

ANNEX No. 3

CUP F87G24000180005

DOCTORAL (Ph.D.) COURSE IN:

"INNOVATIVE LIFESTYLE INTERVENTIONS FOR HEALTH PROMOTION"

Doctoral Course Coordinator: Prof. Vilberto Stocchi

Administrative Office: Department of Human Sciences and Quality of Life Promotion

Duration of the Course: 3 years

Total Number of Candidates admitted: 17

Positions with scholarships co-financed by external entities PNRR 630/2024: 5

Positions with scholarships funded by third-party entities: 4

Positions without scholarships: 3

Executive positions (Industrial Doctorate): 5

PROJECT DESCRIPTION:

The Doctoral Course "Innovative lifestyle interventions for health promotion" aims to provide integrated, interdisciplinary training aimed at acquiring the skills and knowledge necessary to carry out high-quality research activities in fields related to the two proposed curricula:

1) Physical Activity and Nutrition (PAN)

2) Health Psychology and Science Communication (HPSC)

Inadequate or insufficient physical activity (in terms of dose-response) and incorrect eating habits are the main modifiable risk factors for chronic non-communicable diseases development, accounting for about 60% of diseases in Europe and Italy, as defined by the Ministry of Health.

Recent studies show that individual-environment interactions, such as personalized physical exercise and proper nutrition, have a greater impact than genetic factors in determining, through epigenetic mechanisms, the response to disease and promoting an improvement in the quality of life.

However, physical activity and nutrition are aspects of human health that most of the population is not sufficiently aware of, especially in terms of preventive measures. Moreover, the new and broader concept of "food quality" goes beyond mere concept of food safety to promote new lifestyles and

consumption patterns. Certification of product and process quality, in various forms, become essential tools in this new scenario.

Risk factors such as poor nutrition and physical inactivity are preventable and require a multidisciplinary approach with a wide range of coordinated interventions at different levels. Such an approach requires the training of new professionals capable of promoting and disseminating the concept of a healthy lifestyle for healthy individuals and offering interventions to prevent the onset of diseases in individuals exposed to risk factors. For individuals with health conditions, professional skills focused on defining an integrated and transversal strategy in collaboration with social and healthcare services and local stakeholders are even more essential. These interventions aim to slow down the progression of the disease, including the behavioral and nutritional aspects, to optimize the response to pharmacological therapy.

The PAN curriculum aims to train professionals with the latest scientific knowledge and technological advancements capable of improving the quality of life through a proper lifestyle. It includes a training pathway structured along several main thematic areas, such as:

- i) the study of non-communicable chronic diseases with a high impact on healthcare and social welfare systems, covering aspects related both to the molecular mechanisms associated with the development of such diseases (with particular reference to the interactions between individual genetic predisposition factors and lifestyle factors) and to prevention and treatment strategies;
- ii) the application of a multidisciplinary approach, in classical and/or translational experimental models, to understand the mechanisms through which nutrition and physical activity can delay and reduce the onset of diseases;
- iii) the adoption of advanced technologies for identifying new functional parameters, in order to more accurately determine the levels of interaction of different diseases with motor output and the basis for increasingly personalized medicine.

The HPSC curriculum aims to train researchers capable of operating within the main thematic areas of Health Psychology, such as:

- i) analyzing psychosocial phenomena as an emergent product of social, discursive, and material interaction among social actors, situated within specific communities of practice and activity systems (such as healthcare organizations, companies, work groups, educational contexts, sports groups);
- ii) understanding the psychological processes and intrapsychic and cultural dynamics that organize individual interaction with different reference contexts - healthcare, political, economic, intercultural, and organizational;
- iii) developing and applying research methodologies aimed at modeling and developing interaction processes between users and structures dedicated to health promotion from a perspective of primary prevention, promotion of healthy lifestyles, and implementation of effective and efficient interaction and communication models.

Finally, collaboration with companies active in the aforementioned research fields will allow the doctoral candidate to carry out their work activities both at the company and at the University, dedicating their working time to the doctoral project (Industrial Doctorate).

COURSE OBJECTIVES:

The course is aimed at training researchers capable of conceiving, designing, implementing, and adapting research programs with applications and implications in the field of health, in accordance with Cluster 1 (HEALTH) of Horizon Europe.

The central theme of the Doctorate transcends multiple disciplines and methodologies included in various sectors and scientific areas, aggregated in a training program that includes common/transversal objectives and specific objectives for the two curricula.

