	Název článku	Autoři	Journal	Anotace
1.	Kardiovize Brno 2030, a prospective cardiovascular health study in Central Europe: Methods, baseline findings and future directions	Movsisyan Narine; Vinciguerra Manlio; Lopez-Jimenez Francisco; Kunzová Šárka; Homolka Martin; Jarešová Jana; Cífková Renata; Sochor Ondřej	European Journal of Preventive Cardiology	Background: Atherosclerotic cardiovascular disease is highly prevalent in Eastern and Central Europe, where the incidence is the highest in the world. The Kardiovize Brno 2030 study was designed as a prospective cohort study to investigate the complex relationships of cardiovascular disease and outcomes with a range of biological, psychosocial, environmental, behavioral, and economic factors in an urban population of the Czech Republic. Methods: We randomly selected a 1% sample of the city of Brno residents aged 25-64 years stratified by sex and age. The study assessed traditional and novel cardiovascular disease risk factors, including sociodemographic and smoking status, physical activity, diet, depression, stress, body fat, cardio-ankle vascular index, and intima media thickness, complemented by blood tests; biological samples were stored for future analyses. Results: The study enrolled 2160 participants (54.8% women), with a mean age of 47 11.3 years. They were mostly full-time employed (75.6%) and married (62.1%). Hyperlipidemia was highly prevalent (70.7% in men, and 67.1% in women, NS). Hypertension and diabetes mellitus were more prevalent in men than in women (54.3% vs. 38.7% and 7.1% vs. 3.5%, respectively, $P < 0.001$ for both). A total of 25.3% of men and 21.9% of women smoked, whereas 20.0% and 43.0% of men and 18.1% and 26.6% of women were obese and overweight, respectively. Conclusions: Cardiovascular risk factors are highly prevalent in the city of Brno, an urban population from Central Europe. The Kardiovize Brno 2030 study will provide unique multidimensional and longitudinal cardiovascular health data from a region where epidemiological studies are scarce. Link to the article: https://journals.sagepub.com/doi/abs/10.1177/2047487317726623
2.	Association of Cardiovascular Health with Epicardial Adipose Tissue and Intima Media Thickness: The Kardiovize Study	Hrušková Jana; Maugeri Andrea Giuseppe; Podrouzkova Helena; Stipalova Tatiana; Jakubík Juraj; Barchitta Martina;	JOURNAL OF CLINICAL MEDICINE	Background: Intima-media thickness (IMT) has been proposed as a measurement of subclinical atherosclerosis and has been associated with cardiovascular disease (CVD). Epicardial adipose tissue (EAT) is a fat depot between the pericardium and myocardium and has been associated with coronary atherosclerosis. The relationship between IMT and EAT thickness has not been reported before. We investigated the relationship between EAT thickness, IMT, CVD risk factors, and ideal cardiovascular health (CVH) metrics using subjects from the Kardiovize Brno 2030 cohort study, a random urban sample population in Central Europe. Methods: We studied

		Medina-Inojosa Jose R.; Homolka Martin; Agodi Antonella; Kunzová Šárka; Sochor Ondřej; Lopez-Jimenez Francisco; Vinciguerra Manlio		102 individuals (65 males) aged 25-64 years (median = 37 years) with no current or past CVD history. We measured IMT using a vascular ultrasound and EAT thickness using transthoracic echocardiography, and collected data on anthropometric factors, CVD risk factors, and CVH score. Correlation tests and multiple linear regression models were applied. Results: In the age- and gender-adjusted model, we demonstrated that, among CVD risk factors, only BMI was significantly and positively associated with EAT thickness (= 0.182, SE = 0.082, p = 0.030), while no significant associations with IMT were evident. Although both EAT thickness and IMT were negatively correlated with CVH score (r = -0.45, p < 0.001, and r = -0.38, p < 0.001, respectively), we demonstrated that overall CVH score (beta = -0.262; SE = 0.077; p = 0.001), as well as BMI (beta = -1.305; SE = 0.194; p < 0.001) and blood pressure CVH metrics (beta = -0.607; SE = 0.206; p = 0.004) were significantly associated with EAT thickness but not with IMT. Conclusions: Our study is important as it demonstrated for the first time that CVH is associated with EAT thickness. Interestingly, this relationship seems to be dependent on BMI and blood pressure rather than on the other CVH metrics. However, outcome-driven studies are required to confirm these findings. Link to the article: https://www.mdpi.com/2077-0383/7/5/113/htm
3.	Association of Dietary Patterns with Metabolic Syndrome: Results from the Kardiovize Brno 2030 Study	Agodi Antonella; Maugeri Andrea Giuseppe; Kunzová Šárka; Sochor Ondřej; Bauerová Hana; Kiácová Nikola; Barchitta Martina; Vinciguerra Manlio	Nutrients	Although metabolic syndrome (MetS) could be handled by lifestyle interventions, its relationship with dietary patterns remains unclear in populations from Central Europe. Using data from the Kardiovize Brno cohort, the present study aims to identify the main dietary patterns and to evaluate their association with MetS risk in a random urban sample from Brno, Czech Republic. In a cross-sectional study of 1934 subjects aged 25-65 years (44.3% male), dietary patterns were derived by food frequency questionnaire (FFQ) administration and principal component analysis. Metabolic syndrome was defined according to the International Diabetes Federation statement. Logistic regression models were applied. High adherence to the prudent dietary pattern was associated with lower odds of abdominal obesity, abnormal glucose concentration, and MetS. By contrast, high adherence to the western dietary pattern was associated with higher odds of abnormal glucose, triglycerides and blood pressure levels. Whilst our results confirm the deleterious effect of a western dietary pattern on several metabolic risk factors, they also indicate that the

				consumption of a diet rich in cereals, fish, fruit and vegetables is associated with a healthier metabolic profile. However, further prospective research is warranted to develop and validate novel potential preventive strategies against MetS and its complications. Link to the article: https://www.mdpi.com/2072-6643/10/7/898/htm
4.	Dietary antioxidant intake decreases carotid intima media thickness in women but not in men: A cross-sectional assessment in the Kardiovize study	Maugeri Andrea Giuseppe; Hrušková Jana; Jakubík Juraj; Kunzová Šárka; Sochor Ondřej; Barchitta Martina; Agodi Antonella; Bauerová Hana; Medina-Inojosa Jose R.; Vinciguerra Manlio	Free Radical Biology and Medicine	Objective: Atherosclerosis is a major contributor to cardiovascular disease, with a higher burden on men than women during the occupational age. Intake of individual dietary antioxidants is inversely associated with risk of atherosclerosis development. We aimed to understand the relationship between dietary composite antioxidant intake and the carotid intima media thickness (cIMT), which is a proxy of atherosclerosis progression. Approach and results: We performed a cross-sectional analysis that included 894 members of the Kardiovize cohort, a random urban sample population. Nutrient intakes were derived by 24-h recall. We constructed a composite dietary antioxidant index (CDAI), based on zinc, selenium, vitamin A, vitamin C, vitamin E and carotenoids. We considered the CDAI as the exposure variable and primary outcomes were the following cardio-metabolic parameters: body mass index (BMI), waist-to-hip ratio (WHR), body fat mass (BFM), systolic and diastolic blood pressure, triglycerides, HDL and LDL cholesterol, and cIMT. Associations and interactions between variables were evaluated using linear regression analyses. In women, a 1 mg increase in dietary intake of zinc or vitamin E decreased the cIMT by 3.36 and 1.48 mu m, respectively, after adjusting for covariates. Similarly, the cIMT decreased by 4.72 mu m for each one-unit increase in CDAI (p=0.018). Beyond CDAI, age (beta=3.61; SE=0.89; p=0.001), systolic blood pressure (beta=1.30; SE=0.59; p=0.029) and triglycerides (beta=22.94; SE=10.09; p=0.024) were significant predictors of cIMT in women. By contrast, we found no association between CDAI and cIMT in men. Conclusions: CDAI negatively associates with cIMT in women. These findings indicate that combined intake of nutrients with anti-oxidant properties might prevent the initiation and progression of arterial lesions in a sex-specific manner. Link to the article: https://www.sciencedirect.com/science/article/abs/pii/S089158491831757X

