

Survey of the prevalence of sports & physical exercise linked to vegetarian diets among students and academic staff at Austrian colleges and universities

Background

Health is one of the major topics for human development and the future in education, matching the UN "Sustainable Development Goals": No. 3 "Good Health and Well-Being" and No. 4 "Quality Education".¹

As the most powerful correlators of chronic/non-communicable disease risk, "physical inactivity" and "excess body weight" are ranked the 4th and 5th risk factors of global mortality, with 6% and 5% of premature deaths, respectively.^{2,3} While evidence shows that in Austrian adults

- 47% have excess body weight (33% overweight and 14% obese)⁴
- 77.8% fail to meet the recommendations for health-related physical activity (PA)⁵ and
- 34% consume fruit and vegetables on a daily basis⁶
- approx. 10% of Austrians (n=880,000) follow vegetarian/vegan diets^{7,8} with the worldwide trend of plant-based diets is rapidly growing due to health and environmental issues.⁹

Based on scientific evidence, lifestyle factors, particularly diet (at best plant-based) and PA (at best daily) are key determinants of health (for good or worse)^{2,10,11,12} and thus are major pillars of sustainable health.^{3,13,14} Additionally, the cumulative health effects of "diet + PA" can be further achieved when these tools are permanently linked to each other.^{2,13,14} There remains, however, limited information on lifestyle patterns of tertiary-level students and academic staff at Austrian colleges and universities, as they are in a critical position of society for adopting, stabilizing, and transferring sustainable healthy behaviors.

Objective

This study aimed for the first time to investigate the health behaviors of college and university students, lecturers and academic staff with a particular focus on the dual approach of "PA, sports & exercise" linked to "kind of diet". As a result of a sustainable healthy lifestyle, a healthy transition from childhood into adulthood appears, and healthier generations will emerge at all societal levels: e.g., teachers, physicians, therapists and health experts, lawyers, politicians, and parents along with multipliers and decision makers.

Methods

Supported by the Federal Ministry of Education, Science and Research (BMBWF), Austria, this multi-disciplinary study was conducted in the 2021 academic summer semester at all 102 Austrian colleges and universities, with a basic sample size of 445,360 Austrians (376,050 students and 69,310 lecturers/academic staff), according to the following details:

- **Approach:** interdisciplinary, cross-sectional, representative, Austria nation-wide
- **Mandatory:** approval (ethics vote) by all the 102 colleges/universities management & principals
- **Data Collection:** 6. April - 31. July 2021
- **Survey:** standardized, online, 2 versions for students vs. academic staff (German language), consisted of 6 sections with details about: (1) Person; (2) PA, sports & exercise; (3) Diet/nutrition; (4) Health & well-being e.g. sleep, stress, relationships, substance abuse; (5) COVID-19; (6) Miscellaneous): <https://uni.science2.school/en/#Questionnaire>
- **Target Information:** quantitative records and consequent qualitative data (potential associations between study variables and age, sex, diet types, PA level, etc., across 2 study populations)
- **Statistical Analysis:** descriptive methods, non-parametric ANOVA, MANOVA/regression analysis, etc.



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World Health Congress 2021 Prague
September 10-12, 2021

Results

A total number of 4,510 students (1.2% of the basic sample size) and 1,043 academic staff (1.5% of the basic sample size) completed the survey.

While quantitative and qualitative findings have not yet been evaluated, based on comparable studies available^{4,5,7,8,15,16} the following results are expected in Austrian students at tertiary educational level:

- (1) 64-90% prevalence of insufficient PA
- (2) 10-30% prevalence of vegetarians/vegans
- (3) 24-36% prevalence of overweight/obesity

Accordingly, it can be assumed that every group at tertiary educational level (20-25 people) includes:

- (1) 2-8 vegetarian and/or vegan students
- (2) 13-18 insufficiently active students (not meeting the minimum recommended level of PA)
- (3) 6-9 overweight and/or obese students

Conclusions

This study is the first to assess the prevalence of vegan/vegetarian diets linked to PA levels in Austrian tertiary educational level, along with lifestyle behaviors of college/university students versus academic staff.

