

DAFTAR PUSTAKA

- Amarya, S., Sigh, K., & Sabharwal, M. (2018). *Ageing Process and Physiological Changes. in book: Gerontology*. Intech Open.
- Ambrose, A. F., Paul, G., & Hausdorff, J. M. (2013). Risk factors for falls among older adults: a review of the literature. *Maturitas*, 75(1), 51–61.
- Andreassen, L. M., Sandberg, S., Kristensen, G. B. B., Sølvi, U. Ø., & Kjøme, R. L. S. (2014). Nursing home patients with diabetes: prevalence, drug treatment and glycemic control. *Diabetes Research and Clinical Practice*, 105(1), 102–109.
- Aras, D. (2017). *Proses dan Pengukuran Fisioterapi. Universitas Hasanuddin: Makassar*.
- Aravinda, J. (2019). Risk factors in patients with type 2 diabetes in Bengaluru: A retrospective study. *World Journal of Diabetes*, 10(4), 241.
- Aryana, S., Astika, N., & Kuswardhani, T. (2018). Geriatric Opinion 2018. *Geriatric Opinion 2018, December*, 11.
- Awada, S., Ajrouche, R., Shoker, M., Al-Hajje, A., Rachidi, S., Zein, S., & Bawab, W. (2019). Rheumatoid arthritis in the lebanese adults: impact on health-related quality of life. *Journal of Epidemiology and Global Health*, 9(4), 281.
- Aynalem, S. B., & Zeleke, A. J. (2018). Prevalence of diabetes mellitus and its risk factors among individuals aged 15 years and above in Mizan-Aman town, Southwest Ethiopia, 2016: a cross sectional study. *International Journal of Endocrinology*, 2018.
- Azad, A., Sabet, A., Taghizadeh, G., & Mohammadi-Nezhad, T. (2020). Clinical assessment of Persian translation of Fullerton Advanced Balance Scale in community-dwelling older adults. *Disability and Rehabilitation*, 42(4), 567–573.
- Banerjee, S., & Radak, T. (2019). Association between food insecurity, cardiorenal syndrome and all-cause mortality among low-income adults. *Nutrition and Health*, 25(4), 245–252.
- Bi, J., Ji, C., Wu, Y., Wu, M., Liu, Y., Song, L., Khatiwada, S. U., Yang, S., Li, B., Wang, Y., & Wu, L. (2020). Association between maternal normal range HbA1c values and adverse birth outcomes. *Journal of Clinical Endocrinology and Metabolism*, 105(6), 2185–2191.
<https://doi.org/10.1210/clinem/dgaa127>
- Bilous, R., Donnelly, R., & Idris, I. (2021). *Handbook of diabetes*. John Wiley & Sons.
- Budiwibowo, F., & Setiowati, A. (2015). Unsur indeks massa tubuh dan kekuatan otot tungkai dalam keseimbangan. *Journal of Sport Science and Fitness*, 4(2).
- C. Guyton and John E.Hall, P. . (2006). *Textbook of Medical Physiology. Twelfth Edition*.
- Cheng, S. J., Yang, Y. R., Cheng, F. Y., Chen, I. H., & Wang, R. Y. (2014). The changes of muscle strength and functional activities during aging in male and female populations. *International Journal of Gerontology*, 8(4), 197–202.
<https://doi.org/10.1016/j.ijge.2013.08.014>
- Chhetri, J. K., Zheng, Z., Xu, X., Ma, C., & Chan, P. (2017). The prevalence and incidence of frailty in Pre-diabetic and diabetic community-dwelling older population: results from Beijing longitudinal study of aging II (BLSA-II). *BMC*

