majority of respondents rated it positively, with 34.5% considering it "Good" and 39.2% rating it "Very good." Females had slightly lower ratings compared to males, and higher education levels were associated with slightly lower ratings. In terms of adopting health preventive measures and behaviours, approximately 41.3% of respondents showed a likelihood of adopting them. Males generally exhibited a higher likelihood compared to females. Lastly, we found that the perceived quality of the gym positively influenced individuals' likelihood of adopting health preventive measures.

Conclusions: The findings of the present study can contribute to a better understanding of exercise habits and preferences in the context of gym settings and help to establish management and preventive strategies.

What is the effect of a home-based combined training in obese adults?

Galasso Letizia[1], Castelli Lucia[1], Ciorciari Andrea[1], Mulè Antonino[1], Esposito Fabio[1,2], Cavaggioni Luca[3], Bertoli Simona[3, 4], Montaruli Angela[1,2], Roveda Eliana[1,2]

[1]Department of Biomedical Sciences for Health, University of Milan, 20, 133 Milan, Italy, [2]I.R.C.C.S. Ospedale Galeazzi-Sant'Ambrogio, 20, 157 Milan, Italy, [3]IRCCS Istituto Auxologico Italiano, Obesity Unit and Laboratory of Nutrition and Obesity Research, Department of Endocrine and Metabolic Diseases, 20, 145 Milan, Italy, [4]ICANS-DIS, Department of Food Environmental and Nutritional Sciences, University of Milan, 20, 133 Milan, Italy

Purpose: Obesity is a growing public health problem affecting an increasing number of countries worldwide [1], compromising health and leading to significant long-term consequences, including the development of several chronic diseases [2]. The lifestyle habits are important risk factors that potentially can lead to the obesity condition thus the current study aims to assess the effect of a home-based combined training on body mass index (BMI), physical activity condition and sleep behavior in obese adults.

Methods: 20 participants (mean age 56.2 ± 10.8yrs), 4 males (20%) and 16 women (80%) were recruited at IRCCS Istituto Auxologico Italiano (Milan, Italy), and followed a home-based combined training lasting 12 weeks. They filled out the *International Physical Activity Questionnaire* (IPAQ), the *Balance Error Scoring System* (BESS), the *Total Faulty Breathing Scale* (TFBS), the *Five Times Sit To Stand* (5STS), the *Hand Grip Strength Test* (HST) and the *Mini Sleep Questionnaire* (MSQ), to assess, at baseline (PRE) and at the end of the 12 weeks (POST), physical activity levels, postural stability, breathing, strength of lower and upper limbs and sleep, respectively.

Results: Based on the scores of the IPAQ, the participants were classified as inactive (n = 9, 45%) and moderately active (n = 11, 55%). The comparison on the whole sample between the PRE and POST condition revealed significantly lower values of BMI (35.6 ± 5 *vs* 37.9 ± 5.2 kg/m^2, $p < 0.001$), BESS (5.65 ± 2.6 *vs* 9.25 ± 2.4 score, $p < 0.001$), TFBS (5.05 ± 0.22 *vs* 5.95 ± 0.22 score, $p < 0.001$), MSQ (22.4 ± 10.2 *vs* 27.7 ± 10.5 score, $p = 0.006$), and significantly higher values of physical activity levels (1324 ± 626 *vs* 766.6 ± 666.8 METs, $p < 0.001$), HST (27.9 ± 7.7 *vs* 26.2 ± 7.6 kg, $p < 0.001$) and 5STS (7.5 ± 2.6 *vs* 9.5 ± 3 s, $p < 0.001$) in POST condition.

Conclusions: The results show the importance of increasing physical activity practice aimed at maintaining an active lifestyle in order to reduce the onset of obesity. Multidisciplinary interventions including physical activity could be effective in improving the metabolic disorders.

References:

1. National Institute for Health and Clinical Excellence (NICE), Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children. 2006.

2. Agha, M, Agha, R, The rising prevalence of obesity: part A: impact on public health. Int J Surg Oncol (NY), 2017. 2(7): e17

Physical activity moderates the association between chronotype and sleep quality in highly active italian university students

Castelli Lucia[1], Galasso Letizia[1], Mulè Antonino[1], Ciorciari Andrea[1], Esposito Fabio[1,2], Roveda Eliana[1,2], Montaruli Angela[1,2]

[1]Department of Biomedical Sciences for Health, University of Milan, Via Giuseppe Colombo 71,20, 133 Milan, Italy, [2]I.R.C.C.S. Ospedale Galeazzi-Sant'Ambrogio, Milan, Italy

Purpose: Active university students generally report better sleep quality than their inactive mates, as well as Morning- (MT) sleep better than Evening-types (ET) [1–3]. The current study investigates the differences in sleep quality (SQ) in highly active students and the potential moderation effect of physical activity (PA) on the relationship between SQ and chronotype.

Methods: 433 university students at the Sports Science School (University of Milan) (males = 70%; 19.7 ± 1.6yrs) filled in the *Godin-Shepard Leisure-Time Physical Activity Questionnaire* (GSL-TPAQ—LSI as measure unit), *Pittsburgh Sleep Quality Index*, and *Morningness-Eveningness Questionnaire*, to assess PA, SQ, and chronotype. All the participants were highly active and divided into tertiles based on GSL-TPAQ: *low* (LSI < 53), *medium* (LSI > 53 and < 72), and *high* (LSI > 72). A three-way ANOVA (sex, chronotype, and PA effects) and moderation analysis with PA, SQ, and chronotype as the moderator, independent and dependent factors were performed.

Results: 65% of the participants were good sleepers. The chronotype*physical activity interaction was significant ($p = 0.03$), with ET sleeping significantly worse than Neither-types (NT) considering either *low* (ET: 5.4 ± 2.2; NT: 4.5 ± 1.7; $p = 0.04$) or *medium* PA tertile (ET: 5.3 ± 2.1; NT: 4.4 ± 1.9; $p = 0.03$) and compared to MT in *high* PA tertile (ET: 5.7 ± 1.8; MT: 4.4 ± 2; $p = 0.02$). Considering the MT sample, the participants in the low PA tertile slept significantly worse than those in the *high* PA tertile (*low*: 5.6 ± 1.8; *high*: 4.3 ± 2; $p = 0.05$). The moderation analysis was significant ($\beta = 0.4$, $p = 0.02$) at the 50th and 84th percentile ($p < 0.001$, $p < 0.001$, respectively), explaining that, in the *medium–high* PA level, only MT improved the sleep quality while increasing the PA.

Conclusions: University students of Sports Science showed good sleep quality. Their active nature could predispose them to sleep better. MT, rather than ET, university students are those who benefit most from PA to improve their SQ. ET students have to deal with various factors affecting their SQ, and the PA alone is insufficient to smooth out the problems causing bad SQ.

References:

1. Litwic-Kaminska, K, Sleep quality of student athletes and non-athletes. 2020.

2. Silva, VM, Quality of sleep and anxiety are related to circadian preference in university students. 2020. PLoS One.15(9): e0238514.

3. Wang, F, Determinants of sleep quality in college students: A literature review. Explore, 2021. 17(2): 170–177.