

VIPVIZA - VisualiZation of asymptomatic Atherosclerotic disease for optimum cardiovascular prevention – a randomized controlled trial nested in the Västerbotten Intervention Program

SND-ID: 2020-204-1.

Associated documentation

20240506 Overview over VIPVIZA Data.pdf (388.06 KB)

240522 VIPVIZA_dataset description.pdf (243.82 KB)

Alternative title

VIPVIZA

Creator/Principal investigator(s)

[Margareta Norberg](#) - Umeå University, Department of Epidemiology and Global Health

Ulf Näslund - Umeå University, Public Health and Clinical Medicine

Patrik Wennberg - Umeå University, Family Medicine

Umeå University, Department of Public Health and Clinical Medicine

Research principal

[Umeå University](#) - Department of Public Health and Clinical Medicine

Description

The aim of the project is to develop better methods for prevention of cardiovascular diseases (CVD). It is based on the hypothesis that image-based information on subclinical atherosclerosis (i) increases the precision in the assessment of risk of CVD, (ii) improves communication and understanding of the risk, and as a consequence (iii) the motivation for and adherence to evidence-based pharmacological treatment and lifestyle modification will increase. In addition to conventional risk factor assessment and CVD prevention within the framework of Västerbotten Intervention Program.

3500 healthy participants with low/moderate risk of CVD underwent ultrasound examination of the carotid arteries and were randomized to two groups. In the intervention group, the participants and their doctors received pictorial and graphic information in color about the participant's subclinical atherosclerosis. No information about the ultrasound results was given to the control group. Follow-up after 1, 3 and 6.5 years includes sampling regarding clinical risk factors, blood for biomarker analyses, extensive questionnaires and interviews.

At 3 and 6.5 years the ultrasound examination was repeated and all participants and their doctors were informed about the results. The database also includes register data regarding prescriptions of preventive medication, exposure data for air pollutants, data from health examinations within the VIP 10 and 20 years before VIPVIZA, and for men conscription data.

After 10 years, registry data on endpoints, CVD morbidity and mortality will be collected.

Access to VIPVIZA's data portal and research data from VIPVIZA is possible in collaboration with researchers within the VIPVIZA project. For further information, contact PI Ulf Näslund ulf.naslund@umu.se

Data contains personal data

Yes

Sensitive personal data

Yes

Type of personal data

Medical data at individual level

Code key exists

Yes

Language

[English](#)

Unit of analysis

[Individual/Patient](#)

Population

Healthy subjects aged 40-60 years at low/moderate risk of cardiovascular disease

Study design

Randomised controlled trial (RCT)

Description of study design

Pagmatic open-label, randomised controlled trial with masked evaluators (PROBE)

Sampling procedure

[Other](#)

Subjects having at least one cardiovascular risk factor at the occasion of participation in the Västerbotten INtervention Programme: 1) age 40 years and a first-degree relative with a history of cardiovascular disease at an age younger than 60 years, abdominal obesity, hypertension, diabetes, LDL-cholesterol ≥ 4.5 mmol/l, smoking. 3) Age 60 years.

Exclusion criterion: More than 50% narrowing of the lumen of carotid arteries

Time period(s) investigated

2013 - Ongoing

Biobank is connected to the study

Yes

Number of individuals/objects

Data format / data structure[Numeric](#)**Data collection 1**

- Mode of collection: Registry extract and/or access to biobank sample
- Description of the mode of collection: VIP historical data 20 years before baseline
- Time period(s) for data collection: 1992 – 1998

Data collection 2

- Mode of collection: Registry extract and/or access to biobank sample
- Description of the mode of collection: VIP Historical data 10 years before baseline
- Time period(s) for data collection: 2000 – 2009
- Source of the data: Registers/Records/Accounts

Data collection 3

- Mode of collection: Registry extract and/or access to biobank sample
- Description of the mode of collection: The Swedish Prescribed Drug Register
- Time period(s) for data collection: 2011-01-02 – 2020-09-30

