

DAFTAR PUSTAKA

- Abdul-Ghani, M. A., & DeFranzo, R. A. (2010). Pathogenesis of insulin resistance in skeletal muscle. *Journal of Biomedicine and Biotechnology*, 2010. <https://doi.org/10.1155/2010/476279>
- Alosaimi, N., Sherar, L. B., Griffiths, P., & Pearson, N. (2023). Clustering of diet, physical activity and sedentary behaviour and related physical and mental health outcomes: a systematic review. *BMC Public Health*, 23(1), 1–44. <https://doi.org/10.1186/s12889-023-16372-6>
- Axelrod, C. L., Dantas, W. S., & Kirwan, J. P. (2023). Sarcopenic obesity: emerging mechanisms and therapeutic potential. *Metabolism: Clinical and Experimental*, 146(June), 155639. <https://doi.org/10.1016/j.metabol.2023.155639>
- Bahşı, R., Üstüner, E., Atmış, V., Coşarderelioğlu, Ç., Sürmeli, D. M., Özturun, H. S., ... Aras, S. (2021). Visceral fat thickness may be useful in determining sarcopenia. *Aging Medicine and Healthcare*, 12(1), 20–25. <https://doi.org/10.33879/AMH.121.2020.12048>
- Batsis, J. A., & Villareal, D. T. (2018). Sarcopenic obesity in older adults: aetiology, epidemiology and treatment strategies. *Nature Reviews Endocrinology*, 14(9), 513–537. <https://doi.org/10.1038/s41574-018-0062-9>
- Benziger, C. P., Roth, G. A., & Moran, A. E. (2016). The Global Burden of Disease Study and the Preventable Burden of NCD. *Global Heart*, 11(4), 393–397. <https://doi.org/10.1016/j.ghert.2016.10.024>
- Bilski, J., Pierzchalski, P., Szczepanik, M., Bonior, J., & Zoladz, J. A. (2022). Multifactorial Mechanism of Sarcopenia and Sarcopenic Obesity. Role of Physical Exercise, Microbiota and Myokines. *Cells*, 11(1), 1–41. <https://doi.org/10.3390/cells11010160>
- BKKBN. BPS. K. (2018). *Survei Demografi dan Kesehatan Indonesia 2017*.
- Bunn, J., Eustace, D., Miskech, T., Manor, J., & Jiroutek, M. (2019). Fitness and Fatness: Body Mass Index versus Percent Body Fat. *Journal of Clinical Exercise Physiology*, 8(4), 131–137. <https://doi.org/10.31189/2165-6193-8.4.131>
- Can, S., Demirkan, E., & Ercan, S. (2019). The effects of exercise preferences on body fat and body mass index by self-report. *Universal Journal of Educational Research*, 7(1), 293–297. <https://doi.org/10.13189/ujer.2019.070137>
- Carballo-Fazanes, A., Rico-Díaz, J., Barcala-Furelos, R., Rey, E., Rodríguez-Fernández, J. E., Varela-Casal, C., & Abelairas-Gómez, C. (2020). Physical

- activity habits and determinants, sedentary behaviour and lifestyle in university students. *International Journal of Environmental Research and Public Health*, 17(9). <https://doi.org/10.3390/ijerph17093272>
- Chen, L. K., Woo, J., Assantachai, P., Auyeung, T. W., Chou, M. Y., Iijima, K., ... Arai, H. (2020). Asian Working Group for Sarcopenia: 2019 Consensus Update on Sarcopenia Diagnosis and Treatment. *Journal of the American Medical Directors Association*, 21(3), 300-307.e2. <https://doi.org/10.1016/j.jamda.2019.12.012>
- Chen, L., Liu, L., Woo, J., Shahrul, K., Chou, M., Chen, L., ... Lee, W. (2014). Sarcopenia in Asia: Consensus Report of the Asian Working Group for Sarcopenia. *Journal of the American Medical Directors Association*, 15(2), 95–101. <https://doi.org/10.1016/j.jamda.2013.11.025>
