

DAFTAR PUSTAKA

1. Amarya S, Singh K, Sabharwal M. Ageing Process and Physiological Changes. In: D'Onofrio G, Greco A, Sancarlo D, editors. Gerontology. InTech; 2018:1–12.
2. Larsson L, Degens H, Li M, Salviati L, Lee YI, Thompson W, et al. Sarcopenia: Aging-Related Loss of Muscle Mass and Function. *Physiol Rev.* 2019 Jan 1;99(1):427–511.
3. Wilkinson DJ, Piasecki M, Atherton PJ. The age-related loss of skeletal muscle mass and function: Measurement and physiology of muscle fibre atrophy and muscle fibre loss in humans. *Ageing Res Rev.* 2018 Nov;47:123–32.
4. World population prospects 2022: summary of results. New York: United Nations; 2022:3–39.
5. European Commission. Statistical Office of the European Union. Ageing Europe: looking at the lives 87 folder people in the EU : 2020 edition. LU: Publications Office; 2020:15–32.
6. Kementerian Hukum dan Hak Asasi Manusia Republik Indonesia. Undang-Undang Republik Indonesia Nomor 13 Tahun 1998 Tentang Kesejahteraan Lanjut Usia. Badan Pembinaan Hukum Nasional; 1998.
7. United Nations Department of Economic and Social Affairs. World Social Report 2023: Leaving No One Behind in an Ageing World. United Nations; 2023:17–29.
8. Direktorat Statistik Kesejahteraan Rakyat. Statistik Penduduk Lanjut Usia 2023. Jakarta: Badan Pusat Statistik; 2023.
9. Maresova P, Javanmardi E, Barakovic S, Barakovic Husic J, Tomsone S, Krejcar O, et al. Consequences of chronic diseases and other limitations associated with old age – a scoping review. *BMC Public Health.* 2019 Dec;19(1):1431–42.
10. Siparsky PN, Kirkendall DT, Garrett WE. Muscle Changes in Aging: Understanding Sarcopenia. Sports Health Multidiscip Approach. 2014 Jan;6(1):36–40.
11. Volpi E, Nazemi R, Fujita S. Muscle tissue changes with aging: Curr Opin Clin Nutr Metab Care. 2004 Jul;7(4):405–10.
12. Rolland Y, Czerwinski S, Van Kan GA, Morley JE, Cesari M, Onder G, et al. Sarcopenia: Its assessment, etiology, pathogenesis, consequences and future perspectives. *J Nutr Health Aging.* 2008 Sep;12(7):433–50.

13. Mitchell WK, Williams J, Atherton P, Larvin M, Lund J, Narici M. Sarcopenia, Dynapenia, and the Impact of Advancing Age on Human Skeletal Muscle Size and Strength; a Quantitative Review. *Front Physiol.* 2012;1–17.
14. Cruz-Jentoft AJ, Bahat G, Bauer J, Boirie Y, Bruyère O, Cederholm T, et al. Sarcopenia: revised European consensus on definition and diagnosis. *Age Ageing.* 2019 Jan 1;48(1):16–31.
15. Sayer AA, Cruz-Jentoft A. Sarcopenia definition, diagnosis and treatment: consensus is growing. *Age Ageing.* 2022 Oct 6;51(10):220–35.
16. Shafiee G, Keshtkar A, Soltani A, Ahadi Z, Larijani B, Heshmat R. Prevalence of sarcopenia in the world: a systematic review and meta-analysis of general population studies. *J Diabetes Metab Disord.* 2017 Dec;16(1):21–32.
17. Mayhew AJ, Amog K, Phillips S, Parise G, McNicholas PD, De Souza RJ, et al. The prevalence of sarcopenia in community-dwelling older adults, an exploration of differences between studies and within definitions: a systematic review and meta-analyses. *Age Ageing.* 2019 Jan 1;48(1):48–56.
18. Kim M, Won CW. Sarcopenia in Korean Community-Dwelling Adults Aged 70 Years and Older: Application of Screening and Diagnostic Tools from the Asian Working Group for Sarcopenia 2019 Update. *J Am Med Dir Assoc.* 2020 Jun;21(6):752–8.
