

DAFTAR PUSTAKA

1. Cooper M. Notes from the field: E-cigarette use among middle and high school students—United States, 2022. *MMWR Morb Mortal Wkly Rep.* 2022;71.
2. World Health Organization. Global Adult Tobacco Survey Fact Sheet Indonesia 2021. *Global Adult Tobacco Survey Tobacco Survey.* 2022;1:2.
3. World Health Organization. Global Adult Tobacco Survey Comparison Fact Sheet 2011 and 2021. *Global Adult Tobacco Survey.* 2022;1:2.
4. Jane Ling MY, Abdul Halim AFN, Ahmad D, Ahmad N, Safian N, Mohammed Nawi A. Prevalence and Associated Factors of E-Cigarette Use among Adolescents in Southeast Asia: A Systematic Review. *Int J Environ Res Public Health.* 2023;20(5):3883.
5. Guerin N, White V. Secondary school students' use of tobacco, alcohol and other drugs in 2017. 2nd Ed. Victoria: Cancer Council Victoria; 2017. 21 p.
6. Rapoport E, Zhu M, Pham D, Keim SA, Adesman A. Sports Team Participation and Vaping Among High School Students: 2015–2019. *Pediatrics.* 2023;151(1).
7. Bigwanto M, Arumsari I, Fauzi R. The portrayal of electronic cigarettes in Indonesia: a content analysis of news media. *BMC Public Health.* 2023;23(1):1–10.
8. Park JA, Crotty Alexander LE, Christiani DC. Vaping and Lung Inflammation and Injury. *Annu Rev Physiol.* 2022;84(1):611–29.
9. Münzel T, Daiber A, Hahad O. Are e-cigarettes dangerous or do they boost our health: no END (S) of the discussion in sight. Vol. 30, *European Journal of Preventive Cardiology.* Oxford University Press US; 2023. p. 422–4.
10. George J, Hussain M, Vadiveloo T, Ireland S, Hopkinson P, Struthers AD, et al. Cardiovascular effects of switching from tobacco cigarettes to electronic cigarettes. *J Am Coll Cardiol.* 2019;74(25):3112–20.
11. Kennedy CD, van Schalkwyk MCI, McKee M, Pisinger C. The cardiovascular effects of electronic cigarettes: a systematic review of experimental studies. *Prev Med (Baltim).* 2019;127:105770.
12. Song MA, Freudenheim JL, Brasky TM, Mathe EA, McElroy JP, Nickerson QA, et al. Biomarkers of exposure and effect in the lungs of smokers, nonsmokers, and electronic cigarette users. *Cancer Epidemiology, Biomarkers & Prevention.* 2020;29(2):443–51.
13. Mayyas F, Aldawod H, Alzoubi KH, Khabour O, Shihadeh A, Eissenberg T. Comparison of the cardiac effects of electronic cigarette aerosol exposure with waterpipe and combustible cigarette smoke exposure in rats. *Life Sci.* 2020;251:117644.
14. Kavousi M, Pisinger C, Barthelemy JC, De Smedt D, Koskinas K, Marques-Vidal P, et al. Electronic cigarettes and health with special focus on cardiovascular effects: position paper of the European Association of Preventive Cardiology (EAPC). *Eur J Prev Cardiol.* 2021;28(14):1552–66.

15. Spoladore R, Daus F, Pezzini S, Milani M, Limonta A, Savonitto S. The point on the electronic cigarette more than 10 years after its introduction. *European Heart Journal Supplements*. 2022;24(Supplement_D):I148–52.
16. Majid S, Weisbrod RM, Fetterman JL, Keith RJ, Rizvi SHM, Zhou Y, et al. Pod-based e-liquids impair human vascular endothelial cell function. *PLoS One*. 2023;18(1):e0280674.
17. Daiber A, Kuntic M, Oelze M, Hahad O, Münzel T. E-cigarette effects on vascular function in animals and humans. *Pflugers Arch*. 2023;
18. McNeill A, Brose L, Robson D, Calder R, Simonavicius E, East K, et al. Nicotine vaping in England: an evidence update including health risks and perceptions, 2022. 2022;
19. Pokhrel P, Schmid S, Pagano I. Physical activity and use of cigarettes and e-cigarettes among young adults. *Am J Prev Med*. 2020;58(4):580–3.
20. Young SE, Henderson CA, Couperus KS. The effects of electronic nicotine delivery systems on athletes. *Curr Sports Med Rep*. 2020;19(4):146–50.
21. Albarrati AM, Alghamdi MSM, Nazer RI, Alkorashy MM, Alshowier N, Gale N. Effectiveness of low to moderate physical exercise training on the level of low-density lipoproteins: A systematic review. *Biomed Res Int*. 2018;2018.
22. Park W, Miyachi M, Tanaka H. Does aerobic exercise mitigate the effects of cigarette smoking on arterial stiffness? *The Journal of Clinical Hypertension*. 2014;16(9):640–4.
23. Bielec G, Kwaśna A. Effect of COVID-19 Lockdown on Cardiovascular Health in University Students. *Int J Environ Res Public Health*. 2022;19(23):15483.
24. Hermassi S, Hayes LD, Salman A, Sanal-Hayes NEM, Abassi E, Al-Kuwari L, et al. Physical activity, sedentary behavior, and satisfaction with life of university students in Qatar: Changes during confinement due to the COVID-19 pandemic. *Front Psychol*. 2021;12:704562.
25. Franklin BA, Eijsvogels TMH. A narrative review on exercise and cardiovascular disease: Physical activity thresholds for optimizing health outcomes. *Heart and Mind*. 2023;7(1):34.
26. Gao J, Pan X, Li G, Chatterjee E, Xiao J. Physical exercise protects against endothelial dysfunction in cardiovascular and metabolic diseases. *J Cardiovasc Transl Res*. 2021;1–17.
27. Kumboyono K, Chomsy IN, Firdaus DH, Setiawan M, Wihastuti TA. Protective cardiovascular benefits of exercise training as measured by circulating endothelial cells and high-density lipoprotein in adults. *J Taibah Univ Med Sci*. 2022;17(4):701–6.
28. Pianta S, Lee JY, Tuazon JP, Castelli V, Mantohac LM, Tajiri N, et al. A short bout of exercise prior to stroke improves functional outcomes by enhancing angiogenesis. *Neuromolecular Med*. 2019;21:517–28.
29. De Feo P. Is high-intensity exercise better than moderate-intensity exercise for weight loss? *Nutrition, Metabolism and Cardiovascular Diseases*. 2013;23(11):1037–42.