- Chiplonkar, S., Kajale, N., Ekbote, V., Mandlik, R., Parthasarathy, L., Borade, A., ... Khadilkar, A. (2017). Reference centile curves for body fat percentage, fat-free mass, muscle mass and bone mass measured by bioelectrical impedance in Asian Indian children and adolescents. *Indian Pediatrics*, 54(12), 1005–1011. <https://doi.org/10.1007/s13312-017-1201-4>
- Chung, G. E., Park, H. E., Lee, H., Kim, M. J., Choi, S. Y., Yim, J. Y., & Yoon, J. W. (2021). Sarcopenic Obesity Is Significantly Associated With Coronary Artery Calcification. *Frontiers in Medicine*, 8(March), 1–8. <https://doi.org/10.3389/fmed.2021.651961>
- Clark, B. C., & Manini, T. M. (2012). 基因的改变NIH Public Access, 23(1), 1–7. <https://doi.org/10.1016/j.nut.2011.12.002>.What
- Colleluori, G., & Villareal, D. T. (2021). Aging, obesity, sarcopenia and the effect of diet and exercise intervention. *Experimental Gerontology*, 155, 1–26. <https://doi.org/10.1016/j.exger.2021.111561>
- Cruz-Jentoft, A. J., Bahat, G., Bauer, J., Boirie, Y., Bruyère, O., Cederholm, T., ... Schols, J. (2019). Sarcopenia: Revised European consensus on definition and diagnosis. *Age and Ageing*, 48(1), 16–31. <https://doi.org/10.1093/ageing/afy169>
- Danielewicz, A. L., Marra, A., Tringali, G., Micheli, R. De, Abbruzzese, L., Fanari, P., ... Sartorio, A. (2024). Analysis of sarcopenic obesity prevalence and diagnostic agreement according to the 2022 ESPEN and EASO Consensus in hospitalized older adults with severe obesity. *Frontiers in Endocrinology*, 15(June), 1–10. <https://doi.org/10.3389/fendo.2024.1366229>
- Dara, S., & Arora, S. (2023). Adolescent health problems and strategies to improve them. *International Journal Of Community Medicine And Public Health*, 10(7), 2645–2651. <https://doi.org/10.18203/2394-6040.ijcmph20232066>

- Després, J. P., Lemieux, I., Bergeron, J., Pibarot, P., Mathieu, P., Larose, E., ... Poirier, P. (2008). Abdominal Obesity and the Metabolic Syndrome: Contribution to global cardiometabolic risk. *Arteriosclerosis, Thrombosis, and Vascular Biology*, 28(6), 1039–1049. <https://doi.org/10.1161/ATVBAHA.107.159228>
- Diago-Galmés, A., Guillamón-Escudero, C., Tenías-Burillo, J. M., Soriano, J. M., & Fernández-Garrido, J. (2021). Salivary testosterone and cortisol as biomarkers for the diagnosis of Sarcopenia and sarcopenic obesity in community-dwelling older adults. *Biology*, 10(2), 1–15. <https://doi.org/10.3390/biology10020093>
- Donini, L. M., Busetto, L., Bauer, J. M., Bischoff, S., Boirie, Y., Cederholm, T., ... Barazzoni, R. (2020). Critical appraisal of definitions and diagnostic criteria for sarcopenic obesity based on a systematic review. *Clinical Nutrition*, 39(8), 2368–2388. <https://doi.org/10.1016/j.clnu.2019.11.024>
- Eglseer, D., Traxler, M., Schoufour, J. D., Weijns, P. J. M., Voortman, T., Boirie, Y., ... Bauer, S. (2023). Nutritional and exercise interventions in individuals with sarcopenic obesity around retirement age: a systematic review and meta-analysis. *Nutrition Reviews*, 81(9), 1077–1090. <https://doi.org/10.1093/nutrit/nuad007>
- El Ansari, W., & Haghgoor, G. (2014). Are students' symptoms and health complaints associated with perceived stress at university? Perspectives from the United Kingdom and Egypt. *International Journal of Environmental Research and Public Health*, 11(10), 9981–10002. <https://doi.org/10.3390/ijerph111009981>
