

## DAFTAR PUSTAKA

- Afilalo, J., Alexander, K.P., Mack, M.J., Maurer, M.S., Green, P., Allen, L.A., Popma, J.J., Ferrucci, L., Forman, D.E. (2014). Frailty assessment in the cardiovascular care of older adults. *J Am Coll Cardiol*. Mar 4;63(8):747-62. doi: 10.1016/j.jacc.2013.09.070. Epub 2013 Nov 27. PMID: 24291279; PMCID: PMC4571179.
- Angulo, J., El Assar, M., Álvarez-Bustos, A., & Rodríguez-Mañas, L. (2020). Physical activity and exercise: Strategies to manage frailty. *Redox biology*, 35, 101513. <https://doi.org/10.1016/j.redox.2020.101513>
- Aprahamian, I., Sassaki, E., Dos Santos, M. F., Izbicki, R., Pulgrossi, R. C., Biella, M. M., Borges, A. C. N., Sassaki, M. M., Torres, L. M., Fernandez, Í. S., Pião, O. A., Castro, P. L. M., Fontenele, P. A., & Yassuda, M. S. (2018). Hypertension and frailty in older adults. *Journal of clinical hypertension (Greenwich, Conn.)*, 20(1), 186–192. <https://doi.org/10.1111/jch.13135>
- Badan Pusat Statistik (BPS). (2021). Statistik Penduduk Lanjut Usia 2021. <https://www.bps.go.id/publication/2021/12/21/c3fd9f27372f6ddcf7462006/statistik-penduduk-lanjut-usia-2021.html>. Diakses pada 28 November 2022
- Badan Pusat Statistik (BPS). (2022). Angka Harapan Hidup (AHH) Menurut Provinsi dan Jenis Kelamin (Tahun), 2019-2021. <https://www.bps.go.id/indicator/40/501/1/angka-harapan-hidup-ahh-menurut-provinsi-dan-jenis-kelamin.html>. Diakses pada 28 November 2022
- Bagshaw, S.M., Stelfox, H.T., McDermid, R.C., Rolfson, D.B., Tsuyuki, R.T., Baig, N., Artiuch, B., Ibrahim, Q., Stollery, D.E., Rokosh, E., Majumdar, S.R. (2014) Association between frailty and short- and long-term outcomes among critically ill patients: a multicentre prospective cohort study. *CMAJ*. Feb 4;186(2):E95-102. doi: 10.1503/cmaj.130639. Epub 2013 Nov 25. PMID: 24277703; PMCID: PMC3903764.
- Barzilay, J.I., Blaum, C., Moore, T., Xue, Q.L., Hirsch, C.H., Walston, J.D., Fried, L.P. (2007) Insulin resistance and inflammation as precursors of frailty: the Cardiovascular Health Study. *Arch Intern Med*. Apr 9;167(7):635-41. doi: 10.1001/archinte.167.7.635. PMID: 17420420.
- Bindawas, S.M., Vennu, V., Stubbs, B. (2018). Longitudinal Relationship Between Knee Pain Status and Incident Frailty: Data from the Osteoarthritis Initiative. *Pain Med*. Nov 1;19(11):2146-2153. doi: 10.1093/pm/pnx296. PMID: 29206993; PMCID: PMC6659024.

- Bleve, A., Motta, F., Durante, B., Pandolfo, C., Selmi, C., & Sica, A. (2022). Immunosenescence, Inflammaging, and Frailty: *Role of Myeloid Cells in Age-Related Diseases*. Clinical reviews in allergy & immunology, 1–22. Advance online publication. <https://doi.org/10.1007/s12016-021-08909-7>
- Bowen M. E. (2012). The relationship between body weight, frailty, and the disablement process. *The journals of gerontology. Series B, Psychological sciences and social sciences*, 67(5), 618–626. <https://doi.org/10.1093/geronb/gbs067>
- Cabo, R. D., Le Couteur, D. G. (2019). Harrison's Principles of Internal Medicine 19<sup>th</sup> ed: Chapter 94e The Biology of Aging. New York:McGraw-Hill: p.94e1-7
- Cahyawati, W.A.S.N., Panghiyangani, R., Muslim, M.S.A., Rahman, N.B., (2022). Hubungan Status Gizi dengan Frailty dan Fungsi Kognitif pada Lansia di RSUD Dr. H. Moch. Ansari Saleh Banjarmasin. Jurnal Kedokteran Brawijaya Vol. 32, No. 2, February 2022, pp. 48-53 Article History: Received 24 August 2021, Accepted 10 February 2022
- Camafort, M., & Kario, K. (2020). Hypertension, heart failure, and frailty in older people: A common but unclear situation. *Journal of clinical hypertension (Greenwich, Conn.)*, 22(10), 1763–1768. <https://doi.org/10.1111/jch.14004>
- Cao, S., Pan, Y., Tang, J., Terker, A. S., Arroyo Ornelas, J. P., Jin, G. N., Wang, Y., Niu, A., Fan, X., Wang, S., Harris, R. C., & Zhang, M. Z. (2022). EGFR-mediated activation of adipose tissue macrophages promotes obesity and insulin resistance. *Nature Communications*, 13(1), 4684. <https://doi.org/10.1038/s41467-022-32348-3>
- Caso, G., McNurlan, M. A., Mileva, I., Zemlyak, A., Mynarcik, D. C., & Gelato, M. C. (2013). Peripheral fat loss and decline in adipogenesis in older humans. *Metabolism: clinical and experimental*, 62(3), 337–340. <https://doi.org/10.1016/j.metabol.2012.08.007>
- Cesari M, Leeuwenburgh C, Lauretani F, Onder G, Bandinelli S, Maraldi C, Guralnik JM, Pahor M, Ferrucci L. (2006). Frailty syndrome and skeletal muscle: results from the Invecchiare in Chianti study. *Am J Clin Nutr*. 2006 May;83(5):1142-8. doi: 10.1093/ajcn/83.5.1142. PMID: 16685058; PMCID: PMC2668161.
- Clegg A, Hassan-Smith Z. (2018). Frailty and the endocrine system. *Lancet Diabetes Endocrinol*. Sep;6(9):743-752. doi: 10.1016/S2213-8587(18)30110-4. Epub 2018 Jul 17. PMID: 30017798.