5.	How dietary patterns affect left ventricular structure, function and remodelling: evidence from the Kardiovize Brno 2030 study	Maugeri Andrea Giuseppe; Hrušková Jana; Jakubík Juraj; Hlinomaz Ota; Medina-Inojosa Jose R; Barchitta Martina; Agodi Antonella; Vinciguerra Manlio	Scientific Reports	Little is still known about the effect of dietary patterns on left ventricular hypertrophy (LVH). Here, we derived dietary patterns by principal component analysis (PCA) and evaluated their association with LV structure, function, and remodelling. Our cross-sectional study included 438 members (aged 25-65 years; 59.1% women) of the Kardiovize Brno 2030 with no history of cardiovascular disease. Two dietary patterns were derived using PCA, namely prudent and western. Primary outcomes were echocardiographic parameters and LV geometric patterns, such as concentric LV remodelling (cLVR), concentric LVH (cLVH), and eccentric LVH (eLVH). Interestingly, participants with high adherence to the prudent dietary pattern had decreased odds of cLVH after adjustment for socio-demographic, clinical and behavioral covariates (OR = 0.24, 95%CI = 0.08-0.88; p = 0.031). By contrast, several echocardiographic parameters increased with increasing adherence to the western dietary pattern, which resulted in higher odds of cLVH among participants with high adherence (OR = 5.38, 95% CI = 1.17-23.58; p = 0.035). Although our findings may have an immediate relevance for public-health strategies, further large-size prospective studies should be encouraged to better understand the observed association and their causality. Link to the article: https://www.nature.com/articles/s41598-019-55529-5.pdf
6.	The association of social and behavioral factors with dietary risks in adults: Evidence from the Kardiovize Brno 2030 study	Maugeri Andrea Giuseppe; Barchitta M; Kunzová Šárka; Bauerová Hana; Agodi A; Vinciguerra Manlio	Nutrition, metabolism, and cardiovascular diseases	Background and aims: Uncovering the main determinants of diet quality is one of the greatest challenges for Public Health, since it could guide future strategies and interventions against cardiovascular diseases (CVDs). The present cross-sectional analysis of the Kardiovize cohort evaluates the prevalence of dietary risk factors for CVDs and their association with social and behavioural characteristics in a random sample of 1536 adults (aged 25-64 years) from Brno, Czech Republic. Methods and results: A face-to-face health interview guided by structured questionnaires was carried out on socio-demographic characteristics (age, sex, educational level, employment, marital status, income, and household size) and behaviours (smoking status, physical activity, and sleep habits). Twelve dietary risk factors covered by the Global Burden of Diseases comparative risk assessment framework were assessed using a Food Frequency

				Questionnaire. In general, we observed that the consumption of nearly all healthy foods and nutrients was suboptimal, and that it was also aggravated by high intake of foods and nutrients that constituted dietary risk factors. Moreover, we found several associations of social and behavioural characteristics with specific dietary risk factors. Particularly, being male (beta = 0.466; SE = 0.079; p <0.001), increasing household size (f3 = 0.130; SE = 0.047; p = 0.006), low income = 0.192; SE = 0.091; p = 0.035), and decreasing physical activity level (f3 = 0.172; SE = 0.054; p = 0.002) were associated with increasing number of dietary risk factors. Conclusion: Thus, our study raises an urgent need for Public Health strategies promoting healthy eating in adulthood, which should be based on traditional and novel determinants of dietary risk. Link to the article: https://www.sciencedirect.com/science/article/abs/pii/S0939475320300570?via%3Dihub
7.	Prevalence of ideal cardiovascular health in a Central European community: results from the Kardiovize Brno 2030 Project	Medina-Inojosa J; Vinciguerra Manlio; Maugeri Andrea Giuseppe; Kunzová Šárka; Sochor Ondřej; Movsisyan Narine; Geda Y; Stokin Gorazd Bernard; Lopez-Jimenez F	European Journal of Preventive Cardiology	Mortality from cardiovascular disease (CVD) inCentral and Eastern Europe, particularly from coron-ary heart disease (CHD) and stroke, is the highest in theworld, in spite of favourable global trends in thepast few decades.1-3To prevent CVD, the AmericanHeart Association (AHA) has recommended assessingseven modifiable risk behaviours and factors using thecardiovascular health (CVH) score in a strategic plan topromote and monitor the CVH goals by the year 2020.4To date, little is known about contemporary CVH inthe Central and Central Eastern European regions.In the present study we aimed to describe the preva-lence of ideal CVH in an urban population in the city ofBrno, Czech Republic. Link to the article: https://journals.sagepub.com/doi/10.1177/2047487319834875
8.	Associations between high triglycerides and arterial stiffness in a population-based sample: Kardiovize Brno 2030 study	Pavlovska Iuliia; Kunzová Šárka; Jakubík Juraj; Hrušková Jana; Skladaná Mária; Rivas Serna Irma Magaly;	LIPIDS IN HEALTH AND DISEASE	Background The term arterial stiffness (ArSt) describes structural changes in arterial wall related to the loss of elasticity and is known as an independent predictor of cardiovascular diseases (CVD). The evidence relating to ArSt and triglycerides (TG) shows contradictory results. This paper means to survey the association between high TG and ArSt, utilizing the cardio-ankle vascular index (CAVI). Methods Subjects aged between 25 and 64 years from a random population-based sample were evaluated

		Medina-Inojosa Jose R; Lopez-Jimenez Francisco; Vysoky Robert; Geda Yonas E; Stokin Gorazd Bernard; Gonzalez Rivas Juan Pablo		between 2013 and 2016. Data from questionnaires, blood pressure, anthropometric measures, and blood samples were collected and analyzed. CAVI was measured using VaSera VS-1500 N devise. Subjects with a history of CVD or chronic renal disease were excluded. Results One thousand nine hundred thirty-four participants, 44.7% of males, were included. The median age was 48 (Interquartile Range [IQR] 19) years, TG levels were 1.05 (0.793) mmol/L, and CAVI 7.24 (1.43) points. Prevalence of high CAVI was 10.0% (14.5% in males and 6.4% in females;P < 0.001) and prevalence of hypertriglyceridemia was 20.2% (29.2% in males and 13% in females,P < 0.001). The correlation between TG and CAVI was 0.136 (P < 0.001). High CAVI values were more prevalent among participants with metabolic syndrome (MetS), high blood pressure, dysglycemia, abdominal obesity, high LDL-cholesterol (LDL-c), and high total cholesterol. Using binary regression analysis, high TG were associated with high CAVI, even after adjustment for other MetS components, age, gender, smoking status, LDL-c, and statin treatment (beta = 0.474, OR = 1.607, 95% CI = 1.063-2.429,P = 0.024). Conclusion TG levels were correlated with ArSt, measured as CAVI. High TG was associated with high CAVI independent of multiple cardiometabolic risk factors. Awareness of the risks and targeted treatment of hypertriglyceridemia could further benefit in reducing the prevalence of CVD and events. Link to the article: https://lipidworld.biomedcentral.com/articles/10.1186/s12944-020-01345-0
9.	Dog Ownership and Cardiovascular Health: Results From the Kardiovize 2030 Project	Maugeri Andrea Giuseppe; Medina-Inojosa Jose R.; Kunzová Šárka; Barchitta Martina; Agodi Antonella; Vinciguerra Manlio; Lopez-Jimenez Francisco	Mayo Clinic Proceedings	Objective To investigate the association of pet ownership, and specifically dog ownership, with cardiovascular diseases (CVD) risk factors and cardiovascular health (CVH) in the Kardiovize Brno 2030 study, a randomly selected prospective cohort in Central Europe. Patients and Methods We included 1769 subjects (aged from 25 to 64 years; 44.3% males) with no history of CVD who were recruited from January 1, 2013, to December 19, 2014. We compared sociodemographic characteristics, CVD risk factors, CVH metrics (ie, body mass index, healthy diet, physical activity level, smoking status, blood pressure, fasting glucose, and total cholesterol), and score between pet owners and non-pet owners or dog owners and several other subgroups. Results Approximately 42% of subjects owned any type of pet: 24.3% owned a dog and 17.9% owned another animal. Pet owners,