- Geriatrics*, 17(1), 1–8.
- Chiwanga, F. S., & Njelekela, M. A. (2015). Diabetic foot: Prevalence, knowledge, and foot self-care practices among diabetic patients in Dar es Salaam, Tanzania - a cross-sectional study. *Journal of Foot and Ankle Research*, 8(1), 1–7. <https://doi.org/10.1186/s13047-015-0080-y>
- Collins, B. C., Laakkonen, E. K., & Lowe, D. A. (2019). Aging of the musculoskeletal system: How the loss of estrogen impacts muscle strength. *Bone*, 123, 137–144.
- da Silveira Langoni, C., de Lima Resende, T., Barcellos, A. B., Cecchele, B., Knob, M. S., do Nascimento Silva, T., da Rosa, J. N., de Souza Diogo, T., da Silva Filho, I. G., & Schwanke, C. H. A. (2019). Effect of exercise on cognition, conditioning, muscle endurance, and balance in older adults with mild cognitive impairment: a randomized controlled trial. *Journal of Geriatric Physical Therapy*, 42(2), E15–E22.
- Dahlan, M. S. (2016). Besar sampel dalam penelitian kedokteran dan kesehatan. *Jakarta: Epidemiologi Indonesia*, 14.
- Daly, R. M., Dalla Via, J., Duckham, R. L., Fraser, S. F., & Helge, E. W. (2019). Exercise for the prevention of osteoporosis in postmenopausal women: an evidence-based guide to the optimal prescription. *Brazilian Journal of Physical Therapy*, 23(2), 170–180.
- De Oliveira Lima, R. A., Piemonte, G. A., Nogueira, C. R., & Nunes-Nogueira, V. D. S. (2021). Efficacy of exercise on balance, fear of falling, and risk of falls in patients with diabetic peripheral neuropathy: A systematic review and meta-analysis. *Archives of Endocrinology and Metabolism*, 65(2), 198–211. <https://doi.org/10.20945/2359-3997000000337>
- Dharma, U. S., & Boy, E. (2019). Peranan Latihan Aerobik dan Gerakan Salat terhadap Kebugaran Jantung dan Paru Lansia. *Jurnal Magna Medica*, 6(2), 122–129.
- Dipietro, L., Campbell, W. W., Buchner, D. M., Erickson, K. I., Powell, K. E., Bloodgood, B., Hughes, T., Day, K. R., Piercy, K. L., & Vaux-Bjerke, A. (2019). Physical activity, injurious falls, and physical function in aging: an umbrella review. *Medicine and Science in Sports and Exercise*, 51(6), 1303.
- du Plessis, R., Dembskey, N., & Bassett, S. H. (2022). Effects of an isometric exercise training program on muscular strength, ankle mobility, and balance in patients with diabetic peripheral neuropathy in the lower legs in South Africa. *International Journal of Diabetes in Developing Countries*, 3–8. <https://doi.org/10.1007/s13410-022-01068-1>
- Elboim-Gabyzon, M., Agmon, M., Azaiza, F., & Laufer, Y. (2015). Translation and validation of the Arab version of the Late-Life Function and Disability Instrument: A cross sectional study. *BMC Geriatrics*, 15(1), 1–8. <https://doi.org/10.1186/s12877-015-0046-8>
- Eliana, F., SpPD, K., & Yarsi, B. (2015). Penatalaksanaan DM Sesuai Konsensus Perkeni 2015. *PB Perkeni Jakarta*.
- Fauzi, M. F. (2021). *Journal of Health and Therapy*, 1(1), 52–58.
- Formiga, M. F., Fay, R., Hutchinson, S., Locandro, N., Ceballos, A., Lesh, A., Buscheck, J., Meanor, J., Owens, J. G., & Cahalin, L. P. (2020). Effect of aerobic exercise training with and without blood flow restriction on aerobic capacity in healthy young adults: a systematic review with meta-analysis. *International Journal of Sports Physical Therapy*, 15(2), 175.
- Ginter, E., & Simko, V. (2013). Women live longer than men. *Bratislavske*

- Lekarske Listy*, 114(2), 45–49.
- Goto, N. A., Van Loon, I. N., Morpey, M. I., Verhaar, M. C., Willems, H. C., Emmelot-Vonk, M. H., Bots, M. L., Boereboom, F. T. J., & Hamaker, M. E. (2019). Geriatric assessment in elderly patients with end-stage kidney disease. *Nephron*, 141(1), 41–48.
- Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall textbook of medical physiology e-Book*. Elsevier Health Sciences.
- He, W., Goodkind, D., & Kowal, P. R. (2016). *An aging world: 2015*. United States Census Bureau Washington, DC.
- Hedayatpour, N., & Falla, D. (2015). Physiological and neural adaptations to eccentric exercise: mechanisms and considerations for training. *BioMed Research International*, 2015.
- Higgins, M. (2011). *Therapeutic exercise: From theory to practice*. FA Davis.
- Hordern, M. D., Dunstan, D. W., Prins, J. B., Baker, M. K., Singh, M. A. F., & Coombes, J. S. (2012). Exercise prescription for patients with type 2 diabetes and pre-diabetes: a position statement from Exercise and Sport Science Australia. *Journal of Science and Medicine in Sport*, 15(1), 25–31.
- Howe, T. E., Rochester, L., Neil, F., Skelton, D. A., & Ballinger, C. (2011). Exercise for improving balance in older people. *Cochrane Database of Systematic Reviews*, 11.
- Jang, H. C. (2016a). Sarcopenia, frailty, and diabetes in older adults. *Diabetes & Metabolism Journal*, 40(3), 182–189.
- Jang, H. C. (2016b). Sarcopenia, frailty, and diabetes in older adults. *Diabetes and Metabolism Journal*, 40(3), 182–189.
<https://doi.org/10.4093/dmj.2016.40.3.182>
- Joo, Y. S., Jhee, J. H., Kim, H.-W., Han, S. H., Yoo, T.-H., Kang, S.-W., & Park, J. T. (2020). Physical performance and chronic kidney disease development in elderly adults: results from a nationwide cohort study. *Aging (Albany NY)*, 12(17), 17393.
- Kang, S., Hwang, S., Klein, A. B., & Kim, S. H. (2015). Multicomponent exercise for physical fitness of community-dwelling elderly women. *Journal of Physical Therapy Science*, 27(3), 911–915.
- Kholifah, S. N. (2016). Keperawatan Gerontik. *Jakarta Selatan: Kemenkes RI*.
- Kisner, C., & Kolby, L. (2012). Soft Tissue Injury, Repair, and Management. *Kisner C, Kolby L. Therapeutic Exercise: Foundations and Techniques. 6th Ed. Philadelphia, PA: FA Davis Company, 315–329.*
- Klimczuk, A. (2016). Activities of Daily Living. *Encyclopedia of Family Studies, February*, 1–4. <https://doi.org/10.1002/9781119085621.wbefs143>
- Kohlman-Trigoboff, D. (2013). Management of lower extremity peripheral arterial disease: Interpreting the latest guidelines for nurse practitioners. *The Journal for Nurse Practitioners*, 9(10), 653–660.
- Krentz, A. J., Viljoen, A., & Sinclair, A. (2013). Insulin resistance: a risk marker for disease and disability in the older person. *Diabetic Medicine*, 30(5), 535–548.
- Lauralee Sherwood. (2016). Human Physiology From Cells to System. Ninth Edition. In *วารสารสังคมศาสตร์วิชาการ* (Vol. 7, Issue 2).
- Lee, S. B., Oh, J. H., Park, J. H., Choi, S. P., & Wee, J. H. (2018). Differences in youngest-old, middle-old, and oldest-old patients who visit the emergency department. *Clinical and Experimental Emergency Medicine*, 5(4), 249.
- Li, Y., Teng, D. I., Shi, X., Qin, G., Qin, Y., Quan, H., Shi, B., Sun, H., Ba, J., &