30. Pingitore A, Lima GPP, Mastorci F, Quinones A, Iervasi G, Vassalle C. Exercise and oxidative stress: Potential effects of antioxidant dietary strategies in sports. *Nutrition*. 2015;31(7–8):916–22.
31. Severinsen MCK, Pedersen BK. Muscle–organ crosstalk: the emerging roles of myokines. *Endocr Rev*. 2020;41(4):594–609.
32. Görgens SW, Raschke S, Holven KB, Jensen J, Eckardt K, Eckel J. Regulation of follistatin-like protein 1 expression and secretion in primary human skeletal muscle cells. *Arch Physiol Biochem*. 2013;119(2):75–80.
33. Hogg B. Interleukin-6 and exercise; early evidence of a novel myokine. University of Montana; 2018.
34. Crane JD, MacNeil LG, Lally JS, Ford RJ, Bujak AL, Brar IK, et al. Exercise-stimulated interleukin-15 is controlled by AMPK and regulates skin metabolism and aging. *Aging Cell*. 2015;14(4):625–34.
35. Görgens S. Identification and Characterization of Novel Myokines. German Diabetes Center, Dusseldorf, Germany; 2015.
36. Clayton ZS, Brunt VE, Hutton DA, Casso AG, Ziemba BP, Melov S, et al. Tumor necrosis factor alpha-mediated inflammation and remodeling of the extracellular matrix underlies aortic stiffening induced by the common chemotherapeutic agent doxorubicin. *Hypertension*. 2021;77(5):1581–90.
37. Vasconcelos EDS, Salla RF. Role of interleukin-6 and interleukin-15 in exercise. *MOJ Immunol*. 2018;6(1):17–9.
38. Lamb FS, Choi H, Miller MR, Stark RJ. TNF α and reactive oxygen signaling in vascular smooth muscle cells in hypertension and atherosclerosis. *Am J Hypertens*. 2020;33(10):902–13.
39. Jaminon A, Reesink K, Kroon A, Schurgers L. The role of vascular smooth muscle cells in arterial remodeling: focus on calcification-related processes. *Int J Mol Sci*. 2019;20(22):5694.
40. Inoue K, Fujie S, Horii N, Yamazaki H, Uchida M, Iemitsu M. Aerobic exercise training-induced follistatin-like 1 secretion in the skeletal muscle is related to arterial stiffness via arterial NO production in obese rats. *Physiol Rep*. 2022;10(10):e15300.
41. Cooper LL, Palmisano JN, Benjamin EJ, Larson MG, Vasan RS, Mitchell GF, et al. Microvascular function contributes to the relation between aortic stiffness and cardiovascular events: the Framingham Heart Study. *Circ Cardiovasc Imaging*. 2016;9(12):e004979.
42. Saz-Lara A, Caverio-Redondo I, Álvarez-Bueno C, Notario-Pacheco B, Ruiz-Grao MC, Martínez-Vizcaíno V. The acute effect of exercise on arterial stiffness in healthy subjects: a meta-analysis. *J Clin Med*. 2021;10(2):291.
43. Muñoz-Cánoves P, Scheele C, Pedersen BK, Serrano AL. IL-6 myokine signaling in skeletal muscle: a double-edged sword. *FEBS J*.
44. Han F, Li S, Yang Y, Bai Z. Interleukin-6 promotes ferroptosis in bronchial epithelial cells by inducing reactive oxygen species-dependent lipid peroxidation and disrupting iron homeostasis. *Bioengineered*. 2021;12(1):5279–88.

45. Mauer J, Denson JL, Brüning JC. Versatile functions for IL-6 in metabolism and cancer. *Trends Immunol.* 2015;36(2):92–101.
46. Fischer CP. Interleukin-6 in acute exercise and training: what is the biological relevance. *Exerc immunol rev.* 2006;12(6–33):41.
47. Han MS, White A, Perry RJ, Camporez JP, Hidalgo J, Shulman GI, et al. Regulation of adipose tissue inflammation by interleukin 6. *Proceedings of the National Academy of Sciences.* 2020;117(6):2751–60.
48. Michon M, Mercier C, Petit C, Leclerc L, Bertoletti L, Pourchez J, et al. In Vitro Biological Effects of E-Cigarette on the Cardiovascular System—Pro-Inflammatory Response Enhanced by the Presence of the Cinnamon Flavor. *Toxics.* 2022;10(12):784.
49. Fetterman JL, Weisbrod RM, Feng B, Bastin R, Tuttle ST, Holbrook M, et al. Flavorings in tobacco products induce endothelial cell dysfunction. *Arterioscler Thromb Vasc Biol.* 2018;38(7):1607–15.
50. Chen IL, Todd I, Tighe PJ, Fairclough LC. Electronic cigarette vapour moderately stimulates pro-inflammatory signalling pathways and interleukin-6 production by human monocyte-derived dendritic cells. *Arch Toxicol.* 2020;94:2097–112.
51. Gellatly S, Pavelka N, Crue T, Schweitzer KS, Day BJ, Min E, et al. Nicotine-free e-cigarette vapor exposure stimulates IL6 and mucin production in human primary small airway epithelial cells. *J Inflamm Res.* 2020;175–85.
52. Desjardins MP, Sidibé A, Fortier C, Mac-Way F, Marquis K, De Serres S, et al. Association of interleukin-6 with aortic stiffness in end-stage renal disease. *Journal of the American Society of Hypertension.* 2018;12(1):5–13.
53. Espinoza-Derout J, Shao XM, Lao CJ, Hasan KM, Rivera JC, Jordan MC, et al. Electronic cigarette use and the risk of cardiovascular diseases. *Front Cardiovasc Med.* 2022;9.
54. Lee HS, Oh HJ, Ra K, Kim JH. Effect of Moderate-Intensity Endurance Exercise on Inflammatory Cytokines in Leukocytes of Dogs. *Applied Sciences.* 2021;12(1):215.
55. Barra NG, Palanivel R, Denou E, Chew M V, Gillgrass A, Walker TD, et al. Interleukin-15 modulates adipose tissue by altering mitochondrial mass and activity. *PLoS One.* 2014;9(12):e114799.
56. Para I, Albu A, Porojan MD. Adipokines and arterial stiffness in obesity. *Medicina (B Aires).* 2021;57(7):653.
57. Li L, Huang C, Yin H, Zhang X, Wang D, Ma C, et al. Interleukin-6 mediated exercise-induced alleviation of adiposity and hepatic steatosis in mice. *BMJ Open Diabetes Res Care.* 2021;9(1):e001431.
58. Pedersen BK, Åkerström TCA, Nielsen AR, Fischer CP. Role of myokines in exercise and metabolism. *J Appl Physiol.* 2007;
59. Guo L, Liu M, Huang J, Li J, Jiang J, Wang J. Role of interleukin-15 in cardiovascular diseases. *J Cell Mol Med.* 2020;24(13):7094–101.
60. Mian MF, Pek EA, Mossman KL, Stämpfli MR, Ashkar AA. Exposure to cigarette smoke suppresses IL-15 generation and its regulatory NK cell