19. Makizako H, Nakai Y, Tomioka K, Taniguchi Y. Prevalence of sarcopenia defined using the Asia Working Group for Sarcopenia criteria in Japanese community-dwelling older adults: A systematic review and meta-analysis. *Phys Ther Res.* 2019 Dec 20;22(2):53–7.
20. Liu X, Hou L, Xia X, Liu Y, Zuo Z, Zhang Y, et al. Prevalence of sarcopenia in multi ethnics adults and the association with cognitive impairment: findings from West-China health and aging trend study. *BMC Geriatr.* 2020 Dec;20(1):63–74.
21. Vitriana, Defi IR, Irawan GN, Setiabudiawan B. Prevalensi Sarkopenia pada Lansia di Komunitas (Community Dwelling) berdasarkan Dua Nilai Cut-off Parameter Diagnosis. *Maj Kedokt Bdg.* 2016 Sep;48(3):164–70.
22. Widajanti N, Ichwani J, Dharmanta RS, Firdausi H, Haryono Y, Yulianti E, et al. Sarcopenia and Frailty Profile in the Elderly Community of Surabaya: A Descriptive Study. *Acta Med Indones.* 2020;52(1):1–12.

23. Harimurti K, Setiati S, Soejono CH, Aryana IS, Sunarti S, Budiningsih F, et al. Sarcopenia in a Multiethnic State: A Cross-Sectional Data Analysis of Multicentre Indonesia Longitudinal Aging Study. *Acta Med Indones.* 2023;55(1):1–11.
24. Beaudart C, Rizzoli R, Bruyère O, Reginster JY, Biver E. Sarcopenia: burden and challenges for public health. *Arch Public Health.* 2014 Dec;72(1):45–56.
25. Bruyère O, Beaudart C, Ethgen O, Reginster JY. The health economics burden of sarcopenia: a systematic review. *Maturitas.* 2019;61–9.
26. Goates S, Du K, Arensberg MB, Gaillard T, Guralnik J, Pereira SL. Economic Impact of Hospitalizations In Us Adults With Sarcopenia. *J Frailty Aging.* 2019;1–7.
27. Njoto EN. Sarkopenia pada Lanjut Usia: Patogenesis, Diagnosis dan Tata Laksana. *J Penyakit Dalam Indones.* 2023;10(3):1–15.
28. Jang JY, Kim D, Kim ND. Pathogenesis, Intervention, and Current Status of Drug Development for Sarcopenia: A Review. *Biomedicines.* 2023 Jun 4;11(6):1635.
29. Sartori R, Romanello V, Sandri M. Mechanisms of muscle atrophy and hypertrophy: implications in health and disease. *Nat Commun.* 2021 Jan 12;12(1):330–9.
30. Liz MA, Coelho T, Bellotti V, Fernandez-Arias MI, Mallaina P, Obici L. A Narrative Review of the Role of Transthyretin in Health and Disease. *Neurol Ther.* 2020 Dec;9(2):395–402.
31. Ribeiro SML, Kehayias JJ. Sarcopenia and the Analysis of Body Composition. *Adv Nutr.* 2014 May;5(3):260–7.
32. Ingenbleek Y, Bernstein LH. Plasma Transthyretin as a Biomarker of Lean Body Mass and Catabolic States. *Adv Nutr.* 2015 Sep;6(5):572–80.
33. Ingenbleek Y, Young VR. Significance of Transthyretin in Protein Metabolism. *Clin Chem Lab Med.* 2002;40(12):1–12.
34. Cederholm T, Bosaeus I, Barazzoni R, Bauer J, Van Gossum A, Klek S, et al. Diagnostic criteria for malnutrition – An ESPEN Consensus Statement. *Clin Nutr.* 2015 Jun;34(3):335–40.
35. Dellière S, Cynober L. Is transthyretin a good marker of nutritional status? *Clin Nutr.* 2017 Apr;36(2):364–70.

36. Beaudart C, Sanchez-Rodriguez D, Locquet M, Reginster JY, Lengelé L, Bruyère O. Malnutrition as a Strong Predictor of the Onset of Sarcopenia. *Nutrients*. 2019 Nov 27;11(12):2883–92.
37. Dhar M, Kapoor N, Suastika K, Khamseh ME, Selim S, Kumar V, et al. South Asian Working Action Group on SARCOpenia (SWAG-SARCO) – A consensus document. *Osteoporos Sarcopenia*. 2022 Jun;8(2):35–57.
