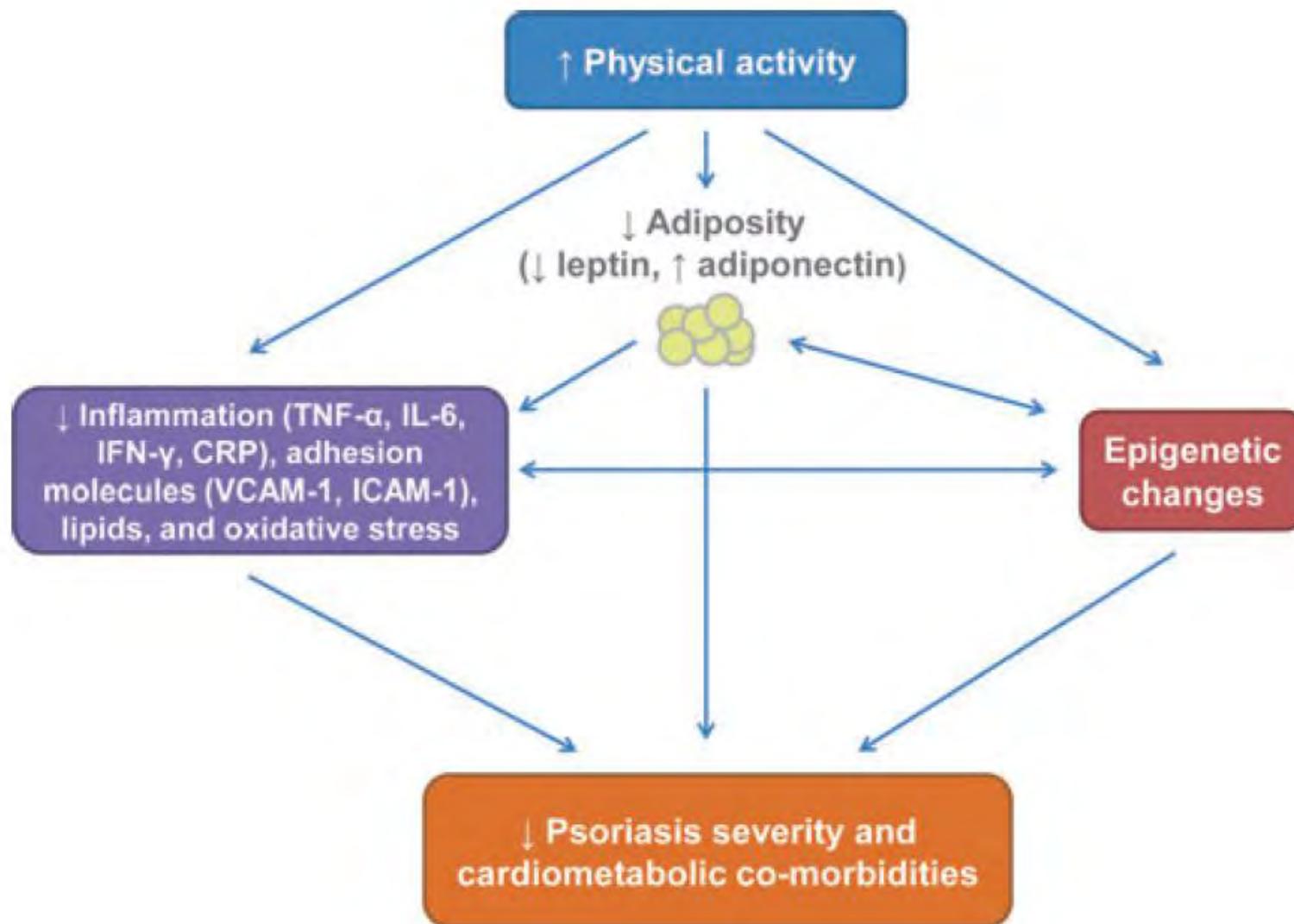
"Sports may represent a striking non-pharmacological resource in complex patients like the psoriatic ones, especially within programs of education and promotion of a healthier lifestyle"

Psoriatic march



Physical activity







PSORIASIS AND DIET

THE ROLE OF INSULIN RESISTANCE

WHAT WE EAT...