- Fahrizqi, E. B., Agus, R. M., Yuliandra, R., & Gumantan, A. (2021). The Learning Motivation and Physical Fitness of University Students During the Implementation of the New Normal Covid-19 Pandemic. *JUARA : Jurnal Olahraga*, 6(1), 88–100. <https://doi.org/10.33222/juara.v6i1.1184>
- Fichet, M., Le Pabic, E., Pisaroni, H., Rageul, E., Som, M., Lacaze, L., ... Thibault, R. (2023). Altered body composition to assess sarcopenic obesity in severe obese patients: Prevalence, associated factors and comparison of two methods. *Clinical Nutrition ESPEN*, 58, 550. <https://doi.org/10.1016/j.clnesp.2023.09.367>
- Gätjens, I., Schmidt, S. C. E., Plachta-Danielzik, S., Bosy-Westphal, A., & Müller, M. J. (2021). Body Composition Characteristics of a Load-Capacity Model: Age-Dependent and Sex-Specific Percentiles in 5- To 17-Year-Old Children. *Obesity Facts*, 14(6), 593–603. <https://doi.org/10.1159/000518638>
- Geraci, A., Calvani, R., Ferri, E., Marzetti, E., Arosio, B., & Cesari, M. (2021). Sarcopenia and Menopause: The Role of Estradiol. *Frontiers in Endocrinology*, 12(May), 1–5. <https://doi.org/10.3389/fendo.2021.682012>

- Gontarev, S., Jakimovski, M., & Georgiev, G. (2020). Using relative handgrip strength to identify children at risk of sarcopenic obesity. *Nutricion Hospitalaria*, 37(3), 490–496. <https://doi.org/10.20960/nh.02977>
- Han, M. S., White, A., Perry, R. J., Camporez, J. P., Hidalgo, J., Shulman, G. I., & Davis, R. J. (2020). Regulation of adipose tissue inflammation by interleukin 6. *Proceedings of the National Academy of Sciences of the United States of America*, 117(6), 2751–2760. <https://doi.org/10.1073/pnas.1920004117>
- Haran, P. H., Rivas, D. A., & Fielding, R. A. (2012). Role and potential mechanisms of anabolic resistance in sarcopenia. *Journal of Cachexia, Sarcopenia and Muscle*, 3(3), 157–162. <https://doi.org/10.1007/s13539-012-0068-4>
- Hong, S. H., & Choi, K. M. (2020). Sarcopenic obesity, insulin resistance, and their implications in cardiovascular and metabolic consequences. *International Journal of Molecular Sciences*, 21(2). <https://doi.org/10.3390/ijms21020494>
- Hruschka, D. J., & Hadley, C. (2016). How much do universal anthropometric standards bias the global monitoring of obesity and undernutrition? *Obesity Reviews*, 17(11), 1030–1039. <https://doi.org/10.1111/obr.12449>
- Hung, J., McQuillan, B. M., Thompson, P. L., & Beilby, J. P. (2008). Circulating adiponectin levels associate with inflammatory markers, insulin resistance and metabolic syndrome independent of obesity. *International Journal of Obesity*, 32(5), 772–779. <https://doi.org/10.1038/sj.ijo.0803793>
- Hwang, J., & Park, S. (2023). Gender-Specific Prevalence and Risk Factors of Sarcopenic Obesity in the Korean Elderly Population: A Nationwide Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 20(2). <https://doi.org/10.3390/ijerph20021140>
- Jensen, M. D. (2008). Role of body fat distribution and the metabolic complications of obesity. *Journal of Clinical Endocrinology and Metabolism*, 93(11 SUPPL. 1), 57–63. <https://doi.org/10.1210/jc.2008-1585>
- Ji, W., Liu, X. L., Zheng, K. W., Liu, P. F., Zhao, Y. X., Lu, J., ... Li, W. (2022). Thresholds of visceral fat area and percent of body fat to define sarcopenic obesity and its clinical consequences in Chinese cancer patients. *Clinical Nutrition*, 41(3), 737–745. <https://doi.org/10.1016/j.clnu.2022.01.033>