38. Colaianni G, Colucci S, Cinti S, Grano M. The myokine Irisin recapitulates the effect of physical activity on bone and muscle tissues. *J Gerontol Geriatr*. 2016 Sep;64:92–6.
39. Lee EJ, Shaikh S, Choi D, Ahmad K, Baig MH, Lim JH, et al. Transthyretin Maintains Muscle Homeostasis through the Novel Shuttle Pathway of Thyroid Hormones during Myoblast Differentiation. *Cells*. 2019 Dec 4;8(12):1565–80.
40. Xiu S, Sun L, Mu Z, Fu J. Low prealbumin levels are associated with sarcopenia in older men with type 2 diabetes mellitus: A cross-sectional study. *Nutrition*. 2021;1–12.
41. Heo WS, Baik HW, Kang JH, Park JS, Park SJ, Jang EJ, et al. The Prevalence of Sarcopenia in Korean Hospitalized Elderly. *J Korean Geriatr Soc*. 2015 Dec 31;19(4):235–40.
42. Chen Q, Hao Q, Ding Y, Dong B. The Association Between Sarcopenia and Prealbumin Levels Among Elderly Chinese Inpatients. *J Nutr Health Aging*. 2019 Feb;23(2):122–7.
43. Liu K, Chen Y, Liu T, Zhang K, Li Y, Zeng M. Association Between Retinol-binding Protein and Sarcopenia in General Inpatient Older Adults: a Cross Sectional Study. *Eur PMC*. 2021;1–14.
44. Xu B, Guo Z, Jiang B, Zhang K, Zhu W, Lian X, et al. Factors affecting sarcopenia in older patients with chronic diseases. *Ann Palliat Med*. 2022 Mar;11(3):972–83.
45. López-Otín C, Blasco MA, Partridge L, Serrano M, Kroemer G. The Hallmarks of Aging. *Cell*. 2013 Jun;153(6):1194–217.
46. Da Costa JP, Vitorino R, Silva GM, Vogel C, Duarte AC, Rocha-Santos T. A synopsis on aging—Theories, mechanisms and future prospects. *Ageing Res Rev*. 2016 Aug;29:90–112.

47. Halter JB, Ouslander JG, Studenski S, High KP, Asthana S, Supiano MA, editors. Hazzard's Geriatric Medicine and Gerontology. 8th ed. Lombard DB, Miller RA, Pletcher SD. In: Biology of Aging and Longevity. New York: McGraw Hill; 2022:71-159.
48. Aryana IGPS. Sarkopenia pada Lansia: Problem Diagnosis dan Tatalaksana. Baswara Press; 2021:1–148.
49. Meza-Valderrama D, Marco E, Dávalos-Yerovi V, Muns MD, Tejero-Sánchez M, Duarte E, et al. Sarcopenia, Malnutrition, and Cachexia: Adapting Definitions and Terminology of Nutritional Disorders in Older People with Cancer. *Nutrients*. 2021 Feb 26;13(3):761–73.
50. Cannataro R, Carbone L, Petro JL, Cione E, Vargas S, Angulo H, et al. Sarcopenia: Etiology, Nutritional Approaches, and miRNAs. *Int J Mol Sci*. 2021 Sep 8;22(18):9724.
51. Willis EA, Herrmann SD, Hastert M, Kracht CL, Barreira TV, Schuna JM, et al. Older Adult Compendium of Physical Activities: Energy costs of human activities in adults aged 60 and older. *J Sport Health Sci*. 2024 Jan;13(1):13–7.
52. Craig CL, Marshall AL, Bauman AE, Booth ML, Ainsworth BE. International Physical Activity Questionnaire: 12-Country Reliability and Validity: *Med Sci Sports Exerc*. 2003 Aug;35(8):1381–95.
53. 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 Dec;54(24):1451–62.
54. Saadeddine D, Itani L, Kreidieh D, El Masri D, Tannir H, El Ghoch M. Association between Levels of Physical Activity, Sarcopenia, Type 2 Diabetes and the Quality of Life of Elderly People in Community Dwellings in Lebanon. *Geriatrics*. 2021 Mar 18;6(1):28.