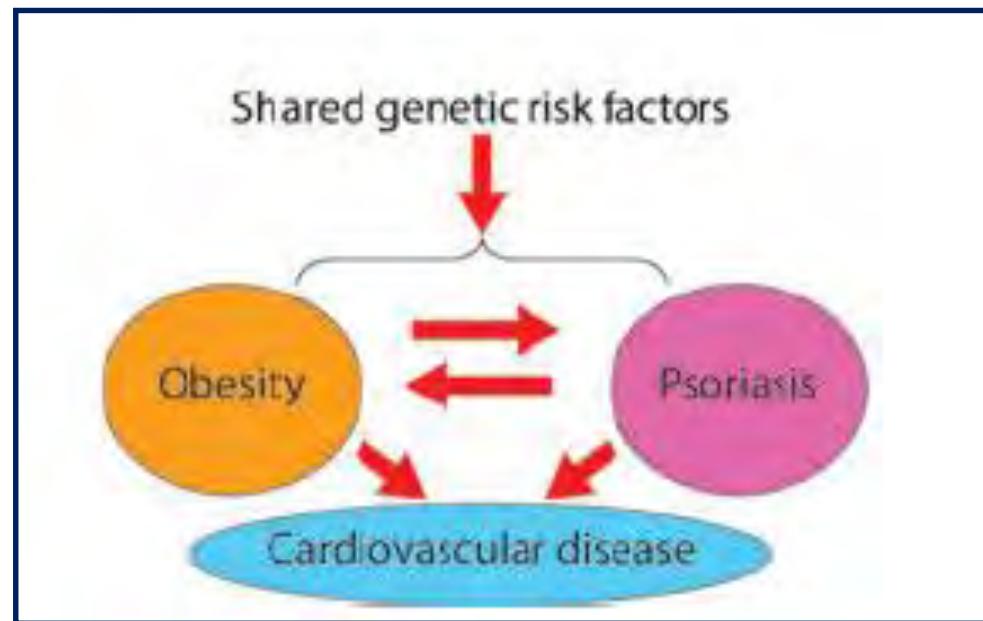


J Invest Dermatol. 2010 Jul;130(7):1785-96. doi: 10.1038/jid.2010.103. Epub 2010 May 6.

Psoriasis and systemic inflammatory diseases: potential mechanistic links between skin disease and co-morbid conditions.

Davidovici BB, Sattar N, Prinz J, Pujol L, Emery P, Barker JN, van de Kerkhof P, Stähle M, Nestle FO, Girolomoni G, Krueger JG.

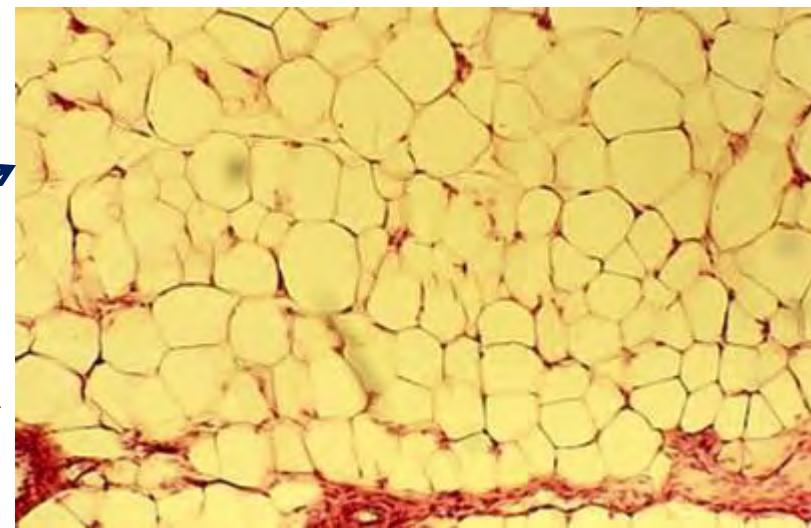
Laboratory for Investigative Dermatology, The Rockefeller University, New York, New York, USA.



- Genetic factors
- Shared environmental factors
- Common inflammatory pathways



Adipose tissue



The adipose tissue is a multi-active endocrine organ that interferes with numerous processes

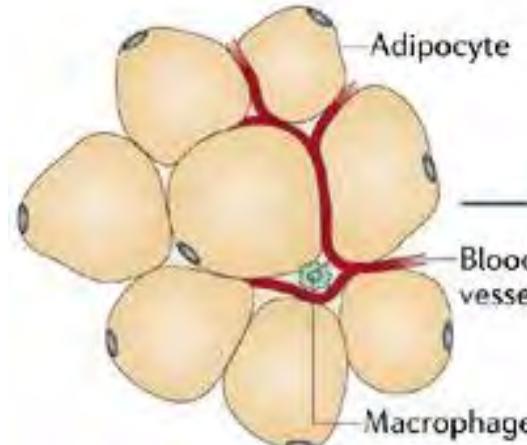
Regulates:

- Glucidic metabolism
- Insulin sensibility
- Lipidic metabolism
- Arterial pressure

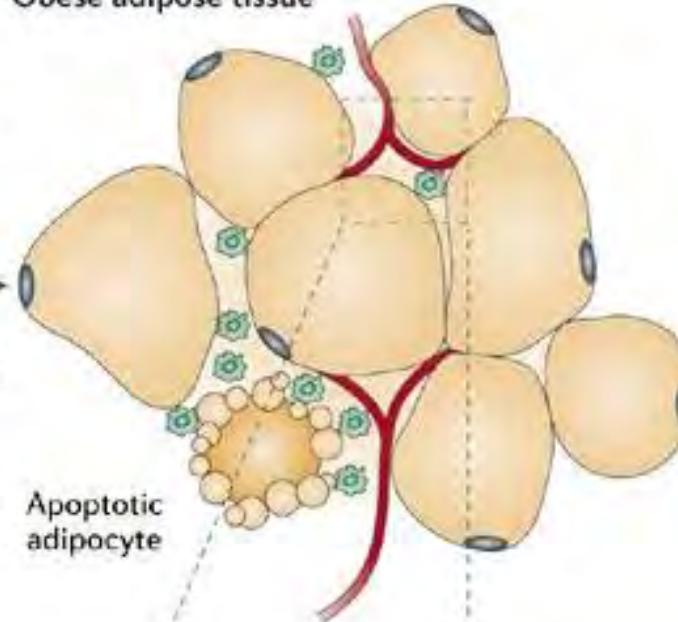
Involvement in inflammatory and immune-mediated processes

Weight gain

Lean adipose tissue



Obese adipose tissue



- Adipocytokines**
- Adiponectin
 - Leptin
 - Resistin

- Macrophage-derived factors**
- Resistin (human)
 - IL-1 β

- Pro-inflammatory cytokines and chemokines**
- TNF
 - IL-6
 - CCL2

Food and psoriasis



- Carrots
- Tomatoes
- Fresh fruit
- Vegetables
- Omega 3 fat
- Vitamin D
- Selenium



- Caffeine
- Alcohol
- Tea
- Sugary drinks
- Processed food
- Taurine
- Monosodium glutamate

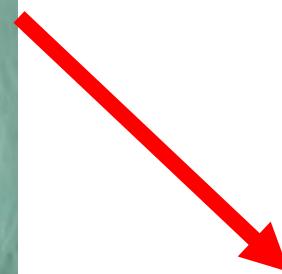
PSORIASIS AND DIET

- ✓ INSULIN RESISTANCE: condition in which a certain amount of insulin evokes an insufficient biological response to maintaining a metabolic balance (**compensatory hyperinsulinemia**)
- ✓ Through complex molecular mechanisms, hyperinsulinemia contributed to a state of **low grade inflammation**, fuelling the skin inflammatory process observed in psoriasis (a loop capable of self-maintenance)





T0



T6

**Hence the importance of multidisciplinary work in
the treatment of psoriasis**



PSOwellness Project



PSOwellness project is an initiative aimed to help patients suffering from psoriasis



Patients are followed for the entire duration of the program by a multidisciplinary team that consists of two Dermatologists, one Nutritionist Biologist, and an Athletic trainer.



Patient management

1 DIET THERAPY:

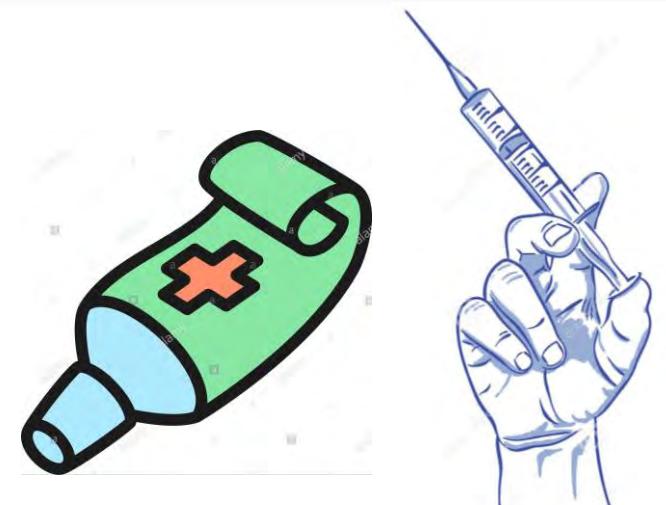


A program high in fiber, low glycemic index carbohydrates, and foods with high antioxidant power



2 DERMATOLOGIC THERAPY:

Topical and systemic therapy based on the dermatologist's judgement.



