

presentation of research project

## **PANGeA: PHYSICAL ACTIVITY AND NUTRITION FOR GREAT AGEING**

Rado PIŠOT, Nika PEGAN, Boštjan ŠIMUNIČ

University of Primorska, Science and Research Centre of Koper, Institute for Kinesiology  
Research, Garibaldijska 1, 6000 Koper, Slovenia  
e-mail: rado.pisot@zrs.upr.si

### *ABSTRACT*

*The global problem of ageing is one of the most significant issues of modern society. With this issue arise the challenges of searching for healthy ageing criteria, which will enable individuals to enjoy a high quality of life and be independent in their old age. Research has already shown that the process and consequences of ageing have a strong correlation with lifestyle, but the criteria according to which ageing can be seen as healthy have not yet been defined. The Institute of Kinesiology Research of the Science and Research Centre of the University of Primorska decided to explore and study ageing criteria together with local and foreign partners in the Cross-border Cooperation Programme Slovenia – Italy 2007-2013 PANGeA: Physical Activity and Nutrition for Great Ageing. The project partners are now in the process of preparing the measurements for the study of the situation of the older population in the project area. By interpreting the characteristics of healthy and active elderly people, we will try to define the criteria of healthy ageing. The knowledge will then be applied in practice working with target groups with the cooperation of public institutions from participating regions that are active in the field of assuring the quality of life for the older population.*

**Keywords:** *health, ageing, physical activity, nutrition*

## INTRODUCTION

The European population is ageing (Lutz et al., 2008). The proportion of those aged over 65 years in the population of the border regions between Slovenia and Italy is relatively high (18-20%). This diverse population includes many people whose general level of fitness, due to their participation in motor/sports activities, is such that a 75-year-old of today can be compared with a 55-year-old thirty years ago. On the other hand, there are also many individuals suffering from chronic diseases and weak musculoskeletal systems, for which it could also be said that they have aged prematurely. Research has many times demonstrated a strong correlation between lifestyle and the process and consequences of ageing. However, criteria by which healthy ageing can be assessed have not yet been defined. The global problem of ageing and the challenges involved in the search for healthy ageing criteria, according to which individuals can be assessed as enjoying a high quality of life and as being independent in their old age, have become among the most significant problems of contemporary society. In this connection, the European Commission has declared 2012 to be the Year for Active Ageing and Solidarity between Generations.

A few years before the EU decided to devote such an degree of attention to this issue, the Institute of Kinesiology Research of the Science and Research Centre of the University of Primorska decided to explore and study ageing criteria together with local and foreign partners in order to be able to offer society all possible controls that would enable them to develop an approach to this issue based on specific findings and knowledge. Numerous scientific findings prove the exceptional efficiency of motor function enhancement activities and healthy nutrition in reducing health risks and enhancing the independence of the lives of older members of society. Appropriate information and notifying the public, which involves the cooperation of different organisations, can positively influence the quality of life of the older population. The Cross-border Cooperation Slovenia – Italy 2007-2013 Programme – PANGeA unites public institutions from participating regions that are active in the field of assuring the quality of life of older populations with universities, hospitals, municipalities and the Health Protection Institute of the Republic of Slovenia. The carrying out of promotional and educational programmes as well as the facilitation of direct physical activities will enable us to practically apply lifestyle knowledge that improves the quality of life of target groups of older citizens. We shall use the network of existing healthcare (hospitals), social (elderly homes) and private (fitness centres) organisations, which operate in the areas that are the subject of this project. The fitness programmes health/nutrition measures for the elderly that we will apply should contribute to generally improved health conditions as well as reducing the risks of acute injuries and chronic diseases. At the same time, we will study the effects of permanent inactivity and develop programmes for a more efficient/faster regeneration of motor functions such as gaining independence after hip operations, which have become one of the most frequently occurring problems that the elderly have to cope with.