55. Gomes MJ, Martinez PF, Pagan LU, Damatto RL, Mariano Cezar MD, Ruiz Lima AR, et al. Skeletal muscle aging: influence of oxidative stress and physical exercise. *Oncotarget*. 2017 Mar 21;8(12):20428–40.
56. Haberecht-Müller S, Krüger E, Fielitz J. Out of Control: The Role of the Ubiquitin Proteasome System in Skeletal Muscle during Inflammation. *Biomolecules*. 2021 Sep 8;11(9):1327–41.

57. Mankhong S, Kim S, Moon S, Kwak HB, Park DH, Kang JH. Experimental Models of Sarcopenia: Bridging Molecular Mechanism and Therapeutic Strategy. *Cells.* 2020 Jun 2;9(6):1385–98.
58. Rea IM, Gibson DS, McGilligan V, McNerlan SE, Alexander HD, Ross OA. Age and Age-Related Diseases: Role of Inflammation Triggers and Cytokines. *Front Immunol.* 2018 Apr 9;9:586–99.
59. Ogawa S, Yakabe M, Akishita M. Age-related sarcopenia and its pathophysiological bases. *Inflamm Regen.* 2016 Dec;36(1):1–14.
60. Abu Shelbayeh O, Arroum T, Morris S, Busch KB. PGC-1 α Is a Master Regulator of Mitochondrial Lifecycle and ROS Stress Response. *Antioxidants.* 2023 May 10;12(5):1075–92.
61. Ji LL, Kang C. Role of PGC-1 α in Sarcopenia: Etiology and Potential Intervention – A Mini-Review. *Gerontology.* 2015;61(2):139–48.
62. Cho MR, Lee S, Song SK. A Review of Sarcopenia Pathophysiology, Diagnosis, Treatment and Future Direction. *J Korean Med Sci.* 2022;37(18):146–61.
63. Chen LK, Woo J, Assantachai P, Auyeung TW, Chou MY, Iijima K, et al. Asian Working Group for Sarcopenia: 2019 Consensus Update on Sarcopenia Diagnosis and Treatment. *J Am Med Dir Assoc.* 2020 Mar;21(3):300–7.
64. Preedy VR, Patel VB. Handbook of Famine, Starvation, and Nutrient Deprivation: From Biology to Policy. Cham: Springer International Publishing; 2019:683–98.
65. Sanguinetti C, Minniti M, Susini V, Caponi L, Panichella G, Castiglione V, et al. The Journey of Human Transthyretin: Synthesis, Structure Stability, and Catabolism. *Biomedicines.* 2022 Aug 6;10(8):1906–18.
66. Ingenbleek Y. Plasma transthyretin is a nutritional biomarker in human morbidities. *Front Med.* 2022 Aug;16(4):540–50.
67. Tóthová C, Nagy O. Transthyretin in the Evaluation of Health and Disease in Human and Veterinary Medicine. In: Pathophysiology – Altered Physiological States. InTech; 2018:1–32.
68. Monaco HL. Three-Dimensional Structure of the Transthyretin-Retinol-Binding Protein Complex. *Clin Chem Lab Med.* 2002;40(12):1–9.

69. Pappa T, Refetoff S. Thyroid Hormone Transport Proteins: Thyroxine-Binding Globulin, Transthyretin, and Albumin. In: Reference Module in Neuroscience and Biobehavioral Psychology. Elsevier; 2017:1–9.
70. Sergi G, Coin A, Enzi G, Volpato S, Inelmen EM, Buttarello M, et al. Role of visceral proteins in detecting malnutrition in the elderly. *Eur J Clin Nutr*. 2006 Feb 1;60(2):203–9.
71. Ingenbleek Y. Plasma Transthyretin as A Biomarker of Sarcopenia in Elderly Subjects. *Nutrients*. 2019 Apr 21;11(4):1–18.
72. Hai S, Cao L, Wang H, Zhou J, Liu P, Yang Y, et al. Association between sarcopenia and nutritional status and physical activity among community-dwelling Chinese adults aged 60 years and older. *Geriatr Gerontol Int*. 2017 Nov;17(11):1959–66.
73. Bayraktar E, Tosun Tasar P, Binici DN, Karasahin O, Timur O, Sahin S. Relationship between Sarcopenia and Mortality in Elderly Inpatients. *Eurasian J Med*. 2020 Mar 6;52(1):298–33.