				and specifically dog owners, were more likely to report physical activity, diet, and blood glucose at ideal level, and smoking at poor level, which resulted in higher CVH score than non-pet owners (median, 10; interquartile range = 3 vs median, 9; interquartile range = 3; P=0.006). Compared with owners of other pets, dog owners were more likely to report physical activity and diet at ideal level. The comparison of dog owners with non-dog owners yielded similar results. After adjustment for covariates, dog owners exhibited higher CVH scores than non-pet owners (β=0.342; SE=0.122; P=0.005), other pet-owners (β=0.309; SE=0.151; P=0.041), and non-dog owners (β=0.341; SE=0.117; P=0.004). Conclusion Except for smoking, dog owners were more likely to achieve recommended level of behavioral CVH metrics (physical activity and diet) than non-dog owners, which translated into better CVH. Link to the article: https://www.sciencedirect.com/science/article/pii/S2542454819300888¨
10.	Visceral fat area and cardiometabolic risk: The Kardiovize study	Polcrová Anna; Pavlovska Iuliia; De Albuquerque Maranhao Neto Geraldo; Kunzová Šárka; Infante-Garcia Maria M; Medina-Inojosa Jose R; Lopez-Jimenez Francisco; Mechanick Jeffrey I; Nieto-Martinez Ramfis; Stokin Gorazd Bernard; Pikhart Hynek; Gonzalez Rivas Juan Pablo	Obesity Research & Clinical Practice	Background: Visceral fat is associated with adiposity-based complications. Bioimpedance measurement allows estimation of visceral fat area (VFA) in an easy manner. However, a validated cut-off value for VFA by bioimpedance associated with cardiometabolic risk is lacking in European population. Aim: To determine cut-off values of VFA measured via bioimpedance associated with cardiometabolic risk. Methods: Random cross-sectional Czech population-based sample of 25-64 years old subjects. Receiver Operating Characteristic (ROC) curves were used and the area under the curve (AUC), sensitivity, and specificity were calculated. The Cardiometabolic Disease Staging System (CMDS) was used to classify cardiometabolic risk: Stage 1 - 1 or 2 metabolic syndrome (MetS) components, without impaired fasting glucose (IFG); Stage 2 - MetS or IFG; Stage 3 - MetS with IFG; Stage 4 - type 2 diabetes and/or cardiovascular disease. Results: 2052 participants (54.5% females, median age 49 years) were included. Median VFA (inter-quartile range) were 82.2 cm(2) (54.8) in men and 89.8 cm(2) (55.6) in women. The best VFA cut-offs associated with Stage 1 in men and women were 71 cm(2)(sensitivity = 0.654; specificity = 0.427) and 83 cm(2) (sensitivity = 0.705; specificity = 0.556); Stage 2: 84 cm(2) (sensitivity = 0.673; specificity = 0.551) and 98 cm(2) (sensitivity = 0.702; specificity = 0.628); Stage 3: 90 cm(2) (sensitivity = 0.886; specificity = 0.605) and 109 cm(2) (sensitivity = 0.755; specificity =

				0.704); Stage 4: 91 cm(2)(sensitivity = 0.625; specificity = 0.611) and 81cm(2) (sensitivity = 0.695; specificity = 0.448), respectively. Conclusion: A cut-off value of VFA of 71 cm(2) in men and 83 cm(2) in women exhibited the earliest stage of cardiometabolic risk, and 90 cm(2) in men and 109 cm(2) in women showed the best performance to detect risk. Link to the article: https://www.sciencedirect.com/science/article/abs/pii/S1871403X21000478?via%3Dihub
11.	Is Drinking Alcohol Really Linked to Cardiovascular Health? Evidence from the Kardiovize 2030 Project	Maugeri Andrea Giuseppe; Hlinomaz Ota; Agodi Antonella; Barchitta Martina; Kunzová Šárka; Bauerová Hana; Sochor Ondřej; Medina-Inojosa Jose R; Lopez-Jimenez Francisco; Vinciguerra Manlio; Stokin Gorazd Bernard; Gonzalez Rivas Juan Pablo	NUTRIENTS	Existing data have described benefits and drawbacks of alcohol consumption on cardiovascular diseases (CVD), but no research has evaluated its association with the cardiovascular health (CVH) score proposed by the American Heart Association. Here, we conducted a cross-sectional analysis on the Kardiovize cohort (Brno, Czech Republic), to investigate the relationship between alcohol consumption and CVH. We included 1773 subjects (aged 25-64 years; 44.2% men) with no history of CVD. We compared CVD risk factors, CVH metrics (i.e., BMI, healthy diet, physical activity level, smoking status, blood pressure, fasting glucose, and total cholesterol) and CVH score between and within several drinking categories. We found that the relationship between drinking habits and CVH was related to the amount of alcohol consumed, drinking patterns, and beverage choices. Heavy drinkers were more likely to smoke tobacco, and to report diastolic blood pressure, fasting glucose, triglycerides, and low-density lipoprotein (LDL)-cholesterol at higher level than non-drinkers. Among drinkers, however, people who exclusively drank wine exhibited better CVH than those who exclusively drank beer. Although our findings supported the hypothesis that drinking alcohol was related to the CVH in general, further prospective research is needed to understand whether the assessment of CVH should incorporate information on alcohol consumption. Link to the article: https://www.mdpi.com/2072-6643/12/9/2848
12.	The Prevalence of Dysglycemia-Based Chronic Disease in a European Population - a New Paradigm to Address Diabetes Burden: A Kardiovize Study	Gonzalez Rivas Juan Pablo; Mechanick Jeffrey, I;	Endocrine Practice	Objective: To determine the prevalence rate and associated risk factors for each stage of the Dysglycemia-Based Chronic Disease (DBCD) model, which 4 distinct stages and prompts early prevention to avert Diabetes and cardiometabolic complications. Methods: Subjects between 25 and 64

		Infante-Garcia Maria M; Medina-Inojosa Jose R; Pavlovska Iuliia; Hlinomaz Ota; Žák Petr; Kunzová Šárka; Nieto-Martinez Ramfis; Skladaná Mária; Broz Jan; Hernandez-Rodriguez Jose Pantaleon; Lopez-Jimenez Francisco; Stokin Gorazd Bernard		years old from a random population-based sample were evaluated in Czechia from 2013 to 2014 using a cross-sectional design. DBCD stages were: stage 1 "insulin resistance" (inferred risk from abdominal obesity or a family history of diabetes); stage 2 "prediabetes"(fasting glucose between 5.6 and 6.9 mmol/L); stage 3 "type 2 diabetes (T2D)" (self-report of T2D or fasting glucose >= 7 mmol/L); and stage 4 "vascular complications" (T2D with cardiovascular disease). Results: A total of 2147 subjects were included (57.8% women) with a median age of 48 years. The prevalence of each DBCD stage were as follows: 54.2% (stage 1); 10.3% (stage 2), 3.7% (stage 3); and 1.2% (stage 4). Stages 2 to 4 were more frequent in men and stage 1 in women (P < .001). Using binary logistic regression analysis adjusting by age/sex, all DBCD stages were strongly associated with abnormal adiposity, hypertension, dyslipidemia, and smoking status. Subjects with lower educational levels and lower income were more likely to present DBCD. Conclusion: Using the new DBCD framework and available metrics, 69.4% of the population had DBCD, identifying far more people at risk than a simple prevalence rate for T2D (9.2% in Czechia, 2013-2014). All stages were associated with traditional cardiometabolic risk factors, implicating common pathophysiologic mechanisms and a potential for early preventive care. The social determinants of health were related with all DBCD stages in alarming proportions and will need to be further studied. Link to the article: https://www.sciencedirect.com/science/article/pii/S1530891X20483600?via%3Dihub
13.	Arterial Stiffness and Cardiometabolic-Based Chronic Disease: The Kardiovize Study	Pavlovska Iuliia; Mechanick Jeffrey, I; De Albuquerque Maranhao Neto Geraldo; Infante-Garcia Maria M; Nieto-Martinez Ramfis; Kunzová Šárka; Polcrová	Endocrine Practice	Objective: Arterial stiffness (ArSt) describes a loss of arterial wall elasticity and is an independent predictor of cardiovascular events. A cardiometabolic-based chronic disease model integrates concepts of adiposity-based chronic disease (ABCD), dysglycemia-based chronic disease (DBCD), and cardiovascular disease. We assessed if ABCD and DBCD models detect more people with high ArSt compared with traditional adiposity and dysglycemia classifiers using the cardio-ankle vascular index (CAVI). Methods: We evaluated 2070 subjects aged 25 to 64 years from a random population-based sample. Those with type 1 diabetes were excluded. ABCD and DBCD were defined, and ArSt risk was stratified based on the American Association of Clinical Endocrinologists criteria. Results:

		Anna; Vysoky Robert; Medina-Inojosa Jose R; Lopez-Jimenez Francisco; Stokin Gorazd Bernard; Gonzalez Rivas Juan Pablo		The highest prevalence of a high CAVI was in stage 2 ABCD (18.5%) and stage 4 DBCD (31.8%), and the lowest prevalence was in stage 0 ABCD (2.2%). In univariate analysis, stage 2 ABCD and all DBCD stages increased the risk of having a high CAVI compared with traditional classifiers. After adjusting for age and gender, only an inverse association between obesity (body mass index >= 30 kg/m(2)) and CAVI remained significant. Nevertheless, body mass index was responsible for only 0.3% of CAVI variability. Conclusion: The ABCD and DBCD models showed better performance than traditional classifiers to detect subjects with ArSt; however, the variables were not independently associated with age and gender, which might be explained by the complexity and multifactoriality of the relationship of CAVI with the ABCD and DBCD models, mediated by insulin resistance. Link to the article: https://www.sciencedirect.com/science/article/abs/pii/S1530891X21000859?via%3Dihub
14.	Prevalence of adiposity-based chronic disease in middle-aged adults from Czech Republic: The Kardiovize study	Gonzalez Rivas Juan Pablo; Mechanick Jeffrey I; Hernandez-Rodriguez Jose Pantaleon; Infante-Garcia Maria M; Pavlovska Iuliia; Medina-Inojosa Jose R; Kunzová Šárka; Nieto-Martinez Ramfis; Broz Jan; Busetto Luca; De Albuquerque Maranhao Neto Geraldo; Lopez-	OBESITY SCIENCE & PRACTICE	Aims/Hypothesis The need for understanding obesity as a chronic disease, its stigmatization, and the lack of actionability related to it demands a new approach. The adiposity-based chronic disease (ABCD) model is based on adiposity amount, distribution, and function, with a three stage complication-centric rather than a body mass index (BMI)-centric approach. The prevalence rates and associated risk factors are presented. Methods In total, 2159 participants were randomly selected from Czechia. ABCD was established as BMI >= 25 kg/m(2) or high body fat percent, or abdominal obesity and then categorized by their adiposity-based complications: Stage 0: none; Stage 1: mild/moderate; Stage 2: severe. Results ABCD prevalence was 62.8%. Stage 0 was 2.3%; Stage 1 was 31.4%; Stage 2 was 29.1%. Comparing with other classifiers, participants in Stage 2 were more likely to have diabetes, hypertension, and metabolic syndrome than those with overweight, obesity, abdominal obesity, and increased fat mass. ABCD showed the highest sensitivity and specificity to detect participants with peripheral artery disease, increased intima media, and vascular disease. Conclusion/Interpretation The ABCD model provides a more sensitive approach that facilitates the early detection and stratification of participants at risk compared to traditional classifiers.