- Kalinkovich, A., & Livshits, G. (2017). Sarcopenic obesity or obese sarcopenia: A cross talk between age-associated adipose tissue and skeletal muscle inflammation as a main mechanism of the pathogenesis. *Ageing Research Reviews*, 35, 200–221. <https://doi.org/10.1016/j.arr.2016.09.008>
- Kalyani, R. R., Corriere, M., & Ferrucci, L. (2014). Age-related and disease-related

- muscle. *Lancet Diabetes and Endocrinol.*, 61(6), 515–525. [https://doi.org/10.1016/S2213-8587\(14\)70034-8](https://doi.org/10.1016/S2213-8587(14)70034-8). Age-related
- Kgokong, D., & Parker, R. (2020). Physical activity in physiotherapy students: Levels of physical activity and perceived benefits and barriers to exercise. *South African Journal of Physiotherapy*, 76(1), 1–7. <https://doi.org/10.4102/sajp.v76i1.1399>
- Kim, K., Hong, S., & Kim, E. Y. (2016). Reference values of skeletal muscle mass for Korean children and adolescents using data from the Korean national health and nutrition examination survey 2009–2011. *PLoS ONE*, 11(4), 1–10. <https://doi.org/10.1371/journal.pone.0153383>
- Kim, S., & Hong, K. H. (2024). Sex-Specific Effects of Dietary Factors on Sarcopenic Obesity in Korean Elderly: A Nationwide Cross-Sectional Study. *Nutrients*, 16(8), 1–15. <https://doi.org/10.3390/nu16081175>
- Kim, T. N., Park, M. S., Ryu, J. Y., Choi, H. Y., Hong, H. C., Yoo, H. J., ... Choi, K. M. (2014). Impact of visceral fat on skeletal muscle mass and vice versa in a prospective cohort study: The Korean Sarcopenic Obesity Study (KSOS). *PLoS ONE*, 9(12), 1–13. <https://doi.org/10.1371/journal.pone.0115407>
- KJ, H., CD, L., MW, T., & CN, C. (2019). Effects of exercise and nutritional intervention on body composition, metabolic health, and physical performance in adults with sarcopenic obesity: A meta-analysis. *Nutrients*, 11(9), 2163. Diambil dari <https://www.mdpi.com/2072-6643/11/9/2163>
- Kohara, K., Ochi, M., Tabara, Y., Nagai, T., Igase, M., & Miki, T. (2011). Leptin in sarcopenic visceral obesity: Possible link between adipocytes and myocytes. *PLoS ONE*, 6(9). <https://doi.org/10.1371/journal.pone.0024633>
- Lee, K. (2021). Sarcopenic obesity and 10-year cardiovascular disease risk scores in cancer survivors and non-cancer participants using a nationwide survey. *European Journal of Cancer Care*, 30(2), 1–8. <https://doi.org/10.1111/ecc.13365>
- Lee, M. J., Kim, E. H., Bae, S. J., Choe, J., Jung, C. H., Lee, W. J., & Kim, H. K. (2019). Protective role of skeletal muscle mass against progression from metabolically healthy to unhealthy phenotype. *Clinical Endocrinology*, 90(1), 102–113. <https://doi.org/10.1111/cen.13874>
- Li, C. wei, Yu, K., Shyh-Chang, N., Jiang, Z., Liu, T., Ma, S., ... Liu, G. shan. (2022). Pathogenesis of sarcopenia and the relationship with fat mass: descriptive review. *Journal of Cachexia, Sarcopenia and Muscle*, 13(2), 781–794. <https://doi.org/10.1002/jcsm.12901>
- Ma, J. F., Sanchez, B. J., Hall, D. T., Tremblay, A. K., Di Marco, S., & Gallouzi, I. (2017). STAT 3 promotes IFN γ / TNF α -induced muscle wasting in an NF -

- κ B-dependent and IL -6-independent manner . *EMBO Molecular Medicine*, 9(5), 622–637. <https://doi.org/10.15252/emmm.201607052>
- Marie-Pierre. (2010). 基因的改变NIH Public Access. *Bone*, 23(1), 1–7. <https://doi.org/10.1016/j.nut.2009.07.004>.Body
- Marwoko, G. (2019). Psikologi Perkembangan Masa Remaja. *Jurnal Tabbiyah Syari'ah Islam*, 26(1), 60–75.