The activities of the project will strive to improve the current low level of coordination between healthcare and other public institutions. Prior to providing information to the public, project partners will study the situation of the older population in the project area. By interpreting the characteristics of healthy and active elderly people, they will try to define the criteria according to which healthy ageing may be assessed. The activities involving the accumulation of normative values and the implementation of intervention programmes, which will be implemented within the scope of the project, will be based on organisational, promotional, scientific research and subject-related integration of all project partners and other stakeholders. In this way we will establish a permanent relational organisational network bringing together universities, hospitals, municipal care homes, private persons, pensioners' organisations etc.), which will enable further improvements in the health and quality of life of the population living in the border area.

## OBJECTIVES OF THE PROJECT

### General objectives of the project

- Define healthy ageing factors;
- Set up content-related and HR bases of the international excellence centre (SLO-ITA) in the field of gerontological health;
- Raise awareness on the significance of healthy ageing, social inclusion and mobility of less privileged populations (the elderly);
- Reduce costs of providing healthcare;
- Connect the existing healthcare, social and private entities and improve their mutual coordination.

The programme area includes institutes and universities that have achieved excellent results at an international level, namely in the field of medicine, space physiology, kinesiology, nutrition studies and health in general. It is well known that many different fields of work can complement each other when they are discussed jointly. Our work will be based on merging cross-border bodies of knowledge, translating information and developing technologies that are proven efficient instruments, this being the priority of numerous European programmes. We are aware of the fact that health models as well as exercise and nutrition programmes are out-dated and, as the results of modern lifestyle studies show, also inefficient. Many experiences in research including the simulation of ageing (bed rest studies) and healthy ageing simulation (sportsmen – the elderly) have enabled us to acquire many findings that can be applied in healthcare centres, rehabilitation centres, elderly homes, fitness and wellness centres, sports clubs and, last but not least, for every individual. Despite this, the PANGeA project will need to answer some other scientific questions that refer to the impact of motor function inactivity on the elderly and consequently on their health. Applications that will be provided by the general objectives are as follows:

- Programmes for minimised and optimised motor function/sports activities for the elderly;
- Defining of efficient procedures of data collection concerning the health of different target populations with different pathological conditions;
- Updating of rehabilitation plans for faster recuperation after surgeries of acute and chronic injuries of the hip joint;
- Food programmes for hindering catabolic processes that occur with motor inactivity;
- Establishment of motor function enhancing health parks for the elderly.

### **Operative objectives of the project**

- Setting up of a mobile health laboratory with measuring equipment and qualified measurers;
- Setting up of a web portal providing a graphic interface, database, reporting and information about the health of inhabitants (in Slovene, Italian and English languages);
- 1,000 measurements of health factors of people from the entire programme area including simultaneous promotion campaigns;
- Adjustment and redefinition of health factors transferred from youngsters to the elderly by considering environmental factors;
- Organisation of 20 free training seminars for training fitness trainers for the elderly, 12 free demonstration meetings for fitness programmes for the elderly, performed at their homes, both equally distributed in all six regions;
- Organisation of six scientific meetings, intended as a means of strengthening the project consortium.

Operational objectives are defined in accordance with the achievement of general project objectives. We will work in order to enhance the quality of life of inhabitants from the programme area, as well as on a more global level. Promoting and encouraging health, health monitoring, healthcare measures and preventive measures are the key mechanisms that will enable a coordinated development of health and social life in the programme region. Less privileged groups present a large part of the entire population, which is increasing every year. Our preliminary local projects have resulted in many findings that will acquire a new dimension when we are able to connect these findings via a consortium.

The project has been drafted in the sense of the establishment of healthy ageing criteria, based on connecting interdisciplinary knowledge and the implementation of mass measurements on the elderly, thus enabling the basis for constructing a permanent network of institutions that will offer healthcare and rehabilitation services in order to stimulate the recovery period. All the factors discussed above are capable of being transferred to the level of national policies, which could enable an increase in the

quality of life of the elderly by synergising permanent networks (connections between hospitals and joint functional centres) throughout the entire programme area.

