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**ABSI and CVD and CVD Testing**

**ABSI references to 6/24:**[**https://drjessekrakauer.com/absi.html**](https://drjessekrakauer.com/absi.html)

**https://en.wikipedia.org/wiki/Body\_shape\_index**

**ABSI = WC weight-2/3height5/6 = WC/(BMI2/3height1/2)**

**Song X, Jousilahti P, Stehouwer CD, Söderberg S, Onat A, Laatikainen T, Yudkin JS, Dankner R, Morris R, Tuomilehto J, Qiao Q. Comparison of various surrogate obesity indicators as predictors of cardiovascular mortality in four European populations. Eur J Clin Nutr. 2013 Dec;67(12):1298-302. doi: 10.1038/ejcn.2013.203. Epub 2013 Oct 23. PMID: 24149442.**

**Sowmya S, Thomas T, Bharathi AV, Sucharita S. A body shape index and heart rate variability in healthy indians with low body mass index. J Nutr Metab. 2014;2014:865313. doi: 10.1155/2014/865313. Epub 2014 Oct 2. PMID: 25371818; PMCID: PMC4202247.**

**Maessen MF, Eijsvogels TM, Verheggen RJ, Hopman MT, Verbeek AL, de Vegt F. Entering a new era of body indices: the feasibility of a body shape index and body roundness index to identify cardiovascular health status. PLoS One. 2014 Sep 17;9(9):e107212. doi: 10.1371/journal.pone.0107212. PMID: 25229394; PMCID: PMC4167703**. **(anthropometric measures self reported)**

**Dhana K, Ikram MA, Hofman A, Franco OH, Kavousi M. Anthropometric measures in cardiovascular disease prediction: comparison of laboratory-based versus non-laboratory-based model. Heart. 2015 Mar;101(5):377-83. doi: 10.1136/heartjnl-2014-306704. Epub 2014 Dec 11. PMID: 25502814.**

**Kaan Sözmen, Belgin Ünal, Sibel Sakarya, Gönül Dinç, Nazan Yardım, Bekir Keskinkılıç, Gül Ergör (2016) Association of Anthropometric Measurement Methods with Cardiovascular Disease Risk in Turkey. Dicle Medical Journal 43 (1): 99-106. doi: 10.5798/diclemedj.0921.2016.01.0646 in Turkish, English abstract**

**Chau K, Girerd N, Bozec E, Ferreira JP, Duarte K, Nazare JA, Laville M, Benetos A, Zannad F, Boivin JM, Rossignol P. Association between abdominal adiposity and 20-year subsequent aortic stiffness in an initially healthy population-based cohort. J Hypertens. 2018 Oct;36(10):2077-2084. doi: 10.1097/HJH.0000000000001796. PMID: 29878971.**

**Wang F, Chen Y, Chang Y, Sun G, Sun Y. New anthropometric indices or old ones: which perform better in estimating cardiovascular risks in Chinese adults. BMC Cardiovasc Disord. 2018 Jan 30;18(1):14. doi: 10.1186/s12872-018-0754-z. PMID: 29378513; PMCID: PMC5789564.**

**Nagayama D, Sugiura T, Choi SY, Shirai K. Various Obesity Indices and Arterial Function Evaluated with CAVI - Is Waist Circumference Adequate to Define Metabolic Syndrome? Vasc Health Risk Manag. 2022 Sep 12;18:721-733. doi: 10.2147/VHRM.S378288. PMID: 36120718; PMCID: PMC9480599.**

**Nagayama D, Fujishiro K, Watanabe Y, Yamaguchi T, Suzuki K, Saiki A, Shirai K. A Body Shape Index (ABSI) as a Variant of Conicity Index Not Affected by the Obesity Paradox: A Cross-Sectional Study Using Arterial Stiffness Parameter. J Pers Med. 2022 Dec 5;12(12):2014. doi: 10.3390/jpm12122014. PMID: 36556235; PMCID: PMC9783005**

**Mameli C, Krakauer NY, Krakauer JC, Bosetti A, Ferrari CM, Moiana N, et al. (2018) The association between a body shape index and cardiovascular risk in overweight and obese children and adolescents. PLoS ONE 13(1): e0190426.**