Data collection 4

- Mode of collection: Registry extract and/or access to biobank sample
- Description of the mode of collection: VIP baseline (lifestyle)
- Time period(s) for data collection: 2012-04-11 – 2016-06-01
- Source of the data: Registers/Records/Accounts

Data collection 5

- Mode of collection: Physical measurements and tests
- Description of the mode of collection: Ultrasound baseline
- Time period(s) for data collection: 2013-04-27 – 2016-06-07
- Instrument: - CardioHealth Station, Panasonic Healthcare Corporation of North America, Newark, NJ, USA - A portable ultrasound system with a linear 7MHz transducer, Ultrasound 2D, B-mode settings including depth, gain and focus point were optimized for each participant manually by the sonographer. CardioHealth Station, Panasonic Healthcare Corporation of North America, Newark, NJ, USA
- Source of the data: Research data

Data collection 6

- Mode of collection: Self-administered questionnaire
- Description of the mode of collection: Psychological (Problem management) , baseline
- Time period(s) for data collection: 2013-04-29 – 2016-06-07
- Instrument: GSE, General Self-Efficacy Scale - Self-report measure of general self-efficacy, an individual's belief in his or her capacity to execute behaviors necessary to produce performance attainments
- Instrument: LOT-R Life Orientation Test-Revised - Self-report instrument that assesses one's dispositional level of optimism/pessimism
- Instrument: HADS Hpiostal Anxiety and Depression Scale - Self-assessment form for anxiety (subscale HADS-anxiety, 7 questions) and depression (subscale HADS-depression, 7 questions)

- Instrument: - Self-rated risk of CVD - VAS-scale
- Instrument: Brief Health Literacy Screen (BHLS) - Three questions on self-rated health literacy according to Chew
- Instrument: Brief Cope - Self-report questionnaire designed to measure effective and ineffective ways to cope with a stressful life event
- Source of the data: Research data

Data collection 7

- Mode of collection: Self-administered questionnaire
- Description of the mode of collection: Lifestyle 1 year
- Time period(s) for data collection: 2014-05-08 – 2017-11-01
- Source of the data: Research data

Data collection 8

- Mode of collection: Biological tests
- Description of the mode of collection: Lifestyle 1 year
- Time period(s) for data collection: 2014-05-08 – 2017-11-01
- Data collector: Umeå University
- Source of the data: Research data

Data collection 9

- Mode of collection: Self-administered questionnaire
- Description of the mode of collection: Clinical CVD risk factors and lifestyle habits 3 year
- Time period(s) for data collection: 2016-01-14 – 2019-06-14

Data collection 10

- Mode of collection: Measurements and tests
- Description of the mode of collection: Clinical CVD risk factors and lifestyle habits 3 year
- Time period(s) for data collection: 2016-01-16 – 2019-06-14

Data collection 11

- Mode of collection: Physical measurements and tests
- Description of the mode of collection: Ultrasound 3 year
- Time period(s) for data collection: 2016-09-05 – 2019-05-28
- Instrument: - CardioHealth Station, Panasonic Healthcare Corporation of North America, Newark, NJ, USA - A portable ultrasound system with a linear 7MHz transducer, Ultrasound 2D, B-mode settings including depth, gain and focus point were optimized for each participant manually by the sonographer. CardioHealth Station, Panasonic Healthcare Corporation of North America, Newark, NJ, USA
- Source of the data: Research data

Data collection 12

- Mode of collection: Self-administered questionnaire
- Description of the mode of collection: Psykologiska faktorer och reaktioner på VIPVIZA interventionen (Problemhantering), efter 3 år
- Time period(s) for data collection: 2016-09-05 – 2019-05-28
- Instrument: GSE General Self Efficacy Scale - Self-report measure of general self-efficacy, an individual's belief in his or her capacity to execute behaviors necessary to produce performance attainments

