

## DAFTAR PUSTAKA

- Amalia, F., Indraswari, D. A., & Laksono, B. (2015). Hubungan Tingkat Kebugaran Kardiorespirasi Dan Kekuatan Genggaman Tangan Dengan Sindrom Metabolik. *Jurnal Kedokteran Diponegoro*, 4(4), 800–812.
- American Diabetes Association. (2023). *Classification and Diagnosis of Diabetes: Standards of Care in Diabetes 2023*. <https://doi.org/https://doi.org/10.2337/dc23-S002>
- Andarbeni, D. P., & Prasetyo, A. A. (2018). Intake Energy And Protein with Handgrip Strenght In Woman Adolescent. *Darussalam Nutrition Journal*, 2(1), 11–18.
- Anissa, D. D. (2021). Peran Protein: ASI dalam Meningkatkan Kecerdasan Anak untuk Menyongsong Generasi Indonesia Emas 2045 dan Relevansi Dengan Al-Qur'an. *Jurnal Tadris IPA Indonesia*, 1(3).
- Asghari, G., Yuzbashian, E., Mirmiran, P., Bahadoran, Z., & Azizi, F. (2016). Prediction of metabolic syndrome by a high intake of energy-dense nutrient-poor snacks in Iranian children and adolescents. *Pediatric Research*, 79(5), 697–704. <https://doi.org/10.1038/pr.2015.270>
- Asriyanti, Aminyoto, M., & Duma, K. (2023). Hubungan Asupan Energi dan Aktivitas Fisik dengan Status Gizi Mahasiswa Program Studi Kedokteran Universitas Mulawarman. *Jurnal Verdure*, 5(1), 10–17.
- Åström, M. J., von Bonsdorff, M. B., Salonen, M. K., Kajantie, E., Osmond, C., & Eriksson, J. G. (2021). Glucose regulation and grip strength in adults: Findings from the Helsinki Birth Cohort Study. *Archives of Gerontology and Geriatrics*, 94, 104348. <https://doi.org/10.1016/j.archger.2021.104348>
- Auliya, P., Oenzil, F., & Rofinda, Z. D. (2016). Gambaran Kadar Gula Darah pada Mahasiswa Fakultas Kedokteran Universitas Andalas yang Memiliki Berat Badan Berlebih dan Obesitas. *Jurnal Kesehatan Andalas*, 5(3). <http://jurnal.fk.unand.ac.id>
- Aurellya, A., Sarosa, H., & Fasitasari, M. (2021). Hubungan Antara Tingkat Aktivitas Fisik dan Asupan Protein dengan Hand Grip Strength. *Konstelasi Ilmiah UNISSULA (KIMU)* 5.
- Baioumi, A. Y. A. A. (2019). Comparing Measures of Obesity: Waist Circumference, Waist-Hip, and Waist-Height Ratios. In *Nutrition in the Prevention and Treatment of Abdominal Obesity* (pp. 29–40). Elsevier. <https://doi.org/10.1016/B978-0-12-816093-0.00003-3>
- Benavides-Rodríguez, L., García-Hermoso, A., Rodrigues-Bezerra, D., Izquierdo, M., Correa-Bautista, J., & Ramírez-Vélez, R. (2017). Relationship between Handgrip Strength and Muscle Mass in Female Survivors of Breast Cancer:

- A Mediation Analysis. *Nutrients*, 9(7), 695.  
<https://doi.org/10.3390/nu9070695>
- Bian, A.-L., Hu, H.-Y., Rong, Y.-D., Wang, J., Wang, J.-X., & Zhou, X.-Z. (2017). A study on relationship between elderly sarcopenia and inflammatory factors IL-6 and TNF- $\alpha$ . *European Journal of Medical Research*, 22(1), 25.  
<https://doi.org/10.1186/s40001-017-0266-9>
- Bohrer, B. M. (2023). Nutritional aspects and trends of meat replacement products. In *Meat and Meat Replacements* (pp. 145–169). Elsevier.  