74. Yang Y, Zhang Q, He C, Chen J, Deng D, Lu W, et al. Prevalence of sarcopenia was higher in women than in men: a cross-sectional study from a rural area in eastern China. *PeerJ*. 2022 Aug 2;10:e13678.
75. Han P, Kang L, Guo Q, Wang J, Zhang W, Shen S, et al. Prevalence and Factors Associated With Sarcopenia in Suburb-dwelling Older Chinese Using the Asian Working Group for Sarcopenia Definition. *J Gerontol A Biol Sci Med Sci*. 2016 Apr;71(4):529–35.
76. Kim M, Choi M, Bae Y. Relationship between protein intake and grip strength in qualitative and quantitative aspects among the elderly in Korea: results from the Korea National Health and Nutrition Examination Survey. *BMC Geriatr*. 2023 May 26;23(1):330.
77. Bloom I, Shand C, Cooper C, Robinson S, Baird J. Diet Quality and Sarcopenia in Older Adults: A Systematic Review. *Nutrients*. 2018 Mar 5;10(3):308.
78. Chen L, Xia J, Xu Z, Chen Y, Yang Y. Evaluation of Sarcopenia in Elderly Women of China. *Int J Gerontol*. 2017 Sep;11(3):149–53.
79. Distefano G, Goodpaster BH. Effects of Exercise and Aging on Skeletal Muscle. *Cold Spring Harb Perspect Med*. 2018 Mar;8(3):a029785.

80. Ikeda K, Horie-Inoue K, Inoue S. Functions of estrogen and estrogen receptor signaling on skeletal muscle. *J Steroid Biochem Mol Biol.* 2019 Jul;191:105375.
81. Yoshida T, Delafontaine P. Mechanisms of IGF-1-Mediated Regulation of Skeletal Muscle Hypertrophy and Atrophy. *Cells.* 2020 Aug 26;9(9):1970.
82. Milewska M, Przekop Z, Szostak-Węgierek D, Chrzanowska M, Raciborski F, Traczyk I, et al. Prevalence of Risk of Sarcopenia in Polish Elderly Population—A Population Study. *Nutrients.* 2022 Aug 24;14(17):3466.
83. Hong S hyeon, Choi KM. Sarcopenic Obesity, Insulin Resistance, and Their Implications in Cardiovascular and Metabolic Consequences. *Int J Mol Sci.* 2020 Jan 13;21(2):494.
84. Putra IGAW, Aryana IGPS, Astika IN, Kuswardhani RT, Putrawan IB, Purnami KR. Prevalensi sarkopenia dan frailty di desa Pedawe, Mangupura, Serai dan Songan. *Intisari Sains Medis.* 2020 Aug 1;11(2):546–50.
85. Tamayo A, Mulyana R, Martini RD. Perbedaan Kadar Insulin-Like Growth Factor-1 dan Tumor Necrosis Faktor- α Serum pada Berbagai Derajat Sarkopenia Pasien Lanjut Usia: Studi Potong Lintang. *J Penyakit Dalam Indones.* 2023 Sep 30;10(3):144-50.
86. Iii LJM, Khosla S, Crowson CS, O'Connor MK, O'Fallon WM, Riggs BL. Epidemiology of Sarcopenia. *J Am Geriatr Soc.* 2000 Jun;48(6):625–30.
87. Jung HN, Jung CH, Hwang YC. Sarcopenia in youth. *Metabolism.* 2023 Jul;144:155557.
88. Papadopoulou S. Sarcopenia: A Contemporary Health Problem among Older Adult Populations. *Nutrients.* 2020 May 1;12(5):1293.
89. Therakomen V, Petchlorlian A, Lakananurak N. Prevalence and risk factors of primary sarcopenia in community-dwelling outpatient elderly: a cross-sectional study. *Sci Rep.* 2020 Nov 11;10(1):19551.
90. Holmes CJ, Racette SB. The Utility of Body Composition Assessment in Nutrition and Clinical Practice: An Overview of Current Methodology. *Nutrients.* 2021 Jul 22;13(8):2493.
91. Curtis M, Swan L, Fox R, Warters A, O'Sullivan M. Associations between Body Mass Index and Probable Sarcopenia in Community-Dwelling Older Adults. *Nutrients.* 2023 Mar 21;15(6):1505.