- Instrument: LOT-R Life Orientation Test - Revised - Self-report instrument that assesses one's dispositional level of optimism/pessimism
- Instrument: Brief Cope - Self-report questionnaire designed to measure effective and ineffective ways to cope with a stressful life event
- Instrument: - Specific VIPVIZA questionnaire - Self-rated risk of CVDm Specific self-efficacy, attitudes and norms related to life style habits. To the intervention group: Emotional and cognitive reactions and impact of the intervention
- Instrument: BHLS Brief Health Literacy Screen - Three questions on self-rated health literacy, according to Chew
- Instrument: HADS Hospital Anxiety Depression Scale - Self-assessment form for anxiety (subscale HADS-anxiety, 7 questions) and depression (subscale HADS-depression, 7 questions)
- Instrument: SMBQ Shirom-Melamed Burnout Questionnaire - Questionnaire to evaluate burnout

Data collection 13

- Description of the mode of collection: Included study participants
- Time period(s) for data collection: 2017-01-19 - 2017-01-19
- Instrument: Case Report Form
- Source of the data: Research data

Data collection 14

- Mode of collection: Registry extract and/or access to biobank sample
- Description of the mode of collection: Military service mustering register
- Data collector: Riksarkivet
- Source of the data: Registers/Records/Accounts

Data collection 15

- Mode of collection: Biological tests
- Description of the mode of collection: Included study participants

Geographic spread

Geographic location: [Västerbotten County](#)

Geographic description: Region Västerbotten

Highest geographic unit

Region

Responsible department/unit

Department of Public Health and Clinical Medicine

Contributor(s)

Wolfgang Lohr - Umeå University, Department of Epidemiology and Global Health

Funding 1

- Funding agency: Carl Bennet Ltd, Sweden

Funding 2

- Funding agency: The Swedish Insurance Society

Funding 3

- Funding agency: The Heart Foundation in Northern Sweden

Funding 4

- Funding agency: Swedish Society of Medicine
- Funding agency's reference number: 405351, 503111

Funding 5

- Funding agency: Visare Norr (the four Northern Regions)
- Funding agency's reference number: 465621, 561591, 741711, 931135

Funding 6

- Funding agency: The Swedish Research Council
- Funding agency's reference number: Dnr 521-2013-2708, 2016-01891, 2017-02246

Funding 7

- Funding agency: Region Västerbotten
- Funding agency's reference number: ALFVLL-298001, ALFVLL-643391

Funding 8

- Funding agency: The Heart and Lung Foundation
- Funding agency's reference number: Dnr 20150369, 20170481)

Funding 9

- Funding agency: SKANDIA Risk & Health

Ethics Review

Swedish Ethical Review Authority - Ref. Dnr 2011-441-31M. Amendments: Dnr 2012-463-32M, Dnr 2013-373-32M, Dnr 2016-245-32M, Dnr 2017-95-32M, Dnr 2018-182-32, Dnr 2018-482-32M, Dnr 2019-0691, Dnr Ö 23-2020/3.1

Research area

[Cardiac and cardiovascular systems](#) (Standard för svensk indelning av forskningsämnen 2011)

[Radiology, nuclear medicine and medical imaging](#) (Standard för svensk indelning av forskningsämnen 2011)

[Clinical laboratory medicine](#) (Standard för svensk indelning av forskningsämnen 2011)

[General practice](#) (Standard för svensk indelning av forskningsämnen 2011)

[Public health, global health, social medicine and epidemiology](#) (Standard för svensk indelning av forskningsämnen 2011)

[Medical biotechnology \(focus on cell biology \(incl. stem cell biology\), molecular biology, microbiology, biochemistry or biopharmacy\)](#) (Standard för svensk indelning av forskningsämnen 2011)

[Psychology](#) (Standard för svensk indelning av forskningsämnen 2011)

Keywords

[Randomized controlled trial](#), [Plaque](#), [Arteriosclerosis](#)

Publications

Vanoli, D. (2017). Vascular ultrasound for the assessment of carotid atherosclerosis [PhD dissertation,

Umeå University]. <http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-139538>