- Chen, B. (2020). Prevalence of diabetes recorded in mainland China using 2018 diagnostic criteria from the American Diabetes Association: national cross sectional study. *Bmj*, 369.
- Lima Filho, B. F. de, Gama, A. G. D., Dias, V. da N., Silva, E. M. T. da, Cavalcanti, F. A. da C., & Gazzola, J. M. (2020). The frailty syndrome in older adults with type 2 diabetes mellitus and associated factors. *Revista Brasileira de Geriatria e Gerontologia*, 23(1). <https://doi.org/10.1590/1981-22562020023.200196>
- Liu, C., Chang, W.-P., Araujo de Carvalho, I., Savage, K. E. L., Radford, L. W., & Amuthavalli Thiyagarajan, J. (2017). Effects of physical exercise in older adults with reduced physical capacity: meta-analysis of resistance exercise and multimodal exercise. *International Journal of Rehabilitation Research*, 40(4), 303–314.
- Marlita, L., Saputra, R., & Yamin, M. (2018). Faktor-Faktor yang Mempengaruhi Tingkat Kemandirian Lansia dalam Melakukan Activity Daily Living (ADL) di UPT PSTW Khusnul Khotimah. *Jurnal Keperawatan Abdurrahman*, 1(2), 64–68.
- Maryani, H., & Kristiana, L. (2018). Pemodelan angka harapan hidup (AHH) laki-laki dan perempuan di Indonesia tahun 2016. *Buletin Penelitian Sistem Kesehatan*, 21(2), 71–81.
- Masih, R., Pradesh, H., Kaur, S., Gupta, N. L., Kaur, N., & Singh, D. (2019). The metabolic syndrome: Its prevalence and risk factors among policemen of Patiala, Punjab. *Blood Pressure*, 130(1), 85.
- Mateus, A., Rebelo, J., & Silva, A. G. (2020). Effects of a Multimodal Exercise Program Plus Neural Gliding on Postural Control, Pain, and Flexibility of Institutionalized Older Adults: A Randomized, Parallel, and Double-Blind Study. *Journal of Geriatric Physical Therapy*, 43(1), 3–11.
- Meng, H., Zhang, M., Xiao, B., Chen, X., Yan, J., Zhao, Z., Ma, K., Shen, Y., & Xie, J. (2019). Forensic age estimation based on the pigmentation in the costal cartilage from human mortal remains. *Legal Medicine*, 40, 32–36.
- Millán-Calenti, J. C., Tubío, J., Pita-Fernández, S., González-Abraldes, I., Lorenzo, T., Fernández-Arruty, T., & Maseda, A. (2010). Prevalence of functional disability in activities of daily living (ADL), instrumental activities of daily living (IADL) and associated factors, as predictors of morbidity and mortality. *Archives of Gerontology and Geriatrics*, 50(3), 306–310.
- Moncada, L. V. V., & Mire, L. G. (2017). Preventing falls in older persons. *American Family Physician*, 96(4), 240–247.
- Morton, J. P., Kayani, A. C., McArdle, A., & Drust, B. (2009). The exercise-induced stress response of skeletal muscle, with specific emphasis on humans. *Sports Medicine*, 39(8), 643–662.
- Muszalik, M., Stępień, H., Puto, G., Cybulski, M., & Kurpas, D. (2022). Implications of the Metabolic Control of Diabetes in Patients with Frailty Syndrome. *International Journal of Environmental Research and Public Health*, 19(16), 10327.
- Naderi, A., Shaabani, F., Esmaeili, A., Salman, Z., Borella, E., & Degens, H. (2019). Effects of low and moderate acute resistance exercise on executive function in community-living older adults. *Sport, Exercise, and Performance Psychology*, 8(1), 106.
- Navas-Enamorado, I., Bernier, M., Brea-Calvo, G., & de Cabo, R. (2017). Influence of anaerobic and aerobic exercise on age-related pathways in skeletal muscle. *Ageing Research Reviews*, 37, 39.