92. Liu C, Cheng KYK, Tong X, Cheung WH, Chow SKH, Law SW, et al. The role of obesity in sarcopenia and the optimal body composition to prevent against sarcopenia and obesity. *Front Endocrinol.* 2023 Mar 1;14:1077255.
93. Tomlinson DJ, Erskine RM, Morse CI, Winwood K, Onambélé-Pearson G. The impact of obesity on skeletal muscle strength and structure through adolescence to old age. *Biogerontology.* 2016 Jun;17(3):467–83.
94. Choi S, Chon J, Lee SA, Yoo MC, Yun Y, Chung SJ, et al. Central obesity is associated with lower prevalence of sarcopenia in older women, but not in men: a cross-sectional study. *BMC Geriatr.* 2022 Dec;22(1):406.
95. Hansen M. Female hormones: do they influence muscle and tendon protein metabolism? *Proc Nutr Soc.* 2018 Feb;77(1):32–41.
96. Ouchi N, Walsh K. Adiponectin as an anti-inflammatory factor. *Clin Chim Acta.* 2007 May;380(1–2):24–30.
97. Butler R, McClinchy J, Morreale-Parker C, Marsh W, Rennie KL. BMI calculation in older people: The effect of using direct and surrogate measures of height in a community-based setting. *Clin Nutr ESPEN.* 2017 Dec;22:112–5.
98. Darwita SP, Pratiwi YS, Dwipa L. Characteristics of Elderly Patients with Sarcopenia at Geriatric Outpatient Clinic Dr. Hasan Sadikin General Hospital Period 2012–2014. *Althea Med J.* 2018 Dec;5(4):201–7.
99. Budiartha IGAIM, Aryana IS, Purnami NKR, Putrawan IB, Astika IN, Kuswardhani RT. Hubungan massa otot pada sarkopenia dengan status fungsional lanjut usia di desa Pedawa, kabupaten Buleleng, Bali. *J Penyakit Dalam Udayana.* 2019 Dec 20;3(2):37–9.
100. Ćwirlej-Sozańska A, Wiśniowska-Szurlej A, Wilmowska-Pietruszyńska A, Sozański B. Determinants of ADL and IADL disability in older adults in southeastern Poland. *BMC Geriatr.* 2019 Dec;19(1):297.
101. Beltz S, Gloystein S, Litschko T, Laag S, Van Den Berg N. Multivariate analysis of independent determinants of ADL/IADL and quality of life in the elderly. *BMC Geriatr.* 2022 Nov 23;22(1):894.
102. Liu J, Zhu Y, Tan JK, Ismail AH, Ibrahim R, Hassan NH. Factors Associated with Sarcopenia among Elderly Individuals Residing in Community and Nursing

- Home Settings: A Systematic Review with a Meta-Analysis. *Nutrients*. 2023 Oct 11;15(20):4335.
103. Gammack JK. Physical Activity in Older Persons. *Mo Med*. 2017;114(2):105–9.
104. Gheorghe AC, Bălășescu E, Hulea I, Turcu G, Amariei MI, Covaci AV, et al. Frailty and Loneliness in Older Adults: A Narrative Review. *Geriatrics*. 2024 Sep 13;9(5):119.
105. Wardhana DM, Widajanti N, Ichwani J. Hubungan Komponen Comprehensive Geriatric Assessment dan Sarkopenia pada Usia Lanjut. *J Penyakit Dalam Indones*. 2020 Jan 1;6(4):188.
106. Tirtadjaja DA, Apandi M, Dwipa L. Perbedaan Adekuasi Asupan Nutrisi Lansia Sarkopenia dengan dan Tanpa Sarkopenia di Panti Werdha Bandung. *J Penyakit Dalam Indones*. 2022 Jan 1;8(4):163.
107. Kurniawan MRA. Sarcopenia In Elderly Patients: What Are The Contributing Risk Factors? *J Kedokt Kesehat Publ Ilm Fak Kedokt Univ Sriwij*. 2024 Apr 20;11(1):157–66.
108. Mellen RH, Girotto OS, Marques EB, Laurindo LF, Grippa PC, Mendes CG, et al. Insights into Pathogenesis, Nutritional and Drug Approach in Sarcopenia: A Systematic Review. *Biomedicines*. 2023 Jan 5;11(1):136.
