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Purpose: The study aims to evaluate the physical activity (PA) and sedentary time (SET) levels of the participants, their state of health, their nutritional habits, and their level of muscle strength. Moreover will study the barriers (intrinsic/extrinsic) to starting PA and will evaluate the willingness of the participants to practice PA.

Methods: From October 2023 to December 2023, 60 volunteer adults related to the Diabetes Clinics of Perugia Hospital, will be involved in this study. The inclusion criteria will be: diagnosis of diabetes; 25–80 years old at screening; ability to walk independently; BMI > 27 kg/m^2 and < 40 kg/m^2. The exclusion criteria will be: the clinical evidence of serious cardiovascular, central nervous system, and musculoskeletal diseases that may limit or contraindicate PA. Several groups will be set up: in addition to the group that refuses to participate in the project (standard care), one group will be involved in standard care + theoretical counseling sessions, and another group will be involved in standard care + theoretical counseling sessions + practical counseling sessions, supervised by specialized kinesiologists. The study was approved by the University Committee of Bioethics of the University of Perugia.

Results: With this study, we expect to enrich the intervention of structured therapeutic education in Diabetology through the contribution of undergraduates and master's graduates in Sciences and Techniques of Sport and Preventive and Adapted PA. Among the expected results, we hypothesize obtaining improvements in the level of PA practiced and the reduction of the sedentary behavior of the participants, increasing the patient's awareness of these health determinants, with consequent positive effects from the metabolic outcomes and benefits that can be maintained in the long term, thanks to the support of a multidisciplinary team, which includes specialized kinesiologists who deal with adapted physical exercise.

Conclusions: It is known that in people with diabetes adherence to regular PA and exercise is generally difficult to achieve, also due to individual/environmental barriers. For this reason, it is of interest to promote a study of a behavioral intervention to evaluate the levels of PA and SET of patients with diabetes, to understand whether standard care is comparable to theoretical and/or practical information sessions on PA and its benefits.

Physical activity, sitting time and motivation-to-change: an Italian survey

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Purpose: This work aims to study the physical activity levels (PAL), sitting time (SIT), and motivation to change (MTC) in a group of volunteer adults participating in an online survey.

Methods: From December 2022 to March 2023, 127 adults (65 men and 62 women, mean age = 40.17 ± 14.83 years), volunteers, were involved in this study, using convenience/availability, sampling. Participants were invited to adhere to an online survey. General information (as health, marital and working status), anthropometric, and self-report questionnaire measures were collected. Data were studied for active/inactive (subjects who referred to practice/do not practice physical activity regularly) and gender subgroups. Finally, the PAL and SIT categories were linked to motivational data.

Results: 54.8% of the participants did not report particular pathologies. 38.2% were single, 35% were married, 65% have a job, and 20.3% were students. 52.8% of participants replied that they regularly exercised. 44.4% play physical activity alone (48.6 men vs. 39.3% women), while 27.0% with friends (31.4 men vs. 21.4% women), and 23.8% with a personal trainer or kinesiologist (20.0% men vs. 28.6% women). Differences were observed both in the energy expenditure due to vigorous PA (men 17.7 ± 30.8 MET-h vs. women 9.8 ± 20.4 MET-h) and in total energy expenditure (53.6 ± 50.2 MET-h for men and $35.5 \pm 33.9.00$ MET-h for women). Regarding SIT, during weekdays (4.4 ± 2.7) and weekends (4.1 ± 2.5), results did not show a difference between gender. Finally, we observe that all the sample presented a high percentage in contemplation status (56.3 ± 28.2), but were observed medium scores also in preparation (53.8 ± 30.3) and maintenance (50.1 ± 38.1) status. A statistically significant difference was observed in the contemplation state (that was more relevant in women, 62 ± 25.7 than in men, 51 ± 29.5). On motivational factors, we find higher average values in men regarding self-efficacy (70.8 ± 20.5 vs. 59.2 ± 23.4), and readiness to change (72.8 ± 22.1 vs. 63.9 ± 24.4).

Conclusions: Given the high levels of inactivity and sedentary lifestyle in the general population and the resistance/barriers (including motivational ones) to the practice of regular physical activity, it is necessary to plan campaigns to raise awareness and monitor the lifestyles of the population from the first decades of adulthood, promoting healthy lifestyle education initiatives to control the risk of non-communicable diseases.

Age-It: ageing well in an aging society. a novel public–private alliance to generate socioeconomic, biomedical and technological solutions for an inclusive Italian Ageing Society

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Purpose: Population ageing is a major twenty-first century phenomenon. The Age-It programme follows the view of the World Health Organization, which promotes the adoption of policies and strategies based on the "active and healthy ageing" framework concept[1]. Age-It is a research programme that aims at generating a quantum leap, making Italy the leading scientific hub in research on ageing, and a state-of-the-art "empirical laboratory" regarding the ageing process. Italy will become a benchmark for other, also non-European, rapidly ageing societies.