The project also has a research focus, since joint criteria for healthy ageing will be set up by connecting universities and other public research institutions (University of Primorska, University of Trieste, University of Udine and University of Ferrara as well as the Public Health Institute of the Republic of Slovenia, Izola General Hospital and Valdoltra Orthopaedic Hospital) based on interdisciplinary and international knowledge. The transfer of knowledge will be assured with the collaboration with the included municipalities of the border area (Municipalities of Koper, Ljubljana, Kranj, Trieste and Ferrara). Furthermore, by introducing intervention programmes, we shall contribute to an enhancement of the quality of life of the elderly, in which physical activity is the core means of social integration.

## **PANGeA: GIBALNA AKTIVNOST IN PREHRANA ZA KAKOVOSTNO STARANJE**

### *IZVLEČEK*

*Globalni problem staranja je eden najpomembnejših problemov sodobne družbe. Iz njega izhajajo izzivi za iskanje kriterijev zdravega staranja, ki bodo posamezniku omogočili kakovostno življenje ter neodvisnost in samostojnost v pozni starosti. Raziskave so že dokazale močan vpliv življenjskega sloga na potek in posledice staranja, a kriteriji zdravega staranja pri tem še niso bili definirani. Na Inštitutu za kineziološke raziskave Znanstveno-raziskovalnega središča Univerze na Primorskem smo se odločili, da skupaj z domačimi in tujimi partnerji raziščemo in preučimo kriterije staranja s projektom Programa čezmejnega sodelovanja Slovenija-Italija 2007–2013 – PANGeA: Telesna aktivnost in prehrana za kakovostno staranje. Projektni partnerji smo trenutno v procesu priprave na meritve in preučevanje stanja starejše populacije na projektnem območju. Iz značilnosti zdravih in aktivnih starostnikov bomo razbrali kriterije zdravega staranja. Pridobljena znanja bomo privedli do praktične uporabe ciljnim skupinam v sodelovanju z javnimi ustanovami, ki skrbijo za kakovost bivanja starejše populacije.*

***Ključne besede:*** *zdravje, staranje, telesna aktivnost, prehrana*

## UVOD

Evropska populacija se stara (Lutz et al., 2008). Tudi v obmejnih regijah med Slovenijo in Italijo je visok odstotek (18–20 %) populacije nad 65 letom starosti. Gre za zelo raznoliko populacijo, med katerimi so nekateri gibalno/športno zelo aktivni, tako da lahko današnjega 75-letnika primerjamo s 55-letnikom izpred 30 let, na drugi strani pa so posamezniki, ki jih pestijo kronične bolezni in oslabljen mišično-skeletni sistem, za katere bi lahko rekli, da so se postarali mnogo prezgodaj. V raziskavah je bil že velikokrat dokazan močan vpliv življenjskega sloga na potek in posledice staranja, pri tem pa kriteriji zdravega staranja še niso bili definirani. Globalni problem staranja ter izzivi iskanja kriterijev zdravega staranja, ki bodo posamezniku omogočili kakovostno življenje ter neodvisnost in samostojnost v pozno starost, so postali eden najpomembnejših problemov sodobne družbe. EU komisija je vpričo tega imenovala leto 2012 za Evropsko leto aktivnega staranja in medgeneracijske solidarnosti.