		Jimenez Francisco; Urbanova Jana; Stokin Gorazd Bernard		Link to the article: https://onlinelibrary.wiley.com/doi/10.1002/osp4.496
15.	Tobacco use and some characteristics of tobacco users. Preliminary results of "Kardiovize Brno 2030"	Sochor Ondřej; Králíková Eva; Cífková Renata; Fiala Jindřich; Tomášková Iva; Kunzová Šárka; Lešovský Jiří; Pluháček Zdeněk; Nechutová Hana; Řimák Pavel; Šikolová Veronika; Homolka Martin; Štěpánová Radka; Vítovec Jiří; Kára Tomáš; Prosecký Robert; Wohlfahrt Peter; Soška Vladimír; Lopez-Jimenez F	Cor et Vasa	Aim: To assess tobacco use and some characteristics of tobacco users (including electronic cigarette users) relevant to cardiovascular disease in a representative population sample of the city of Brno. Methods: A cross-sectional survey of cardiovascular risk factors was conducted using the methodology of the Czech post-MONICA Study, in the city of Brno, Czech Republic in 2013. This preliminary report of the first 965 randomly selected volunteers (including 512 women) aged 25-64, focuses on tobacco use, its prevalence in different subgroups as well as on the attitudes towards smoke-free policies. Results: This preliminary analysis involves 965 individuals with a mean age of 47.3 +- 11.40 years. The prevalence of smoking was 26.7%, with daily tobacco use 23.3%, less than once daily 3.4%; 19.9% of the sample are ex-smokers. A total of 34.0% of the survey population reported exposure to passive smoking. Electronic cigarette use was observed in 3.5% of respondents, more common in men (5.1%) than in women (2.1%; p = 0.020). Concomitant use of electronic cigarettes and smoking was observed in 2.07% of the population. Conclusion: The prevalence of tobacco use in the productive-age population of Brno City district is 26.70%, still a high figure. Link to the article: http://www.e-coretvasa.cz/casopis/view?id=5554
16.	Kardiovize Brno 2030 - projekt prevence onemocnění srdce a cév pro brněnskou populaci a příklady podobných projektů ve světě	Sochor Ondřej; Kára Tomáš; Lopez-Jimenez F	Universitas revue	Ačkoliv je ischemická choroba srdeční chronické onemocnění, její výskyt se může v rámci populace zásadně měnit, stejně tak jako výskyt jiných onemocnění srdce a cév. V letech 1971-1982 patřila Česká republika k zemím s nejvyšší mortalitou na kardiovaskulární onemocnění v Evropě. Od roku 1990 dochází k postupnému poklesu mortality, nicméně i ta je ale stále vysoká ve srovnání se zeměmi západní Evropy (rozdíl zhruba 5-6let v očekávané délce života u mužů a 4 roky rozdíl u žen).
17.	Obesity-induced nucleosome release predicts poor cardio-metabolic health	LoRe Oriana; Maugeri Andrea	Clinical Epigenetics	Objective While circulating nucleosome levels are high in obese mouse models, it is unknown where these nucleosomes originate from and

		Giuseppe; Hrušková Jana; Jakubík Juraj; Kucera Jan; Bienertova-Vasku Julie; Oben Jude A; Kubala Lukáš; Dvorakova Adela; Ciz Milan; Vinciguerra Manlio		whether they are a marker of cardio-metabolic health in humans. Here, we aimed to determine whether an association exists between circulating nucleosomes and the risk of developing obesity, metabolic syndrome (MetS) and/or a dysfunctional cardiovascular performance. Methods We randomly selected 120 participants of the Kardiovize Brno 2030 study across three BMI strata: BMI 18-25, 25-30, and > 30. We assessed the association between circulating nucleosome levels and the risk of obesity, MetS, and poor cardiovascular health. We then cultured human neutrophils, adipocytes, and hepatoma cells to study nucleosome origins in a fat-rich environment. Results Circulating nucleosome levels positively correlated with BMI ($R = 0.602$, $p < 0.05$), fatty liver index ($R = 0.622$, $p < 0.05$), left ventricular mass ($R = 0.457$, $p < 0.05$), and associated with MetS ($p < 0.001$) and poor cardiovascular health ($p < 0.001$). Incubating neutrophils with 1-10 mu M free fatty acids triggered nucleosome production without concomitant cell death. Nucleosomes were not produced during pre-adipocyte differentiation or upon incubation of hepatic cells with palmitic acid. Conclusions Neutrophils are a bona fide source of circulating nucleosomes in an obesogenic environment and in overweight/obese patients. High nucleosome levels are associated with MetS and cardiovascular performance, and might represent novel candidate biomarkers for cardio-metabolic health.
18.	Current and past smoking patterns in a Central European urban population: a cross-sectional study in a high-burden country	Movsisyan Narine; Sochor Ondřej; Králíková Eva; Cífková Renata; Ross Hana; Lopez-Jimenez Francisco	BMC Public health	Many studies have examined the socioeconomic variations in smoking and quitting rates across the European region; however, data from Central and East European countries, where the tobacco burden is especially high, are sparse. This study aimed to assess the patterns in current and past smoking prevalence based on cross-sectional data from a Central European urban population sample. Link to the article: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-3216-5
19.	Reference values of cardio-ankle vascular index in a random sample of a white population	Wohlfahrt Peter; Cífková Renata; Movsisyan	Journal of Hypertension	Cardio-ankle vascular index (CAVI), a parameter of arterial stiffness, has been increasingly used for cardiovascular risk estimation. Currently used CAVI reference values are derived from the Japanese population. It is not clear whether the same reference values can be used in the white

		Narine; Kunzová Šárka; Lešovský Jiří; Homolka Martin; Soška Vladimír; Dobšák Petr; Lopez-Jimenez F; Sochor Ondřej		population. The aim of the present study was to describe cardiovascular risk factors influencing CAVI and to establish CAVI reference values. METHODS: A total of 2160 individuals randomly selected from the Brno city population aged 25-65 years were examined. Of these, 1347 patients were free from cardiovascular disease, nondiabetic and untreated by antihypertensive or lipid-lowering drugs, forming the reference value population. CAVI was measured using the VaSera VS-1000 device (Fukuda Denshi, Tokyo, Japan). RESULTS: At each blood pressure (BP) level, there was a quadratic association between CAVI and age, except for a linear association in the optimal BP group. Although there was no association between BP and CAVI in younger patients, there was a linear association between CAVI and BP after 40 years of age. Reference values by age and sex were established. In each age group, except for the male 60-65-year group, reference values in our population were lower than in the Japanese one with the difference ranging from -0.29 to 0.21 for men, and from -0.38 to -0.03 for women. CONCLUSION: This is the first study providing CAVI reference values in a random sample of the white population. Our results suggest that the currently used values slightly overestimate CAVI in younger white, possibly underestimating cardiovascular risk. Link to the article: https://ovidsp.dc1.ovid.com/ovid-b/ovidweb.cgi?T=JS&PAGE=fulltext&D=ovft&AN=00004872-201711000-00018&NEWS=N&CSC=Y&CHANNEL=PubMed
20.	Alcohol Consumption in Population Aged 25-65 Years Living in the Metropolis of South Moravia, Czech Republic	Fiala Jindřich; Sochor Ondřej; Klimusová H; Homolka Martin	Central European Journal of Public Health	Objective: The aim of the study was to evaluate alcohol consumption in a representative sample of the population of the city of Brno, as part of research on cardiovascular risk factors. Methods: Cross-sectional survey on a sample of 2,160 randomly selected residents 35-65 years old was carried out. For the invited volunteers who became a part of the investigation, alcohol consumption was determined in a controlled, face to face interview structured in accordance with a special questionnaire form. The frequency of alcohol consumption during the previous year was determined, in more detail during the last month (including quantification using "units of alcohol", their normal and maximum level of drinking, and any association between alcohol consumption and meals), and during the last week in the form of a complete, beverage specified and quantified 7-day recall period.