- Nisa, Q., & Maratis, J. (2019). Hubungan keseimbangan postural dengan kemampuan berjalan pada pasien stroke hemiparesis. *Jurnal Fisioterapi*, 19(2), 83–89.
- O'Driscoll, J., & Delahunt, E. (2011). Neuromuscular training to enhance sensorimotor and functional deficits in subjects with chronic ankle instability: a systematic review and best evidence synthesis. *Sports Medicine, Arthroscopy, Rehabilitation, Therapy & Technology*, 3(1), 1–20.
- Ortega-Bastidas, P., Aqueveque, P., Gómez, B., Saavedra, F., & Cano-de-la-Cuerda, R. (2019). Use of a single wireless IMU for the segmentation and automatic analysis of activities performed in the 3-m timed up & go test. *Sensors*, 19(7), 1647.
- Ozougwu, J. C., Obimba, K. C., Belonwu, C. D., & Unakalamba, C. B. (2013). The pathogenesis and pathophysiology of type 1 and type 2 diabetes mellitus. *J Physiol Pathophysiol*, 4(4), 46–57.
- Page, P., & Ellenbecker, T. S. (2019). *Strength band training*. Human Kinetics Publishers.
- Pan, B., Ge, L., Xun, Y. qin, Chen, Y. jing, Gao, C. yun, Han, X., Zuo, L. qian, Shan, H. qian, Yang, K. hu, Ding, G. wu, & Tian, J. hui. (2018). Exercise training modalities in patients with type 2 diabetes mellitus: A systematic review and network meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 15(1), 1–14. <https://doi.org/10.1186/s12966-018-0703-3>
- Pashmdarfard, M., & Azad, A. (2020). Assessment tools to evaluate Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) in older adults: A systematic review. *Medical Journal of the Islamic Republic of Iran*, 34, 33.
- Patil, R., Uusi-Rasi, K., Tokola, K., Karinkanta, S., Kannus, P., & Sievänen, H. (2015). Effects of a multimodal exercise program on physical function, falls, and injuries in older women: a 2-year community-based, randomized controlled trial. *Journal of the American Geriatrics Society*, 63(7), 1306–1313.
- Pavasini, R., Guralnik, J., Brown, J. C., di Bari, M., Cesari, M., Landi, F., Vaes, B., Legrand, D., Verghese, J., Wang, C., Stenholm, S., Ferrucci, L., Lai, J. C., Bartes, A. A., Espauella, J., Ferrer, M., Lim, J. Y., Ensrud, K. E., Cawthon, P., ... Campo, G. (2016). Short Physical Performance Battery and all-cause mortality: Systematic review and meta-analysis. *BMC Medicine*, 14(1), 1–9. <https://doi.org/10.1186/s12916-016-0763-7>
- PERKENI. (2015). Pengelolaan dan pencegahan diabetes melitus tipe 2 di Indonesia. *Pb. Perkeni*.
- Pinzón-Ríos, I. D. (2019). Loss of muscle mass induced by aging. *Revista Ciencias de La Salud*, 17(2), 223–244.
- Prasetyo, J., & Wahyuni, S. (2021). *FAKTOR-FAKTOR RISIKO KEJADIAN DIABETES MELITUS TIPE-2 DI PUSKESMAS PATI 1*. Universitas Ngudi Waluyo.
- Punthakee, Z., Goldenberg, R., & Katz, P. (2018). Definition, classification and diagnosis of diabetes, prediabetes and metabolic syndrome. *Canadian Journal of Diabetes*, 42, S10–S15.
- Pytel, A., Beszlej, J. A., Biercewicz, M., Roszmann, A., Krówczyńska, D., & Kołtuniuk, A. (2022). The Effect of Frailty Syndrome on the Quality of Life of Individuals with Parkinson's Disease: A Pilot Observational and Multicenter

- Study on the Polish Population. *International Journal of Environmental Research and Public Health*, 19(22), 15226.
- Rezai Asl, H., Pishgooi, S. A. H., & Alhani, F. (2017). The effectiveness of “Family-Centered Empowerment Model” on the treatment adherence of patients with type II diabetes and heart disorder admitted to AJA Hospitals, during year 2015. *Military Caring Sciences Journal*, 4(1), 58–69.
- Richardson, J. W., Kelly, K. D., Kumodzi, T. K., Liburd, N. S., & Laws, H. (2019). Type 2 Diabetes Prevalence, Distribution and Risk Factors in St. Kitts and Nevis, West Indies. *International Journal of Diabetes and Clinical Research*, 6(4).
- Riviati, N., Setiati, S., Laksmi, P. W., & Abdullah, M. (2017). Factors related with handgrip strength in elderly patients. *Acta Med Indones*, 49(3), 215–219.
- Rizka, A., Setiati, S., Harimurti, K., Sadikin, M., & Mansur, I. G. (2018). Effect of alfacalcidol on inflammatory markers and T cell subsets in elderly with frailty syndrome: a double blind randomized controlled trial. *Acta Med Indones*, 50(3), 215–221.
- Rodriguez-mañas, L., Laosa, O., Vellas, B., Paolisso, G., Topinkova, E., Olivamorenno, J., Bourdel-marchasson, I., Izquierdo, M., Hood, K., Zeyfang, A., Gambassi, G., & Petrovic, M. (2019). *Effectiveness of a multimodal intervention in functionally impaired older people with type 2 diabetes mellitus*. April, 721–733. <https://doi.org/10.1002/jcsm.12432>
- Rosado, H., Bravo, J., Raimundo, A., Carvalho, J., Marmeleira, J., & Pereira, C. (2021). Effects of two 24-week multimodal exercise programs on reaction time, mobility, and dual-task performance in community-dwelling older adults at risk of falling: a randomized controlled trial. *BMC Public Health*, 21, 1–11. <https://doi.org/10.1186/s12889-021-10448-x>
- Saelan, S., Adi, G. S., Kurniawan, S. T., & Ardian, K. (2020). Efek Senam Lanjut Usia Terhadap Peningkatan Aktifitas Fisik Lanjut Usia Di Dusun Bonorejo Kelurahan Plesungan. *Wiraraja Medika: Jurnal Kesehatan*, 10(1), 17–22.
- Sanz-Cánovas, J., López-Sampalo, A., Cobos-Palacios, L., Ricci, M., Hernández-Negrín, H., Mancebo-Sevilla, J. J., Álvarez-Recio, E., López-Carmona, M. D., Pérez-Belmonte, L. M., Gómez-Huelgas, R., & Bernal-López, M. R. (2022). Management of Type 2 Diabetes Mellitus in Elderly Patients with Frailty and/or Sarcopenia. *International Journal of Environmental Research and Public Health*, 19(14). <https://doi.org/10.3390/ijerph19148677>
- Seto, E., Setiati, S., Laksmi, P. W., & Tamin, T. Z. (2015). Diagnostic test of a scoring system for frailty syndrome in the elderly according to cardiovascular health study, study of osteoporotic fracture and comprehensive geriatric assessment based frailty index compared with frailty index 40 items. *Acta Medica Indonesiana*, 47(3).
- Statistik, B. P. (2018). Statistics Indonesia. *Jakarta: Statistics Indonesia*.
- Suseelal, T., John, K. R., Brown, A., Judie, A., & Amalraj, V. C. (2016). A study to assess the effectiveness of home based aerobic training, muscle strengthening and stretching exercise on self management among individuals with diabetes mellitus (DM) at selected villages in Kancheepuram district, Tamil Nadu. *Int J Pharm Clin Res*, 8, 133–136.
- Syah, I., & Susy Purnawati, S. (2016). Efek Pelatihan Senam Lansia Dan Latihan Jalan Tandem Dalam Meningkatkan Keseimbangan Tubuh Lansia Di Pantii Sosial Tresna Kasih Sayang Ibu Batusangkar Sumatra Barat. *Sport and Fitness Journal*, 5(1), 8–16.