**Beraldo RA, Meliscki GC, Silva BR, Navarro AM, Bollela VR, Schmidt A, Foss-Freitas MC. Anthropometric measures of central adiposity are highly concordant with predictors of cardiovascular disease risk in HIV patients. Am J Clin Nutr. 2018 Jun 1;107(6):883-893. doi: 10.1093/ajcn/nqy049. PMID: 29868914.**

**Moon S, Park JH, Ryu OH, Chung W. Effectiveness of Z-score of log-transformed A Body Shape Index (LBSIZ) in predicting cardiovascular disease in Korea: the Korean Genome and Epidemiology Study. Sci Rep. 2018 Aug 14;8(1):12094. doi: 10.1038/s41598-018-30600-9. PMID: 30108276;**

**Isaura ER, Chen YC, Yang SH. Pathways from Food Consumption Score to Cardiovascular Disease: A Seven-Year Follow-Up Study of Indonesian Adults. Int J Environ Res Public Health. 2018 Jul 24;15(8):1567. doi: 10.3390/ijerph15081567. PMID: 30042353; PMCID: PMC6121947.**

**Corbatón-Anchuelo A, Krakauer JC, Serrano-García I, Krakauer NY, Martínez-Larrad MT, Serrano-Ríos M. A Body Shape Index (ABSI) and Hip Index (HI) Adjust Waist and Hip Circumferences for Body Mass Index, But Only ABSI Predicts High Cardiovascular Risk in the Spanish Caucasian Population. Metab Syndr Relat Disord. 2021 Mar 11. doi: 10.1089/met.2020.0129. Epub ahead of print. PMID: 33709800.**

**Cho HW, Chung W, Moon S, Ryu OH, Kim MK, Kang JG. Effect of Sarcopenia and Body Shape on Cardiovascular Disease According to Obesity Phenotypes. Diabetes Metab J. 2021 Mar;45(2):209-218. doi: 10.4093/dmj.2019.0223. Epub 2020 Jul 10. PMID: 32662256; PMCID: PMC8024159**

**Ferreira HS, Soares ML, Krakauer NY, Santos EA, Krakauer JC, Uchôa TC, Santos TR, Dos Anjos LA. What is the best anthropometric predictor for identifying higher risk for cardiovascular diseases in afro-descendant Brazilian women? A cross-sectional population-based study. Am J Hum Biol. 2022 Mar;34(3):e23652. doi: 10.1002/ajhb.23652. Epub 2021 Jul 22. PMID: 34292635.**

**Abete I, Arriola L, Etxezarreta N, Mozo I, Moreno-Iribas C, Amiano P, Egüés N, Goyenechea E, Lopez de Munain A, Martinez M, Travier N, Navarro C, Chirlaque MD, Tormo MJ, Gavrila D, Huerta JM, Sánchez MJ, Molina-Montes E, Requena M, Jiménez-Hernández MD, Ardanaz E, Barricarte A, Quiros JR, Rodriguez L, Dorronsoro M. Association between different obesity measures and the risk of stroke in the EPIC Spanish cohort. Eur J Nutr. 2015 Apr;54(3):365-75. doi: 10.1007/s00394-014-0716-x. Epub 2014 Jun 6. PMID: 24903807.**

**Fatema K, Rahman B, Zwar NA, Milton AH, Ali L. Short-term predictive ability of selected cardiovascular risk prediction models in a rural Bangladeshi population: a case-cohort study. BMC Cardiovasc Disord. 2016 May 26;16(1):105. doi: 10.1186/s12872-016-0279-2. PMID: 27386836; PMCID: PMC4937534.**

**Bozorgmanesh M, Sardarinia M, Hajsheikholeslami F, Azizi F, Hadaegh F. CVD-predictive performances of "a body shape index" versus simple anthropometric measures: Tehran lipid and glucose study. Eur J Nutr. 2016 Feb;55(1):147-57. doi: 10.1007/s00394-015-0833-1. Epub 2015 Jan 18. PMID: 25596850.**