ISBN: 978-91-7601-748-7

URN: <urn:nbn:se:umu:diva-139538>

Vanoli, D., Lindqvist, P., Wiklund, U., Henein, M., & Näslund, U. (2013). Fully automated on-screen carotid intima-media thickness measurement : a screening tool for subclinical atherosclerosis. *Journal of Clinical Ultrasound*, 41(6), 333–339. <https://doi.org/10.1002/jcu.22041>

URN: <urn:nbn:se:umu:diva-78429>

DOI: <https://doi.org/10.1002/jcu.22041>

Vanoli, D., Wiklund, U., Lindqvist, P., Henein, M., & Näslund, U. (2014). Successful novice's training in obtaining accurate assessment of carotid IMT using an automated ultrasound system. *European Heart Journal Cardiovascular Imaging*, 15(6), 637–642. <https://doi.org/10.1093/ehjci/jet254>

DOI: <https://doi.org/10.1093/ehjci/jet254>

URN: <urn:nbn:se:umu:diva-91057>

Lindahl, B., Norberg, M., Johansson, H., Lindvall, K., Ng, N., Nordin, M., Nordin, S., Näslund, U., Persson, A., Vanoli, D., & Schulz, P. J. (2020). Health literacy is independently and inversely associated with carotid artery plaques and cardiovascular risk. *European Journal of Preventive Cardiology*, 27(2), 209–215. <https://doi.org/10.1177/2047487319882821>

DOI: <https://doi.org/10.1177/2047487319882821>

URN: <urn:nbn:se:umu:diva-165791>

Nyman, E., Vanoli, D., Näslund, U., & Grönlund, C. (2020). Inter-sonographer reproducibility of carotid ultrasound plaque detection using Mannheim consensus in subclinical atherosclerosis. *Clinical Physiology and Functional Imaging*, 40(1), 46–51. <https://doi.org/10.1111/cpf.12602>

DOI: <https://doi.org/10.1111/cpf.12602>

URN: <urn:nbn:se:umu:diva-165443>

Näslund, U., Ng, N., Lundgren, A., Fhärm, E., Grönlund, C., Johansson, H., Lindahl, B., Lindahl, B., Lindvall, K., Nilsson, S. K., Nordin, M., Nordin, S., Nyman, E., Rocklöv, J., Vanoli, D., Weinehall, L., Wennberg, P., Wester, P., & Norberg, M. (2019). Visualization of asymptomatic atherosclerotic disease for optimum cardiovascular prevention (VIPVIZA) : a pragmatic, open-label, randomised controlled trial. *The Lancet*, 393(10167), 133–142. [https://doi.org/10.1016/S0140-6736\(18\)32818-6](https://doi.org/10.1016/S0140-6736(18)32818-6)

DOI: [https://doi.org/10.1016/S0140-6736\(18\)32818-6](https://doi.org/10.1016/S0140-6736(18)32818-6)

URN: <urn:nbn:se:umu:diva-154318>

Nyman, E., Lindqvist, P., Näslund, U., & Grönlund, C. (2018). Risk marker variability in subclinical carotid plaques based on ultrasound is influenced by cardiac phase, echogenicity and size. In *Ultrasound in Medicine and Biology* (Vol. 44, Issue 8, pp. 1742–1750).

<https://doi.org/10.1016/j.ultrasmedbio.2018.03.013>

DOI: <https://doi.org/10.1016/j.ultrasmedbio.2018.03.013>

URN: <urn:nbn:se:umu:diva-150664>

SwePub: <oai:DiVA.org:umu-150664>

Sjölander, M., Carlberg, B., Norberg, M., Näslund, U., & Ng, N. (n.d.). Prescription of Lipid-Lowering and Antihypertensive Drugs Following Pictorial Information About Subclinical Atherosclerosis A Secondary Outcome of a Randomized Clinical Trial. *JAMA Netw Open*. 2021;4(8):e2121683.