The common objectives include:

- an advanced and rigorous training in methodologies for analyzing quantitative and qualitative data.
- the ability to collaborate with various disciplinary and technical fields traditionally linked to the research interests of health and clinical psychology.
- the ability to establish connections with public and private sectors for disseminating research outcomes.
- the possibility to acquire competencies and adequate knowledge of legislation protecting the treatment of personal data and human health.

Concerning the specific objectives, in the Physical Activity and Nutrition (PAN) curriculum, students will be mentored by international experts in different research fields related to nutrition and motor sciences. Through continuous tutoring, the Ph.D. students will become independent in their research activities, and able to design, and implement decisive and innovative intervention programs to improve people's quality of life by changing their habits.

The training objectives of the PAN curriculum will include advanced knowledge in the biomedical/clinical and technological domains through:

- understanding the mechanisms through which physical activity can influence health and reduce risk factors for chronic non-communicable diseases with a high impact on healthcare and social assistance systems.
- creating new tools and applying advanced technologies to personalize physical exercise adapted to the functional recovery of individuals of different age groups and physical conditions.
- defining methods for evaluating alterations in nutritional status (malnutrition due to excess or deficiency).
- acquiring knowledge of product and process quality certification tools in the agri-food system.
- developing innovative nutritional treatments to improve the clinical management of patients from the perspective of personalized and precision medicine.
- understanding technological and informatics processes useful for the development and application of functional and biomechanical evaluation tools for human performance.

Competencies in machine learning and the organization of customized environments through augmented immersive and mixed reality in the context of bioengineering applied to human movement will also be developed.

The Doctoral curriculum in HPSC aims to provide advanced training for researchers who can work in various thematic areas of Health Psychology.

Specific objectives include:

- studying the interactions between society, nutrition, physical activity, and lifestyles to analyze the media's ability to promote the development of new communication strategies, also through new digital channels and social networks, aimed at promoting a healthy and sustainable lifestyle.
- understanding different theoretical and epistemological paradigms of the research in the field of Health and Clinical Psychology.
- acquiring methodological skills in terms of planning investigations operationally consistent with the adopted theoretical and epistemological paradigms.

The training objectives of the Doctorate courses also include acquiring skills related to research project design and management, presentation and discussion of results, writing reports and scientific publications, as well as an in-depth understanding of intellectual property issues.

The enhancement and dissemination of research results will be guaranteed according to the principles of Open Science and FAIR Data, making research more transparent and promoting collaboration among researchers. These principles facilitate data reuse and future sharing, meet the requirements of funding bodies (Funders' data policies), and increase the visibility and impact of public investments. Dissemination of research products will be encouraged according to a knowledge circulation model that uses two channels to make digital content available according to the standards of open access: self-archiving in open archives and publication in open-access journals.

Finally, the projects in collaboration with companies will aim to strengthen the relationship between the University and the companies, and allow the doctoral candidate to achieve results that are effectively applied in a business context (Industrial Doctorate).

JOB OPPORTUNITIES:

The Doctoral course in Innovative lifestyle interventions for health promotion aims to train professionals capable of working across various sectors, including nutrition, human nutrition, movement, and life sciences, with a multidisciplinary set of knowledge and skills ranging from biomedical and biomechanical to psychological, legal, and economic-commercial fields.

The acquired competencies will enable the Ph.D. to pursue an academic career at universities and research institutes, both public and private, operating at national and international levels. Moreover, opportunities will be available in companies, public administration, specialized institutions, including those operating in the social areas of research, where advanced knowledge and skills in human nutrition, quality of agri-food products, and related certifications (product and process), physical activity, health communication, and the protection of the right to health and personal data treatment are required.

Scientific Research areas of reference: BIOS-06/A; BIOS-07/A; BIOS-09/A; BIOS-10/A; BIOS-11/A; MEDS-02/A; MEDS-03/A; MEDS-05/A; MEDS-08/A; MEDS-12/A; MEDS-24/B; IBIO-01/A; PSIC-02/A; PSIC-04/A; ECON-10/A; GIUR-01/A; GSPS-06/A; MEDF-01/A; MEDF-01/B.

CONTEST POSITIONS AND RESEARCH PROJECTS THEMES:

The candidate must specify in the application the type of scholarship/doctoral position to which they preferentially wish to apply within a specific curriculum, as indicated in the tables below. It is specified that the research activities to be carried out by the doctoral candidate will concern: i) specific research topics for the PNRR Doctoral Scholarships ex Ministerial Decree 630/2024 and the Executive positions (bound scholarships/positions), as indicated in the table; ii) research areas related to the HPSC curriculum for scholarships funded by third parties, as indicated in the table; iii) research areas related to the main topics of the doctoral program and the chosen curriculum for positions without scholarships.

