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The Good Health Retrospective Data Analysis

Submission date
25/06/2025

Recruitment status
No longer recruiting

Registration date
21/07/2025

Overall study status
Completed

Last Edited
10/12/2025

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Health is a complex area of research involving various areas and the network of interactions between physical, mental, and social well-being domains. Micronutrient status appears to be closely tied to health. Every 4 to 5 years, Austrian nutrition reports publish an assessment of the nutritional status of the population, which also analyzes the supply of essential micronutrients. These reports generally form a basis in the food and nutrition sector, not only on a national level, but also on a European and international level. Continuous publication of the nutrition reports in Austria ensures regular monitoring and access to the nutritional status of the population. However, the initial situation of the individual respondent, including personal metabolism, cannot be taken into account when making mathematical conclusions about the supply status, as the previous nutritional reports have done thus far. For example, using food tables, random error ranges from 2 to 20 % for individual estimates of iron and calcium have been reported. Additionally, food estimations based on frequency reports involve errors up to 90 %, and are typically in the 20-50 % range. Therefore, this study aims to retrospectively analyze the micronutrient status of a large sample of healthy Austrian adults, and to identify possible differences in the micronutrient status based on various factors, solely based on retrospective data analyses in 2025 of an already existing data set.

Who can participate?
Adults 20 to 65 years of age and residing in Austria. Participants are enrolled on a voluntary basis via direct contact with registered physicians in primary care offices. The region for involvement is Austria, nationwide and voluntary in all cases.

What does the study involve?
Analysis of sociodemographic-anthropometric variables: region of residence in Austria, sex, age, body weight, calculated body mass index (BMI), including a questionnaire with self-reported measures for diet pattern; physical activity levels; alcohol and nicotine consumption; supplement intake; medication intake (based on sex, age, substance prevalence); and a blood sample.

What are the possible benefits and risks of participating?
As this is a retrospective study, there is no direct involvement or risk for the patients.

Where is the study run from?
University of Innsbruck (Austria)

When is the study starting and how long is it expected to run for?
The study began in March 2023 and will end in December 2025.

Who is funding the study?
BIOGENA GmbH & Co KG (Austria)

Who is the main contact?
Prof. Dr. rer. nat. Katharina Wirnitzer, katharina.wirnitzer@uibk.ac.at

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Protocol serial number
P6210-045-011

Study information

Scientific Title
Retrospective data analysis of the micronutrient status of healthy adults in Austria and the relationship with health variables

Acronym
GHRDA

Study objectives
This research hypothesized that there are distinct associations between blood micronutrient levels and health indicators in adulthood, including blood lipids and body composition.

Ethics approval required
Ethics approval not required

Ethics approval(s)
Due to the retrospective design, no ethics approval is applicable for the present project. The new medical methods involve treatments after existing conventional medical treatment

methods have been exhausted (Section 30 of the Salzburg Hospitals Act). This situation, in combination with the lack of intervention, blood sampling via registered doctors as standardized medical check-up, anonymization of the data and the fact that no ethics vote would have been legally required for an Austrian project with a similar structure - the Austrian Nutrition Report 2012 - and that this was obtained purely on a voluntary basis, leads to the conclusion that no ethics vote was required for the aforementioned research project.

Primary study design
Observational

Study design
Retrospective data analysis

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Micronutrient status of healthy adults in Austria and the relationship with health variables

Interventions
This project is retrospective, includes no intervention, and utilizes data from an online questionnaire on sociodemographic characteristics as well as a previous blood collection for micronutrient laboratory analysis.

Sociodemographic-anthropometric variables: region of residence in Austria, sex, age, body weight, calculated body mass index (BMI), including a questionnaire with self-reported measures for diet pattern, physical activity levels, alcohol and nicotine consumption, supplement intake, and medication intake (based on sex, age, substance prevalence).

Blood sample: omega-3-index, cholesterol corrected coenzyme q10, folic acid, ferritin, vitamin B12, vitamin D, vitamin B6, molybdenum, manganese, selenium, zinc, copper, magnesium, calcium, potassium, iron, soluble transferrin-receptor, hemoglobin, wrCRP, apolipoprotein A, triglycerides, HDL-C, LDL-C, total cholesterol, homocysteine, leukocytes, erythrocytes, hematocrit, mean corpuscular volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration, thrombocytes, and mean platelet volume.