- McCarthy, H. D., Samani-Radia, D., Jebb, S. A., & Prentice, A. M. (2014). Skeletal muscle mass reference curves for children and adolescents. *Pediatric Obesity*, 9(4), 249–259. <https://doi.org/10.1111/j.2047-6310.2013.00168.x>
- Mohajan, D., & Mohajan, H. K. (2023). A Study on Body Fat Percentage for Physical Fitness and Prevention of Obesity: A Two Compartment Model. *Journal of Innovations in Medical Research*, 2(4), 1–10. <https://doi.org/10.56397/jimr/2023.04.01>
- Moon, J. H., Kong, M. H., & Kim, H. J. (2018). Low muscle mass and depressed mood in Korean adolescents: A cross-sectional analysis of the fourth and fifth Korea national health and nutrition examination surveys. *Journal of Korean Medical Science*, 33(50), 3–10. <https://doi.org/10.3346/jkms.2018.33.e320>
- Murai, J., Nishizawa, H., Otsuka, A., Fukuda, S., Tanaka, Y., Nagao, H., ... Shimomura, I. (2018). Low muscle quality in Japanese type 2 diabetic patients with visceral fat accumulation. *Cardiovascular Diabetology*, 17(1), 1–10. <https://doi.org/10.1186/s12933-018-0755-3>
- Ng, S. W., & Popkin, B. (2013). United States. *Obesity Reviews*, 13(8), 659–680. <https://doi.org/10.1111/j.1467-789X.2011.00982.x>.Time
- Nugraha, M. H. S., Dewi, A. A. N. T. N., Negara, A. A. G. A. P., & Suputri, N. W. B. M. (2022). Study Of Anthropometry, Sedentary Lifestyle, And Neck Disability Of Physiotherapy Students In Bali. *Interest : Jurnal Ilmu Kesehatan*, 10(2), 207–214. <https://doi.org/10.37341/interest.v0i0.350>
- O'Donoghue, G., McMahon, S., Holt, A., Nedai, M., Nybo, T., & Peiris, C. L. (2021). Obesity bias and stigma, attitudes and beliefs among entry-level physiotherapy students in the Republic of Ireland: a cross sectional study. *Physiotherapy (United Kingdom)*, 112, 55–63. <https://doi.org/10.1016/j.physio.2021.03.016>
- Oktarina, M., Rabia, R., & Hendrawan, T. (2023). Perbandingan Indeks Masa Otot Skeletal Antara Mahasiswa Fisioterapi Dengan Indeks Masa Tubuh Normal, Overweight Dan Obesitas. *Jurnal Ilmu Kedokteran dan Kesehatan*, 10(4), 1761–1766. <https://doi.org/10.33024/jikk.v10i4.9874>
- Oshita, K., Myotsuzono, R., & Tashiro, T. (2022). Association between Normal

- Weight Obesity and Skeletal Muscle Mass Index in Female University Students with Past Exercise Habituation. *Journal of Functional Morphology and Kinesiology*, 7(4). <https://doi.org/10.3390/jfmk7040092>
- Pacifico, L., Perla, F. M., Andreoli, G., Grieco, R., Pierimarchi, P., & Chiesa, C. (2020). Nonalcoholic Fatty Liver Disease Is Associated With Low Skeletal Muscle Mass in Overweight/Obese Youths. *Frontiers in Pediatrics*, 8(April), 1–8. <https://doi.org/10.3389/fped.2020.00158>
- Palacio-Aguero, A., Díaz-Torrente, X., & Dourado, D. Q. S. (2020). Relative handgrip strength, nutritional status and abdominal obesity in Chilean adolescents. *PLoS ONE*, 15(6), 1–13. <https://doi.org/10.1371/journal.pone.0234316>
- Pijet, M., Pijet, B., Litwiniuk, A., Pajak, B., Gajkowska, B., & Orzechowski, A. (2013). Leptin impairs myogenesis in C2C12 cells through JAK/STAT and MEK signaling pathways. *Cytokine*, 61(2), 445–454. <https://doi.org/10.1016/j.cyto.2012.11.002>
- Rabia, R., Oktarina, M., Hendrawan, T., & Rijal, R. (2023). Perbandingan Massa Otot Skeletal Antara Mahasiswa Fisioterapi Dengan Masked Obesity Dan Normal. *Jurnal Ilmu Kedokteran dan Kesehatan*, 10(4), 1799–1804. <https://doi.org/10.33024/jikk.v10i4.9559>