<https://doi.org/10.1001/jamanetworkopen.2021.21683>

DOI: <https://doi.org/10.1001/jamanetworkopen.2021.21683>

URN: <urn:nbn:se:umu:diva-187088>

SwePub: [oai:gup.ub.gu.se/307669](https://oai.gup.ub.gu.se/307669)

Bengtsson, A., Lindvall, K., Norberg, M., & Fhärm, E. (2021). Increased knowledge makes a difference!—general practitioners' experiences of pictorial information about subclinical atherosclerosis for primary prevention: an interview study from the VIPVIZA trial. *Scandinavian Journal of Primary Health Care*, 39(1), 77-84. <https://doi.org/10.1080/02813432.2021.1882083>

URN: [urn:nbn:se:umu:diva-181026](https://nbn-resolving.org/urn:nbn:se:umu:diva-181026)

DOI: <https://doi.org/10.1080/02813432.2021.1882083>

SwePub: [oai:DiVA.org:umu-181026](https://oai.DIVA.org/umu-181026)

Rohlén, R., Jiang, B., Nyman, E., Wester, P., Näslund, U. and Grönlund, C. (2023), Interframe Echo Intensity Variation of Subregions and Whole Plaque in Two-Dimensional Carotid Ultrasonography. *J Ultrasound Med*, 42: 1033-1046. <https://doi.org/10.1002/jum.16114>

URN: [urn:nbn:se:umu:diva-200460](https://nbn-resolving.org/urn:nbn:se:umu:diva-200460)

DOI: <https://doi.org/10.1002/jum.16114>

SwePub: [oai:DiVA.org:umu-200460](https://oai.DIVA.org/umu-200460)

Nilsson Sommar, J., Norberg, M., Grönlund, C., Segersson, D., Näslund, U., & Forsberg, B. (2022). Long-term exposure to particulate air pollution and presence and progression of carotid artery plaques : A northern Sweden VIPVIZA cohort study. In *Environmental Research* (No. 113061; Vol. 211). <https://doi.org/10.1016/j.envres.2022.113061>

URN: [urn:nbn:se:umu:diva-192989](https://nbn-resolving.org/urn:nbn:se:umu:diva-192989)

DOI: <https://doi.org/10.1016/j.envres.2022.113061>

SwePub: [oai:DiVA.org:umu-192989](https://oai.DIVA.org/umu-192989)

Bengtsson, A., Norberg, M., Ng, N., Carlberg, B., Grönlund, C., Hultdin, J., Lindahl, B., Lindahl, B., Nordin, S., Nyman, E., Wennberg, P., Wester, P., & Näslund, U. (2021). The beneficial effect over 3 years by pictorial information to patients and their physician about subclinical atherosclerosis and cardiovascular risk : results from the VIPVIZA randomized clinical trial. In *American Journal of Preventive Cardiology* (No. 100199; Vol. 7). <https://doi.org/10.1016/j.ajpc.2021.100199>

URN: [urn:nbn:se:umu:diva-186686](https://nbn-resolving.org/urn:nbn:se:umu:diva-186686)

DOI: <https://doi.org/10.1016/j.ajpc.2021.100199>

SwePub: [oai:DiVA.org:umu-186686](https://oai.DIVA.org/umu-186686)

Holmberg, H., Sjölander, M., Glader, E.-L., Näslund, U., Carlberg, B., Norberg, M., & Sjölander, A. (2022). Time to initiation of lipid-lowering drugs for subclinical atherosclerosis : sub-study of VIPVIZA randomized controlled trial, with single-arm cross-over. In *European Heart Journal Open* (No. oeac003; Vol. 2, Issue 1). <https://doi.org/10.1093/ehjopen/oeac003>

DOI: <https://doi.org/10.1093/ehjopen/oeac003>

URN: [urn:nbn:se:umu:diva-201549](https://nbn-resolving.org/urn:nbn:se:umu:diva-201549)

SwePub: [oai:DiVA.org:umu-201549](https://oai.DIVA.org/umu-201549)