Intervention Type
Other

Primary outcome(s)
1. Body weight (kg) reported by questionnaire, single cross-sectional assessment
2. Body mass index (BMI; kg/m2) calculated from questionnaire, single cross-sectional assessment
3. Region of residence in Austria reported by questionnaire, single cross-sectional assessment
4. Omega-3-index measured by blood test (% of total Fatty Acids), single cross-sectional assessment
5. Cholesterol measured by blood test (mg/dl), single cross-sectional assessment
6. Adjusted coenzyme q10 (µmol/mmol Chol) measured by blood test, single cross-sectional assessment
7. Folic acid measured by blood test (ng/ml), single cross-sectional assessment
8. Ferritin measured by blood test (ng/ml), single cross-sectional assessment

9. Vitamin B 12 measured by blood test (pg/ml), single cross-sectional assessment
10. Vitamin D measured by blood test (nmol/l), single cross-sectional assessment
11. Vitamin B 6 measured by blood test (µg/l), single cross-sectional assessment
12. Molybdenum measured by blood test (µ/l), single cross-sectional assessment
13. Manganese measured by blood test (µ/l), single cross-sectional assessment
14. Selenium measured by blood test (µ/l), single cross-sectional assessment
15. Zinc measured by blood test (mg/l), single cross-sectional assessment
16. Copper measured by blood test (mg/l), single cross-sectional assessment
17. Magnesium measured by blood test (mg/l), single cross-sectional assessment
18. Calcium measured by blood test (mg/l), single cross-sectional assessment
19. Potassium measured by blood test (mg/l), single cross-sectional assessment
20. Iron measured by blood test (mg/l), single cross-sectional assessment
21. Soluble transferrin-receptor measured by blood test (mg/l), single cross-sectional assessment
22. Hemoglobin measured by blood test (g/dl), single cross-sectional assessment
23. wrCRP measured by blood test (mg/l), single cross-sectional assessment
24. Apolipoprotein A measured by blood test (g/l), single cross-sectional assessment
25. Triglycerides measured by blood test (mg/dl), single cross-sectional assessment
26. HDL-C measured by blood test (mg/dl), single cross-sectional assessment
27. LDL-C measured by blood test (mg/dl), single cross-sectional assessment
28. Homocysteine measured by blood test (µmol/l), single cross-sectional assessment
29. Leukocytes measured by blood test (cells/nl), single cross-sectional assessment
30. Erythrocytes measured by blood test (cells/pl), single cross-sectional assessment
31. Hematocrit measured by blood test (V%), single cross-sectional assessment
32. Mean corpuscular volume measured by blood test (fl), single cross-sectional assessment
33. Mean corpuscular hemoglobin measured by blood test (pg), single cross-sectional assessment
34. Mean corpuscular hemoglobin concentration measured by blood test (g/dl Ery), single cross-sectional assessment
35. Thrombocytes measured by blood test (cells/nl), single cross-sectional assessment
36. Mean platelet volume measured by blood test (fl), single cross-sectional assessment

Key secondary outcome(s)
1. Physical activity levels reported by questionnaire (WHO PA guidelines 150-300 min/week), single cross-sectional assessment
2. Dietary pattern reported by questionnaire, single cross-sectional assessment
3. Diastolic blood pressure assessed during medical check-up examination (mmHg), single cross-sectional assessment
4. Alcohol consumption reported by questionnaire, single cross-sectional assessment
5. Smoking prevalence reported by questionnaire, single cross-sectional assessment
6. Supplement intake reported by questionnaire, single cross-sectional assessment
7. Medication intake reported by questionnaire, single cross-sectional assessment

Completion date
31/12/2025

Eligibility

Key inclusion criteria
1. Reside in Austria
2. Aged at least 20 years
3. No severe health ailments

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
Yes

Age group
Mixed

Lower age limit
20 Years

Upper age limit
65 Years

Sex
All

Total final enrolment
1377

Key exclusion criteria
1. Failing to provide written informed consent
2. Being younger than 20 years or older than 65 years
3. Lactating or pregnant
4. Being diagnosed with a severe health condition (such as diabetes, cardiovascular disease, hypertension, specific allergies, chronic lung disease, liver disease, musculoskeletal disorders, cancer, mental illness, chronic pain, or COVID-19)
5. Taking medications for severe illnesses (whether prescribed or self-administered)
6. Incomplete questionnaires or lacking responses to key questions

Date of first enrolment
25/03/2021

Date of final enrolment
27/04/2021

Locations

Countries of recruitment
Austria

Study participating centre
University of Innsbruck
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6020

Sponsor information

Organisation
BIOGENA GmbH & Co KG

Funder(s)

Funder type
Industry

Funder Name
BIOGENA GmbH & Co KG

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		10/10/2025	10/12/2025	Yes	No