- Ranasinghe, C., Sigera, C., Ranasinghe, P., Jayawardena, R., Ranasinghe, A. C. R., Hills, A. P., & King, N. (2016a). Physical inactivity among physiotherapy undergraduates: Exploring the knowledgepractice gap. *BMC Sports Science, Medicine and Rehabilitation*, 8(1), 1–9. <https://doi.org/10.1186/s13102-016-0063-8>
- Ranasinghe, C., Sigera, C., Ranasinghe, P., Jayawardena, R., Ranasinghe, A. C. R., Hills, A. P., & King, N. (2016b). Physical inactivity among physiotherapy undergraduates: Exploring the knowledgepractice gap. *BMC Sports Science, Medicine and Rehabilitation*, 8(1), 1–9. <https://doi.org/10.1186/s13102-016-0063-8>
- Rasaei, N., Ghaffarian-Ensaaf, R., Gholami, F., Shiraseb, F., Khadem, A., Fatemi, S. F., & Mirzaei, K. (2023). The association between healthy beverage index and sarcopenic obesity among women with overweight and obesity: a cross-sectional study. *BMC Endocrine Disorders*, 23(1), 1–9. <https://doi.org/10.1186/s12902-023-01274-w>
- Rossi, F. E., Lira, F. S., Silva, B. S. A., Freire, A. P. C. F., Ramos, E. M. C., & Gobbo, L. A. (2019). Influence of skeletal muscle mass and fat mass on the metabolic and inflammatory profile in sarcopenic and non-sarcopenic overfat elderly. *Aging Clinical and Experimental Research*, 31(5), 629–635. <https://doi.org/10.1007/s40520-018-1029-3>

- Roubenoff, R. (2004). Sarcopenic obesity: The confluence of two epidemics. *Obesity Research, 12*(6), 887–888. <https://doi.org/10.1038/oby.2004.107>
- Sabaratnam, R., Skov, V., Paulsen, S. K., Juhl, S., Kruse, R., Hansen, T., ... Højlund, K. (2022). A Signature of Exaggerated Adipose Tissue Dysfunction in Type 2 Diabetes Is Linked to Low Plasma Adiponectin and Increased Transcriptional Activation of Proteasomal Degradation in Muscle. *Cells, 11*(13). <https://doi.org/10.3390/cells11132005>
- Samuel, V. T., & Shulman, G. I. (2016). The pathogenesis of insulin resistance: Integrating signaling pathways and substrate flux. *Journal of Clinical Investigation, 126*(1), 12–22. <https://doi.org/10.1172/JCI77812>
- Santanasto, A. J., Goodpaster, B. H., Kritchevsky, S. B., Satterfield, S., Schwartz, A. V., Cummings, S. R., ... Newman, A. B. (2017). Body composition remodeling and mortality: The health aging and body composition study. *Journals of Gerontology - Series A Biological Sciences and Medical Sciences, 72*(4), 513–519. <https://doi.org/10.1093/gerona/glw163>
- Shafiee, A., Nakhaee, Z., Bahri, R. A., Amini, M. J., Salehi, A., Jafarabady, K., ... Alirezaei, A. (2024). Global prevalence of obesity and overweight among medical students: a systematic review and meta-analysis. *BMC Public Health, 24*(1), 1–9. <https://doi.org/10.1186/s12889-024-19184-4>
- Shimizu, R., Tando, Y., Yokoyama, A., & Yanagimachi, M. (2019). Skeletal Muscle Mass Ratio as an Index for Sarcopenia in Patients With Type 2 Diabetes. *Topics in Clinical Nutrition, 34*(3), 209–217. <https://doi.org/10.1097/TIN.0000000000000179>
- Siswantara, P., Soedirham, O., & Muthmainnah, M. (2019). Remaja Sebagai Penggerak Utama dalam Implementasi Program Kesehatan Remaja. *Jurnal Manajemen Kesehatan Indonesia, 7*(1), 55–66. <https://doi.org/10.14710/jmki.7.1.2019.55-66>