- functions in poly I: C-augmented human PBMCs. *Mol Immunol*. 2009;46(15):3108–16.
61. Harhous Z, Booz GW, Ovize M, Bidaux G, Kurdi M. An update on the multifaceted roles of STAT3 in the heart. *Front Cardiovasc Med*. 2019;6:150.
 62. Yeghiazarians Y, Honbo N, Imhof I, Woods B, Aguilera V, Ye J, et al. IL-15: A novel pro-survival signaling pathway in cardiomyocytes. *J Cardiovasc Pharmacol*. 2014;63(5):406.
 63. Tarantino G, Citro V, Balsano C, Capone D. Age and interleukin-15 levels are independently associated with intima-media thickness in obesity-related NAFLD patients. *Front Med (Lausanne)*. 2021;8:634962.
 64. Cercek M, Matsumoto M, Li H, Chyu KY, Peter A, Shah PK, et al. Autocrine role of vascular IL-15 in intimal thickening. *Biochem Biophys Res Commun*. 2006;339(2):618–23.
 65. Lacolley P, Regnault V, Segers P, Laurent S. Vascular smooth muscle cells and arterial stiffening: relevance in development, aging, and disease. *Physiol Rev*. 2017;
 66. Quinn LS, Anderson BG, Strait-Bodey L, Stroud AM, Argilés JM. Oversecretion of interleukin-15 from skeletal muscle reduces adiposity. *American Journal of Physiology-Endocrinology and Metabolism*. 2009;296(1):E191–202.
 67. Tamura Y, Watanabe K, Kantani T, Hayashi J, Ishida N, Kaneki M. Upregulation of circulating IL-15 by treadmill running in healthy individuals: is IL-15 an endocrine mediator of the beneficial effects of endurance exercise? *Endocr J*. 2011;58(3):211–5.
 68. Shiels MS, Katki HA, Freedman ND, Purdue MP, Wentzensen N, Trabert B, et al. Cigarette smoking and variations in systemic immune and inflammation markers. *JNCI: Journal of the National Cancer Institute*. 2014;106(11).
 69. Lim HS, Lip GYH. Interleukin-15 in hypertension: Further insights into inflammation and vascular disease. Vol. 18, *American journal of hypertension*. Oxford University Press; 2005. p. 1017–8.
 70. Ali D, Kuyunov I, Baskaradoss JK, Mikami T. Comparison of periodontal status and salivary IL-15 and-18 levels in cigarette-smokers and individuals using electronic nicotine delivery systems. *BMC Oral Health*. 2022;22(1):1–7.
 71. Muthumalage T, Lamb T, Friedman MR, Rahman I. E-cigarette flavored pods induce inflammation, epithelial barrier dysfunction, and DNA damage in lung epithelial cells and monocytes. *Sci Rep*. 2019;9(1):19035.
 72. Domin R, Dadej D, Pytka M, Zybek-Kocik A, Ruchała M, Guzik P. Effect of various exercise regimens on selected exercise-induced cytokines in healthy people. *Int J Environ Res Public Health*. 2021;18(3):1261.
 73. Damay VA, Setiawan S, Lesmana R, Akbar MR, Lukito AA. Effects of Moderate Intensity Aerobic Exercise to FSTL-1 Regulation in Atherosclerosis: A Systematic Review. *International Journal of Angiology*. 2022;

74. Chaly Y, Hostager B, Smith S, Hirsch R. Follistatin-like protein 1 and its role in inflammation and inflammatory diseases. *Immunol Res.* 2014;59(1–3):266–72.
75. Jiang H, Zhang L, Liu X, Sun W, Kato K, Chen C, et al. Angiocrine FSTL1 (Follistatin-Like Protein 1) Insufficiency Leads to Atrial and Venous Wall Fibrosis via SMAD3 Activation. *Arterioscler Thromb Vasc Biol.* 2020;40(4):958–72.
76. Choi A. Follistatin-like protein 1 (FSTL1) secretion during exercise. [Yonsei]: Yonsei University; 2021.
77. Yang W, Duan Q, Zhu X, Tao K, Dong A. Follistatin-like 1 attenuates ischemia/reperfusion injury in cardiomyocytes via regulation of autophagy. *Biomed Res Int.* 2019;2019.
78. van Wijk B, Gunst QD, Moorman AFM, van den Hoff MJB. Cardiac Regeneration from Activated Epicardium. *PLoS One.* 2012;7(9):e44692–e44692.
79. Maruyama S, Nakamura K, Papanicolaou KN, Sano S, Shimizu I, Asaumi Y, et al. Follistatin-like 1 promotes cardiac fibroblast activation and protects the heart from rupture. *EMBO Mol Med.* 2016;8(8):949–66.
80. Liu Y, Xu J, Liu T, Wu J, Zhao J, Wang J, et al. FSTL1 aggravates cigarette smoke-induced airway inflammation and airway remodeling by regulating autophagy. *BMC Pulm Med.* 2021;21:1–14.
81. Xu X, Zhang T, Mokou M, Li L, Li P, Song J, et al. Follistatin-like 1 as a novel adipomyokine related to insulin resistance and physical activity. *J Clin Endocrinol Metab.* 2020;105(12):e4499–509.
82. Horak M, Fairweather D, Kokkonen P, Bednar D, Bienertova-Vasku J. Follistatin-like 1 and its paralogs in heart development and cardiovascular disease. *Heart Fail Rev.* 2022;27(6):2251–65.
83. Xi Y, Gong DW, Tian Z. FSTL1 as a potential mediator of exercise-induced cardioprotection in post-myocardial infarction rats. *Sci Rep.* 2016;6(1):1–11.
84. Mattiotti A, Prakash S, Barnett P, van den Hoff MJB. Follistatin-like 1 in development and human diseases. *Cellular and Molecular Life Sciences.* 2018;75:2339–54.
85. Sethi S, Rivera O, Oliveros R, Chilton R. Aortic stiffness: pathophysiology, clinical implications, and approach to treatment. *Integr Blood Press Control.* 2014;29–34.
86. De Moudt S. The ageing aorta: pathophysiological investigation of aortic stiffness and its temporal relationship to peripheral hypertension and cardiac disease. Antwerp: University of Antwerp; 2022. p. 1–227.
87. Feola M. The influence of arterial stiffness in heart failure: a clinical review. *J Geriatr Cardiol.* 2021;18(2):135.
88. Mitchell GF, Hwang SJ, Vasani RS, Larson MG, Pencina MJ, Hamburg NM, et al. Arterial stiffness and cardiovascular events: the Framingham Heart Study. *Circulation.* 2010;121(4):505–11.
89. Kohn JC, Lampi MC, Reinhart-King CA. Age-related vascular stiffening: causes and consequences. *Front Genet.* 2015;6:112.