				Link to the article: https://cejph.szu.cz/artkey/cjp-201703-0004_Alcohol-consumption-in-population-aged-25-65-years-living-in-the-metropolis-of-South-Moravia-Czech-Republic.php
21.	Sleep Duration and Excessive Daytime Sleepiness Are Associated with Obesity Independent of Diet and Physical Activity	Maugeri Andrea Giuseppe; Medina-Inojosa Jose R.; Kunzová Šárka; Agodi Antonella; Barchitta Martina; Sochor Ondřej; Lopez-Jimenez Francisco; Geda Yonas E.; Vinciguerra Manlio	Nutrients	In the European Union, Czech Republic ranks 3rd and 6th for the incidence of obesity and cardiovascular diseases, respectively. Worldwide, short sleep duration and excessive daytime sleepiness (EDS) characterize obese subjects, which in turn exhibit scarce physical activity and unhealthy diet. We aimed to understand the relationship between irregular sleep patterns, obesity and lifestyle factors, such as diet and physical activity, in a vulnerable Czech population. 1482 members of the Kardiovize cohort, a random sample of the Czech urban population, were included in a cross-sectional study. Exposure variables included self-reported sleep duration and EDS, assessed by the Epworth Sleepiness Scale. Primary outcomes were BMI and waist-to-hip ratio or prevalence of obesity and central obesity. Covariates included physical activity and diet. Associations and interactions between variables were evaluated using logistic regression analyses. After adjustment for covariates, short sleep duration (<7 h) was associated with greater odds of overweight (BMI > 25; OR = 1.42; 95%CI = 1.06-1.90; p = 0.020) and obesity (BMI > 30; OR = 1.40; 95%CI = 1.02-1.94; p = 0.047), while EDS was associated with greater odds of central obesity (OR = 1.72; 95%CI = 1.06-2.79; p = 0.030), independent of diet and physical activity. However, due to the cross-sectional nature of our study, further prospective, large-scale studies are needed to evaluate the etiological link and causality between sleep disturbances and obesity. Link to the article: https://www.mdpi.com/2072-6643/10/9/1219/htm
22.	Association between eating time interval and frequency with ideal cardiovascular health: Results from a random sample Czech urban population	Maugeri Andrea Giuseppe; Kunzová Šárka; Agodi A.; Medina-Inojosa J. R.; Barchitta M.; Homolka	Nutrition	Background and Aims: The frequency and timing of meals may affect cardiovascular health (CVH) outcomes, but large-scale epidemiological studies are lacking. The aim of this study was to understand the relationship between eating time interval and frequency, and measures of ideal CVH in the Kardiovize Brno cohort study, a random urban sample population in Central Europe. Methods and Results: 1659 members of the Kardiovize Brno 2030 cohort were included in a cross-sectional study

		Martin; Kiácová Nikola; Bauerová Hana; Lopez-Jimenez F.; Vinciguerra Manlio		(mean age = 46.86 years; 44.6% male). Exposure variables were eating time interval and frequency, and skipping meals. Primary outcomes were indices of CVH, including body mass index, diet, physical activity, smoking, blood pressure, glucose and cholesterol, and the composite CVH score. Cluster analysis and binary logistic regression analysis were used to evaluate eating habits and the association between variables. After adjustment for well-known risk factors, subjects who skipped breakfast or the afternoon snack had a higher risk of poor CVH (OR = 1.613; 95%CI = 1.121-2.320; p = 0.010; OR = 1.409; 95%CI = 1.110-1.788; p = 0.005, respectively). Moreover, we identified three clusters of individuals based on eating habits; from cluster 1 to cluster 3, eating time interval and frequency increased and this was associated with increases in CVH score from 8.70 (SEM = 0.10) in cluster 1, and 9.06 (SEM = 0.08) in cluster 2 to 9.42 (SEM = 0.09) in cluster 3 (p-trend = 0.019). Conclusions: Our findings suggest that skipping breakfast or the afternoon snack are risk factors for poor CVH, while higher eating time interval and frequency may promote ideal CVH. Link to the article: https://www.sciencedirect.com/science/article/abs/pii/S0939475318301236
23.	Normal-weight central obesity and long-term cardiovascular events: a prospective population-basedcohort study	Medina--Inojosa J.R.; Supervia M.; Batsis J.B.; Somers V.K.; Rodeheffer R.; Vinciguerra Manlio; Lopez--Jimenez F.		The relationship between central obesity in adults with normal body mass index (BMI) and majoradverse cardiovascular events (MACE) is not well-known. We tested the hypothesis that people with normalweight and central obesity have a higher risk of MACE than people with normal weight and fat distribution.
24.	Is speckle tracking analysis strongly dependent on the experience level of the evaluator?	Jakubík Juraj; Svacinova J.; Hruskova J.; Podroužková Helena; Stipalova T.; Vinciguerra Manlio	European Heart Journal	The aim of the study was to elucidate the role of the evaluator's level of experience on validity of STE analysis. Moreover, we tried to find out whether there is a relation between the quality of the input data and the difference in STE results of various evaluators. Link to the article: https://academic.oup.com/eurheartj/article-abstract/39/suppl_1/ehy564.P844/5084391?redirectedFrom=fulltext

25.	Independent Effects of Hypertension and Obesity on Left Ventricular Mass and Geometry: Evidence from the Cardiovision 2030 Study	Maugeri Andrea Giuseppe; Hrušková Jana; Jakubík Juraj; Barchitta Martina; LoRe Oriana; Kunzová Šárka; Medina-Inojosa Jose R.; Agodi Antonella; Sciacca Sergio; Vinciguerra Manlio	Journal of Clinical Medicine	Obesity and hypertension independently promote pathological left ventricular remodelling (LVR) and left ventricular hypertrophy (LVH), but to what extent they do so when they do not coexist is unclear. We used data from the Cardiovision Brno 2030 study to assess-for the first time in a region where no investigations have been previously carried out-the independent association of obesity and hypertension with LV geometry, and to evaluate the effects of hypertension in normal weight patients and the effects of obesity in normotensive patients. Overall, 433 individuals, aged 25-65 years, with no history of cardiovascular disease and/or antihypertensive treatment, were stratified into four groups according to BMI and hypertension: normal weight non-hypertensive (NWNH), normal weight hypertensive (NWH), overweight/obese non-hypertensive (ONH) and overweight/obese hypertensive (OH). LVR was classified as normal, concentric LVR (cLVR), concentric LVH (cLVH) or eccentric LVH (eLVH). Linear regression analysis demonstrated that body mass index (BMI) and systolic blood pressure (SBP) are the main predictors of LV mass and that they interact: SBP had a stronger effect in overweight/obese (beta = 0.195; p = 0.033) compared to normal weight patients (beta = 0.134; p = 0.048). Hypertension increased the odds of cLVR (OR = 1.78; 95%CI = 1.04-3.06; p = 0.037) and cLVH (OR = 8.20; 95% CI = 2.35-28.66; p = 0.001), independent of age, sex and BMI. Stratified analyses showed that NWH had a greater odd of cLVH (OR = 7.96; 95%CI = 1.70-37.08; p = 0.008) and cLVR (OR = 1.62; 95%CI = 1.02-3.34; p = 0.047) than NWNH. In the absence of hypertension, obesity was not associated with LVM and abnormal LV geometry, suggesting that it is not per se a determinant of LVR. Thus, antihypertensive therapy still remains the first-line approach against LVH in hypertensive patients, though weight loss interventions might be helpful in those who are obese. Link to the article: https://www.mdpi.com/2077-0383/8/3/370/htm
26.	NORMAL-WEIGHT OBESITY FREQUENCY IN THE CENTRAL EUROPEAN URBAN ADULT FEMALE POPULATION OF BRNO, CZECH REPUBLIC	Čuta Martin; Baricova Klara; Černý Dominik; Sochor Ondřej	Central European Journal of Public Health	Objectives: The universally recognized indicator of nutritional status, BMI, has some shortcomings, especially in detecting overweight and obesity. A relatively recently introduced normal weight obesity (NWO) describes a phenomenon when individuals are found to have normal weight as indicated by BMI but have an elevated percentage of body fat. Normal weight obese individuals face a higher risk of developing metabolic