<https://doi.org/10.1016/B978-0-323-85838-0.00020-1>
- Bosomworth, N. J. (2019). Normal-weight central obesity: Unique hazard of the toxic waist. *Canadian Family Physician Medecin de Famille Canadien*, 65(6), 399–408.
- Buckinx, F., Landi, F., Cesari, M., Fielding, R. A., Visser, M., Engelke, K., Maggi, S., Dennison, E., Al-Daghri, N. M., Allepaerts, S., Bauer, J., Bautmans, I., Brandi, M. L., Bruyère, O., Cederholm, T., Cerreta, F., Cherubini, A., Cooper, C., Cruz-Jentoft, A., ... Kanis, J. A. (2018). Pitfalls in the measurement of muscle mass: a need for a reference standard. *Journal of Cachexia, Sarcopenia and Muscle*, 9(2), 269–278.  
<https://doi.org/10.1002/jcsm.12268>
- Camry. (2019). *Electronic Hand Dynamometer Instructions for Use*.
- CDC. (2022). *Monitoring Your Blood Sugar*.  
<https://www.cdc.gov/diabetes/managing/managing-blood-sugar/bloodglucosemonitoring.html>
- CDC. (2023). *Diabetes Test*. <https://www.cdc.gov/diabetes/basics/getting-tested.html>
- Chan, J., Lu, Y.-C., Yao, M. M.-S., & Kosik, R. O. (2022). Correlation between hand grip strength and regional muscle mass in older Asian adults: an observational study. *BMC Geriatrics*, 22(1), 206.  
<https://doi.org/10.1186/s12877-022-02898-8>
- Chen, L., Nelson, D. R., Zhao, Y., Cui, Z., & Johnston, J. A. (2013). Relationship between muscle mass and muscle strength, and the impact of comorbidities: a population-based, cross-sectional study of older adults in the United States. *BMC Geriatrics*, 13(1), 74. <https://doi.org/10.1186/1471-2318-13-74>
- Chen, L.-K., Lee, W.-J., Peng, L.-N., Liu, L.-K., Arai, H., & Akishita, M. (2016). Recent Advances in Sarcopenia Research in Asia: 2016 Update From the Asian Working Group for Sarcopenia. *Journal of the American Medical Directors Association*, 17(8), 767.e1-767.e7.  
<https://doi.org/10.1016/j.jamda.2016.05.016>
- Chen, L.-K., Woo, J., Assantachai, P., Auyeung, T.-W., Chou, M.-Y., Iijima, K., Jang, H. C., Kang, L., Kim, M., Kim, S., Kojima, T., Kuzuya, M., Lee, J. S.

- W., Lee, S. Y., Lee, W.-J., Lee, Y., Liang, C.-K., Lim, J.-Y., Lim, W. S., ... 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>
- Chong, H., Choi, Y. E., Kong, J. Y., Park, J. H., Yoo, H. J., Byeon, J. H., Lee, H. J., & Lee, S. H. (2020). Association of Hand Grip Strength and Cardiometabolic Markers in Korean Adult Population: The Korea National Health and Nutrition Examination Survey 2015-2016. *Korean Journal of Family Medicine*, 41(5), 291–298. <https://doi.org/10.4082/kjfm.18.0129>
- Cruz-Jentoft, A. J., Bahat, G., Bauer, J., Boirie, Y., Bruyère, O., Cederholm, T., Cooper, C., Landi, F., Rolland, Y., Sayer, A. A., Schneider, S. M., Sieber, C. C., Topinkova, E., Vandewoude, M., Visser, M., Zamboni, M., Bautmans, I., Baeyens, J.-P., Cesari, M., ... 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>
- Dahlan, S. M. (2010). *Besar Sampel dan Cara Pengambilan Sampel dalam Penelitian Kedokteran dan Kesehatan* (3rd ed.). Salemba Medika.
- Dodds, R. M., Syddall, H. E., Cooper, R., Kuh, D., Cooper, C., & Sayer, A. A. (2016). Global variation in grip strength: a systematic review and meta-analysis of normative data. *Age and Ageing*, 45(2), 209–216. <https://doi.org/10.1093/ageing/afv192>
- Dorland. (2019). *Kamus Saku Kedokteran Dorland* (30th ed.). Elsevier.