90. Rezvani-Sharif A, Tafazzoli-Shadpour M, Avolio A. Progressive changes of elastic moduli of arterial wall and atherosclerotic plaque components during plaque development in human coronary arteries. *Med Biol Eng Comput.* 2019;57:731–40.
91. Komutrattananont P, Mahakkanukrauh P, Das S. Morphology of the human aorta and age-related changes: anatomical facts. *Anat Cell Biol.* 2019;52(2):109–14.
92. Holzapfel GA, Ogden RW. Biomechanical relevance of the microstructure in artery walls with a focus on passive and active components. *American Journal of Physiology-Heart and Circulatory Physiology.* 2018;315(3):H540–9.
93. Arribas SM, Hinek A, González MC. Elastic fibres and vascular structure in hypertension. *Pharmacol Ther.* 2006;111(3):771–91.
94. Antoniewicz L, Brynedal A, Hedman L, Lundbäck M, Bosson JA. Acute effects of electronic cigarette inhalation on the vasculature and the conducting airways. *Cardiovasc Toxicol.* 2019;19:441–50.
95. Zainalabidin S, Budin SB, Ramalingam A, Lim YC. Aortic remodelling in chronic nicotine-administered rat. *Korean J Physiol Pharmacol.* 2014;18(5):411.
96. Hare LA, Aboaziza E, Moore J, Dangott S, O'Reilly J, Chantler PD, et al. Chronic effects of vaping with and without nicotine on arterial stiffness in rats. *The FASEB Journal.* 2019;33(S1):lb512–lb512.
97. Fetterman JL, Keith RJ, Palmisano JN, McGlasson KL, Weisbrod RM, Majid S, et al. Alterations in vascular function associated with the use of combustible and electronic cigarettes. *J Am Heart Assoc.* 2020;9(9):e014570.
98. El-Bestawy EM, Sabry MA, Abdelallahmed AF. Effect of electronic cigarette smoking on thoracic aorta of adult male albino rat and the possible protective role of melatonin. *Zagazig University Medical Journal.* 2023;29(3):777–89.
99. Wang X, Chen G, Huang Z, Zang Y, Cai Z, Ding X, et al. Effect of Aerobic Exercise on Arterial Stiffness in Individuals with Different Smoking Statuses. *Int J Sports Med.* 2023;44(01):48–55.
100. Jadidi M, Razian SA, Habibnezhad M, Anttila E, Kamenskiy A. Mechanical, structural, and physiologic differences in human elastic and muscular arteries of different ages: Comparison of the descending thoracic aorta to the superficial femoral artery. *Acta biomaterialia.* 2021;119:268–83.
101. Kumar V, Abbas A, Aster JC. *Robbins Basic Pathology.* 10th Ed. Elsevier; 2017.
102. Rhoades RA, Bell DR. *Medical physiology: Principles for clinical medicine.* Lippincott Williams & Wilkins; 2012.
103. Stefanadis C, Vlachopoulos C, Tsiamis E, Diamantopoulos L, Toutouzas K, Giatrakos N, et al. Unfavorable effects of passive smoking on aortic function in men. *Annals of internal medicine.* 1998;128(6):426–34.

104. Chen S, Chang C, Lee Y, Liu C, Chang Y. Histology Laboratory: Circulatory System [Internet]. Kaohsiung Medical University. Available from: http://anatomy.kmu.edu.tw/BlockHis/Block3/slides/block4_10.html
105. Whitlock MC, Hundley WG. Noninvasive imaging of flow and vascular function in disease of the aorta. *JACC Cardiovasc Imaging*. 2015;8(9):1094–106.
106. Wagenseil JE, Mecham RP. Elastin in large artery stiffness and hypertension. *J Cardiovasc Transl Res*. 2012;5:264–73.
107. Dao H, Essalihi R, Bouvet C, Moreau P. Evolution and modulation of age-related medial elastocalcinosis: Impact on large artery stiffness and isolated systolic hypertension. *Cardiovasc Res*. 2005;66:307–17.
108. Cecelja M, Chowienczyk P. Role of arterial stiffness in cardiovascular disease. *JRSM cardiovascular disease*. 2012;1(4):1–10.
109. Angoff R, Mosarla RC, Tsao CW. Aortic stiffness: epidemiology, risk factors, and relevant biomarkers. *Front Cardiovasc Med*. 2021;8:709396.
110. Palombo C, Kozakova M. Arterial stiffness, atherosclerosis and cardiovascular risk: Pathophysiologic mechanisms and emerging clinical indications. *Vascul Pharmacol*. 2016;77:1–7.
111. Kaess BM, Rong J, Larson MG, Hamburg NM, Vita JA, Levy D, et al. Aortic stiffness, blood pressure progression, and incident hypertension. *JAMA*. 2012;308(9):875–81.
112. Gkaliagkousi E, Douma S. The pathogenesis of arterial stiffness and its prognostic value in essential hypertension and cardiovascular diseases. *Hippokratia*. 2009;13(2):70.
113. Cai YL, Wang ZW. The expression and significance of IL-6, IFN- γ , SM22 α , and MMP-2 in rat model of aortic dissection. *Eur Rev Med Pharmacol Sci*. 2017;21(3):560–8.
114. Ju X, Ijaz T, Sun H, LeJeune W, Vargas G, Shilagard T, et al. IL-6 Regulates Extracellular Matrix Remodeling Associated With Aortic Dilation in a Fibrillin-1 Hypomorphic mgR/mgR Mouse Model of Severe Marfan Syndrome. *J Am Heart Assoc*. 2014;3(1):e000476.
115. Zhang B, Wang J, Xu Y, Zhou X, Liu J, Xu J, et al. Correlative association of interleukin-6 with intima media thickness: a meta-analysis. *Int J Clin Exp Med*. 2015;8(3):4731.
116. Iannarelli NJ, MacNeil AJ, Dempster KS, Wade TJ, O’Leary DD. Serum MMP-3 and its association with central arterial stiffness among young adults is moderated by smoking and BMI. *Physiol Rep*. 2021;9(11):e14920.
117. Yasmin, Wallace S, McEniery CM, Dakham Z, Pusalkar P, Maki-Petaja K, et al. Matrix metalloproteinase-9 (MMP-9), MMP-2, and serum elastase activity are associated with systolic hypertension and arterial stiffness. *Arterioscler Thromb Vasc Biol*. 2005;25(2):372–8.
118. Laurent S, Cockcroft J, Van Bortel L, Boutouyrie P, Giannattasio C, Hayoz D, et al. Expert consensus document on arterial stiffness: methodological issues and clinical applications. *Eur Heart J*. 2006;27(21):2588–605.