**Wu TW, Hung CL, Liu CC, Wu YJ, Wang LY, Yeh HI. Associations of Cardiovascular Risk Factors with Carotid Intima-Media Thickness in Middle-Age Adults and Elders. J Atheroscler Thromb. 2017 Jul 1;24(7):677-686. doi: 10.5551/jat.37895. Epub 2016 Nov 18. PMID: 27874838; PMCID: PMC5517541**

**Chung W, Park JH, Ryu OH, Yu JM, Yoo HJ, Moon S. Association of Z-Score of the Log-Transformed A Body Shape Index with Cardiovascular Disease in People Who Are Obese but Metabolically Healthy: The Korea National Health and Nutrition Examination Survey 2007-2010. J Obes Metab Syndr. 2018 Sep 30;27(3):158-165. doi: 10.7570/jomes.2018.27.3.158. PMID: 31089558; PMCID: PMC6504195.**

**Gomez-Marcos MA, Gomez-Sanchez L, Patino-Alonso MC, Recio-Rodriguez JI, Gomez-Sanchez M, Rigo F, Marti R, Agudo-Conde C, Ramos R, Rodriguez-Sanchez E, Maderuelo-Fernandez JA, Garcia-Ortiz L; MARK Group. A body shape index and vascular structure and function in Spanish adults (MARK study): A cross-sectional study. Medicine (Baltimore). 2018 Nov;97(47):e13299. doi: 10.1097/MD.0000000000013299. PMID: 30461641; PMCID: PMC6392544.**

# Oh CM, Park JH, Chung HS, Yu JM, Chung W, Kang JG, Moon S. Effect of body shape on the development of cardiovascular disease in individuals with metabolically healthy obesity. Medicine (Baltimore). 2020 Sep 18;99(38):e22036. doi: 10.1097/MD.0000000000022036. PMID: 32957321; PMCID: PMC7505363.

## Tabary M, Cheraghian B, Mohammadi Z, Rahimi Z, Naderian MR, Danehchin L, Paridar Y, Abolnejadian F, Noori M, Mard SA, Masoudi S, Araghi F, Shayesteh AA, Poustchi H. Association of anthropometric indices with cardiovascular disease risk factors among adults: a study in Iran. Eur J Cardiovasc Nurs. 2021 May 22;20(4):358-366. doi: 10.1093/eurjcn/zvaa007. PMID: 33620478.

**Does Physical Activity Level Affect Homocysteine and Obesity Variables in Women with Cardiovascular Disease? July 2021,** [**Medical Laboratory Journal**](https://www.researchgate.net/journal/Medical-Laboratory-Journal-2538-4449)**15(4):21-27 DOI:**[**10.52547/mlj.15.4.21**](http://dx.doi.org/10.52547/mlj.15.4.21) **(Physical activity and ABSI)**

**Abid F, Irfan M, Ali Z, Fatima U. Body Shape Index, Body Adiposity Index, and Body Roundness Index to Predict Cardiovascular Health Status. Pak J Med Dent. 2022;11(4): 55-60. doi: 10.36283/PJMD11-4/009**

**Hacıağaoğlu N, Öner C, Çetin H, Şimşek EE. Body Shape Index and Cardiovascular Risk in Individuals With Obesity. Cureus. 2022 Jan 14;14(1):e21259. doi: 10.7759/cureus.21259. PMID: 35178315; PMCID: PMC8843105.**

# Hozhabrnia A, Jambarsang S, Namayandeh SM. Cut-off values of obesity indices to predict coronary heart disease incidence by time-dependent receiver operating characteristic curve analysis in 10-year follow-up in study of Yazd Healthy Heart Cohort, Iran. ARYA Atheroscler. 2022 May;18(3):1-10. doi: 10.48305/arya.2022.24262. PMID: 36815958; PMCID: PMC9931948.