- Fahrurodji, D. I., & Rofikoh, S. N. (2023). Gambaran Status Gizi Mahasiswa Prodi Gizi Universitas Tirtayasa yang Tinggal Secara Indekos. *Nautical*, 2(4).
- Fayasari, A. (2018). *Penilaian Konsumsi Pangan*. Kun Fayakun.
- Firda, F. A. (2020). *The Relation Between Anxiety Level, Learning Motivation, Length of Study and Wandering Status with Learning Achievement of Medical Student*.
- Fitriani, A. (2020). Indeks Massa Tubuh, Asupan Protein dan Kekuatan Genggaman Tangan pada Perempuan Remaja Akhir di Perkotaan. *Jurnal Kesehatan Masyarakat Khatulistiwa*, 7(4), 166–177.
- Ganong, W. F. (2015). *Ganong Buku Ajar Fisiologi Kedokteran Edisi 24* (24th ed.). EGC.
- García-Alfaro, P., García, S., Rodríguez, I., & Pérez-López, F. R. (2022). Handgrip strength, dynapenia, and related factors in postmenopausal women. *Menopause*, 29(1), 16–22. <https://doi.org/10.1097/GME.0000000000001872>

- Garcia-Alfaro, P., Garcia, S., Rodríguez, I., Tresserra, F., & Pérez-López, F. R. (2019). Factors related to muscle strength in postmenopausal women aged younger than 65 years with normal vitamin D status. *Climacteric*, 22(4), 390–394. <https://doi.org/10.1080/13697137.2018.1554645>
- Guzmán-Guzmán, I. P., Delgado-Floody, P., Gutiérrez-Pérez, I. A., Caamaño-Navarrete, F., Jerez-Mayorga, D., Zaragoza-García, Ó., & Parra-Rojas, I. (2021). Association between relative handgrip strength and abdominal obesity, type-2 diabetes and hypertension in a Mexican population. *Nutrición Hospitalaria*. <https://doi.org/10.20960/nh.03732>
- Hamdy, O. (2023). *Obesity*. <https://emedicine.medscape.com/article/123702-overview>
- Haro, A. S., Rosa, T. dos S., Corrêa, H. de L., Neves, R. V. P., Souza, M. K., Costa, F., Adeirton, J., Martins, C. T. B., Peruchi, L. H., Stone, W., Prestes, J., Barbosa, J. M. S., Almeida, S. S. de, Araujo, R. C., & Bacurau, R. F. P. (2021). Handgrip Strength is more associated with blood glucose than ACE and AGT polymorphisms in hemodialysis patients. *Research, Society and Development*, 10(5), e10910514369. <https://doi.org/10.33448/rsd-v10i5.14369>
- Heidy, Djuartina, T., & Irawan, R. (2019). KORELASI KEKUATAN GENGAMAN TANGAN DENGAN KARAKTER ANTROPOMETRI LENGAN BAWAH DAN TANGAN SERTA INDEKS MASSA TUBUH. *Damianus Journal of Medicine*, 18(1).
- Hermenegildo-López, Y., Donat-Vargas, C., Sandoval-Insausti, H., Moreno-Franco, B., Rodríguez-Ayala, M., Rey-García, J., Banegas, J. R., Rodríguez-Artalejo, F., & Guallar-Castillón, P. (2021). A Higher Intake of Energy at Dinner Is Associated with Incident Metabolic Syndrome: A Prospective Cohort Study in Older Adults. *Nutrients*, 13(9), 3035. <https://doi.org/10.3390/nu13093035>
- Hidayah, W. (2022). Kapasitas Nutrisi Terhadap Kadar Pertumbuhan dan Perkembangan Anak Usia Dini. *Al Jayyid: Jurnal Pendidikan Islam Anak Usia Dini*, 1(1).