- Dahlan, M. S. (2013). *Besar Sampel dan Cara Pengambilan Sampel dalam Penelitian Kedokteran dan Kesehatan*. Jakarta: Salemba Medika
- Dent, E., Morley, J. E., Cruz-Jentoft, A. J., Woodhouse, L., Rodríguez-Mañas, L., Fried, L. P., Woo, J., Aprahamian, I., Sanford, A., Lundy, J., Landi, F., Beilby, J., Martin, F. C., Bauer, J. M., Ferrucci, L., Merchant, R. A., Dong, B., Arai, H., Hoogendijk, E. O., Won, C. W., Vellas, B. (2019). Physical Frailty: ICFSR International Clinical Practice Guidelines for Identification and Management. *The journal of nutrition, health & aging*, 23(9), 771–787. <https://doi.org/10.1007/s12603-019-1273-z>
- Dewanti, D., Syauqy, A., Noer, E. R., & Pramono, A. (2022). HUBUNGAN POLA MAKAN DAN AKTIVITAS FISIK DENGAN OBESITAS SENTRAL PADA USIA LANJUT DI INDONESIA: DATA RISET KESEHATAN DASAR. *GIZI INDONESIA*, 45(2), 79-90.
- Dhawan, D., & Sharma, S. (2020). Abdominal Obesity, Adipokines and Non-communicable Diseases. *The Journal of steroid biochemistry and molecular biology*, 203, 105737. <https://doi.org/10.1016/j.jsbmb.2020.105737>
- Dilworth, L., Facey, A., & Omoruyi, F. (2021). Diabetes Mellitus and Its Metabolic Complications: The Role of Adipose Tissues. *International journal of molecular sciences*, 22(14), 7644. <https://doi.org/10.3390/ijms22147644>
- Dobi, A., Bravo, S. B., Veeren, B., Paradela-Dobarro, B., Álvarez, E., Meilhac, O., Viranaicken, W., Baret, P., Devin, A., & Rondeau, P. (2019). Advanced glycation end-products disrupt human endothelial cells redox homeostasis: new insights into reactive oxygen species production. *Free radical research*, 53(2), 150–169. <https://doi.org/10.1080/10715762.2018.1529866>
- Falcone, M., Russo, A., Gentiloni Silverj, F., Marzorati, D., Bagarolo, R., Monti, M., Velleca, R., D'Angelo, R., Frustaglia, A., Zuccarelli, G. C., Prina, R., Vignati, M., Marnati, M. G., Venditti, M., & Tinelli, M. (2018). Predictors of mortality in nursing-home residents with pneumonia: a multicentre study. *Clinical microbiology and infection: the official publication of the European Society of Clinical Microbiology and Infectious Diseases*, 24(1), 72–77. <https://doi.org/10.1016/j.cmi.2017.05.023>
- Faller, J. W., Pereira, D. D. N., de Souza, S., Nampo, F. K., Orlandi, F. S., & Matumoto, S. (2019). Instruments for the detection of frailty syndrome in older adults: A systematic review. *PloS one*, 14(4), e0216166. <https://doi.org/10.1371/journal.pone.0216166>
- Flicker L, McCaul KA, Hankey GJ, Jamrozik K, Brown WJ, Byles JE, Almeida OP. (2010). Body mass index and survival in men and women aged 70 to 75.

J Am Geriatr Soc. Feb;58(2):234-41. doi: 10.1111/j.1532-5415.2009.02677.x. PMID: 20370857.