				syndrome, cardiometabolic dysfunction and have higher mortality. No studies have been previously performed which would map NWO in Brno, Czech Republic. Methods: In a sample of 100 women from Brno, we assessed the percentage of normal weight obese individuals using bioelectric impedance analysis (BIA) - three different analyzers were utilized: Tanita BC-545 personal digital scale, InBody 230 and BodyStat 1500MDD. Also, a caliperation method was used to estimate body fat percentage. Various body fat percentage cut-off points were used according to different authors. Results: When the 30% body fat (BF) cut-off was used, up to 14% of the women in our sample were found to be normal weight obese. When the sum of skinfolds or the 35% BF cut-off point are selected as a criterion for identifying normal weight obesity (NOW), only 1 of 100 examined women was identified as normal weight obese; at the 35% BF cut-off, BodyStat analyzer categorized no women as normal weight obese. Also, when the 30% BF or 66th percentile BF cut-off points were utilized, BodyStat identified pronouncedly fewer women from our sample to be normal-weight obese than the two other analyzers. Conclusions: On a pilot sample of Czech women, we demonstrated that depending on the selected cut-off (there is no clear agreement on cut-off points in literature), up to 14% of the examined women were found to be normal weight obese. Link to the article: https://cejph.szu.cz/artkey/cjp-201902-0008_normal-weight-obesity-frequency-in-the-central-european-urban-adult-female-population-of-brno-czech-republic.php
27.	Cardiovascular Diseases in Central and Eastern Europe: A Call for More Surveillance and Evidence-Based Health Promotion	Movsisyan Narine; Vinciguerra Manlio; Medina-Inojosa Jose R; Lopez-Jimenez Francisco	Annals of Global Health	Objectives: The paper aims to identify the priorities for cardiovascular health promotion research in Central and Eastern Europe (CEE), the region with the highest cardiovascular diseases (CVD) burden in the world. Methods: This narrative review covered peer-reviewed publications and online databases using a nonsystematic purposive approach. Results: In despite of a steady decrease in CVD burden in the region, the East-West disparities are still significant. There is minimal continuity in the past and current CVD prevention efforts in the region. Many challenges still exist, including an opportunity gap in research funding, surveillance and population-based preventive interventions. A comprehensive approach focusing on multisectoral cooperation, quality and accessibility of healthcare and equity-oriented public policies and supported by well-

				designed epidemiologic studies is needed to overcome these challenges. Conclusion: The current level of effort is not adequate to address the magnitude of the CVD epidemic in CEE. It is imperative to strengthen the epidemiological base concerning cardiovascular health in the region, to foster surveillance and progress in implementation of CVD preventive strategies in the most affected populations of Europe. Link to the article: https://annalsofglobalhealth.org/articles/10.5334/aogh.2713/
28.	Determinants of Metabolic Health Across Body Mass Index Categories in Central Europe: A Comparison Between Swiss and Czech Populations	Kunzová Šárka; Maugeri Andrea Giuseppe; Medina-Inojosa Jose; Lopez-Jimenez Francisco; Vinciguerra Manlio; Marques-Vidal Pedro	FRONTIERS IN PUBLIC HEALTH	Comparisons among countries can help to identify opportunities for the reduction of inequalities in cardiometabolic health. The present cross-sectional analysis and meta-analysis aim to address to what extent obesity traits, socioeconomic, and behavioral factors determine poor metabolic health across body mass index (BMI) categories in two urban population-based samples from Central Europe. Data from the CoLaus (similar to 6,000 participants; Lausanne, Switzerland) and the Kardiovize Brno 2030 (similar to 2,000 participants; Brno, Czech Republic) cohorts. For each cohort, logistic regression analyses were performed to identify the main determinants of poor metabolic health overall and stratified by body mass index (BMI) categories. The results of each cohort were then combined in a meta-analysis. We first observed that waist circumference and body fat mass were associated with metabolic health, especially in non-obese individuals. Moreover, increasing age, being male, having low-medium educational level, abdominal obesity, and high body fat mass were the main determinants of the metabolically unhealthy profile in both cohorts. Meta-analysis stratified by BMI categories confirmed the previous results with slight differences across BMI categories. In fact, increasing age and being male were the main determinants of poor metabolic health independent of obesity status. In contrast, low educational level and current smoking were associated with poor metabolic health only in non-obese individuals. In line, public health strategies against obesity and related comorbidities should aim to improve social conditions and to promote healthy lifestyles before the progression of metabolic disorders. Link to the article: https://www.frontiersin.org/articles/10.3389/fpubh.2020.00108/full

29.	Risk Factors Underlying COVID-19 Lockdown-Induced Mental Distress	Novotný Jan Sebastian; Gonzalez Rivas Juan Pablo; Kunzová Šárka; Skladaná Mária; Pospíšilová Anna; Polcrová Anna; Medina-Inojosa Jose Ramon; Lopez-Jimenez Francisco; Geda Yonas Endale; Stokin Gorazd Bernard	Frontiers in Psychiatry	Recent reports suggest that the COVID-19 lockdown resulted in changes in mental health, however, potential age-related changes and risk factors remain unknown. We measured COVID-19 lockdown-induced stress levels and the severity of depressive symptoms prior to and during the COVID-19 lockdown in different age groups and then searched for potential risk factors in a well-characterized general population-based sample. A total of 715 participants were tested for mental distress and related risk factors at two time-points, baseline testing prior to COVID-19 and follow-up testing during COVID-19, using a battery of validated psychological tests including the Perceived Stress Scale and the Patient Health Questionnaire. Longitudinal measurements revealed that the prevalence of moderate to high stress and the severity of depressive symptoms increased 1.4- and 5.5-fold, respectively, during the COVID-19 lockdown. This surge in mental distress was more severe in women, but was present in all age groups with the older age group exhibiting, cross-sectionally, the lowest levels of mental distress prior to and during the lockdown. Illness perception, personality characteristics such as a feeling of loneliness, and several lifestyle components were found to be associated with a significant increase in mental distress. The observed changes in mental health and the identified potential risk factors underlying these changes provide critical data justifying timely and public emergency-tailored preventive, diagnostic, and therapeutic mental health interventions, which should be integrated into future public health policies globally. Link to the article: https://www.frontiersin.org/articles/10.3389/fpsyt.2020.603014/full
30.	Circulating histone signature of human lean metabolic-associated fatty liver disease (MAFLD)	Buzova Diana; Maugeri Andrea Giuseppe; Liguori Antonio; Napodano Cecilia; LoRe Oriana; Oben Jude; Alisi Anna; Gasbarrini Antonio; Grieco Antonio;	Clinical Epigenetics	Background Although metabolic associate fatty liver disease (MAFLD) is associated with obesity, it can also occur in lean patients. MAFLD is more aggressive in lean patients compared to obese patients, with a higher risk of mortality. Specific biomarkers to diagnose differentially lean or overweight MAFLD are missing. Histones and nucleosomes are released in the bloodstream upon cell death. Here, we propose a new, fast, imaging and epigenetics based approach to investigate the severity of steatosis in lean MAFLD patients. Results A total of 53 non-obese patients with histologically confirmed diagnosis of MAFLD were recruited. Twenty patients displayed steatosis grade 1 (0-33%), 24 patients with steatosis grade 2 (34-66%) and 9 patients with steatosis grade 3 (67-100%). The

		Cerveny Jan; Miele Luca; Vinciguerra Manlio		levels of circulating nucleosomes were assayed using enzyme-linked immunosorbent assay, while individual histones or histone dimers were assayed in serum samples by means of a new advanced flow cytometry ImageStream(X)-adapted method. Circulating nucleosome levels associated poorly with MAFLD in the absence of obesity. We implemented successfully a multi-channel flow methodology on ImageStream(X), to image single histone staining (H2A, H2B, H3, H4, macroH2A1.1 and macroH2A1.2). We report here a significant depletion of the levels of histone variants macroH2A1.1 and macroH2A1.2 in the serum of lean MAFLD patients, either individually or in complex with H2B. Conclusions In summary, we identified a new circulating histone signature able to discriminate the severity of steatosis in individuals with lean MAFLD, using a rapid and non-invasive ImageStream(X)-based imaging technology. Link to the article: https://clinicalepigeneticsjournal.biomedcentral.com/articles/10.1186/s13148-020-00917-2
31.	Úskalí léčby u obézního hypertonika s tendencí k otokům dolních končetin	Prosecký Robert	ACTA MEDICINAE	The treatment of obese hypertensives has its specifics and a number of pitfalls. It is often necessary to consider a number of other associated diseases. Appropriately selected regimens and drug combinations, selected based on knowledge of pathophysiological processes, may reduce the risk profile of such a patient. However, the approach and dosage of drugs can vary greatly depending on the current clinical condition. Link to the article: https://www.kardioinfo.cz/media/content/am2014.pdf
32.	Lipidomic Profiling Identifies Signatures of Poor Cardiovascular Health	Rivas Serna Irma Magaly; Šitina Michal; Stokin Gorazd Bernard; Medina-Inojosa Jose R; Lopez-Jimenez Francisco; Gonzalez Rivas Juan Pablo;	METABOLITES	Ideal cardiovascular health (CVH) is defined for the presence of ideal behavioral and health metrics known to prevent cardiovascular disease (CVD). The association of circulatory phospho- and sphingo-lipids to primary reduction in cardiovascular risk is unclear. Our aim was to determine the association of CVH metrics with the circulating lipid profile of a population-based cohort. Serum sphingolipid and phospholipid species were extracted from 461 patients of the randomly selected prospective Kardiovize study based on Brno, Czech Republic. Lipids species were measured by a hyphenated mass spectrometry technique, and were associated with poor CVH scores, as defined by the American Heart