- Hu, S., Gu, Y., Lu, Z., Zhang, Q., Liu, L., Meng, G., Yao, Z., Wu, H., Bao, X., Chi, V. T. Q., Zhang, S., Liu, M., Wang, Y., Wang, L., Zheng, L., Wang, X., Tian, C., Fu, J., Sun, S., ... Niu, K. (2019). Relationship Between Grip Strength and Prediabetes in a Large-Scale Adult Population. *American Journal of Preventive Medicine*, 56(6), 844–851. <https://doi.org/10.1016/j.amepre.2019.01.013>
- Huerta Ojeda, Á., Fontecilla Díaz, B., Yeomans Cabrera, M. M., & Jerez-Mayorga, D. (2021). Grip power test: A new valid and reliable method for assessing muscle power in healthy adolescents. *PLOS ONE*, 16(10), e0258720. <https://doi.org/10.1371/journal.pone.0258720>

- Indrika, S. N., & Chris, A. (2022). Hubungan Tingkat Depresi dengan Kekuatan Genggaman Tangan pada Mahasiswa Fakultas Kedokteran Universitas Tarumanegara. *Ebers Papyrus*, 28(1).
- International Diabetes Federation. (2006). *Metabolic Syndrome*.
- Jang, B. N., Nari, F., Kim, S., & Park, E.-C. (2020). Association between relative handgrip strength and prediabetes among South Korean adults. *PLOS ONE*, 15(10), e0240027. <https://doi.org/10.1371/journal.pone.0240027>
- Janssen, I., Heymsfield, S. B., Wang, Z., & Ross, R. (2000). Skeletal muscle mass and distribution in 468 men and women aged 18–88 yr. *Journal of Applied Physiology*, 89(1), 81–88. <https://doi.org/10.1152/jappl.2000.89.1.81>
- Juntara, P. E. (2019). *Latihan Kekuatan dengan Beban Bebas Metode Circuit Training dan Plyometrik*.
- Kang, Y., Kim, J., Kim, D.-Y., Kim, S., Park, S., Lim, H., & Koh, H. (2020). Association between Dietary Patterns and Handgrip Strength: Analysis of the Korean National Health and Nutrition Examination Survey Data Between 2014 and 2017. *Nutrients*, 12(10), 3048. <https://doi.org/10.3390/nu12103048>
- Kementerian Kesehatan. (2017). *Panduan Pelaksanaan Gerakan Nusantara Tekan Angka Obesitas (GENTAS)*.
- Kementerian Kesehatan. (2018). *Hasil Riset Kesehatan Dasar Kementerian Kesehatan*.
- Kementerian Kesehatan. (2019). Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2019 tentang Angka Kecukupan Gizi yang Dianjurkan Untuk Masyarakat Indonesia. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2019 Tentang Angka Kecukupan Gizi Yang Dianjurkan Untuk Masyarakat Indonesia*.
- Kim, J. (2021). Handgrip Strength to Predict the Risk of All-Cause and Premature Mortality in Korean Adults: A 10-Year Cohort Study. *International Journal of Environmental Research and Public Health*, 19(1), 39. <https://doi.org/10.3390/ijerph19010039>
- Labott, B. K., Bucht, H., Morat, M., Morat, T., & Donath, L. (2019). Effects of Exercise Training on Handgrip Strength in Older Adults: A Meta-Analytical Review. *Gerontology*, 65(6), 686–698. <https://doi.org/10.1159/000501203>
- Lawal, Y., Bello, F., & Kaoje, Y. S. (2020). Prediabetes Deserves More Attention: A Review. *Clinical Diabetes*, 38(4), 328–338. <https://doi.org/10.2337/cd19-0101>
- Layali, Z., Amalia, Y., & Triliana, R. (2021). *Type 2 Diabetes Mellitus Reduces Handgrip Test and Gait Speed Test Values of Individuals with The Same Age and Gender in Malang Raya*.