- Tandra, H. (2017). *Segala sesuatu yang harus anda ketahui tentang diabetes*. Gramedia Pustaka Utama.
- Thaiyanto, J., Sittichoke, C., Phirom, K., & Sungkarat, S. (2021). Effects of Multicomponent Exercise on Cognitive Performance and Fall Risk in Older Women with Mild Cognitive Impairment. *Journal of Nutrition, Health and Aging*, 25(2), 160–164. <https://doi.org/10.1007/s12603-020-1458-5>
- Thomas, E., Battaglia, G., Patti, A., Brusa, J., Leonardi, V., Palma, A., & Bellafiore, M. (2019). Physical activity programs for balance and fall prevention in elderly: A systematic review. *Medicine*, 98(27).
- Troeger, C., Blacker, B., Khalil, I. A., Rao, P. C., Cao, J., Zimsen, S. R. M., Albertson, S. B., Deshpande, A., Farag, T., & Abebe, Z. (2018). Estimates of the global, regional, and national morbidity, mortality, and aetiologies of lower respiratory infections in 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Infectious Diseases*, 18(11), 1191–1210.
- Uyainah, A., Bahar, A., Pramantara, D. P., Wahyudi, E. R., Harimurti, K., Legiawati, L., Kuswardhani, R. A. T., & Setiati, S. (2015). Management of Frailty As a New Geriatric Giant : How To Deal With Dilemmatic Health Problems in Elderly Patient. In *Prosiding Temu Ilmiah Geriatri*. https://staff.ui.ac.id/system/files/users/lili.legiawati/publication/management_of_frailty_as_a_new_geriatric_giant_how_to_deal_with_dilemmatic_health_problems_in_eldery.pdf#page=87
- Vafaeenasab, M. R., Kuchakinejad Meybodi, N., Fallah, H. R., Ali Morowatisharifabad, M., Namayandeh, S. M., & Beigomi, A. (2019). The Effect of Lower Limb Resistance Exercise with Elastic Band on Balance, Walking Speed, and Muscle Strength in Elderly Women. *Elderly Health Journal*, 5(1), 58–64. <https://doi.org/10.18502/ehj.v5i1.1201>
- Vedovelli, K., & Giacobbo, B. L. (2017). *Multimodal physical activity increases brain-derived neurotrophic factor levels and improves cognition in institutionalized older women*. <https://doi.org/10.1007/s11357-017-9987-5>
- Wang, H., Abajobir, A. A., Abate, K. H., Abbafati, C., Abbas, K. M., Abd-Allah, F., Abera, S. F., Abraha, H. N., Abu-Raddad, L. J., & Abu-Rmeileh, N. M. E. (2017). Global, regional, and national under-5 mortality, adult mortality, age-specific mortality, and life expectancy, 1970–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 390(10100), 1084–1150.
- Wedi, S., Umar, U., & Wellis, W. (2019). Pengaruh Metode Latihan Beban dengan Gerakan Cepat dan Gerakan Lambat terhadap Peningkatan Hipertrofi Otot Paha. *Jurnal Keolahragaan*, 5(2), 30–35.
- Widajanti, N., Ichwani, J., Dharmanta, R. S., Firdausi, H., Haryono, Y., Yulianti, E., Kandinata, S. G., Wulandari, M., Widyasari, R., Adyanita, V. A., Hapsanti, N. I., Wardana, D. M., Kristiana, T., Driyarkara, D., Wahyuda, H., Yunara, S., & Husna, K. (2020). Sarcopenia and Frailty Profile in the Elderly Community of Surabaya: A Descriptive Study. *Acta Medica Indonesiana*, 52(1), 5–13.
- Wolf, R., Locks, R. R., Lopes, P. B., Bento, P. C. B., Rodacki, A. L. F., Carraro, A. N., & Pereira, G. (2020). Multicomponent Exercise Training Improves Gait Ability of Older Women Rather than Strength Training: A Randomized Controlled Trial. *Journal of Aging Research*, 2020. <https://doi.org/10.1155/2020/6345753>