Flier, J. S., Maratos, E. (2019). Harrison's Principles of Internal Medicine 19<sup>th</sup> ed: Chapter 415 Obesity, Diabetes Melitus and Metabolic Syndrome. New York :McGraw-Hill: p.2392

Frisoli A Jr, Ingham SJ, Paes ÂT, Tinoco E, Greco A, Zanata N, Pintarelli V, Elber I, Borges J, Camargo Carvalho AC. (2015). Frailty predictors and outcomes among older patients with cardiovascular disease: Data from Fragicor. Arch Gerontol Geriatr. Jul-Aug;61(1):1-7. doi: 10.1016/j.archger.2015.03.001. Epub 2015 Mar 14. PMID: 25921097.

Fung, E., Lui, L. T., Huang, L., Cheng, K. F., Lau, G. H. W., Chung, Y. T., Ahmadabadi, B. N., Xie, S., Lee, J. S. W., Hui, E., So, W. Y., Sung, J. J. Y., King, I., Goggins, W. B., Chan, Q., Järvelin, M. R., Ma, R. C. W., Chow, E., & Kwok, T. (2021). Characterising frailty, metrics of continuous glucose monitoring, and mortality hazards in older adults with type 2 diabetes on insulin therapy (HARE): a prospective, observational cohort study. *The Lancet. Healthy longevity*, 2(11), e724–e735. [https://doi.org/10.1016/S2666-7568\(21\)00251-8](https://doi.org/10.1016/S2666-7568(21)00251-8)

García-Esquinas, E., Graciani, A., Guallar-Castillón, P., López-García, E., Rodríguez-Mañas, L., & Rodríguez-Artalejo, F. (2015). Diabetes and risk of frailty and its potential mechanisms: a prospective cohort study of older adults. *Journal of the American Medical Directors Association*, 16(9), 748–754. <https://doi.org/10.1016/j.jamda.2015.04.008>

García-González JJ, García-Peña C, Franco-Marina F, Gutiérrez-Robledo LM. (2009). A frailty index to predict the mortality risk in a population of senior Mexican adults. BMC Geriatri. Nov 3;9:47. doi: 10.1186/1471-2318-9-47. PMID: 19887005; PMCID: PMC2776593.

Garibotto G, Picciotto D, Saio M, Esposito P, Verzola D. (2020). Muscle protein turnover and low-protein diets in patients with chronic kidney disease. Nephrol Dial Transplant. May 1;35(5):741-751. doi: 10.1093/ndt/gfaa072. PMID: 32378720.

Gopinath, B., Kifley, A., Flood, V. M., & Mitchell, P. (2018). Physical Activity as a Determinant of Successful Aging over Ten Years. *Scientific reports*, 8(1), 10522. <https://doi.org/10.1038/s41598-018-28526-3>

Gu, J., Chen, H., Gu, X., Sun, X., Pan, Z., Zhu, S., & Young, D. (2019). Frailty and Associated Risk Factors in Elderly People with Health Examination in Rural Areas of China. *Iranian journal of public health*, 48(9), 1663–1670.

- Han, T., Yuan, T., Liang, X., Chen, N., Song, J., Zhao, X., Weng, Y., & Hu, Y. (2022). Sarcopenic Obesity with Normal Body Size May Have Higher Insulin Resistance in Elderly Patients with Type 2 Diabetes Mellitus. *Diabetes, metabolic syndrome and obesity: targets and therapy*, 15, 1197–1206. <https://doi.org/10.2147/DMSO.S360942>
- Hessey E, Montgomery C, Zuege DJ, Rolfson D, Stelfox HT, Fiest KM, Bagshaw SM. (2020). Sex-specific prevalence and outcomes of frailty in critically ill patients. *J Intensive Care*. 2020 Sep 29;8:75. doi: 10.1186/s40560-020-00494-9. PMID: 33005426; PMCID: PMC7525935.
- Horstman, A. M., Dillon, E. L., Urban, R. J., & Sheffield-Moore, M. (2012). The role of androgens and estrogens on healthy aging and longevity. *The journals of gerontology. Series A, Biological sciences and medical sciences*, 67(11), 1140–1152. <https://doi.org/10.1093/gerona/gls068>
- Imerb, N., Thonusin, C., Chattipakorn, N., & Chattipakorn, S. C. (2020). Aging, obese-insulin resistance, and bone remodeling. *Mechanisms of ageing and development*, 191, 111335. <https://doi.org/10.1016/j.mad.2020.111335>
- International Diabetes Federation (IDF). (2006). Consensus Worldwide Definition of the Metabolic Syndrome. <https://www.idf.org/e-library/consensus-statements/60-idfconsensus-worldwide-definition-of-the-metabolic-syndrome.html>. Diakses pada 14 Februari 2023
- Jackson, A.S., Janssen, I., Sui, X., Church, T.S., Blair, S.N. (2012). Longitudinal changes in body composition associated with healthy ageing: men, aged 20-96 years. *Br J Nutr. Apr*;107(7):1085-91. doi: 10.1017/S0007114511003886. Epub 2011 Aug 3. PMID: 21810289.
- Janssen, J.A.M.J.L. (2021). Hyperinsulinemia and Its Pivotal Role in Aging, Obesity, Type 2 Diabetes, Cardiovascular Disease and Cancer. *International journal of molecular sciences*, 22(15), 7797. <https://doi.org/10.3390/ijms22157797>
- Jia G, Sowers, J.R. (2019). Increased Fibro-Adipogenic Progenitors and Intramyocellular Lipid Accumulation in Obesity-Related Skeletal Muscle Dysfunction. *Diabetes. Jan*;68(1):18-20. doi: 10.2337/dbi18-0047. PMID: 30573676; PMCID: PMC6302534.
- Jiwani, R., Wang, J., Li, C., Dennis, B., Patel, D., Gelfond, J., Liu, Q., Siddiqui, N., Bess, C., Monk, S., Serra, M., & Espinoza, S. (2022). A Behavioral Lifestyle Intervention to Improve Frailty in Overweight or Obese Older Adults with Type 2 Diabetes: A Feasibility Study. *The Journal of frailty & aging*, 11(1), 74–82. <https://doi.org/10.14283/jfa.2021.17>