- Lee, M.-R., Jung, S. M., Bang, H., Kim, H. S., & Kim, Y. B. (2018). Association between muscle strength and type 2 diabetes mellitus in adults in Korea. *Medicine*, *97*(23), e10984. <https://doi.org/10.1097/MD.00000000000010984>
- Lee, S. H., & Gong, H. S. (2020). Measurement and Interpretation of Handgrip Strength for Research on Sarcopenia and Osteoporosis. *Journal of Bone Metabolism*, *27*(2), 85. <https://doi.org/10.11005/jbm.2020.27.2.85>
- Lee, S. Y. (2021). Handgrip Strength: An Irreplaceable Indicator of Muscle Function. *Annals of Rehabilitation Medicine*, *45*(3), 167–169. <https://doi.org/10.5535/arm.21106>
- Lee, S.-B., Moon, J.-E., & Kim, J.-K. (2022). Association of Handgrip Strength with Diabetes Mellitus in Korean Adults According to Sex. *Diagnostics*, *12*(8), 1874. <https://doi.org/10.3390/diagnostics12081874>
- Leong, D. P., Teo, K. K., Rangarajan, S., Lopez-Jaramillo, P., Avezum, A., Orlandini, A., Seron, P., Ahmed, S. H., Rosengren, A., Kelishadi, R., Rahman, O., Swaminathan, S., Iqbal, R., Gupta, R., Lear, S. A., Oguz, A., Yusoff, K., Zatonska, K., Chifamba, J., ... Yusuf, S. (2015). Prognostic value of grip strength: findings from the Prospective Urban Rural Epidemiology (PURE) study. *The Lancet*, *386*(9990), 266–273. [https://doi.org/10.1016/S0140-6736\(14\)62000-6](https://doi.org/10.1016/S0140-6736(14)62000-6)
- Lestari, L. A., Harmayani, E., Utami, T., Sari, P. M., & Nurviani, S. (2021). *Dasar Dasar Mikrobiologi Makanan di Bidang Gizi dan Kesehatan*. Gadjah Mada University Press.
- Li, G., Qiao, Y., Lu, Y., Liu, S., Ding, Y., Chen, X., & Ke, C. (2021). Role of handgrip strength in predicting new-onset diabetes: findings from the survey of health, ageing and retirement in Europe. *BMC Geriatrics*, *21*(1), 445. <https://doi.org/10.1186/s12877-021-02382-9>
- Lisnawati, N., & Haryanto, I. (2017). Hubungan Karakteristik Subjek, Asupan Zat Gizi, dan Aktivitas Fisik dengan Kekuatan Otot Anak Usia Sekolah di Kabupaten Purwakarta. *Journal of Holistic and Health Sciences*, *1*(2).
- Lorenzo, Serra-Prat, & Yébenes. (2019). The Role of Water Homeostasis in Muscle Function and Frailty: A Review. *Nutrients*, *11*(8), 1857. <https://doi.org/10.3390/nu11081857>
- Lyons-Reid, J., Ward, L. C., Kenealy, T., & Cutfield, W. (2020). Bioelectrical Impedance Analysis—An Easy Tool for Quantifying Body Composition in Infancy? *Nutrients*, *12*(4), 920. <https://doi.org/10.3390/nu12040920>
- Majid, H. A., Hairi, N. N., Su, T. T., Jalaludin, M. Y., & Dahlui, M. (2019). Body Weight and Its Relationship with Muscle Strength among Adolescents in Malaysia. *Journal of Clinical and Diagnostic Research*, *13*(7). <https://doi.org/10.7860/jcdr/2019/40661.13030>

- Mardalena, I. (2021). *Dasar-dasar Ilmu Gizi dalam Keperawatan : Konsep dan Penerapan pada Asuhan Keperawatan* (1st ed.). Pustaka Baru Press.