Yoon, S. J., & Kim, K. II. (2019). Frailty and disability in diabetes. *Annals of Geriatric Medicine and Research*, 23(4), 165–169.
<https://doi.org/10.4235/agmr.19.0036>

Lampiran 1. *Informed consent*


 KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
 UNIVERSITAS HASANUDIN FAKULTAS KEDOKTERAN
 KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDIN
 RSPTN UNIVERSITAS HASANUDIN
 DR/PD DR. WAHIDIN JUDEIRCHUSODO MAGASSAR
 Sekretaris : Lantai 2 Gedung Laboratorium Terpadu
 ALPENTIS KEMERDEKAAN BANGSA TAMALANREA KM. 5 MAKASSAR 90012
 Contact Person : D. Agastika Satrio, AMANUNG, S.K.E. TEL. 0824491088 DAN 0824491022 Fax : 0824491022

FORMULIR PERSETUJUAN SETELAH PENJELASAN

Saya yang bermaksud/terang di bawah ini

Nama _____

Umur _____

Masa Kerja _____

Setoran _____

Alamat _____

Setelah mendengar/membaca dan mengerti penjelasan yang diberikan mengenai tujuan, manfaat dan apa yang akan dilakukan pada penelitian ini, menyatakan setuju untuk ikut dalam penelitian ini secara sukarela tanpa paksaan.

Saya tahu bahwa keterlibatan saya ini bersifat sukarela tanpa paksaan, sehingga saya bisa menolak atau bisa mengundurkan diri dari penelitian ini. Saya bebas bertanya atau meminta penjelasan pada peneliti bila masih ada hal yang belum jelas atau masih ada hal yang ingin saya ketahui tentang penelitian ini.

Saya juga mengerti bahwa semua biaya yang dikeluarkan sebagaimana dengan penelitian ini, akan ditanggung oleh peneliti. Saya percaya bahwa keamanan dan kerahasiaan data penelitian akan terjaga dan saya dengan ini menyetujui semua data saya yang dihasilkan pada penelitian ini untuk disajikan dalam bentuk lisan maupun tulisan.

Dengan menandatangani/mendibaca saya di bawah ini, saya menyetujui keterlibatan saya secara sukarela dalam studi penelitian ini.

Nama	Tanda tangan	Tgl/Bln/Thn
Responden: _____	_____	_____
Wali: _____	_____	_____
Saksi: _____	_____	_____

(Tanda Tangan Saksi diberikan hanya jika Partisipan tidak dapat memberikan persetujuan sebagai menggunakan web yang sah secara hukum, yaitu email partispas berikut:

1. Berada di bawah 18 tahun
2. Uraian lengkap
3. Tanggapan verbal
4. Puncak tidak valid
5. Dan lain-lain kondisi yang tidak memungkinkan memberikan persetujuan

Pewasaggang jawab penelitian :
 Nama : Rendi Yudianto/Hafiza S.Fi, Ph
 Alamat : DTP Blok AC To Boss No.182
 Tlp : 081283823235

Pewasaggang jawab Medis :
 Nama : dr. Muli Rizal MSd
 Alamat : IAIN Duri Banta Gowa
 Tlp : 08136263456

Lampiran 2. Surat Izin Etik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
 UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
 KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDDIN
 RSPTN UNIVERSITAS HASANUDDIN
 RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR
 Sekretariat : Lantai 2 Gedung Laboratorium Terpadu
 JL.PERINTIS KEMERDESAAN RAMPUS TANJALANREA KM.10 MAKASSAR 90945.
 Contact Person: dr. Agussalim Bukhari, M.Med, Ph.D., Sp.GK, Telp. 081241850658, 0411 5780303, Fax : 0411-581421



REKOMENDASI PERSETUJUAN ETIK

Nomor : 185/UN4.6.4.5.31/ PP36/ 2023

Tanggal: 24 Maret 2023

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH23020099	No Sponsor	
Peneliti Utama	Rezki Syamsuryana Halmu, S.Ft., Ftr	Sponsor	
Judul Peneliti	Pengaruh Multimodal Exercise Terhadap Risiko Jatuh dan Kemampuan Fungsional pada Lansia yang Mengalami Frailty Syndrome dengan Diabetes Mellitus Tipe 2.		
No Versi Protokol	2	Tanggal Versi	20 Maret 2023
No Versi PSP	2	Tanggal Versi	20 Maret 2023
Tempat Penelitian	Yayasan Batara Hati Mulia Kab.Gowa Prov.Sulawesi-Selatan		
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Fullboard Tanggal	Masa Berlaku 24 Maret 2023 sampai 24 Maret 2024	Frekuensi review lanjutan
Ketua KEP Universitas Hasanuddin	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	Nama dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)	Tanda tangan	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Laporan SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari protokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditetapkan

Lampiran 3. Surat Telah Meneliti di Yayasan Batara Hati Mulia Gowa



YAYASAN BATARA HATI MULIA
LEMBAGA KESEJAHTERAAN SOSIAL BATARA
HATI MULIA

SEKRETARIAT : JL. MALINO BTN BUMI BATARA GOWA BLOK E 20 NO.18
 KEL. TOMPOBALANG, KEC.SOMBA OPU, KAB. GOWA, PROP. SULAWESI SELATAN
 HP 085299564949 - 085242203097

SURAT KETERANGAN

Nomor Surat :

Yang bertanda tangan dibawah ini, Ketua Yayasan/LKS-LU Batara Hati Mulia Kabupaten Gowa menyatakan bahwa :