Kar nekaj let, preden se je EU odločila, da tej problematiki namenijo tolikšno pozornost, smo se na Inštitutu za kineziološke raziskave Znanstveno-raziskovalnega središča Univerze na Primorskem odločili, da skupaj z domačimi in tujimi partnerji raziščemo in preučimo kriterije staranja ter družbi ponudimo vzode, da se s problematiko spopade na osnovi konkretnih ugotovitev in dognanj. Številna znanstvena dognanja dokazujejo izjemno učinkovitost gibalne aktivnosti in zdrave prehrane pri zmanjševanju zdravstvenih tveganj in povečanju samostojnosti bivanja starejše populacije. Ustrezno informiranje in poučevanje javnosti, ki zahtevata sodelovanje različnih organizacij, imata lahko pozitivne učinke na kakovost življenja starejše populacije. Projekt programa čezmejnega sodelovanja Slovenija-Italija 2007–2013 – PANGeA združuje javne ustanove iz upravičenih regij, ki skrbijo za kakovost bivanja starejše populacije, od inštitutov, univerz, do bolnišnic, občin in Inštituta za varovanje zdravja RS. S programi promocije, edukacije in neposrednih vadbenih aktivnosti bomo znanja o življenjskem slogu, ki izboljša kakovost bivanja, privedli do praktične uporabe ciljnim skupinam starejših občanov. Pri tem bomo uporabili mrežo obstoječih zdravstvenih (bolnišnice), socialnih (domovi za starejše občane) in zasebnih (centri za telesno vadbo) subjektov, katerih temeljna dejavnost sovпада s tistimi, ki jih vključuje projekt. Vadbeni programi za starejše osebe in ukrepi za zdravo prehrano, ki jih bomo uporabili, bodo prispevali k boljšemu splošnemu zdravstvenemu stanju, zmanjševali dovzetnost za nastanek akutnih poškodb in kroničnih obolenj. Na drugi strani bomo preučili učinke trajne neaktivnosti in razvili programe za učinkovitejšo/hitrejšo obnovo gibalnih funkcij in neodvisnosti po operacijah kolka kot enega najbolj perečih problemov starejših oseb.

Projektne aktivnosti bodo tako skušale preseči nizko stopnjo koordinacije med zdravstvenimi in drugimi javnimi ustanovami. Pred samim informiranjem bodo projektni partnerji preučili stanje starejše populacije na projektnem območju in iz značilnosti zdravih in aktivnih starostnikov razbrali kriterije zdravega staranja. Aktivnosti zbiranja normativnih vrednosti in implementacija intervencijskih programov, ki se bodo izvajali v projektu, bodo temeljile na organizacijskem, promocijskem, znanstvenoraziskovalnem in vsebinskem povezovanju vseh projektnih partnerjev ter drugih deležnikov.

S tem bo vzpostavljena trajna organizacijska mreža (univerze-bolnišnice, univerze-občine-domovi za starejše občane, univerze-zasebniki-društva upokojenecv itd.), ki bo omogočala nadaljnji razvoj področja zdravja in kakovosti bivanja prebivalstva v čezmejnem območju.

## CILJI PROJEKTA

### Splošni cilji projekta

- Definicija faktorjev zdravega staranja;
- Postavitev vsebinskih in kadrovskih osnov mednarodnega centra odličnosti (SLO-ITA) na področju zdravja starejših občanov;
- Dvig osveščenosti o pomenu zdravega staranja, socialne vključenosti in mobilnosti depriviligiranih populacij (starostniki);
- Zniževanje stroškov zdravstvene oskrbe;
- Povezovanje obstoječih zdravstvenih, socialnih in zasebnih subjektov in izboljšanje njihove medsebojne koordiniranosti.

Programsko področje vsebuje inštitute in univerze, ki dosegajo mednarodno odmevne rezultate na področju medicine, vesoljske fiziologije, kineziologije, nutricionistike in splošnega zdravja. Znano je, da se našeta področja lahko s skupno obravnavo izjemno dopolnjujejo. Naše delo bo temeljilo na združevanju mejnih znanosti, translaciji znanj in tehnologij, kar predstavlja učinkovit instrument in je s tem prioriteta številnih evropskih programov. Zavedamo se, da so modeli zdravja, programi vadbe in prehrane zastareli in, kot kažejo rezultati modernih študij stanja sodobnega življenjskega sloga, neučinkoviti. Preko bogatih raziskovalnih izkušenj, s simulacijo staranja (študije dolgotrajnega ležanja) in s simulacijo zdravega staranja (športniki - starostniki), smo pridobili številna spoznanja, ki so pripravljena na aplikacije v zdravstvene domove, rehabilitacijske centre, domove za ostarele, fitness in wellness centre, športne klube oziroma kar vsakemu slehernemu posamezniku. Kljub temu pa bo potrebno s projektom PANGeA odgovoriti še na nekatera znanstvena vprašanja, ki se nanašajo na vpliv gibalne neaktivnosti na starostnike in s tem na njihovo zdravje. Aplikacije, ki jih bodo zagotavljali splošni cilji, so naslednje:

- Izdelani programi za minimalno in optimalno gibalno/športno aktivnost starostnikov;
- Definirani učinkoviti postopki zbiranja podatkov zdravja različnih ciljnih populacij oziroma populacij različnih patoloških stanj;
- Prenovljeni rehabilitacijski plani za hitrejše okrevanje po operativnih posegih akutnih in kroničnih poškodb kolčnega sklepa;
- Prehrambeni programi za zaviranje katabolnih procesov ob gibalni neaktivnosti;
- Izdelava gibalnih parkov zdravja za starejše.

## Operativni cilji projekta

- Postavitev mobilnega laboratorija zdravja z merilno opremo in usposobljenimi merilci;
- Postavitev spletnega portala (grafični vmesnik, podatkovna baza, portal poročanja in obveščanja) zdravja prebivalcev (v slovenščini, italijanščini in angleščini);
- Opravljenih 1000 meritev faktorjev zdravja ljudi s celotnega programskega območja, s sočasnimi promocijskimi akcijami;
- Prilagoditev in redefinicija faktorjev zdravja iz mladostnikov na starostnike z upoštevanjem okoljskih faktorjev;
- Organizacija 20 brezplačnih izobraževalnih seminarjev za usposabljanje vodij vadbe za starejše ter 12 brezplačnih demonstracijskih srečanj za vadbene programe starostnikov na domu, oboje enakomerno razporejeno po vseh šestih regijah;
- Organizacija šestih znanstvenih sestankov, namenjenih krepitvi konzorcija projekta.

Operativni cilji so definirani v skladu z doseganjem splošnih ciljev projekta. Delovali bomo v smeri povečanja kakovosti življenja prebivalcev programskega območja, pa tudi bolj globalno. Promocija in spodbujanje zdravja, spremljanje zdravja, zdravstveno ukrepanje in preventivno delovanje so ključni mehanizmi, ki bodo programski regiji omogočali koordiniran razvoj zdravstvenega in socialnega življenja. Depreviligrane skupine predstavljajo velik del celotne populacije, ki se vsako leto povečuje. V naših predhodnih lokalnih projektih smo prišli do številnih spoznanj, ki bodo dobila novo dimenzijo, ko jih bomo povezali preko konzorcija.

Projekt je zasnovan v smislu postavljanja kriterijev zdravega staranja, na podlagi povezovanja interdisciplinarnih znanj in izvedbe množičnih meritev na starostnikih, kar bo zagotavljalo osnovo za izgradnjo trajne mreže institucij, ki bo nudila zdravstveno-rehabilitacijske storitve v podporo hitrejšemu okrevanju. Vse to je mogoče prenesti na nivo nacionalnih politik, ki bi s sinergijo trajnih mrež (povezave med bolnišnicami in skupnimi funkcionalnimi centri) na celotnem programskem območju omogočile dvig kakovosti življenja starostnikov.

Projekt je tudi raziskovalno usmerjen, saj se bodo s povezovanjem univerz in drugih javnih raziskovalnih inštitucij (Univerze na Primorskem, Univerze v Trstu, Univerze v Vidmu in Univerze v Ferrari ter Inštituta za varovanje zdravja RS, Splošne bolnišnice Izola in Ortopedske bolnišnice Valdoltra) na podlagi interdisciplinarnih ter mednacionalnih znanj postavljali skupni kriteriji zdravega staranja in ugotovitve bodo prenesene v neposredno prakso v sodelovanju z lokalno skupnostjo (Mestne občine Koper, Ljubljana, Kranj ter Trst in Ferrara). Nadalje pa bomo preko uvedbe intervencijskih programov prispevali k dvigu kakovosti življenja starejših oseb, pri čemer je telesna aktivnost osrednje sredstvo socialne integracije.

## REFERENCES/LITERATURA

**Lutz, W., Sanderson, W., & Scherbov, S. (2008).** The coming acceleration of global population ageing. *Nature*, 451(7179), 716–719.