**Nagayama D, Watanabe Y, Yamaguchi T, Suzuki K, Saiki A, Fujishiro K, Shirai K. Issue of Waist Circumference for the Diagnosis of Metabolic Syndrome Regarding Arterial Stiffness: Possible Utility of a Body Shape Index in Middle-Aged Nonobese Japanese Urban Residents Receiving Health Screening. Obes Facts. 2022;15(2):160-169. doi: 10.1159/000520418. Epub 2022 Jan 10. PMID: 35008086; PMCID: PMC9021625.**

**Ishida A, Taira H, Shinzato T, Ohya Y. Association between visceral fat mass and arterial stiffness among community-based screening participants. Hypertens Res. 2023 Jun 23. doi: 10.1038/s41440-023-01350-7. Epub ahead of print. PMID: 37353686.**

**Costo-Muriel C, Calderón-García JF, Rico-Martín S, Sánchez-Bacaicoa C, Escudero-Sánchez G, Galán-González J, Rodríguez-Velasco FJ, Sánchez Muñoz-Torrero JF. Association of Subclinical Carotid Atherosclerosis Assessed by High-Resolution Ultrasound With Traditional and Novel Anthropometric Indices. Curr Probl Cardiol. 2023 Apr;48(4):101574. doi: 10.1016/j.cpcardiol.2022.101574. Epub 2022 Dec 28. PMID: 36584728.**

**Mirzababaei A, Abaj F, Khosravinia D, Ghorbani M, Valisoltani N, Clark CCT, Radmehr M, Mirzaei K. The mediatory effect of inflammatory markers on the association between a body shape index and body roundness index with cardiometabolic risk factor in overweight and obese women: a cross-sectional study. Front Nutr. 2023 Jun 9;10:1178829. doi: 10.3389/fnut.2023.1178829. PMID: 37360300; PMCID: PMC10288880.**

# Li W, Wang Z, Li M, Xie J, Gong J, Liu N. Association between a body shape index and abdominal aortic calcification in general population: A cross-sectional study. Front Cardiovasc Med. 2023 Jan 10;9:1091390. doi: 10.3389/fcvm.2022.1091390. PMID: 36704474; PMCID: PMC9871763.

**+Yanwei Yin, Hanzhi Wu, Fangmeng Lei, Wenlin Lu, Yanqing Shen, Wenjing Hu, Xiaoxiao Liu, Xinhe Ye, Chengjian Yang. Relationship between Novel Anthropometric Indices and the Prevalence of Abdominal Aortic Calcification: A Large Cross-Sectional Study. *Rev. Cardiovasc. Med.* 2023, 24(12), 349.**[**https://doi.org/10.31083/j.rcm2412349**](https://doi.org/10.31083/j.rcm2412349)

**Hayajneh AA, Alhusban IM, Rababa M, Al-Sabbah S, Bani-Hamad D, Al-Mugheed K, Al-Nusour EA, Alsatari ES. The association of traditional obesity parameters with the length of stay among patients with coronary artery disease: A cross-sectional study. Medicine (Baltimore). 2023 Dec 22;102(51):e36731. doi: 10.1097/MD.0000000000036731. PMID: 38134084; PMCID: PMC10735059.**

**Nagayama D, Krakauer JC, Krakauer NY, Sugiura T, Watanabe Y, Shimizu K, Saiki A, Suzuki K, Fujishiro K, Shirai K. Cumulative Cigarette Consumption is Associated with Cardio-Ankle Vascular Index (CAVI) Mediated by Abdominal Obesity Assessed by A Body Shape Index (ABSI): A Cross-Sectional Study. J Atheroscler Thromb. 2023 May 18. doi: 10.5551/jat.64221. Epub ahead of print. PMID: 37197950.**

**Tang L, Zeng L. Comparative efficacy of anthropometric indices in predicting 10-year ASCVD risk: insights from NHANES data. Front Cardiovasc Med. 2024 Feb 29;11:1341476. doi: 10.3389/fcvm.2024.1341476. PMID: 38486705; PMCID: PMC10937732.**

**Davis TME, Tan E, Davis WA. Prevalence and prognostic significance of cardiac autonomic neuropathy in community-based people with type 2 diabetes: the Fremantle Diabetes Study Phase II. Cardiovasc Diabetol. 2024 Mar 18;23(1):102. doi: 10.1186/s12933-024-02185-3. PMID: 38500197; PMCID: PMC10949593.**