Nama : Rezki Syamsuriyana Halmu
 NIM : P062201014
 Jurusan : Ilmu Biomedik – Fisiologi
 Asal Universitas : Universitas Hasanuddin
 Pekerjaan : Mahasiswa
 Alamat : BTP Blok AC Telkom No.182 Kota Makassar

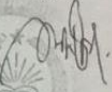
Benar yang bersangkutan telah melakukan penelitian pada tanggal 26 Maret 2023 s.d tanggal 13 Mei 2023 di Posbindu Batara Hati Mulia Kabupaten Gowa dalam rangka penyusunan tesis dengan judul : Pengaruh *Multimodal Exercise* Terhadap Risiko Jatuh Dan Kemampuan Fungsional Pada Lansia Yang Mengalami *Frailty Syndrome* Dengan Diabetes Mellitus Tipe 2.

Demikian surat keterangan ini dibuat dan diberikan kepada yang bersangkutan untuk digunakan sebagaimana mestinya.

Makassar, 15 Mei 2023

Yayasan/LKS-LU Batara Hati Mulia

Ketua


 Iriyanti, S.K.M., S.Ft, Physio

A. Karakteristik Sampel

1. Grup Intervensi (Multimodal Exercise)

Statistics				
		Usia	Jenis Kelamin	Lama DM
N	Valid	25	25	25
	Missing	0	0	0

Frequency Table :

Usia					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	60-68 tahun	12	48.0	48.0	48.0
	69-76 tahun	11	44.0	44.0	92.0
	77-84 tahun	2	8.0	8.0	100.0
	Total	25	100.0	100.0	

Jenis Kelamin					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laki-laki	11	44.0	44.0	44.0
	Perempuan	14	56.0	56.0	100.0
	Total	25	100.0	100.0	

Lama DM					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3-6	19	76.0	76.0	76.0
	7-10	6	24.0	24.0	100.0
	Total	25	100.0	100.0	

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
GDP	25	128.00	208.00	167.1600	25.03944
Pre Test TUGT	25	15.00	23.00	18.4400	2.04287
Post Test TUGT	25	10.00	14.00	11.9600	1.33791
Pre Test SPPB	25	3.00	9.00	5.6000	1.77951
Post Test SPPB	25	6.00	11.00	9.0000	1.60728

Valid N (listwise)	25			
--------------------	----	--	--	--

2. Grup Kontrol (Senam Lansia)

Statistics				
		Usia	Jenis Kelamin	Lama DM
N	Valid	25	25	25
	Missing	0	0	0

Frequency Table :

Usia					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	60-68 tahun	10	40.0	40.0	40.0
	69-76 tahun	12	48.0	48.0	88.0
	77-84 tahun	3	12.0	12.0	100.0
	Total	25	100.0	100.0	
Jenis Kelamin					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laki-laki	9	36.0	36.0	36.0
	Perempuan	16	64.0	64.0	100.0
	Total	25	100.0	100.0	

Lama DM					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3-6	22	88.0	88.0	88.0
	7-10	3	12.0	12.0	100.0
	Total	25	100.0	100.0	

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
GDP	25	127.00	213.00	169.6000	29.24466
Pre Test TUGT	25	15.00	23.00	17.6800	2.23084
Post Test TUGT	25	10.00	16.00	12.8000	1.68325
Pre Test SPPB	25	3.00	10.00	5.8400	1.57268
Post Test SPPB	25	4.00	11.00	8.1600	1.62481
Valid N (listwise)	25				

B. UJI NORMALITAS

1. Grup Intervensi (Multimodal Exercise)

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre Test TUGT	.152	25	.140	.963	25	.479
Post Test TUGT	.203	25	.009	.889	25	.011
Pre Test SPPB	.184	25	.028	.927	25	.076
Post Test SPPB	.173	25	.052	.900	25	.019

a. Lilliefors Significance Correction

2. Grup Kontrol (Senam Lansia)

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre Test TUGT	.163	25	.085	.921	25	.053
Post Test TUGT	.162	25	.089	.945	25	.193
Pre Test SPPB	.179	25	.037	.945	25	.191
Post Test SPPB	.158	25	.110	.930	25	.087

a. Lilliefors Significance Correction

C. UJI PENGARUH SEBELUM DAN SESUDAH

1. Grup Intervensi (Multimodal Exercise)

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Pre Test TUGT	25	18.4400	2.04287	15.00	23.00
Post Test TUGT	25	11.9600	1.33791	10.00	14.00
Pre Test SPPB	25	5.6000	1.77951	3.00	9.00
Post Test SPPB	25	9.0000	1.60728	6.00	11.00

Wilcoxon Signed Ranks Test

Ranks				
		N	Mean Rank	Sum of Ranks
Post Test TUGT - Pre Test	Negative Ranks	25 ^a	13.00	325.00

TUGT	Positive Ranks	0 ^b	.00	.00
	Ties	0 ^c		
	Total	25		
Post Test SPPB - Pre Test SPPB	Negative Ranks	3 ^d	4.83	14.50
	Positive Ranks	21 ^e	13.60	285.50
	Ties	1 ^f		
	Total	25		
a. Post Test TUGT < Pre Test TUGT				
b. Post Test TUGT > Pre Test TUGT				
c. Post Test TUGT = Pre Test TUGT				
d. Post Test SPPB < Pre Test SPPB				
e. Post Test SPPB > Pre Test SPPB				
f. Post Test SPPB = Pre Test SPPB				