Regarding the research project developed by the candidate, which will be subject to evaluation during the selection process for admission to the doctoral program, it must be consistent with the main topics of the doctoral program and the chosen curriculum, and possibly related to the specific topics of the PNRR Doctoral Scholarships ex Ministerial Decree 630/2024 and the Executive positions.

The candidate should refer to Annex "D" for drafting the research project.

<p>Positions</p>	<p>Doctoral scholarships co-financed by external entities under PNRR D.M. 630/2024-M4C2-Inv.3.3 – innovative PhD (curriculum PAN) CUP: F87G24000180005</p>	<p>n.5</p>	<p>N° 1 Scholarship co-financed by the Institute for Biomedical Research and Innovation of the National Research Council (IRIB-CNR) and linked to the following research topic:</p> <p>‘Role of Physical Exercise, Nutrition, and Supplementation in Disease Prevention and Quality of Life Improvement: Molecular and Cellular Mechanisms’</p> <hr/> <p>N° 1 Scholarship co-financed by the company A.&O. S.r.l. and linked to the following research topic:</p> <p>‘Optimization of Motor Rehabilitation Protocols Post-Surgery in Upper and Lower Limbs through the Evaluation of the Neuromuscular Component’</p> <hr/> <p>N° 1 Scholarship co-financed by the company Sensor Medica S.r.l. and linked to the following research topic:</p> <p>‘The Use of Artificial Intelligence in Human Movement Analysis Systems in Clinical and Sports Settings’</p> <hr/> <p>N° 1 Scholarship co-financed by the company Plab Posturalab Research Institute and linked to the following research topic:</p> <p>‘Devices to Improve Gait and Breathing, Integrated with the Use of Artificial Intelligence’</p> <hr/> <p>N° 1 Scholarship co-financed by the company OLIMPUS S.r.l. and linked to the following research topic:</p> <p>‘Use of Electromyography (EMGs) for the Prevention and Analysis of Muscle Injuries in Sports’</p>
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Positions	Doctoral scholarships funded by third-party entities (HPSC curriculum)	n.4	Research Area 1_HPSC: Health Psychology: Prevention, Health Communication, Therapeutic Adherence
			Research Area 2_HPSC: Health Psychology: Psycho-Educational Interventions to Promote a Healthy Lifestyle

Positions	Unfunded scholarship (Curricula HPSC e PAN)	n.3	The research areas will be related to the general research topics of PAN or HPSC
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Positions	Executive Reserved for Employees (Industrial Doctorate) (PAN curriculum)	Positions Company (Industrial) (PAN)	n.5	<p>N° 1 position reserved for employees of New Penta S.r.l. and linked to the following research topic:</p> <p>‘Role of food technology in optimizing ketogenic nutritional therapy’</p> <p>N° 1 position reserved for employees of A.&O. S.r.l. _ Centro Medico Flaminio and linked to the following research topic:</p> <p>‘Development and application of a program for the prevention of musculoskeletal disorders with the aid of AI’</p> <p>N° 1 position reserved for employees of Tao Technologie S.r.l. and linked to the following research topic:</p> <p>‘The Benefits of Photobiomodulation for Human Health’</p>
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Positions		<p>N° 1 position reserved for employees of OLIMPUS S.r.l. and linked to the following research topic:</p> <p>‘The Effects of Neuromuscular Training on Health and Physical Maturation in Pubertal and Pre-Pubertal Ages in Soccer’</p> <p>N° 1 position reserved for employees of OLIMPUS S.r.l. and tied to the following research topic:</p> <p>‘Functional sports assessment of motor skills for talent selection in sports with the aid of AI’</p>
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I hereby declare that the relevant research topics for the research projects funded by the Doctoral scholarships PNRR ex DM 630/2024 are:

- In line with the objectives and purposes of Regulation (EU) 2021/241, the overall strategy, and the detailed Sheet of the PNRR Component;
- Oriented towards achieving results measured with reference to milestones and targets eventually assigned to the Investment within the terms established by the Plan;
- In compliance with the "do no significant harm" (DNSH) principle under Article 17 of Regulation (EU) 2020/852, in coherence with the technical guidance prepared by the European Commission (Communication of the European Commission 2021/C58/01);
- Suitable for addressing and bridging gender inequalities;
- In support of the participation of women and youth, also in line with the provisions of Decree-Law of May 31, 2021, No. 77 (so-called Simplification Decree), as amended by the conversion law of July 29, 2021, No. 108, concerning the management of the National Recovery and Resilience Plan (PNRR).

Rome, August 6th 2024

COORDINATOR'S SIGNATURE

The Rector Prof. *Vilberto Stocchi*