- Jocken, J.W., Blaak, E.E. (2008). Catecholamine-induced lipolysis in adipose tissue and skeletal muscle in obesity. *Physiology & behavior*, 94(2), 219–230. <https://doi.org/10.1016/j.physbeh.2008.01.002>
- Joenadi, Y. (2018). Hubungan Indeks Massa Tubuh dengan Sindrom Kerapuhan Pada Lansia di Kota Malang. Tugas Akhir, Program Studi Pendidikan Dokter, Fakultas Kedokteran, Universitas Brawijaya : Malang
- Kalathookunnel Antony, A., Lian, Z., & Wu, H. (2018). T Cells in Adipose Tissue in Aging. *Frontiers in immunology*, 9, 2945. <https://doi.org/10.3389/fimmu.2018.02945>
- Kang S., Oh T.J., Cho B.L., Park Y.S., Roh E, Kim H.J., Lee S.G., Kim B.J., Kim M, Won C.W., Jang H.C. (2021). Sex differences in sarcopenia and frailty among community-dwelling Korean older adults with diabetes: The Korean Frailty and Aging Cohort Study. *J Diabetes Investig*. Feb;12(2):155-164. doi: 10.1111/jdi.13348. Epub 2020 Aug 8. PMID: 32627923; PMCID: PMC7858110.
- Kashiwagi R, Iwahashi H, Yamada Y, Sakaue T, Okita T, Kawachi Y, Iwamoto R, Saisho K, Tamba S, Yamamoto K, Watanabe T, Fujimoto T, Matsuzawa Y. (2017). Effective waist circumference reduction rate necessary to avoid the development of type 2 diabetes in Japanese men with abdominal obesity. *Endocr J*. Sep 30;64(9):881-894. doi: 10.1507/endocrj.EJ17-0113. Epub 2017 Jul 15. PMID: 28717063.
- Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo. (2015). Harrison's Principal of Internal Medicine, 19th Ed., Mc.Graw-Hill Education, USA, p.77.
- Kementrian Kesehatan Republik Indonesia (Kemenkes). (2021). Lansia Bahagia Bersama Keluarga, [https://www.kemkes.go.id/article/view/21061700001/lansia-bahagia-bersama-keluarga.html#:~:text=Jumlah%20orang%20lanjut%20usia%20\(Lansia,jiwa%20\(11%2C8%25\)](https://www.kemkes.go.id/article/view/21061700001/lansia-bahagia-bersama-keluarga.html#:~:text=Jumlah%20orang%20lanjut%20usia%20(Lansia,jiwa%20(11%2C8%25).). Diakses pada 28 November 2022.
- Kennedy C.C., Novotny P.J., LeBrasseur N.K., Wise R.A., Sciurba F.C., Benzo R.P. (2019). Frailty and Clinical Outcomes in Chronic Obstructive Pulmonary Disease. *Ann Am Thorac Soc*. Feb;16(2):217-224. doi: 10.1513/AnnalsATS.201803-175OC. PMID: 30433830; PMCID: PMC6376949.
- Kidney Disease: Improving Global Outcomes (KDIGO) Blood Pressure Work Group (2021). KDIGO 2021 Clinical Practice Guideline for the Management of Blood Pressure in Chronic Kidney Disease. *Kidney international*, 99(3S), S1–S87. <https://doi.org/10.1016/j.kint.2020.11.003>