- Sri, R., & Siti, S. (2004). *Perkembangan Anak dan Remaja*. Bineka Cipta. Diambil dari <https://elibrary.bsi.ac.id/readbook/212895/perkembangan-anak-dan-remaja>
- Stefanaki, C., Peppa, M., Boschiero, D., & Chrousos, G. P. (2016). Healthy overweight/obese youth: early osteosarcopenic obesity features. *European Journal of Clinical Investigation, 46*(9), 767–778. <https://doi.org/10.1111/eci.12659>
- Stenholm, S., Harris, T. B., Rantanen, T., Visser, M., Kritchevsky, S. B., & Ferrucci, L. (2008). Sarcopenic obesity: Definition, cause and consequences. *Current Opinion in Clinical Nutrition and Metabolic Care, 11*(6), 693–700. <https://doi.org/10.1097/MCO.0b013e328312c37d>

- Stern J.H., Rutkowski J.M., and S. P. E. (2016). Adiponectin, Leptin, and Fatty Acids in the Maintenance of Metabolic Homeostasis Through Adipose Tissue Crosstalk Jennifer. *Proceedings of the 10th International Symposium on Numerical Models in Geomechanics NUMOG 10 - Numerical Models in Geomechanics NUMOG 10*, 23(5), 159–166. [https://doi.org/10.1016/j.cmet.2016.04.011.Adiponectin](https://doi.org/10.1016/j.cmet.2016.04.011)
- Sudibyo, N. A., & Nugroho, R. A. (2020). Survei Sarana Dan Prasarana Pembelajaran Pendidikan Jasmani Olahraga Dan Kesehatan Pada Sekolah Menengah Pertama Di Kabupaten Pringsewu Tahun 2019. *Journal Of Physical Education*, 1(1), 18–24. <https://doi.org/10.33365/joupe.v1i1.182>
- Suryana, E., Wulandari, S., Sagita, E., & Harto, K. (2022). Emosi , Sosial dan Agama) dan Implikasinya pada Pendidikan, 5, 1956–1963.
- Tanaka, Y., Kita, S., Nishizawa, H., Fukuda, S., Fujishima, Y., Obata, Y., ... Shimomura, I. (2020). Author Correction: Adiponectin promotes muscle regeneration through binding to T-cadherin (Scientific Reports, (2019), 9, 1, (16), 10.1038/s41598-018-37115-3). *Scientific Reports*, 10(1), 3–4. <https://doi.org/10.1038/s41598-020-66545-1>
- Tanishima, S., Hagino, H., Matsumoto, H., Tanimura, C., & Nagashima, H. (2017). Association between sarcopenia and low back pain in local residents prospective cohort study from the GAINA study. *BMC Musculoskeletal Disorders*, 18(1), 1–6. <https://doi.org/10.1186/s12891-017-1807-7>
- Telama, R., Yang, X., Viikari, J., Välimäki, I., Wanne, O., & Raitakari, O. (2005). Physical activity from childhood to adulthood: A 21-year tracking study. *American Journal of Preventive Medicine*, 28(3), 267–273. <https://doi.org/10.1016/j.amepre.2004.12.003>
- Tershakovec, A. M., Kuppler, K. M., Zemel, B. S., Katz, L., Weinzimer, S., Harty, M. P., & Stallings, V. A. (2003). Body composition and metabolic factors in obese children and adolescents. *International Journal of Obesity*, 27(1), 19–24. <https://doi.org/10.1038/sj.ijo.0802185>
- Tong, L. L., Ma, X. Y., Tian, M., & Ding, W. Q. (2023). Relationship between skeletal muscle mass index and metabolic phenotypes of obesity in adolescents. *Chinese Journal of Contemporary Pediatrics*, 25(5), 457–462. <https://doi.org/10.7499/j.issn.1008-8830.2211005>
- Torres, L., Caciula, M. C., Tomoiaga, A. S., & Gugu-Gamatopol, C. (2023). Correlations between Mental Health, Physical Activity, and Body Composition in American College Students after the COVID-19 Pandemic Lockdown. *International Journal of Environmental Research and Public Health*, 20(22). <https://doi.org/10.3390/ijerph20227045>
- Van Mechelen, W. (1977). Physical activity of young people : the Health Study,

1610–1616.