109. Lardiés-Sánchez B, Sanz-París A. Sarcopenia and Malnutrition in the Elderly. In: Dionyssiotis Y, editor. *Frailty and Sarcopenia – Onset, Development and Clinical Challenges*. InTech; 2017;71–80.
110. Tezze C, Sandri M, Tessari P. Anabolic Resistance in the Pathogenesis of Sarcopenia in the Elderly: Role of Nutrition and Exercise in Young and Old People. *Nutrients*. 2023 Sep 20;15(18):4073.
111. McColl TJ, Clarke DC. Kinetic modeling of leucine-mediated signaling and protein metabolism in human skeletal muscle. *iScience*. 2024 Jan;27(1):108634.
112. Dorosty A, Arero G, Chamar M, Tavakoli S. Prevalence of Sarcopenia and Its Association with Socioeconomics Status Among The Elderly in Tehran. *Ethiop J Health Sci*. 2016;26(4):389.
113. Sumandar S, Ekaputri M, Ramadia A. Sarcopenia: The Prevalence and Associated Factors in Community-Dwelling Elderly. *Media Kesehat Masy Indones*. 2023;19(2):50-60.

114. Lawongs K, Tepakorn J. Sarcopenia Prevalance and Risk Factors Among Older Adults in Bangkok, Thailand: A Cross-Sectional Study. *Cureus*. 2024;16(6):e63483.
115. Ratmawati, Fatimah-Muis S, Sofro MAU, Margawati A, Kartasurya MI. Characteristics, Nutritional Status, and Sarcopenia in the Elderly in Pangkalpinang City. *AP*. 2021;216-23.
116. Ranazeri J, Mulyana R. Perbedaan Kadar Irisin Serum Pada Pasien Lanjut Usia Sarkopenia Dengan Dan Tanpa Chronic Heart Failure. *Andalas*. 2023;72–90.
117. Lee SY. Handgrip Strength: An Irreplaceable Indicator of Muscle Function. *Ann Rehabil Med*. 2021 Jun 30;45(3):167–9.
118. Vaishya R, Misra A, Vaish A, Ursino N, D'Ambrosi R. Hand grip strength as a proposed new vital sign of health: a narrative review of evidences. *J Health Popul Nutr*. 2024 Jan 9;43(1):7.
119. Yoo JI, Choi H, Ha YC. Mean Hand Grip Strength and Cut-off Value for Sarcopenia in Korean Adults Using KNHANES VI. *J Korean Med Sci*. 2017;32(5):868.
120. De Araújo Amaral C, Amaral TLM, Monteiro GTR, De Vasconcellos MTL, Portela MC. Factors associated with low handgrip strength in older people: data of the Study of Chronic Diseases (Edoc-I). *BMC Public Health*. 2020 Dec;20(1):395.
121. Manoharan VS, Sundaram SG, Jason JI. Factors Affecting Hand Grip Strength And Its Evaluation: A Systemic Review. *Int J Physiother Res*. 2015 Dec 11;3(6):1288–93.
122. Riviati N, Setiati S, Laksmi PW, Abdullah M. Factors Related with Handgrip Strength in Elderly Patients. *Acta Med Indones*. 2017;49(3).
123. Kim M, Choi M, Bae Y. Relationship between protein intake and grip strength in qualitative and quantitative aspects among the elderly in Korea: results from the Korea National Health and Nutrition Examination Survey. *BMC Geriatr*. 2023 May 26;23(1):330.
124. Shah SA, Safian N, Mohammad Z, Nurumal SR, Wan Ibadullah WAH, Mansor J, et al. Factors Associated with Handgrip Strength Among Older Adults in Malaysia. *J Multidiscip Healthc*. 2022 May;Volume 15:1023–34.

125. Zeng D, Ling XY, Fang ZL, Lu YF. Optimal exercise to improve physical ability and performance in older adults with sarcopenia: a systematic review and network meta-analysis. *Geriatr Nur (Lond)*. 2023 Jul;52:199–207.
126. Zhao H, Cheng R, Song G, Teng J, Shen S, Fu X, et al. The Effect of Resistance Training on the Rehabilitation of Elderly Patients with Sarcopenia: A Meta-Analysis. *Int J Environ Res Public Health*. 2022 Nov 22;19(23):15491.