Kovrov, O., Landfors, F., Saar-Kovrov, V., Näslund, U., & Olivecrona, G. (2022). Lipoprotein size is a main determinant for the rate of hydrolysis by exogenous LPL in human plasma. In *Journal of Lipid Research* (No. 100144; Vol. 63, Issue 1). <https://doi.org/10.1016/j.jlr.2021.100144>

URN: [urn:nbn:se:umu:diva-191885](https://nbn-resolving.org/urn:nbn:se:umu:diva-191885)

DOI: <https://doi.org/10.1016/j.jlr.2021.100144>

SwePub: [oai:DiVA.org:umu-191885](https://oai.DIVA.org/umu-191885)

Schulz, P. J., Lindahl, B., Hartung, U., Näslund, U., Norberg, M., & Nordin, S. (2022). The right pick : Does a self-assessment measurement tool correctly identify health care consumers with inadequate

health literacy? In Patient Education and Counseling (Vol. 105, Issue 4, pp. 926–932).

<https://doi.org/10.1016/j.pec.2021.07.045>

URN: <urn:nbn:se:umu:diva-186967>

DOI: <https://doi.org/10.1016/j.pec.2021.07.045>

SwePub: <oai:DiVA.org:umu-186967>

Andersson, E. M., Liv, P., Nordin, S., Näslund, U., & Lindvall, K. (2024). Does a multi-component intervention including pictorial risk communication about subclinical atherosclerosis improve perceptions of cardiovascular disease risk without deteriorating efficacy beliefs? In Social Science and Medicine (No. 116530; Vol. 341). <https://doi.org/10.1016/j.socscimed.2023.116530>

URN: <urn:nbn:se:umu:diva-218586>

DOI: <https://doi.org/10.1016/j.socscimed.2023.116530>

SwePub: <oai:DiVA.org:umu-218586>

Salvador, D., Liv, P., Norberg, M., Pahud de Mortanges, A., Saner, H., Glisic, M., Nicoll, R., Muka, T., Nyman, E., Bano, A., & Näslund, U. (2023). Changes in fasting plasma glucose and subclinical atherosclerosis: a cohort study from VIPVIZA trial. In Atherosclerosis.

<https://doi.org/10.1016/j.atherosclerosis.2023.117326>

DOI: <https://doi.org/10.1016/j.atherosclerosis.2023.117326>

URN: <urn:nbn:se:umu:diva-216637>

SwePub: <oai:DiVA.org:umu-216637>

Nordin, S., Norberg, M., Braf, I., Johansson, H., Lindahl, B., Lindvall, K., Nordin, M., Nyman, E., Vallström, C., Wennberg, P., Liv, P., & Näslund, U. (2023). Associations between emotional support and cardiovascular risk factors and subclinical atherosclerosis in middle-age. In Psychology and Health. <https://doi.org/10.1080/08870446.2023.2286296>

DOI: <https://doi.org/10.1080/08870446.2023.2286296>

URN: <urn:nbn:se:umu:diva-217344>

SwePub: <oai:DiVA.org:umu-217344>

Bengtsson, A., Nyman, E., Grönlund, C., Wester, P., Näslund, U., Fhärm, E., & Norberg, M. (2023). Multi-view carotid ultrasound is stronger associated with cardiovascular risk factors than presence of plaque or single carotid intima media thickness measurements in subclinical atherosclerosis. In The International Journal of Cardiovascular Imaging (Vol. 39, Issue 8, pp. 1461–1471).