Methods: The Age-It Project is funded by the National Research Plan (NRP) 2021–2027. Ten spokes have been created in order to generate a proactive research infrastructure and ten different Universities and national agencies were involved in the project network to develop the different spokes, workpackages and tasks. The University of Eastern Piedmont is in charge of the development of a new integrated pathway that can enable elders (both healthy and at-risk) to better access evidence-based prevention and health promotion interventions. In order to comply with this main goal we started a systematic review (SR) focused on preventive pathways for healthy ageing.

Results: The SR was registered in Prospero (ID: CRD420234310459); a total of N = 9998 titles were retrieved from databases (i.e., Pubmed, Cochrane, Embase, Psychinfo, Cinhal) and screened by a team of reviewers. A total of N = 261 abstarct were screened and N = 66 full text passed in the final screening phase. The results from the last SR step will help the design a new model, defined as Age-It Preventive Pathway. This Age-It preventive pathway is focused on creating different evidence based strategies to improve the healthy status and lifestyles of older people. The substantial framework of this new pathway is the behavioral change model and the concept of "what am i willing to do to improve my health".

Conclusions: This new Age-It Preventive Pathway, based on the SR results, will be fundamental for the definition of specific methods and tools to be implemented in an integrated complex intervention able to close the existing gaps in information, autonomy, adherence, and compliance of older people when accessing preventive and health promotion programs.

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Correlation between visual reaction time and functional mobility in older adults

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Purpose: Falls in older adults are a serious concern which may lead to loss of autonomy and the needs of long-term care. Timed Up and Go test (TUG) is widely used to assess lower limb function, mobility and fall risk. Scientific evidence shows that balance is mainly influenced by the visual system, as a consequence, a reduced visuospatial ability may enhance the risk of fall. Therefore, the aim of this study was to evaluate the correlation between Functional Mobility (FM) and Visuomotor Reaction Time (VRT) in older adults.

Methods: Twenty-three males (age: 67.2 ± 7.0 years, mass: 80.1 ± 12.6 kg, height: 1.68 ± 0.06 m, BMI: 28.3 ± 3.6 kg/m^2) and nineteen females (age 68.7 ± 5.6 years, mass: 65.2 ± 8.7 kg, height 1.51 ± 0.04 m, BMI 28.4 ± 3.7 (kg/m^2) volunteered to participate in this study. FM evaluation was carried out by using the Timed up and go Test (TUG). VRT was assessed with the fitlight trainer system. The VRT test consisted of four sensors spaced 0.30 m apart (total sensor distance 1.20 m) lighting up in random order creating two blocks of thirty stimuli. Spearman's Rho was used to verify the correlation between the FM and VMRT. The correlation analysis was carried out on the whole sample and separately for each gender.

Results: VRT was significantly correlated to a shorter time to perform TUG test (Rho: 0.524; p < 0.01) in the whole sample. Moreover, this correlation was significant when the statistical analysis was carried out separately for each gender. A larger correlation coefficient was observed in women (Rho: 0.658; p = 0.002) compared to men (Rho: 0.447; p = 0.033).

Conclusion: Participants who had lower VRT showed better TUG performance irrespectively of gender. TUG is a simple evaluation consisting of an everyday motor task which relies on orientation in space and time. Future studies should investigate whether the TUG may be used as a tool to estimate VRT thereby assessing fall risk in older adults.

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Comparison of the hr-ve relation during indoor and outdoor cycling

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Purpose: Heart rate frequency (HR) is a parameter widely measured in exercise physiology literature due to its ease of collection and interpretation. In addition, HR provides indirect information about respiratory data, as it is well-correlated with minute ventilation (VE). Typically, this HR-VE relationship has been investigated in highly controlled settings. However, in real life scenario (e.g., cycling to work), HR-VE association needs to be investigated due to the possible influence of external factors that are not typically present in laboratory tests (e.g., exposure to particulate matter). Thus, our aim was to verify and compare the HR-VE relationship in two different testing conditions: indoor cycling (IC) and outdoor cycling (OC).

Methods: In 20 subjects (21.8 ± 2.26 yo), in both first dorsal interosseous (FDI) and tibialis anterior (TA), the envelope of EMG (eEMG) and the force signal (F) were detected. For FF the signal driving the motor control system was the F while the trailing signal was the eEMG. The opposite for NF. Each of the consecutive UGR and DGR lasted 7.5 s. The vertices of the effort triangles were 50% and 100% of F (FF) or eEMG (NF) measured during individual maximal voluntary activity. Each subject performed four different tasks for each muscle: FF50, FF100, NF50, and NF100. The areas beneath the F and eEMG signals were computed for UGR and DGR. Electro-mechanical coupling efficiency (EMCE) was calculated as the ratio between the F/eEMG area ratio during both UGR and DGR. Data from the different tasks were compared using a linear mixed model with Kenward-Roger's methods for post hoc analysis.

Results: For the OC test, the mean VE was 29.68 ± 12.96 L/min, 43.85 ± 20.48 L/min, and 53.61 ± 20.08 L/min for the 60, 70, 80%