**Ikeue K, Kusakabe T, Yamakage H, Ishii K, Satoh-Asahara N. A body shape index is useful for BMI-independently identifying Japanese patients with obesity at high risk of cardiovascular disease. Nutr Metab Cardiovasc Dis. 2024 Feb;34(2):387-394. doi: 10.1016/j.numecd.2023.09.008. Epub 2023 Sep 14. PMID: 37949708.**

**Hu F, Zhou W, Wang T, Yu C, Zhu L, Bao H, Cheng X. Association between six different types of anthropometric indices and arterial stiffness measured by brachial-ankle pulse wave velocity in hypertensive Chinese adults. Heliyon. 2024 Mar 27;10(7):e28523. doi: 10.1016/j.heliyon.2024.e28523. PMID: 38601660; PMCID: PMC11004534.**

**He H, Chen Y, Liao Y, Hu L, Qin H, Yang R. Association between body shape index and coronary heart disease in individuals over 20 years old with obese. J Health Popul Nutr. 2024 Aug 16;43(1):123. doi: 10.1186/s41043-024-00614-3. PMID: 39152519; PMCID: PMC11330033.**

**Butt, J.H., Thune, J.J., Nielsen, J.C., Haarbo, J., Videbæk, L., Gustafsson, F., Kristensen, S.L., Bruun, N.E., Eiskjær, H., Brandes, A., Hassager, C., Svendsen, J.H., Høfsten, D.E., Torp-Pedersen, C., Schou, M., Pehrson, S., Packer, M., McMurray, J.J.V. and Køber, L. (2024), Anthropometric measures and long-term mortality in non-ischaemic heart failure with reduced ejection fraction: Questioning the obesity paradox. Eur J Heart Fail.**[**https://doi.org/10.1002/ejhf.3424**](https://doi.org/10.1002/ejhf.3424)

**Lee TL, Hsuan CF, Hsu CC, Wei CT, Wang CP, Lu YC, Tang WH, Lu NH, Chung FM, Lee YJ, Tsai IT. Associations of circulating total p-cresylsulfate and indoxyl sulfate concentrations with central obesity in patients with stable coronary artery disease: sex-specific insights. Int J Obes (Lond). 2024 Sep 5. doi: 10.1038/s41366-024-01624-1. Epub ahead of print. PMID: 39237758.**

**Saz-Lara A, Cavero-Redondo I, Moreno-Herráiz N, Rescalvo-Fernández E, Berlanga-Macías C, Medrano M, Fuentes Chacón RM, Pascual-Morena C. Association between body shape index and arterial stiffness: results of the EVasCu study and a meta-analysis. Int J Obes (Lond). 2024 Oct 28. doi: 10.1038/s41366-024-01663-8. Epub ahead of print. PMID: 39468316.**

**MinQi Gu, DongDong Zhang, YuYing Wu, Xi Li, JinLiang Liang, YaQin Su, Li Yang, TaiFeng Chen, BoTang Guo, Yang Zhao, XueRu Fu, LiuDing Wen, ChuXia Lu, YuKe Chen, WanHe Huang, Pei Qin, FuLan Hu, DongSheng Hu, Ming Zhang,**

**Association between Brachial-Ankle Pulse Wave Velocity, Obesity-Related Indices, and the 10-Year Incident Risk Score of Atherosclerotic Cardiovascular Disease: The Rural Chinese Cohort Study.,**

**Nutrition, Metabolism and Cardiovascular Diseases,**

**2024,** [**https://doi.org/10.1016/j.numecd.2024.103791**](https://doi.org/10.1016/j.numecd.2024.103791)**.**

**Zhang S, Xu P, Wei T, Wei C, Zhang Y, Lu H, Zhang C. Novel Adiposity Indices Are Associated With Poor Prognosis in Heart Failure With Preserved Ejection Fraction Without the Obesity Paradox. J Am Heart Assoc. 2024 Nov 19;13(22):e035430. doi: 10.1161/JAHA.124.035430. Epub 2024 Nov 4. PMID: 39494530.**