<https://doi.org/10.1007/s10554-023-02868-0>

DOI: <https://doi.org/10.1007/s10554-023-02868-0>

URN: <urn:nbn:se:umu:diva-209575>

SwePub: <oai:DiVA.org:umu-209575>

Ali, H., Nyman, E., Näslund, U., & Grönlund, C. (2023). Translation of atherosclerotic disease features onto healthy carotid ultrasound images using domain-to-domain translation. In Biomedical Signal Processing and Control (No. 104886; Vol. 85). <https://doi.org/10.1016/j.bspc.2023.104886>

URN: <urn:nbn:se:umu:diva-206526>

DOI: <https://doi.org/10.1016/j.bspc.2023.104886>

SwePub: <oai:DiVA.org:umu-206526>

Fortuin-de Smidt, M., Bergman, F., Grönlund, C., Hult, A., Norberg, M., Wennberg, M., & Wennberg, P. (2023). Early adulthood exercise capacity, but not muscle strength, associates with subclinical atherosclerosis 40 years later in Swedish men. In European Journal of Preventive Cardiology (Vol. 30, Issue 5, pp. 407–415). <https://doi.org/10.1093/eurjpc/zwad007>

URN: <urn:nbn:se:umu:diva-206445>

DOI: <https://doi.org/10.1093/eurjpc/zwad007>

SwePub: oai:DiVA.org/umu-206445

Andersson, E. M., Johansson, H., Nordin, S., & Lindvall, K. (2022). Cognitive and emotional reactions to pictorial-based risk communication on subclinical atherosclerosis : a qualitative study within the VIPVIZA trial. In Scandinavian Journal of Primary Health Care (Vol. 41, Issue 1, pp. 69–80).

<https://doi.org/10.1080/02813432.2023.2178850>

URN: [urn:nbn:se:umu:diva-205734](https://nbn-resolving.org/urn:nbn:se:umu:diva-205734)

DOI: <https://doi.org/10.1080/02813432.2023.2178850>

SwePub: oai:DiVA.org/umu-205734

Nyman, E., Grönlund, C., Vanoli, D., Liv, P., Norberg, M., Bengtsson, A., Wennberg, P., Wester, P., & Näslund, U. (2023). Reduced progression of carotid intima media thickness by personalised pictorial presentation of subclinical atherosclerosis in VIPVIZA : A randomised controlled trial. In Clinical Physiology and Functional Imaging (Vol. 43, Issue 4, pp. 232–241). <https://doi.org/10.1111/cpf.12811>

DOI: <https://doi.org/10.1111/cpf.12811>

URN: [urn:nbn:se:umu:diva-204766](https://nbn-resolving.org/urn:nbn:se:umu:diva-204766)

SwePub: oai:DiVA.org/umu-204766

Nyman, E., Liv, P., Wester, P., Näslund, U., & Grönlund, C. (2023). Carotid wall echogenicity at baseline associates with accelerated vascular aging in a middle-aged population. In The International Journal of Cardiovascular Imaging (Vol. 39, Issue 3, pp. 575–583).

<https://doi.org/10.1007/s10554-022-02760-3>

URN: [urn:nbn:se:umu:diva-204476](https://nbn-resolving.org/urn:nbn:se:umu:diva-204476)

DOI: <https://doi.org/10.1007/s10554-022-02760-3>

SwePub: oai:DiVA.org/umu-204476

Andersson, E. M., Lindvall, K., Wennberg, P., Johansson, H., & Nordin, S. (2024). From risk communication about asymptomatic atherosclerosis to cognitive and emotional reactions and lifestyle modification. In BMC Psychology (No. 47; Vol. 12, Issue 1).

<https://doi.org/10.1186/s40359-023-01467-x>

URN: [urn:nbn:se:umu:diva-218585](https://nbn-resolving.org/urn:nbn:se:umu:diva-218585)

DOI: <https://doi.org/10.1186/s40359-023-01467-x>

SwePub: oai:DiVA.org/umu-218585

Accessibility level

Access to data through an external actor

Access to data is restricted

Homepage

[VIPVIZA](#)

Contact for questions about the data

Ulf Näslund

ulf.naslund@umu.se

Related research data in SND's catalogue

[Northern Sweden Diet Database \(NSDD\)](#)

[NSHDS-VIP](#)

Download metadata

[DataCite](#)

[DDI 2.5](#)

[DDI 3.3](#)

[DCAT-AP-SE 2.0](#)

[JSON-LD](#)

[PDF](#)

[Citation \(CSL\)](#)