- Ko, G. T., Wai, H. P., & Tang, J. S. (2006). Effects of age on plasma glucose levels in non-diabetic Hong Kong Chinese. *Croatian medical journal*, 47(5), 709–713.
- Kocyigit, S. E., Soysal, P., Bulut, E. A., Aydin, A. E., Dokuzlar, O., & Isik, A. T. (2019). What is the relationship between frailty and orthostatic hypotension in older adults?. *Journal of geriatric cardiology : JGC*, 16(3), 272–279. <https://doi.org/10.11909/j.issn.1671-5411.2019.03.005>
- Laksmi, P.W. (2015). Evaluasi Sindrom Frailty pada Pasien Usia Lanjut dalam Soeroto AY, Supriyadi R, Wijaya IP, Hamijoyo L (Eds), Prosiding Naskah Lengkap Simposium Kopapdi, Bandung, hal.313-323.
- Latijnhouwers, D.A.J.M., Hoogendoorn, K.,G, Nelissen, R.G.H.H., Putter H, Vliet, Vlieland, T.P.M., Gademán, M.G.J; LOAS Study Group. (2023). Adherence to the Dutch recommendation for physical activity: prior to and after primary total hip and knee arthroplasty. *Disabil Rehabil*. Jul 27:1-9. doi: 10.1080/09638288.2023.2237409. Epub ahead of print. PMID: 37496462.
- Leitner, D. R., Frühbeck, G., Yumuk, V., Schindler, K., Micic, D., Woodward, E., & Toplak, H. (2017). Obesity and Type 2 Diabetes: Two Diseases with a Need for Combined Treatment Strategies - EASO Can Lead the Way. *Obesity facts*, 10(5), 483–492. <https://doi.org/10.1159/000480525>
- Liang, H., Li, X., Lin, X., Ju, Y., & Leng, J. (2021). The correlation between nutrition and frailty and the receiver operating characteristic curve of different nutritional indexes for frailty. *BMC geriatrics*, 21(1), 619. <https://doi.org/10.1186/s12877-021-02580-5>
- Liao Q, Zheng Z, Xiu S, Chan P. (2018). Waist circumference is a better predictor of risk for frailty than BMI in the community-dwelling elderly in Beijing. *Aging Clin Exp Res*. Nov;30(11):1319-1325. doi: 10.1007/s40520-018-0933-x. Epub 2018 Mar 27. PMID: 29589287.
- Lim, S. L., Liu, X., Gao, Q., Nyunt, S. Z., Gong, L., Lunaria, J. B., Lam, C. S., Richards, A. M., Wee, S. L., Ling, L. H., & Ng, T. P. (2021). Subclinical vasculopathy and skeletal muscle metrics in the singapore longitudinal ageing study. *Aging*, 13(11), 14768–14784. <https://doi.org/10.18632/aging.203142>
- Ma, W. Y., Yang, C. Y., Shih, S. R., Hsieh, H. J., Hung, C. S., Chiu, F. C., Lin, M. S., Liu, P. H., Hua, C. H., Hsein, Y. C., Chuang, L. M., Lin, J. W., Wei, J. N., & Li, H. Y. (2013). Measurement of Waist Circumference: midabdominal or iliac crest?. *Diabetes care*, 36(6), 1660–1666. <https://doi.org/10.2337/dc12-1452>

- Marathe, P. H., Gao, H. X., & Close, K. L. (2017). American Diabetes Association Standards of Medical Care in Diabetes 2017. *Journal of diabetes*, 9(4), 320–324. <https://doi.org/10.1111/1753-0407.12524>
- Marengoni A, Vetrano DL, Manes-Gravina E, Bernabei R, Onder G, Palmer K. (2018). The Relationship Between COPD and Frailty: A Systematic Review and Meta-Analysis of Observational Studies. *Chest*. Jul;154(1):21-40. doi: 10.1016/j.chest.2018.02.014. Epub 2018 Mar 1. PMID: 29477493.
- McKee AM, Morley JE. (2021). *Obesity in the Elderly*. [Updated 2021 Sep 19]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-.
- Mezuk B, Lohman MC, Rock AK, Payne ME. (2016). Trajectories of Body Mass Indices and Development of Frailty: Evidence from the Health and Retirement Study Obesity, 24, 1643–47.
- Mohd, H.F.A., Adznam, S.N., Ibrahim Z, Chan, Y.M., Abdul, A.N.H. (2018) Prevalence of frailty syndrome and its associated factors among community-dwelling elderly in East Coast of Peninsular Malaysia. *SAGE Open Med*. May 29;6:2050312118775581. doi: 10.1177/2050312118775581. PMID: 29872529; PMCID: PMC5977425.
- O'Brien MS, McDougall JJ. (2019). Age and frailty as risk factors for the development of osteoarthritis. *Mech Ageing Dev*. Jun;180:21-28. doi: 10.1016/j.mad.2019.03.003. Epub 2019 Mar 18. PMID: 30898635.
- Oh, Y. H., Choi, S., Lee, G., Son, J. S., Kim, K. H., & Park, S. M. (2021). Changes in Body Composition Are Associated with Metabolic Changes and the Risk of Metabolic Syndrome. *Journal of clinical medicine*, 10(4), 745. <https://doi.org/10.3390/jcm10040745>
- Palmer, K., Villani, E.R., Vetrano, D.L., Cherubini, A., Cruz-Jentoft, A.J., Curtin, D., Denkiner, M., Gutiérrez-Valencia, M., Guðmundsson, A., Knol, W., Mak, D.V., O'Mahony, D., Pazan, F., Petrovic, M., Rajkumar, C., Topinkova, E., Trevisan, C., van der Cammen, T.J.M., van Marum, R.J., Wehling, M., Ziery, G., Bernabei, R., Onder, G.; European Geriatric Medicine Society Pharmacology special interest group. (2019). Association of polypharmacy and hyperpolypharmacy with frailty states: a systematic review and meta-analysis. *Eur Geriatr Med*. Feb;10(1):9-36. doi: 10.1007/s41999-018-0124-5. Epub 2018 Nov 7. PMID: 32720270.
- Palmer, A. K., & Jensen, M. D. (2022). Metabolic changes in aging humans: current evidence and therapeutic strategies. *The Journal of clinical investigation*, 132(16), e158451. <https://doi.org/10.1172/JCI158451>