		Vinciguerra Manlio		Association. Phosphatidylcholine (PC), phosphatidylethanolamine (PE), lysophosphatidylcholine (LPC), lysophosphatidylethanolamine (LPE) species were significantly lower in ideal and intermediate scores of health dietary metric, blood pressure, total cholesterol and blood fasting glucose compared to poor scores. Current smokers presented higher levels of PC, PE and LPE individual species compared to non-smokers. Ceramide (Cer) d18:1/14:0 was altered in poor blood pressure, total cholesterol and fasting blood glucose metrics. Poor cardiovascular health metric is associated with a specific phospho- and sphingolipid pattern. Circulatory lipid profiling is a potential biomarker to refine cardiovascular health status in primary prevention strategies. Link to the article: https://www.mdpi.com/2218-1989/11/11/747/htm
33.	Dysglycemia and Abnormal Adiposity Drivers of Cardiometabolic-Based Chronic Disease in the Czech Population: Biological, Behavioral, and Cultural/Social Determinants of Health	Pavlovska Iuliia; Polcrová Anna; Mechanick Jeffrey, I; Broz Jan; Infante Garcia María María; Nieto-Martinez Ramfis; De Albuquerque Maranhao Neto Geraldo; Kunzová Šárka; Skladaná Mária; Novotný Jan Sebastian; Pikhart Hynek; Urbanova Jana; Stokin Gorazd Bernard; Medina-Inojosa Jose R; Vysoky Robert;	NUTRIENTS	In contrast to the decreasing burden related to cardiovascular disease (CVD), the burden related to dysglycemia and adiposity complications is increasing in Czechia, and local drivers must be identified. A comprehensive literature review was performed to evaluate biological, behavioral, and environmental drivers of dysglycemia and abnormal adiposity in Czechia. Additionally, the structure of the Czech healthcare system was described. The prevalence of obesity in men and diabetes in both sexes has been increasing over the past 30 years. Possible reasons include the Eastern European eating pattern, high prevalence of physical inactivity and health illiteracy, education, and income-related health inequalities. Despite the advanced healthcare system based on the compulsory insurance model with free-for-service healthcare and a wide range of health-promoting initiatives, more effective strategies to tackle the adiposity/dysglycemia are needed. In conclusion, the disease burden related to dysglycemia and adiposity in Czechia remains high but is not translated into greater CVD. This discordant relationship likely depends more on other factors, such as improvements in dyslipidemia and hypertension control. A reconceptualization of abnormal adiposity and dysglycemia into a more actionable cardiometabolic-based chronic disease model is needed to improve the approach to these conditions. This review can serve as a platform to investigate causal mechanisms and secure effective management of cardiometabolic-based chronic disease. Link to the article: https://www.mdpi.com/2072-6643/13/7/2338/htm

		Gonzalez Rivas Juan Pablo		
34.	Visceral fat area and cardiometabolic risk: The Kardiovize study	Polcrová Anna; Pavlovska Iuliia; De Albuquerque Maranhao Neto Geraldo; Kunzová Šárka; Infante-Garcia Maria M; Medina-Inojosa Jose R; Lopez-Jimenez Francisco; Mechanick Jeffrey I; Nieto-Martinez Ramfis; Stokin Gorazd Bernard; Pikhart Hynek; Gonzalez Rivas Juan Pablo	Obesity Research & Clinical Practice	Background: Visceral fat is associated with adiposity-based complications. Bioimpedance measurement allows estimation of visceral fat area (VFA) in an easy manner. However, a validated cut-off value for VFA by bioimpedance associated with cardiometabolic risk is lacking in European population. Aim: To determine cut-off values of VFA measured via bioimpedance associated with cardiometabolic risk. Methods: Random cross-sectional Czech population-based sample of 25-64 years old subjects. Receiver Operating Characteristic (ROC) curves were used and the area under the curve (AUC), sensitivity, and specificity were calculated. The Cardiometabolic Disease Staging System (CMDS) was used to classify cardiometabolic risk: Stage 1 - 1 or 2 metabolic syndrome (MetS) components, without impaired fasting glucose (IFG); Stage 2 - MetS or IFG; Stage 3 - MetS with IFG; Stage 4 - type 2 diabetes and/or cardiovascular disease. Results: 2052 participants (54.5% females, median age 49 years) were included. Median VFA (inter-quartile range) were 82.2 cm(2) (54.8) in men and 89.8 cm(2) (55.6) in women. The best VFA cut-offs associated with Stage 1 in men and women were 71 cm(2)(sensitivity = 0.654; specificity = 0.427) and 83 cm(2) (sensitivity = 0.705; specificity = 0.556); Stage 2: 84 cm(2) (sensitivity = 0.673; specificity = 0.551) and 98 cm(2) (sensitivity = 0.702; specificity = 0.628); Stage 3: 90 cm(2) (sensitivity = 0.886; specificity = 0.605) and 109 cm(2) (sensitivity = 0.755; specificity = 0.704); Stage 4: 91 cm(2)(sensitivity = 0.625; specificity = 0.611) and 81cm(2) (sensitivity = 0.695; specificity = 0.448), respectively. Conclusion: A cut-off value of VFA of 71 cm(2) in men and 83 cm(2) in women exhibited the earliest stage of cardiometabolic risk, and 90 cm(2) in men and 109 cm(2) in women showed the best performance to detect risk. Link to the article: https://www.sciencedirect.com/science/article/abs/pii/S1871403X21000478?via%3Dihub
35.	Investigating cognition in midlife	Novotný Jan Sebastian; Gonzalez Rivas Juan Pablo; Medina-Inojosa	ALZHEIMERS & DEMENTIA-TRANSLATIONAL RESEARCH &	We here posit that measurements of midlife cognition can be instructive in understanding cognitive disorders. Even though molecular events signal possible onset of cognitive disorders decades prior to their clinical diagnoses, cognition and its possible early changes in midlife remain poorly understood. We characterize midlife cognition in a cognitively healthy

		Jose R; Lopez-Jimenez Francisco; Geda Yonas E; Stokin Gorazd Bernard	CLINICAL INTERVENTIONS	population-based sample using the Cogstate Brief Battery and test for associations with cardiovascular, adiposity-related, lifestyle-associated, and psychosocial variables. Learning and working memory showed significant variability and vulnerability to psychosocial influences in midlife. Furthermore, midlife aging significantly and progressively increased prevalence of suboptimal cognitive performance. Our findings suggest that physiological changes in cognition, measured with simple tests suitable for use in everyday clinical setting, may signal already in midlife the first clinical manifestations of the presymptomatic biologically defined cognitive disorders. This pilot study calls for longitudinal studies investigating midlife cognition to identify clinical correlates of biologically defined cognitive disorders. Link to the article: https://alz-journals.onlinelibrary.wiley.com/doi/10.1002/trc2.12234
36.	The Effects of Meal Timing and Frequency, Caloric Restriction, and Fasting on Cardiovascular Health: an Overview	Maugeri Andrea Giuseppe; Vinciguerra Manlio	The Journal of Lipid and Atherosclerosis	Cardiovascular disease (CVD), which is the leading cause of death worldwide, is strongly affected by diet. Diet can affect CVD directly by modulating the composition of vascular plaques, and indirectly by affecting the rate of aging. This review summarizes research on the relationships of fasting, meal timing, and meal frequency with CVD incidence and progression. Relevant basic research studies, epidemiological studies, and clinical studies are highlighted. In particular, we discuss both intermittent and periodic fasting interventions with the potential to prevent and treat CVD. Link to the article: https://e-jla.org/DOIx.php?id=10.12997/jla.2020.9.1.140
37.	Association of anthropometric and body composition parameters with the presence of hypertension in the Central European population: results from KardioVize 2030 study	Prosecky Robert; Kunzova Sarka; Kovacovicova Petra; Skladana Maria; Homolka Pavel; Sochor Ondrej; Kruzliak Peter; Gadanec	Acta Cardiologica	Using logistic regression modelling we found that the majority of hypertension incidence could be determined by body fat and water content, as hypertension occurrence was positively correlated with increased fat-related body composition parameters and water content. Specifically, results from this study demonstrate that increased intracellular fluid was positively associated with higher hypertension incidence in men (14%) and women (16%). Body composition reflects the occurrence of hypertension and may serve as a novel therapeutic goal that can be easily implemented in the clinical setting using DSM-BIA.