- Vella-Zarb, R. A., & Elgar, F. J. (2009). The “freshman 5”: A meta-analysis of weight gain in the freshman year of college. *Journal of American College Health*, 58(2), 161–166. <https://doi.org/10.1080/07448480903221392>
- Videira-Silva, A., & Fonseca, H. (2017). Skeletal Muscle and Metabolic Risk in Overweight Adolescents. An Indicator of Premature Sarcopenic Obesity. *International Journal of Health Sciences & Research (www.ijhsr.org)*, 7(8), 34. Diambil dari www.ijhsr.org
- Wei, S., Nguyen, T. T., Zhang, Y., Ryu, D., & Gariani, K. (2023). Sarcopenic obesity: epidemiology, pathophysiology, cardiovascular disease, mortality, and management. *Frontiers in Endocrinology*, 14(June), 1–11. <https://doi.org/10.3389/fendo.2023.1185221>
- Yamada, M., Moriguchi, Y., Mitani, T., Aoyama, T., & Arai, H. (2014). Age-dependent changes in skeletal muscle mass and visceral fat area in Japanese adults from 40 to 79 years-of-age. *Geriatrics and Gerontology International*, 14(SUPPL.1), 8–14. <https://doi.org/10.1111/ggi.12209>
- Yamada, M., Nishiguchi, S., Fukutani, N., Tanigawa, T., Yukutake, T., Kayama, H., ... Arai, H. (2013). Prevalence of sarcopenia in community-dwelling Japanese older adults. *Journal of the American Medical Directors Association*, 14(12), 911–915. <https://doi.org/10.1016/j.jamda.2013.08.015>
- Yamashiro, K., Yamaguchi, N., Sagawa, K., Tanei, S., Ogata, F., Nakamura, T., & Kawasaki, N. (2023). Relationship of masked obesity to self-reported lifestyle habits, ideal body image, and anthropometric measures in Japanese university students: A cross-sectional study. *PLoS ONE*, 18(2 February), 1–15. <https://doi.org/10.1371/journal.pone.0281599>
- Yang, B., Tang, C., Shi, Z., & Gao, L. (2023). Association of Macronutrients Intake with Body Composition and Sarcopenic Obesity in Children and Adolescents: A Population-Based Analysis of the National Health and Nutrition Examination Survey (NHANES) 2011–2018. *Nutrients*, 15(10). <https://doi.org/10.3390/nu15102307>
- Yodoshi, T., Orkin, S., Arce Clachar, A. C., Bramlage, K., Sun, Q., Fei, L., ... Mouzaki, M. (2020). Muscle Mass Is Linked to Liver Disease Severity in Pediatric Nonalcoholic Fatty Liver Disease. *Journal of Pediatrics*, 223, 93–99.e2. <https://doi.org/10.1016/j.jpeds.2020.04.046>
- Yu, P. C., Hsu, C. C., Lee, W. J., Liang, C. K., Chou, M. Y., Lin, M. H., ... Chen, L. K. (2022). Muscle-to-fat ratio identifies functional impairments and cardiometabolic risk and predicts outcomes: biomarkers of sarcopenic obesity. *Journal of Cachexia, Sarcopenia and Muscle*, 13(1), 368–376. <https://doi.org/10.1002/jcsm.12877>

- Zembura, M., & Matusik, P. (2022). Sarcopenic Obesity in Children and Adolescents: A Systematic Review. *Frontiers in Endocrinology*, 13(June). <https://doi.org/10.3389/fendo.2022.914740>
- Zhang, H., Lin, S., Gao, T., Zhong, F., Cai, J., Sun, Y., & Ma, A. (2018). Association between sarcopenia and metabolic syndrome in middle-aged and older non-obese adults: A systematic review and meta-analysis. *Nutrients*. <https://doi.org/10.3390/nu10030364>