- Pant, V., Gautam, K., & Pradhan, S. (2019). Postprandial Blood Glucose can be less than Fasting Blood Glucose and this is not a Laboratory Error. *JNMA; journal of the Nepal Medical Association*, 57(215), 67–68. <https://doi.org/10.31729/jnma.3985>
- Park, S. S., & Seo, Y. K. (2020). Excess Accumulation of Lipid Impairs Insulin Sensitivity in Skeletal Muscle. *International journal of molecular sciences*, 21(6), 1949. <https://doi.org/10.3390/ijms21061949>
- Parhofer, K.G. (2015). Interaction between Glucose and Lipid Metabolism: More than Diabetic Dyslipidemia. *Diabetes Metab J*. Oct;39(5):353-62. doi: 10.4093/dmj.2015.39.5.353. Epub 2015 Oct 22. PMID: 26566492; PMCID: PMC4641964.
- Pérez-Ros, P., Vila-Candel, R., López-Hernández, L., & Martínez-Arnau, F. M. (2020). Nutritional Status and Risk Factors for Frailty in Community-Dwelling Older People: A Cross-Sectional Study. *Nutrients*, 12(4), 1041. <https://doi.org/10.3390/nu12041041>
- PERKENI. (2021). Pedoman Pengelolaan dan Pencegahan Diabetes Mellitus Tipe 2 di Indonesia 2021. PB PERKENI.
- Pradana, A.A., Arifin, M.H. (2021). Bina Keluarga Lanjut usia Sebagai Sebuah Gerakan Sosial.;22(April):1–9 DOI:10.7454/JURNALKESSOS.V22I1.273
- Prajapati, K., Sangishetti, V. P., Joshi, A., & Mudey, A. (2022). Assessment of the elderly population's health status as part of the clinical preventive services program. *Journal of family medicine and primary care*, 11(7), 3517–3523. [https://doi.org/10.4103/jfmpe.jfmpe\\_2496\\_21](https://doi.org/10.4103/jfmpe.jfmpe_2496_21)
- Quartuccio, M., Buta, B., & Kalyani, R. R. (2017). Comparative Effectiveness for Glycemic Control in Older Adults with Diabetes. *Current geriatrics reports*, 6(3), 175–186. <https://doi.org/10.1007/s13670-017-0215-z>
- Schossere, M., Grillari, J., Wolfrum, C., Scheideler, M. (2018). Age-Induced Changes in White, Brite, and Brown Adipose Depots: A Mini-Review. *Gerontology*. 64(3):229-236. doi: 10.1159/000485183. Epub 2017 Dec 7. PMID: 29212073.
- Seidell, J. C., & Halberstadt, J. (2015). The global burden of obesity and the challenges of prevention. *Annals of nutrition & metabolism*, 66 Suppl 2, 7–12. <https://doi.org/10.1159/000375143>
- Sergi, D., Naumovski, N., Heilbronn, L. K., Abeywardena, M., O'Callaghan, N., Lionetti, L., & Luscombe-Marsh, N. (2019). Mitochondrial (Dys)function and Insulin Resistance: From Pathophysiological Molecular Mechanisms to

the Impact of Diet. *Frontiers in physiology*, 10, 532.  
<https://doi.org/10.3389/fphys.2019.00532>