119. Vlachopoulos C, Aznaouridis K, Stefanadis C. Prediction of cardiovascular events and all-cause mortality with arterial stiffness: a systematic review and meta-analysis. *J Am Coll Cardiol.* 2010;55(13):1318–27.
120. Cocciolone AJ, Hawes JZ, Staiculescu MC, Johnson EO, Murshed M, Wagenseil JE. Elastin, arterial mechanics, and cardiovascular disease. *American Journal of Physiology-Heart and Circulatory Physiology.* 2018;315(2):H189–205.
121. Le VP, Cheng JK, Kim J, Staiculescu MC, Ficker SW, Sheth SC, et al. Mechanical factors direct mouse aortic remodelling during early maturation. *J R Soc Interface.* 2015;12(104):20141350.
122. Wuyts FL, Vanhuyse VJ, Langewouters GJ, Decraemer WF, Raman ER, Buyle S. Elastic properties of human aortas in relation to age and atherosclerosis: a structural model. *Phys Med Biol.* 1995;40(10):1577.
123. Sun H, Zhong M, Miao Y, Ma X, Gong HP, Tan HW, et al. Impaired elastic properties of the aorta in fat-fed, streptozotocin-treated rats. *Cardiology.* 2009;114(2):107–13.
124. McCallinart PE, Lee YU, Lee A, Angheliescu M, Tonniges JR, Calomeni E, et al. Dissociation of pulse wave velocity and aortic wall stiffness in diabetic db/db mice: The influence of blood pressure. *Front Physiol.* 2023;14:476.
125. Perikleous EP, Steiropoulos P, Paraskakis E, Constantinidis TC, Nena E. E-cigarette use among adolescents: an overview of the literature and future perspectives. *Front Public Health.* 2018;6:86.
126. Ho J, Sciuscio D, Kogel U, Titz B, Leroy P, Vuillaume G, et al. Evaluation of toxicity of aerosols from flavored e-liquids in Sprague–Dawley rats in a 90-day OECD inhalation study, complemented by transcriptomics analysis. *Arch Toxicol.* 2020;94(6):2179–206.
127. Jackson A, Grobman B, Krishnan-Sarin S. Recent findings in the pharmacology of inhaled nicotine: Preclinical and clinical in vivo studies. *Neuropharmacology.* 2020;176:108218.
128. Kuntic M, Oelze M, Steven S, Kröller-Schön S, Stamm P, Kalinovic S, et al. Short-term e-cigarette vapour exposure causes vascular oxidative stress and dysfunction: evidence for a close connection to brain damage and a key role of the phagocytic NADPH oxidase (NOX-2). *Eur Heart J.* 2020;41(26):2472–83.
129. Alzahrani T, Pena I, Temesgen N, Glantz SA. Association between electronic cigarette use and myocardial infarction. *Am J Prev Med.* 2018;55(4):455–61.
130. Farsalinos KE, Polosa R, Cibella F, Niaura R. Is e-cigarette use associated with coronary heart disease and myocardial infarction? Insights from the 2016 and 2017 National Health Interview Surveys. *Ther Adv Chronic Dis.* 2019;10:2040622319877741.
131. Osei AD, Mirbolouk M, Orimoloye OA, Dzaye O, Uddin SMI, Benjamin EJ, et al. Association between e-cigarette use and cardiovascular disease among never and current combustible-cigarette smokers. *Am J Med.* 2019;132(8):949–54.

132. Berlowitz JB, Xie W, Harlow AF, Hamburg NM, Blaha MJ, Bhatnagar A, et al. E-cigarette use and risk of cardiovascular disease: a longitudinal analysis of the PATH study (2013–2019). *Circulation*. 2022;145(20):1557–9.
133. Vang A, Clements RT, Chichger H, Kue N, Allawzi A, O’Connell K, et al. Effect of $\alpha 7$ nicotinic acetylcholine receptor activation on cardiac fibroblasts: a mechanism underlying RV fibrosis associated with cigarette smoke exposure. *American Journal of Physiology-Lung Cellular and Molecular Physiology*. 2017;312(5):L748–59.
134. Jia G, Meng Z, Liu C, Ma X, Gao J, Liu J, et al. Nicotine induces cardiac toxicity through blocking mitophagic clearance in young adult rat. *Life Sci*. 2020;257:118084.
135. Rigden HM, Alias A, Havelock T, O’Donnell R, Djukanovic R, Davies DE, et al. Squamous Metaplasia Is Increased in the Bronchial Epithelium of Smokers with Chronic Obstructive Pulmonary Disease. *PLoS One*. 2016;11(5):e0156009.
136. Kumboyono K, Chomsy IN, Hakim AK, Sujuti H, Hariyanti T, Srihardyastutie A, et al. Detection of Vascular Inflammation and Oxidative Stress by Cotinine in Smokers: Measured Through Interleukin-6 and Superoxide Dismutase. *Int J Gen Med*. 2022;7319–28.
137. Wang H, Chen H, Fu Y, Liu M, Zhang J, Han S, et al. Effects of Smoking on Inflammatory-Related Cytokine Levels in Human Serum. *Molecules*. 2022;27(12):3715.
138. Akerman AW, Stroud RE, Barrs RW, Grespin RT, McDonald LT, LaRue RAC, et al. Elevated wall tension initiates interleukin-6 expression and abdominal aortic dilation. *Annals of vascular surgery*. 2018;46:193–204.
139. Li F, Li Y, Tang Y, Lin B, Kong X, Oladele OA, et al. Protective effect of myokine IL-15 against H₂O₂-mediated oxidative stress in skeletal muscle cells. *Mol Biol Rep*. 2014;41:7715–22.
140. van der Meer JJ, de Boer OJ, Teeling P, van der Loos CM, Dessing MC, van der Wal AC. Smooth muscle homeostasis in human atherosclerotic plaques through interleukin 15 signalling. *Int J Clin Exp Pathol*. 2011;4(3):287–94.
141. Hayakawa S, Ohashi K, Shibata R, Takahashi R, Otaka N, Ogawa H, et al. Association of circulating follistatin-like 1 levels with inflammatory and oxidative stress markers in healthy men. *PLoS One*. 2016;11(5):e0153619.
142. Wang K, Meng X, Guo Z. Elastin Structure, Synthesis, Regulatory Mechanism and Relationship With Cardiovascular Diseases. *Front Cell Dev Biol*. 2021;9.
143. Li BL, An JD, Feng S, Ge W. Change in serum follistatin-like protein 1 and its clinical significance in children with chronic heart failure. *Zhongguo Dang Dai Er Ke Za Zhi*. 2016;18(2):136–40.
144. Ni S, Miao K, Zhou X, Xu N, Li C, Zhu R, et al. The involvement of follistatin-like protein 1 in osteoarthritis by elevating NF- κ B-mediated inflammatory cytokines and enhancing fibroblast like synoviocyte proliferation. *Arthritis Res Ther*. 2015;17:1–10.