Patient management

3 CONTROLLED PHYSICAL ACTIVITY:

Double component:

- ✓ Group physical activity carried out every 2 months with an athletic trainer along the paths of the Neapolitan city, including mobile stations with doctors at the beginning and at the end of the path and a tourist guide, that helps make the journey pleasant for the body and the mind.



- ✓ Individual physical activity to be performed daily according to the program prescribed by the athletic trainer and adapted to the individual's characteristics and needs.



The paths of the Neapolitan city



Parco Virgiliano. It starts from Via Tito Lucrezio Caro and descends to the foot of the Coroglio hill to the sea, where the Gaiola is.



Calata san Francesco. It starts at Via Belvedere, cutting Via Aniello Falcone and Via Tasso, reaching Corso Vittorio Emanuele, from there, it descends to Via Riviera di Chiaia, in front of Villa Comunale.



Pedamentina di San Martino. With its 414 steps it connects the Certosa di San Martino to the historic city center, on to Corso Vittorio Emanuele, from which the Montesanto ramps are then taken.



Le Rampe del Petraio. Starting from Via Annibale Caccavello, going down to Corso Vittorio Emanuele, at the height of the church of S. Carlo alle Mortelle. From there 2 pathways can be taken: either the steps of S. Maria Apparente, the Vetriera climb, and the Brancaccio ramps or the steps of Chiaia, which lead to Via Chiaia.

Psowellness project: multidisciplinary management of psoriasis patients



Patients



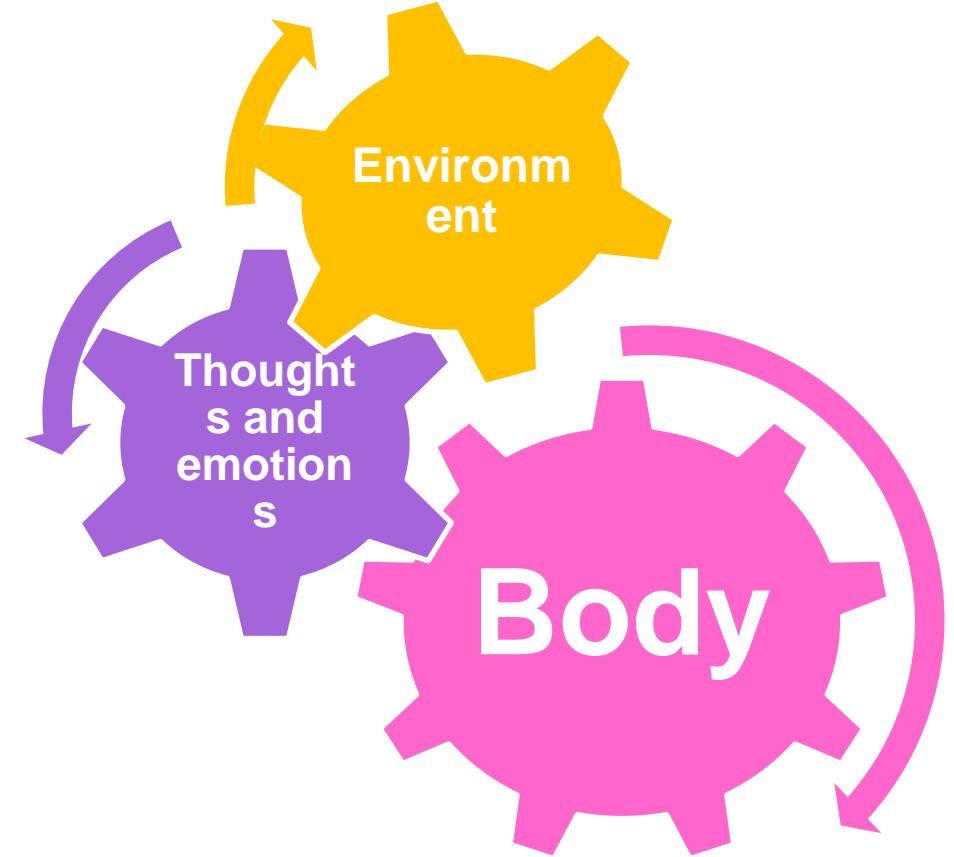
**Physician -
Dermatologist**



**Psychologist
Nutritionist
Sports physician**



The human being is a complex system in which everything communicates in different ways



Manage the patient as a whole
At the center of the care process:

The only way to success

Thank you

CAMPANIA
felici di esserci