- Setiati, S., Harimurti, K., & Roosheroe, A. G., (2015). Proses Menua dan Implikasi Kliniknya dalam Buku Ajar PAPDI Edisi VI. Jakarta Pusat. InternaPublishing.
- Setiati, S., Laksmi, P. W., Aryana, I. G. P. S., Sunarti, S., Widajanti, N., Dwipa, L., Seto, E., Istanti, R., Ardian, L. J., & Chotimah, S. C. (2019). Frailty state among Indonesian elderly: prevalence, associated factors, and frailty state transition. *BMC geriatrics*, 19(1), 182. <https://doi.org/10.1186/s12877-019-1198-8>
- Shen, F., Chen, J., Yang, R., Yang, J., Li, H. (2022). Association between control status of blood pressure and frailty among middle-aged and older adults with hypertension in China: a longitudinal study. *BMJ Open*. Mar 14;12(3):e056395. doi: 10.1136/bmjopen-2021-056395. PMID: 35288389; PMCID: PMC8921919.
- Shou, J., Chen, P.J., Xiao, W.H. (2020). Mechanism of increased risk of insulin resistance in aging skeletal muscle. *Diabetol Metab Syndr*. Feb 11;12:14. doi: 10.1186/s13098-020-0523-x. PMID: 32082422; PMCID: PMC7014712.
- Sinclair, A.J., Abdelhafiz, A.H. (2021). Unravelling the frailty syndrome in diabetes. *Lancet Healthy Longev*. Nov;2(11):e683-e684. doi: 10.1016/S2666-7568(21)00256-7. Epub 2021 Nov 3. PMID: 36098024.
- Streit, S., Poortvliet, R.K.E., Gussekloo, J. (2018). Lower blood pressure during antihypertensive treatment is associated with higher all-cause mortality and accelerated cognitive decline in the oldest-old. Data from the Leiden 85-plus Study. *Age Ageing*. 2018 Jul 1;47(4):545-550. doi: 10.1093/ageing/afy072. PMID: 29741555.
- Supartondo, Roosheroe, A. G., (2015). Pedoman memberi obat pada pasien Geriatri serta mengatasi masalah Polifarmasi dalam Buku Ajar PAPDI Edisi VI. Jakarta Pusat. InternaPublishing.
- Suryadinata, R. V., Wirjatmadi, B., Adriani, M., & Lorensia, A. (2020). Effect of age and weight on physical activity. *Journal of public health research*, 9(2), 1840. <https://doi.org/10.4081/jphr.2020.1840>
- Tateya, S., Kim, F., & Tamori, Y. (2013). Recent advances in obesity-induced inflammation and insulin resistance. *Frontiers in endocrinology*, 4, 93. <https://doi.org/10.3389/fendo.2013.00093>

- Ting, M. J. M., Hyde, Z., Flicker, L., Almeida, O. P., Golledge, J., Hankey, G. J., & Yeap, B. B. (2022). Associations between diabetes, body mass index and frailty: The Western Australian Health In Men Study. *Maturitas*, 161, 58–64. <https://doi.org/10.1016/j.maturitas.2022.02.008>
- Uchai, S., Andersen, L. F., Hopstock, L. A., & Hjartåker, A. (2023). Body mass index, waist circumference and pre-frailty/frailty: the Tromsø study 1994-2016. *BMJ open*, 13(2), e065707. <https://doi.org/10.1136/bmjopen-2022-065707>
- Varma, V. R., Dey, D., Leroux, A., Di, J., Urbanek, J., Xiao, L., & Zipunnikov, V. (2017). Re-evaluating the effect of age on physical activity over the lifespan. *Preventive medicine*, 101, 102–108. <https://doi.org/10.1016/j.ypmed.2017.05.030>
- Vetrano, D. L., Triolo, F., Maggi, S., Malley, R., Jackson, T. A., Poscia, A., Bernabei, R., Ferrucci, L., & Fratiglioni, L. (2021). Fostering healthy aging: The interdependency of infections, immunity and frailty. *Ageing research reviews*, 69, 101351. <https://doi.org/10.1016/j.arr.2021.101351>
- Vetrano, D. L., Palmer, K. M., Galluzzo, L., Giampaoli, S., Marengoni, A., Bernabei, R., Onder, G., & Joint Action ADVANTAGE WP4 group (2018). Hypertension and frailty: a systematic review and meta-analysis. *BMJ open*, 8(12), e024406. <https://doi.org/10.1136/bmjopen-2018-024406>
- Wang, X., Xu, M., & Li, Y. (2022). Adipose Tissue Aging and Metabolic Disorder, and the Impact of Nutritional Interventions. *Nutrients*, 14(15), 3134. <https://doi.org/10.3390/nu14153134>
- Wang, X., Hu, J., & Wu, D. (2022). Risk factors for frailty in older adults. *Medicine*, 101(34), e30169. <https://doi.org/10.1097/MD.00000000000030169>
- Wang, C., Guo, X., Xu, X., Liang, S., Wang, W., Zhu, F., Wang, S., Wu, J., Zhang, L., Sun, X., Chen, X., Cai, G. (2023). Chinese observational prospective study of ageing population with chronic kidney disease (C-OPTION). Association between sarcopenia and frailty in elderly patients with chronic kidney disease. *J Cachexia Sarcopenia Muscle*. Aug;14(4):1855-1864. doi: 10.1002/jcsm.13275. Epub 2023 Jun 9. PMID: 37300354; PMCID: PMC10401549.
- Wleklik, M., Denfeld, Q., Lisiak, M., Czapla, M., Kałużna-Olek, M., Uchmanowicz, I. (2022). Frailty Syndrome in Older Adults with Cardiovascular Diseases-What Do We Know and What Requires Further Research? *Int J Environ Res Public Health*. Feb 16;19(4):2234. doi: 10.3390/ijerph19042234. PMID: 35206422; PMCID: PMC8872246.