127. Megasari IM, Mat S, Singh DKA, Tan MP. Prospective sarcopenia outcomes associated with physical performance in individuals aged 55 years and over in Malaysia. *Front Public Health*. 2023 Oct 12;11:1226642.
128. Jerome GJ, Ko S uk, Kauffman D, Studenski SA, Ferrucci L, Simonsick EM. Gait characteristics associated with walking speed decline in older adults: Results from the Baltimore Longitudinal Study of Aging. *Arch Gerontol Geriatr*. 2015 Mar;60(2):239–43.
129. Mehrlatifan S, Fatahi A, Khezri D. Biomechanics of Gait in the Elderly: A Literature Review. *Asian J Sports Med*. 2023 Jul 16;14(2).1–13.
130. Reimann H, Ramadan R, Fettrow T, Hafer JF, Geyer H, Jeka JJ. Interactions Between Different Age-Related Factors Affecting Balance Control in Walking. *Front Sports Act Living*. 2020 Jul 31;2:94.
131. Perez-Sousa MA, Venegas-Sanabria LC, Chavarro-Carvajal DA, Cano-Gutierrez CA, Izquierdo M, Correa-Bautista JE, et al. Gait speed as a mediator of the effect of sarcopenia on dependency in activities of daily living. *J Cachexia Sarcopenia Muscle*. 2019 Oct;10(5):1009–15.
132. González-Rocha A, Mendez-Sánchez L, Ortíz-Rodríguez MA, Denova-Gutiérrez E. Effect Of Exercise on Muscle Mass, Fat Mass, Bone Mass, Muscular Strength and Physical Performance in Community Dwelling Older Adults: Systematic Review and Meta-Analysis. *Aging Dis*. 2022;13(5):1421.
133. Solikhah D, Sulchan M, Candra A. Hubungan Persen Lemak Tubuh Dengan Hitung Eosinofil Pada Lansia Obesitas Sarkopenia. *Jnh J Nutr Health*. 2020 May 22;8(2):109–21.
134. Li Y, Xiang Q, Dong B, Liang R, Song Q, Deng L, et al. Transitional Dynamics of Sarcopenia and Associations of Nutritional Indices with State Transitions in Chinese aged ≥ 50 . *J Nutr Health Aging*. 2023 Sep;27(9):741–51.

135. Wiedmer P, Jung T, Castro JP, Pomatto LCD, Sun PY, Davies KJA, et al. Sarcopenia – Molecular mechanisms and open questions. *Ageing Res Rev.* 2021 Jan;65:101200.
136. Tieland M, Trouwborst I, Clark BC. Skeletal muscle performance and ageing. *J Cachexia Sarcopenia Muscle.* 2018 Feb;9(1):3–19.
137. Hrniciarikova D, Juraskova B, Hyspler R, Solichova D, Ticha A, Klemara P, et al. A Changed View Of Serum Prealbumin In The Elderly: Prealbumin Values Influenced By Concomitant Inflammation. *Biomed Pap.* 2007 Dec 1;151(2):273.
138. Suzuki N, Kida K, Suzuki K, Harada T, Akashi YJ. Assessment of Transthyretin Combined With Mini Nutritional Assessment on Admission Provides Useful Prognostic Information in Patients With Acute Decompensated Heart Failure. *Int Heart J.* 2015;56(2):226–33.
139. Wang T, Yang Z kai, Wan Y hao, Chai K, Li Y ying, Luo Y, et al. Low transthyretin concentration linked to adverse prognosis in elderly inpatients. *BMC Geriatr.* 2024 Oct 30;24(1):893.
140. Takeuchi M, Tsuboi A, Minato S, Yano M, Kitaoka K, Kurata M, et al. Elevated serum adiponectin, elevated tumor necrosis factor- α and decreased transthyretin in Japanese elderly women with low grip strength and preserved insulin sensitivity. *BMJ Open Diabetes Res Care.* 2019 Aug;7(1):e000675.
141. Hu X, Guo Q, Wang X, Wang Q, Chen L, Sun T, et al. Plasma Transthyretin Levels and Risk of Type 2 Diabetes Mellitus and Impaired Glucose Regulations in a Chinese Population. *Nutrients.* 2022;14(14):2953.