		Laura Kate; Soukup Ladislav; Novak Jan		Link to the article: https://www.tandfonline.com/doi/abs/10.1080/00015385.2023.2192153?journalCode=tacd20
38.	Associations between Per- and Polyfluoroalkyl Substances (PFAS) and Cardiometabolic Biomarkers in Adults of Czechia: The Kardiovize Study	Maranhao Neto, Geraldo A.; Anna Bartoskova Polcrova; Anna Pospisilova; Ludek Blaha; Jana Klanova; Martin Bobak; Juan P. Gonzalez-Rivas	International Journal of Environmental Research and Public Health	Background: Even though there is evidence of decreasing trends of per- and polyfluoroalkyl substances (PFAS) in Czechia, there are still major sources of PFAS pollution. Regarding the still-inconsistent results of the relationship between cardiometabolic health and PFAS, the present study sought to determine the association between PFAS levels and the presence of cardiometabolic biomarkers, including blood pressure and dysglycemia drivers in the Czech population. A cross-sectional study with 479 subjects (56.4% women, median: 53 years, range: 25–89) was conducted. Four PFAS were measured in serum: perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorodecanoic acid (PFDA), and perfluorooctane sulfonate (PFOS). The associations between natural log (ln)-transformed PFAS and cardiometabolic biomarkers were assessed through generalized additive models using linear regression and smoothing thin plate splines, adjusted for potential confounders. There were positive and significant ($p < 0.05$) associations between the ln-transformed PFOA and glucose ($\beta = 0.01$), systolic ($\beta = 0.76$) and diastolic blood pressure ($\beta = 0.65$); total cholesterol ($\beta = 0.07$) and LDL-c ($\beta = 0.04$); and PFOS with glucose ($\beta = 0.03$), BMI ($\beta = 2.26$), waist circumference ($\beta = 7.89$), systolic blood pressure ($\beta = 1.18$), total cholesterol ($\beta = 0.13$), and HDL-c ($\beta = 0.04$). When significant, the correlations of PFNA and PFDA were negative. Of the four PFAS, only PFOA and PFOS showed a positive association, even in serum levels not as high as the values from the literature. Link to the article: https://www.mdpi.com/1660-4601/19/21/13898
39.	Pharmacogenomic profile of a central European urban random population-Czech population	Riccardo Proietti; Geraldo A. Maranho Neto; Sarka Kunzova; Oriana Lo Re; Ari Ahola-Olli;	Plos One	Background: The genetic basis of variability in drug response is at the core of pharmacogenomics (PGx) studies, aiming at reducing adverse drug reaction (ADR), which have interethnic variability. This study used the Kardiovize Brno 2030 random urban Czech sample population to analyze polymorphisms in a wide spectrum of genes coding for liver enzymes involved in drug metabolism. We aimed at correlating real life drug consumption with pharmacogenomic profile, and at comparing these data

		Juho Heliste; Juan Pablo Gonzalez-Rivas; Manlio Vinciguerra		with the SUPER-Finland Finnish PGx database. A total of 250 individuals representative of the Kardiovize Brno 2030 cohort were included in an observational study. Blood DNA was extracted and 59 single nucleotide polymorphisms within 13 genes (*BCHE*, *CYP1A2*, *CYP2C9*, *CYP2C19*, *CYP2D6*, *CYP3A5*, *F2*, *F5*, *IFNL3*, *SLCO1B1* , *TPMT*, *UGT1A1*, *VKORC1*), associated to different drug metabolizing rates, were characterized by genotyping using a genome wide commercial array. Widely used drugs such as anti-coagulant warfarin and lipid lowering agent atorvastatin were associated to an alarmingly high percentage of users with intermediate/poor metabolism for them. Significant differences in the frequency of normal/intermediate/poor/ultrarapid/rapid metabolizers were observed for *CYPD26* ($p<0.001$), *CYP2C19* ($p<0.001$) and *UGT1A1* ($p<0.001$) between the Czech and the Finnish study populations. Our study demonstrated that administration of some popular drugs to a Czech random sample population is associated with different drug metabolizing rates and therefore exposing to risk for ADRs. We also highlight interethnic differentiation of some common pharmacogenetics variants between Central (Czech) and North European (Finnish) population studies, suggesting the utility of PGx-informed prescription based on variant genotyping. Link to the article: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0284386
40.	Risk Factors Associated with the Consumption of Sugar-Sweetened Beverages among Czech Adults: The Kardiovize Study	Kunzova, Monika; Geraldo A. Maranhao Neto; María M. Infante-Garcia; Ramfis Nieto-Martinez; Juan P. González-Rivas.	Nutrients	High consumption of sugar-sweetened beverages (SSBs) is associated with a higher risk of cardiovascular disease (CVD). The last report on the prevalence of SSBs consumption in Czechia was 17 years ago, an updated analysis will enable the design of appropriate public health policies. This study aimed to determine the prevalence of SSBs consumption in a Czech city during 2020 and 2022, and its association with cardiometabolic biomarkers, behavioral risk factors, and socioeconomic determinants. A total of 730 participants (33 to 73 years) were assessed from a random population-based survey. SSBs consumption was evaluated using two methods: by calorie amount, with a 24 h dietary recall, and by frequency, with a food frequency questionnaire. By calorie amount, the prevalence of SSBs consumption was none: 52.5%, low: 30.0%, and moderate–high: 17.5%; by frequency was never: 16.0%, occasionally: 64.1%, and daily:

				19.9%. SSBs intake was higher in men ($p < 0.001$) and younger participants ($p = 0.001$). Men consuming daily had higher waist circumference and visceral fat area compared to both occasional and never consumers. Higher SSBs consumption was associated with low household income, middle education level, and high total energy intake. In total, 20% drank SSBs daily and 17.5% of participants consumed moderate–high calorie amounts of SSBs. These results represent an increase in the prevalence of SSBs consumption in the last two decades. Public health policies should target men of younger age and people with low education and income. Link to the article: https://www.mdpi.com/2072-6643/14/24/5297
41.	Natural Pattern of Cognitive Aging	Novotný Jan S.; Gonzalez-Rivas Juan P.; Vassilaki Mariad; Krell-Roesch Janinad; Geda Yonas E.; Stokin Gorazd B.	J Alzheimers Dis.	We found a gradual decrease in cognitive performance across the lifespan, which required two decades to demonstrate significant changes. In contrast to attention and learning, psychomotor speed and working memory showed the most significant age-related decrease and variability in performance. The established pattern of cognitive aging was not altered by sex or education. Link to the article: https://pubmed.ncbi.nlm.nih.gov/35754277/
42.	The Combined Effects of Television Viewing and Physical Activity on Cardiometabolic Risk Factors: The Kardiovize Study	Maranhao Neto, Geraldo A.; Iuliia Pavlovska; Anna Polcrova; Jeffrey I. Mechanick; Maria M. Infante-Garcia; Jose Medina-Inojosa; Ramfis Nieto-Martinez; Francisco Lopez-Jimenez; Juan P. Gonzalez-Rivas	Journal of Clinical Medicine	Background: The aim of the present study was to evaluate the association between television viewing/physical activity (TVV/PA) interactions and cardiometabolic risk in an adult European population. A total of 2155 subjects (25–64 years) (45.2% males), a random population-based sample were evaluated in Brno, Czechia. TVV was classified as low (<2 h/day), moderate (2–4), and high (≥4). PA was classified as insufficient, moderate, and high. To assess the independent association of TVV/PA categories with cardiometabolic variables, multiple linear regression was used. After adjustments, significant associations were: High TVV/insufficient PA with body mass index (BMI) ($\beta = 2.61$, SE = 0.63), waist circumference (WC) ($\beta = 7.52$, SE = 1.58), body fat percent (%BF) ($\beta = 6.24$, SE = 1.02), glucose ($\beta = 0.25$, SE = 0.12), triglycerides ($\beta = 0.18$, SE = 0.05), and high density lipoprotein (HDL-c) ($\beta = -0.10$, SE = 0.04); high TVV/moderate PA with BMI ($\beta = 1.98$, SE = 0.45), WC ($\beta = 5.43$, SE = 1.12), %BF ($\beta = 5.15$, SE = 0.72), triglycerides ($\beta = 0.08$, SE = 0.04), total cholesterol ($\beta = 0.21$, SE = 0.10), low

				density protein (LDL-c) (β = 0.19, SE = 0.08), and HDL-c (β = −0.07, SE = 0.03); and moderate TVV/insufficient PA with WC (β = 2.68, SE = 1.25), %BF (β = 3.80, SE = 0.81), LDL-c (β = 0.18, SE = 0.09), and HDL-c (β = −0.07, SE = 0.03). Independent of PA levels, a higher TVV was associated with higher amounts of adipose tissue. Higher blood glucose and triglycerides were present in subjects with high TVV and insufficient PA, but not in those with high PA alone. These results affirm the independent cardiometabolic risk of sedentary routines even in subjects with high-levels of PA. Link to the article: https://www.mdpi.com/2077-0383/11/3/545