145. Yang X, Coriolan D, Murthy V, Schultz K, Golenbock DT, Beasley D. Proinflammatory phenotype of vascular smooth muscle cells: role of efficient Toll-like receptor 4 signaling. *American Journal of Physiology-Heart and Circulatory Physiology*. 2005;289(3):H1069–76.
146. Geraghty P, Dabo AJ, D’Armiento J. TLR4 protein contributes to cigarette smoke-induced matrix metalloproteinase-1 (MMP-1) expression in chronic obstructive pulmonary disease. *Journal of Biological Chemistry*. 2011;286(34):30211–8.
147. Ouchi N, Asaumi Y, Ohashi K, Higuchi A, Sono-Romanelli S, Oshima Y, et al. DIP2A functions as a FSTL1 receptor. *Journal of Biological Chemistry*. 2010;285(10):7127–34.
148. Kokkinos P, Faselis C, Franklin B, Lavie CJ, Sidossis L, Moore H, et al. Cardiorespiratory fitness, body mass index and heart failure incidence. *Eur J Heart Fail*. 2019;21(4):436–44.
149. Kodama S, Saito K, Tanaka S, Maki M, Yachi Y, Asumi M, et al. Cardiorespiratory fitness as a quantitative predictor of all-cause mortality and cardiovascular events in healthy men and women: a meta-analysis. *JAMA*. 2009;301(19):2024–35.
150. Bull FC, Al-Ansari SS, Biddle S, Borodulin K, Buman MP, Cardon G, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *Br J Sports Med*. 2020;54(24):1451–62.
151. Wen CP, Wai JPM, Tsai MK, Yang YC, Cheng TYD, Lee MC, et al. Minimum amount of physical activity for reduced mortality and extended life expectancy: a prospective cohort study. *The lancet*. 2011;378(9798):1244–53.
152. Madden KM, Lockhart C, Cuff D, Potter TF, Meneilly GS. Short-term aerobic exercise reduces arterial stiffness in older adults with type 2 diabetes, hypertension, and hypercholesterolemia. *Diabetes Care*. 2009;32(8):1531–5.
153. Collier SR, Kanaley JA, Carhart R, Frechette V, Tobin MM, Hall AK, et al. Effect of 4 weeks of aerobic or resistance exercise training on arterial stiffness, blood flow and blood pressure in pre-and stage-1 hypertensives. *J Hum Hypertens*. 2008;22(10):678–86.
154. Maeda S, Iemitsu M, Miyauchi T, Kuno S, Matsuda M, Tanaka H. Aortic stiffness and aerobic exercise: mechanistic insight from microarray analyses. *Med Sci Sports Exerc*. 2005;37(10):1710–6.
155. Doonan RJ, Scheffler P, Yu A, Egiziano G, Mutter A, Bacon S, et al. Altered arterial stiffness and subendocardial viability ratio in young healthy light smokers after acute exercise. *PLoS One*. 2011;6(10):e26151.
156. Arefirad T, Seif E, Sepidarkish M, Mohammadian Khonsari N, Mousavifar SA, Yazdani S, et al. Effect of exercise training on nitric oxide and nitrate/nitrite (NOx) production: A systematic review and meta-analysis. *Front Physiol*. 2022;2028.
157. Mourot L, Teffaha D, Bouhaddi M, Ounissi F, Vernochet P, Dugue B, et al. Training-induced increase in nitric oxide metabolites in chronic heart

- failure and coronary artery disease: an extra benefit of water-based exercises? *Eur J Prev Cardiol*. 2009;16(2):215–21.
158. Tsukiyama Y, Ito T, Nagaoka K, Eguchi E, Ogino K. Effects of exercise training on nitric oxide, blood pressure and antioxidant enzymes. *J Clin Biochem Nutr*. 2017;60(3):180–6.
 159. Mahmud A, Feely J. Effect of smoking on arterial stiffness and pulse pressure amplification. *Hypertension*. 2003;41(1):183–7.
 160. Yu-Jie W, Hui-Liang L, Bing L, Lu Z, Zhi-Geng J. Impact of smoking and smoking cessation on arterial stiffness in healthy participants. *Angiology*. 2013;64(4):273–80.
 161. Way KL, Lee AS, Twigg SM, Johnson NA. The effect of acute aerobic exercise on central arterial stiffness, wave reflections, and hemodynamics in adults with diabetes: A randomized cross-over design. *J Sport Health Sci*. 2021;10(4):499–506.
 162. Davis CL, Litwin SE, Pollock NK, Waller JL, Zhu H, Dong Y, et al. Exercise effects on arterial stiffness and heart health in children with excess weight: The SMART RCT. *Int J Obes*. 2020;44(5):1152–63.
 163. Nieman DC, Davis JM, Henson DA, Walberg-Rankin J, Shute M, Dumke CL, et al. Carbohydrate ingestion influences skeletal muscle cytokine mRNA and plasma cytokine levels after a 3-h run. *J Appl Physiol*. 2003;94(5):1917–25.
 164. de Lacerda Brito ACN, Martins WA, da Silva Queiroz PC, Veríssimo SE, Vancea DMM, Esteves ACF, et al. Standardization of a treadmill exercise intensity protocol in rats with diabetes mellitus. *J Exerc Physiol Online*. 2019;22(2):5–16.
 165. Fadaei Chafy MR, Bagherpour Tabalvandani MM, Elmieh A, Arabzadeh E. Determining the range of aerobic exercise on a treadmill for male Wistar rats at different ages: A pilot study. *Journal of Exercise & Organ Cross Talk*. 2022;2(3):96–100.
 166. Almeida JA, Petriz B de A, da Costa Gomes CP, Pereira RW, Franco OL. Assessment of maximal lactate steady state during treadmill exercise in SHR. *BMC Res Notes*. 2012;5:1–4.
 167. Chan MHS, McGee SL, Watt MJ, Hargreaves M, Febbraio MA. Altering dietary nutrient intake that reduces glycogen content leads to phosphorylation of nuclear p38 MAP kinase in human skeletal muscle: association with IL-6 gene transcription during contraction. *The FASEB journal*. 2004;18(14):1785–7.
 168. Keller C, Hellsten Y, Steensberg A, Pedersen BK. Differential regulation of IL-6 and TNF- α via calcineurin in human skeletal muscle cells. *Cytokine*. 2006;36(3–4):141–7.
 169. Villar-Fincheira P, Sanhueza-Olivares F, Norambuena-Soto I, Cancino-Arenas N, Hernandez-Vargas F, Troncoso R, et al. Role of interleukin-6 in vascular health and disease. *Front Mol Biosci*. 2021;8:641734.
 170. Docherty S, Harley R, McAuley JJ, Crowe LAN, Pedret C, Kirwan PD, et al. The effect of exercise on cytokines: implications for musculoskeletal health: a narrative review. *BMC Sports Sci Med Rehabil*. 2022;14(1):1–14.