- Moreira, V. G., Perez, M., & Lourenço, R. A. (2019). Prevalence of sarcopenia and its associated factors: the impact of muscle mass, gait speed, and handgrip strength reference values on reported frequencies. *Clinics*, *74*, e477. <https://doi.org/10.6061/clinics/2019/e477>
- Musalek, C., & Kirchengast, S. (2017). Grip Strength as an Indicator of Health-Related Quality of Life in Old Age—A Pilot Study. *International Journal of Environmental Research and Public Health*, *14*(12), 1447. <https://doi.org/10.3390/ijerph14121447>
- Ng, A. K., Hairi, N. N., Jalaludin, M. Y., & Majid, H. A. (2019). Dietary intake, physical activity and muscle strength among adolescents: the Malaysian Health and Adolescents Longitudinal Research Team (MyHeART) study. *BMJ Open*, *9*(6), e026275. <https://doi.org/10.1136/bmjopen-2018-026275>
- Nur, H., & Aritonang, E. Y. (2022). Gambaran Pola Makan Dan Kelelahan Kerja Pada Buruh Angkat Di PT. Karya Mandiri Prima Kabupaten Langkat. *Journal of Health and Medical Science*, *1*(4).
- Nurfadhilah, K., Surialaga, S., & Ganang Ibnusantosa, R. (2018). *Gambaran Persentase Total Massa Otot dan Total Massa Lemak Tubuh pada Golongan Dewasa Muda Description of Percentage Total Body Muscle Mass and Total Body Fat Mass In Young Adults*.
- Nurladira, S. T., Fiana, D. N., & Sidharti, L. (2021). Perbedaan Kekuatan Otot Genggam Tangan Antara Tentara Nasional Indonesia Dengan Mahasiswa Fakultas Kedokteran Universitas Lampung. In *J Agromedicine Unila* | (Vol. 8).
- Oktaviana, A. (2021). *Hubungan Persentase Massa Otot dengan Kekuatan Genggam pada Karyawan Kantor Swasta*.
- Olinto, M. T. A., Theodoro, H., & Canuto, R. (2017). Epidemiology of Abdominal Obesity. In *Adiposity - Epidemiology and Treatment Modalities*. InTech. <https://doi.org/10.5772/65342>
- Omar, A., Marwaha, K., & Bollu, P. C. (2023). *Physiology, Neuromuscular Junction*. StatPearls [Internet]. <https://www.ncbi.nlm.nih.gov/books/NBK470413/>
- Palacio, A. C., Díaz-Torrente, X., & Quintiliano-Scarpelli, D. (2022). Higher Abdominal Adiposity Is Associated With Lower Muscle Strength in Chilean Adults. *Frontiers in Nutrition*, *9*. <https://doi.org/10.3389/fnut.2022.812928>
- Palacio-Agüero, A., Díaz-Torrente, X., & Quintiliano Scarpelli Dourado, D. (2020). Relative handgrip strength, nutritional status and abdominal obesity in Chilean adolescents. *PLOS ONE*, *15*(6), e0234316. <https://doi.org/10.1371/journal.pone.0234316>

- Perkeni. (2021). *Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 Dewasa di Indonesia 2021 PERKENI*.
- Peterson, M. D., Gordon, P. M., Smeding, S., & Visich, P. (2018). Grip Strength Is Associated with Longitudinal Health Maintenance and Improvement in Adolescents. *The Journal of Pediatrics*, 202, 226–230. <https://doi.org/10.1016/j.jpeds.2018.07.020>
- Prihatingrum, R., Sumekar, T. A., & Hardian, H. (2016). *Pengaruh Latihan Zumba terhadap Massa Otot Tubuh pada Wanita Usia Muda*.
- Putri, T. A. (2019). *Hubungan Antara Status Gizi, Massa Otot, Aktivitas Fisik, Asupan Energi Protein, Zat Gizi Mikro (Kalsium, Zat Besi, Zinc) dan Kekuatan Genggam Tangan pada Lansia Wanita di Wilayah Kerja Puskesmas Poris Gaga Lama*. Esa Unggul.