- World Data. (2020). Average life expectancy by country. *World Data*. Available at: <https://www.worlddata.info/life-expectancy.php> diakses pada 28 November 2022.
- World Health Organization (WHO). (2022). *Ageing*. [https://www.who.int/health-topics/ageing#tab=tab\\_1](https://www.who.int/health-topics/ageing#tab=tab_1). Diakses pada 28 November 2022
- Wu, H., Ballantyne, C.M. (2017). Skeletal muscle inflammation and insulin resistance in obesity. *J Clin Invest*. Jan 3;127(1):43-54. doi: 10.1172/JCI88880. Epub 2017 Jan 3. PMID: 28045398; PMCID: PMC5199705.
- Xu, L., Zhang, J., Shen, S., Hong, X., Zeng, X., Yang, Y., Liu, Z., Chen, L., & Chen, X. (2020). Association Between Body Composition and Frailty in Elder Inpatients. *Clinical interventions in aging*, 15, 313–320. <https://doi.org/10.2147/CIA.S243211>
- Yoon, J. W., Ha, Y. C., Kim, K. M., Moon, J. H., Choi, S. H., Lim, S., Park, Y. J., Lim, J. Y., Kim, K. W., Park, K. S., & Jang, H. C. (2016). Hyperglycemia Is Associated with Impaired Muscle Quality in Older Men with Diabetes: The Korean Longitudinal Study on Health and Aging. *Diabetes & metabolism journal*, 40(2), 140–146. <https://doi.org/10.4093/dmj.2016.40.2.140>
- Yuan, L., Chang, M., & Wang, J. (2021). Abdominal obesity, body mass index and the risk of frailty in community-dwelling older adults: a systematic review and meta-analysis. *Age and ageing*, 50(4), 1118–1128. <https://doi.org/10.1093/ageing/afab039>
- Zaslavsky, O., Walker, R. L., Crane, P. K., Gray, S. L., & Larson, E. B. (2016). Glucose Levels and Risk of Frailty. *The journals of gerontology. Series A, Biological sciences and medical sciences*, 71(9), 1223–1229. <https://doi.org/10.1093/gerona/glw024>
- Zeng, X.Z., Meng, L.B., Li, Y.Y., Jia, N., Shi, J., Zhang, C., Hu, X., Hu, J.B., Li, J.Y., Wu, D.S., Li, H., Qi, X., Wang, H., Zhang, Q.X., Li, J., Liu, D.P. (2023). Prevalence and factors associated with frailty and pre-frailty in the older adults in China: a national cross-sectional study. *Front Public Health*. Jul 24;11:1110648. doi: 10.3389/fpubh.2023.1110648. PMID: 37554734; PMCID: PMC10406229.
- Zhao, W., Hu, P., Sun, W., Wu, W., Zhang, J., Deng, H., Huang, J., Ukawa, S., Lu, J., Tamakoshi, A., Liu, X. (2022). Effect of physical activity on the risk of frailty: A systematic review and meta-analysis. *PLoS One*. Dec 1;17(12):e0278226. doi: 10.1371/journal.pone.0278226. PMID: 36454790; PMCID: PMC9714708.

Zulfiqar, A. A., Habchi, P., & Dembele, I. A. (2022). Obesity and Frailty Syndrome in the Elderly: Prospective Study in Primary Care. *Medicines (Basel, Switzerland)*, 9(7), 38. <https://doi.org/10.3390/medicines9070038>

Zuliani, G., Volpato, S., Galvani, M., Blè, A., Bandinelli, S., Corsi, A. M., Lauretani, F., Maggio, M., Guralnik, J. M., Fellin, R., & Ferrucci, L. (2009). Elevated C-reactive protein levels and metabolic syndrome in the elderly: The role of central obesity data from the InChianti study. *Atherosclerosis*, 203(2), 626–632. <https://doi.org/10.1016/j.atherosclerosis.2008.07.038>