171. Eckardt K, Görgens SW, Raschke S, Eckel J. Myokines in insulin resistance and type 2 diabetes. *Diabetologia*. 2014;57:1087–99.
172. Pedersen BK, Febbraio MA. Muscle as an endocrine organ: focus on muscle-derived interleukin-6. *Physiol Rev*. 2008;
173. Keller C, Steensberg A, Hansen AK, Fischer CP, Plomgaard P, Pedersen BK. Effect of exercise, training, and glycogen availability on IL-6 receptor expression in human skeletal muscle. *J Appl Physiol*. 2005;99(6):2075–9.
174. Steensberg A, Toft AD, Schjerling P, Halkjær-Kristensen J, Pedersen BK. Plasma interleukin-6 during strenuous exercise: role of epinephrine. *American Journal of Physiology-Cell Physiology*. 2001;281(3):C1001–4.
175. Cunningham KS, Gotlieb AI. The role of shear stress in the pathogenesis of atherosclerosis. *Lab Invest*. 2005;85(1):9–23.
176. Kim JS, Sayoc J, Baek KW, Park JY. Laminar Shear Stress Protects Against Premature Endothelial Senescence by SIRT1-Dependent Mechanisms. *Exercise Science*. 2021;30(2):213–20.
177. Niebauer J, Cooke JP. Cardiovascular effects of exercise: role of endothelial shear stress. *J Am Coll Cardiol*. 1996;28(7):1652–60.
178. Benatti FB, Pedersen BK. Exercise as an anti-inflammatory therapy for rheumatic diseases—myokine regulation. *Nat Rev Rheumatol*. 2015;11(2):86–97.
179. Pérez-López A, Calbet JAL. Discussion of “Interleukin-15 as a myokine: mechanistic insight into its effect on skeletal muscle metabolism”—Interleukin-15 and interleukin-15R α -dependent/-independent functions in human skeletal muscle are largely unknown. *Applied Physiology, Nutrition, and Metabolism*. 2019;44(3):336–7.
180. Pérez-López A, Martin-Rincon M, Santana A, Perez-Suarez I, Dorado C, Calbet JAL, et al. Antioxidants Facilitate High-intensity Exercise IL-15 Expression in Skeletal Muscle. *Int J Sports Med*. 2019;40(01):16–22.
181. Pistilli EE, Quinn LS. From anabolic to oxidative: reconsidering the roles of IL-15 and IL-15R α in skeletal muscle. *Exerc Sport Sci Rev*. 2013;41(2):100.
182. Pistilli EE, Devaney JM, Gordish-Dressman H, Bradbury MK, Seip RL, Thompson PD, et al. Interleukin-15 and interleukin-15R α SNPs and associations with muscle, bone, and predictors of the metabolic syndrome. *Cytokine*. 2008;43(1):45–53.
183. Ostrowski SR, Pedersen SH, Jensen JS, Mogelvang R, Johansson PI. Acute myocardial infarction is associated with endothelial glycocalyx and cell damage and a parallel increase in circulating catecholamines. *Crit Care*. 2013;17(1):1–12.
184. Nadeau L, Aguer C. Interleukin-15 as a myokine: mechanistic insight into its effect on skeletal muscle metabolism. *Applied Physiology, Nutrition, and Metabolism*. 2019;44(3):229–38.
185. Ouchi N, Oshima Y, Ohashi K, Higuchi A, Ikegami C, Izumiya Y, et al. Follistatin-like 1, a secreted muscle protein, promotes endothelial cell function and revascularization in ischemic tissue through a nitric-oxide