- Rahmi, P. (2019). Peran Nutrisi Bagi Tumbuh dan Kembang Anak Usia Dini. *Bunayya : Jurnal Pendidikan Anak*, V(1). <https://doi.org/http://dx.doi.org/10.22373/bunayya.v5i1.6380>
- Riskawati, Y. K., Prabowo, E. D., & Al Rasyid, H. (2018). Tingkat Aktivitas Fisik Mahasiswa Program Studi Pendidikan Dokter Tahun Kedua, Ketiga, Keempat. *Majalah Kesehatan*, 5(1), 27–32. <https://doi.org/10.21776/ub.majalahkesehatan.005.01.4>
- Sayer, A. A., & Kirkwood, T. B. L. (2015). Grip strength and mortality: a biomarker of ageing? *The Lancet*, 386(9990), 226–227. [https://doi.org/10.1016/S0140-6736\(14\)62349-7](https://doi.org/10.1016/S0140-6736(14)62349-7)
- Sehati, R. (2018). *Prevalens Sindrom Metabolik Pada Remaja Obes Usia 12-16 Tahun dan Faktor- Faktor yang Memengaruhinya*.
- Setiowati, A. (2014). Hubungan Indeks Massa Tubuh, Persen Lemak Tubuh, Asupan Zat Gizi dengan Kekuatan Otot. *Jurnal Media Ilmu Keolahragaan Indonesia*, 4(1).
- Shah, S. A., Safian, N., Mohammad, Z., Nurumal, S. R., Wan Ibadullah, W. A. H., Mansor, J., Ahmad, S., Hassan, M. R., & Shobugawa, Y. (2022). Factors Associated with Handgrip Strength Among Older Adults in Malaysia. *Journal of Multidisciplinary Healthcare*, Volume 15, 1023–1034. <https://doi.org/10.2147/JMDH.S363421>
- Sherwood, L. (2016). *Human Physiology : From Cells to Systems 9th ed* (9th ed.). Cengage Learning.
- Siregar, N. S. (2014). Karbohidrat. *Jurnal Ilmu Keolahragaan*, 13(2).
- Sulaeman, & Husnul, D. (2023). Komposisi Tubuh Mahasiswa Baru Prodi Ilmu Keolahragaan UNM dalam Kaitannya Sebagai Identitas Sosial Mahasiswa Olahraga. *INNOVATIVE: Journal Of Social Science Research*, 3(5).



- Sulistiyono, P., Heriyanto, Y., Priyadi, I., Putri, L. F., & Rilkiyanti, O. (2020). Analisis dan Sinkronisasi Tabel Komposisi Pangan Aplikasi Nutrisurvey Versi Indonesia. *Jurnal Nutrisiana*, 22(1), 39–45. <https://doi.org/10.29238/jnutri.v22i1.201>
- Sumandar, S., Fadhli, R., & Mayasari, E. (2021). Sosio-Ekonomi, Sindrom Metabolik terhadap Kekuatan Genggaman Tangan Lansia di Komunitas. *Jurnal Kesehatan Vokasional*, 6(1), 61. <https://doi.org/10.22146/jkesvo.60813>
- Surywan, B. (2014). Hubungan Obesitas Sentral dengan Kadar Glukosa Darah Sewaktu pada Mahasiswa Fakultas Kedokteran Universitas Malahayati. *Jurnal Medika Malahayati*, 1(4), 192–197.
- Sutanto, L. B., Winaktu, G. J., Fabiani, H., Rumawas, J. S. P., & Nurhasanah, D. O. T. (2022). *Penilaian Status Gizi Bagi Pemula*. Ukrida Press.
- Suyanto, H. Della, Paskaria, C., & Gunawan, D. (2021). *Perbandingan Kekuatan Otot dan Massa Otot Antara Wanita Lansia Aktif dan Tidak Aktif Berolahraga*. 4(1).
- Swarup, S., Goyal, A., Grigorova, Y., & Zeltser, R. (2023). *Metabolic Syndrome*.
- Tanita. (2018). *MC-980Uplus Multi Frequency Segmental Body Composition Analyzer*. <https://www.tanita.com/en/mc-980uplus/>
- Tian, T., Chen, G.-Y., Zhang, H., & Yang, F.-Q. (2021). Personal Glucose Meter for  $\alpha$ -Glucosidase Inhibitor Screening Based on the Hydrolysis of Maltose. *Molecules*, 26(15), 4638. <https://doi.org/10.3390/molecules26154638>
- Tinta, I., & Sumarni. (2019). Hubungan Obesitas Sentral dengan Memori Jangka Pendek Mahasiswa Fakultas Kedokteran Universitas Tadulako. *Healthy Tadulako Journal*, 5(3), 1–80.