The present study will provide an important contribution to support the fact that the dual approach is cost-effective and safe for improving individual and public health. This work has the potential to reflect and transfer the results obtained practically into the tertiary educational setting (e.g. curricula, exercise/sports, buffet or canteen) and aims to shape sustainably healthy lifestyle behaviors passing from childhood to adulthood. Findings could also be used to develop didactical tools to provide the latest evidence-based knowledge from introductory lectures up to specialized modules and seminars. Decision-makers, authorities, and stakeholders in governmental politics, education and families could benefit from the results by putting this holistic approach into action.

Future perspective: Since food and sports are both considered "medicine", with this study the super formula for better health might be applied in practice:

[plant-based diet] + [daily sports & exercise] = 'super' medicine

References

- (1) WHO (2021). Sustainable Development. <https://sdgs.un.org/goals>. (10.07.2021).
- (2) WHO (2009). Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks. WHO, Geneva, Switzerland.
- (3) Wirtzner, KC (2018). Vegan nutrition: latest boom in health and exercise. In: Grunzeisau AM & Holban AM (ed., 2018). Therapeutic, Probiotic, and Unconventional Foods. Chapter 21: 387-453. Academic Press, Elsevier: 387-391, 409, 412, 417-420, 427.
- (4) Öffentliches Gesundheitsportal Österreichs (2017). https://www.gesundheit.gv.at/aktuelles/archiv/2017/ernaehrungsbericht-2017_01_10_2020
- (5) Guthold R, Stevens GA, et al. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 296 population-based surveys with 1.6 million participants. *Lancet Child Adolescent Health*, 4, 23-35.
- (6) Österreichischer Ernährungsbericht (2017). https://brochuereernervezweckministerium.at/Home/Download_01_10_2020
- (7) STATISTA (2016). Länder mit dem höchsten Anteil von Vegetariern an der Bevölkerung weltweit. <https://de.statista.com/statistik/daten/studie/226127/umfrage/anteil-von-vegetariern-und-vegane-an-der-bevoelkerung-ausgewaehlter-laender-weltweit>. (12.07.2019).
- (8) Triconati & Mohranger (2018). OTS-Presseausendung, EINLADUNG PK: Studienpräsentation: „Sind Vegetarier und Veganer die besseren Konsumenten?“
- (9) Wirtzner KC (2020). Vegan diet in sports and exercise—Health benefits and advantages to athletes and physically active people: A narrative review. *Int J Sports Exer Med*, 4, 165.
- (10) Beagriele R, et al. (2011). UN high-level meeting on non-communicable diseases: addressing four questions. *Lancet*, 378, 449-455.
- (11) WHO (2010). Global Recommendations on Physical Activity for Health. Chapter 2: Physical Activity for health: 9-10.
- (12) Physicians Committee for Responsible Medicine (PCRM) (2018). Frequently Asked Questions About Nutrition. 1. Do you recommend a vegetarian or a vegan diet? www.pcrm.org/health/diets/vegdiets/frequently-asked-questions-about-nutrition#recommendedvegdiets (08.01.2018).
- (13) Institute of Medicine (IOM) (2005). Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. National Academy Press.
- (14) Tuso P (2014). Physician update: total health. *Perm J*, 18, 58-63.
- (15) Vegane Gesellschaft Österreich (2020). <https://www.vegane.at/nebati/#taben-vegetarisch-oder-vegan>. (08.07.2020)
- (16) Allianz Österreich (2020). https://www.ots.at/presseausendung/OTS_20201216_0150048/osterreichs-lebensstil-in-der-corona-krise-jeder-zweite-lebt-zeitlich-bewusst-gesund. (29.01.2021).