- synthase-dependent mechanism. *Journal of Biological Chemistry*. 2008;283(47):32802–11.
186. Miyabe M, Ohashi K, Shibata R, Uemura Y, Ogura Y, Yuasa D, et al. Muscle-derived follistatin-like 1 functions to reduce neointimal formation after vascular injury. *Cardiovasc Res*. 2014;103(1):111–20.
 187. Fan X, Qing Z, Ya L, Ling Y, Jiawen Y, Yan L. Follistatin like protein 1 mitigates oxidized low-density lipoprotein-stimulated phenotypic transformation of mouse vascular smooth muscle cell. *Journal of Internal Medicine Concepts & Practice*. 2021;16(03):172.
 188. Hansen J, Brandt C, Nielsen AR, Hojman P, Whitham M, Febbraio MA, et al. Exercise induces a marked increase in plasma follistatin: evidence that follistatin is a contraction-induced hepatokine. *Endocrinology*. 2011;152(1):164–71.
 189. Azar JT, Tofighi A, Arabzadeh E. The Effect of 6 Weeks Endurance Training on FSTL-1, NDNF, VEGF and Vascular Changes in Healthy Male Rats. *Sport Physiology*. 2019;11(41):169–86.
 190. Wuttge DM, Eriksson P, Sirsjö A, Hansson GK, Stemme S. Expression of interleukin-15 in mouse and human atherosclerotic lesions. *American Journal of Pathology*. 2001;159(2):417–23.
 191. Glynos C, Bibli SI, Katsaounou P, Pavlidou A, Magkou C, Karavana V, et al. Comparison of the effects of e-cigarette vapor with cigarette smoke on lung function and inflammation in mice. *American Journal of Physiology-Lung Cellular and Molecular Physiology*. 2018;315(5):L662–72.
 192. Li W, Alahdal M, Deng Z, Liu J, Zhao Z, Cheng X, et al. Molecular functions of FSTL1 in the osteoarthritis. *Int Immunopharmacol*. 2020;83:106465.
 193. Ghim M, Pang KT, Burnap SA, Baig F, Yin X, Arshad M, et al. Endothelial cells exposed to atheroprotective flow secrete follistatin-like 1 protein which reduces transcytosis and inflammation. *Atherosclerosis*. 2021;333(January):56–66.
 194. Starkie R, Ostrowski SR, Jauffred S, Febbraio M, Pedersen BK. Exercise and IL-6 infusion inhibit endotoxin-induced TNF- α production in humans. *The FASEB Journal*. 2003;17(8):1–10.
 195. Raschke S, Eckel J. Adipo-myokines: two sides of the same coin--mediators of inflammation and mediators of exercise. *Mediators Inflamm*. 2013;2013:320724.
 196. Nielsen AR, Mounier R, Plomgaard P, Mortensen OH, Penkowa M, Speersneider T, et al. Expression of interleukin-15 in human skeletal muscle - effect of exercise and muscle fibre type composition. *J Physiol*. 2007;584(1):305–12.
 197. Kobayashi R, Asaki K, Hashiguchi T, Negoro H. The Effect of Aerobic Exercise Training Frequency on Arterial Stiffness in a Hyperglycemic State in Middle-Aged and Elderly Females. *Nutrients*. 2021;13(10).
 198. Tanaka H. Antiaging Effects of Aerobic Exercise on Systemic Arteries. *Hypertension*. 2019;74(2):237–43.

199. Tsang KM, Knutsen RH, Billington CJJ, Lindberg E, Steenbock H, Fu YP, et al. Copper-Binding Domain Variation in a Novel Murine Lysyl Oxidase Model Produces Structurally Inferior Aortic Elastic Fibers Whose Failure Is Modified by Age, Sex, and Blood Pressure. *Int J Mol Sci.* 2022;23(12).
200. Yan XS, D’Ruiz C. Effects of using electronic cigarettes on nicotine delivery and cardiovascular function in comparison with regular cigarettes. *Regul Toxicol Pharmacol.* 2015;71(1):24–34.
201. Singh KP, Lawyer G, Muthumalage T, Maremanda KP, Khan NA, McDonough SR, et al. Systemic biomarkers in electronic cigarette users: implications for noninvasive assessment of vaping-associated pulmonary injuries. *ERJ Open Res.* 2019;5(4).
202. Kon M, Tanimura Y, Yoshizato H. Effects of acute endurance exercise on follistatin-like 1 and apelin in the circulation and metabolic organs in rats. *Arch Physiol Biochem.* 2022;128(5):1254–8.
203. Kim DK, Kang SH, Kim JS, Kim YG, Lee YH, Lee DY, et al. Clinical implications of circulating follistatin-like protein-1 in hemodialysis patients. *Sci Rep.* 2023;13(1):6637.
204. Riechman SE, Balasekaran G, Roth SM, Ferrell RE. Association of interleukin-15 protein and interleukin-15 receptor genetic variation with resistance exercise training responses. *J Appl Physiol.* 2004;97(6):2214–9.
205. Yargic MP, Torgutalp S, Akin S, Babayeva N, Torgutalp M, Demirel HA. Acute long-distance trail running increases serum IL-6, IL-15, and Hsp72 levels. *Applied Physiology, Nutrition, and Metabolism.* 2019;44(6):627–31.
206. Micielska K, Gmiat A, Zychowska M, Kozłowska M, Walentukiewicz A, Lysak-Radomska A, et al. The beneficial effects of 15 units of high-intensity circuit training in women is modified by age, baseline insulin resistance and physical capacity. *Diabetes Res Clin Pract.* 2019;152:156–65.
207. Yang H, Chang J, Chen W, Zhao L, Qu B, Tang C, et al. Treadmill exercise promotes interleukin 15 expression in skeletal muscle and interleukin 15 receptor alpha expression in adipose tissue of high-fat diet rats. *Endocrine.* 2013;43:579–85.
208. Molanouri Shamsi M, Hassan ZM, Quinn LS, Gharakhanlou R, Baghersad L, Mahdavi M. Time course of IL-15 expression after acute resistance exercise in trained rats: effect of diabetes and skeletal muscle phenotype. *Endocrine.* 2015;49(2):396–403.
209. IL15. <https://www.proteinatlas.org/ENSG00000164136-IL15/summary/sections>.
210. Quinn LS, Anderson BG, Conner JD, Wolden-Hanson T. IL-15 overexpression promotes endurance, oxidative energy metabolism, and muscle PPAR δ , SIRT1, PGC-1 α , and PGC-1 β expression in male mice. *Endocrinology.* 2013;154(1):232–45.
211. Kastelein TE, Duffield R, Marino FE. Acute immune-inflammatory responses to a single bout of aerobic exercise in smokers; the effect of smoking history and status. *Front Immunol.* 2015;6:634.

212. Wagenhäuser MU, Schellinger IN, Yoshino T, Toyama K, Kayama Y, Deng A, et al. Chronic nicotine exposure induces murine aortic remodeling and stiffness segmentation—implications for abdominal aortic aneurysm susceptibility. *Front Physiol.* 2018;9:1459.
213. Barão FT de F, Barão VHP, Gornati VC, Silvestre GCR, Silva AQ, Lacchini S, et al. Study of the biomechanical and histological properties of the abdominal aorta of diabetic rats exposed to cigarette smoke. *J Vasc Res.* 2019;56(5):255–66.
214. Sussan TE, Gajghate S, Thimmulappa RK, Ma J, Kim JH, Sudini K, et al. Exposure to electronic cigarettes impairs pulmonary anti-bacterial and anti-viral defenses in a mouse model. *PLoS One.* 2015;10(2):e0116861.
215. Garcia-Arcos I, Geraghty P, Baumlin N, Campos M, Dabo AJ, Jundi B, et al. Chronic electronic cigarette exposure in mice induces features of COPD in a nicotine-dependent manner. *Thorax.* 2016;71(12):1119–29.
216. Ogura Y, Ouchi N, Ohashi K, Shibata R, Kataoka Y, Kambara T, et al. Therapeutic impact of follistatin-like 1 on myocardial ischemic injury in preclinical models. *Circulation.* 2012;126(14):1728–38.