- Tomlinson, D. J., Erskine, R. M., Morse, C. I., Winwood, K., & Onambélé-Pearson, G. (2016). The impact of obesity on skeletal muscle strength and structure through adolescence to old age. *Biogerontology*, 17(3), 467–483. <https://doi.org/10.1007/s10522-015-9626-4>
- Tuerah, J. B., Rumampuk, J. F., & Lintong, F. (2020). *Pengaruh Olahraga Step-up Terhadap Massa Otot Pada Wanita Dewasa Muda*. 8(1), 106–111. <https://doi.org/10.35790/ebm.8.1.2020.28702>
- Ubro, I., Kawengian, S. E. S., & Bolang, A. S. L. (2014). Hubungan Antara Asupan Energi dengan Status Gizi Mahasiswa Program Studi Pendidikan Dokter Angkatan 2013 Fakultas Kedokteran Universitas Sam Ratulangi. *EBiomedik*, 2(1).
- Ulcay, T., Kamaşak, B., Kazim, K., & Uzun, A. U. (2021). The Effect of Hand Anthropometric Variables on Grip Strength in Grip Elite Athletes and Non-

- Athletes. *Turkish Journal of Sport and Exercise*, 23(1).  
<https://doi.org/10.15314/tsed.899707>
- Umam, F. J., & Setiati, S. (2018). Association between type II diabetes mellitus and hand grip strength in the elderly. *Journal of Physics: Conference Series*, 1073, 042035. <https://doi.org/10.1088/1742-6596/1073/4/042035>
- Utami, N. W. A. (2016). *Modul Survei Konsumsi Makanan*. Fakultas Kedokteran Universitas Udayana.
- Vainshtein, A., & Sandri, M. (2020). Signaling Pathways That Control Muscle Mass. *International Journal of Molecular Sciences*, 21(13), 4759. <https://doi.org/10.3390/ijms21134759>
- Wen, J., Wang, J., Xu, Q., Wei, Y., Zhang, L., Ou, J., Hong, Q., Ji, C., Chi, X., & Tong, M. (2020). Hand anthropometry and its relation to grip/pinch strength in children aged 5 to 13 years. *Journal of International Medical Research*, 48(12), 030006052097076. <https://doi.org/10.1177/0300060520970768>
- Wen, Y., Liu, T., Ma, C., Fang, J., Zhao, Z., Luo, M., Xia, Y., Zhao, Y., & Ji, C. (2022). Association between handgrip strength and metabolic syndrome: A meta-analysis and systematic review. *Frontiers in Nutrition*, 9. <https://doi.org/10.3389/fnut.2022.996645>
- WHO. (2021). *Malnutrition*. WHO.
- Wiliyanarti, P. F. (2018). *Buku Ajar Gizi dan Diet*. UMSurabaya Publishing.
- Wong, M. C. S., Huang, J., Wang, J., Chan, P. S. F., Lok, V., Chen, X., Leung, C., Wang, H. H. X., Lao, X. Q., & Zheng, Z.-J. (2020). Global, regional and time-trend prevalence of central obesity: a systematic review and meta-analysis of 13.2 million subjects. *European Journal of Epidemiology*, 35(7), 673–683. <https://doi.org/10.1007/s10654-020-00650-3>
- Xu, Y., Wen, Z., Deng, K., Li, R., Yu, Q., & Xiao, S.-M. (2021). Relationships of sex hormones with muscle mass and muscle strength in male adolescents at different stages of puberty. *PLOS ONE*, 16(12), e0260521. <https://doi.org/10.1371/journal.pone.0260521>
- 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. <https://doi.org/10.4093/dmj.2016.40.2.140>
- Zembura, M., Czepczor-Bernat, K., Dolibog, P., Dolibog, P. T., & Matusik, P. (2023). Skeletal muscle mass, muscle strength, and physical performance in children and adolescents with obesity. *Frontiers in Endocrinology*, 14. <https://doi.org/10.3389/fendo.2023.1252853>