Statistics					
		Pre Test TUGT	Post Test TUGT	Pre Test SPPB	Post Test SPPB
N	Valid	25	25	25	25
	Missing	0	0	0	0
Mean		18.4400	11.9600	5.6000	9.0000
Std. Error of Mean		.40857	.26758	.35590	.32146
Median		19.0000	12.0000	6.0000	9.0000
Mode		19.00	11.00	7.00	11.00
Std. Deviation		2.04287	1.33791	1.77951	1.60728
Variance		4.173	1.790	3.167	2.583
Range		8.00	4.00	6.00	5.00
Minimum		15.00	10.00	3.00	6.00
Maximum		23.00	14.00	9.00	11.00
Sum		461.00	299.00	140.00	225.00

Test Statistics ^a		
	Post Test TUGT - Pre Test TUGT	Post Test SPPB - Pre Test SPPB
Z	-4.387 ^b	-3.881 ^c
Asymp. Sig. (2-tailed)	.000	.000
a. Wilcoxon Signed Ranks Test		
b. Based on positive ranks.		
c. Based on negative ranks.		

)	
pre TUGT Intervensi 60-68	12	17,4 2	1,832	15	21	16,0 0	17,00	19,0 0
pre TUGT Intervensi 69-76	11	19,0 0	1,549	17	22	18,0 0	19,00	20,0 0
pre TUGT Intervensi 77-84	2	21,5 0	2,121	20	23	15,0 0	21,50	21,7 5
pre SPPB Intervensi 60-68	12	6,58	1,240	5	9	5,25	7,00	7,00
pre SPPB Intervensi 69-76	11	5,00	1,732	3	8	4,00	4,00	7,00
pre SPPB Intervensi 77-84	2	3,00	,000	3	3	2,25	3,00	3,25
post TUGT Intervensi 60-68	12	11,5 0	1,168	10	14	11,0 0	11,00	12,0 0
post TUGT Intervensi 69-76	11	12,0 9	1,300	10	14	11,0 0	12,00	13,0 0
post TUGT Intervensi 77-84	2	17,0 0	,000	17	17	16,5 0	17,00	17,2 5
post SPPB Intervensi 60-68	12	10,0 0	1,044	8	11	9,00	10,00	11,0 0
post SPPB Intervensi 69-76	11	8,36	1,433	7	11	7,00	8,00	10,0 0
post SPPB Intervensi 77-84	2	6,50	,707	6	7	4,50	6,50	7,00

Test Statistics ^a						
	post TUGT Intervensi i 60-68 -	post TUGT Intervensi i 69-76 -	post TUGT Intervensi i 77-84 -	post SPPB Intervensi i 60-68 -	post SPPB Intervensi i 69-76 -	post SPPB Intervensi 77-84 -

	pre TUGT Intervensi i 60-68	pre TUGT Intervensi i 69-76	pre TUGT Intervensi i 77-84	pre SPPB Intervensi i 60-68	pre SPPB Intervensi i 69-76	pre SPPB Intervensi 77-84
Z	-3,081 ^b	-2,953 ^b	-1,342 ^b	-3,134 ^c	-3,035 ^c	-1,342 ^c
Asymp. Sig. (2-tailed)	,002	,003	,180	,002	,002	,180
a. Wilcoxon Signed Ranks Test						
b. Based on positive ranks.						
c. Based on negative ranks.						

Descriptive Statistics								
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
pre TUGT kontrol 60-68	10	16,20	1,229	15	18	15,00	16,00	17,25
pre TUGT kontrol 69-76	12	18,33	2,188	15	22	17,00	18,00	19,75
pre TUGT kontrol 77-84	3	20,67	2,517	14	20	15,00	17,00	18,00
pre SPPB kontrol 60-68	10	6,80	1,398	5	10	6,00	6,50	7,25
pre SPPB kontrol 69-76	12	5,42	1,379	3	8	4,25	5,50	6,00
pre SPPB kontrol 77-84	3	4,33	1,155	3	5	3,00	5,00	5,00
post TUGT kontrol 60-68	10	11,70	,949	10	13	11,00	12,00	12,25

pre jenis kelamin tugt intervensi laki	11	18,8 2	1,662	16	22	18,0 0	19,00	19,0 0
pre jenis kelamin sppb intervensi laki	11	5,82	1,779	3	9	4,00	6,00	7,00
pre jenis kelamin tugt intervensi perempuan	14	18,1 4	2,316	15	23	16,7 5	17,50	20,0 0
pre jenis kelamin sppb intervensi perempuan	14	5,43	1,828	3	8	3,75	5,50	7,00
post jenis kelamin tugt intervensi laki	11	11,7 3	1,555	10	14	10,0 0	11,00	13,0 0
post jenis kelamin sppb intervensi laki	11	11,7 3	1,555	10	14	10,0 0	11,00	13,0 0
post jenis kelamin tugt intervensi perempuan	14	12,1 4	1,167	11	14	11,0 0	12,00	13,2 5
post jenis kelamin sppb intervensi perempuan	14	8,71	1,773	6	11	7,00	8,50	10,2 5

Test Statistics^a				
	post jenis kelamin tugt intervensi laki - pre jenis kelamin tugt intervensi laki	post jenis kelamin sppb intervensi laki - pre jenis kelamin sppb intervensi laki	post jenis kelamin tugt intervensi perempuan - pre jenis kelamin tugt intervensi perempuan	post jenis kelamin sppb intervensi perempuan - pre jenis kelamin sppb intervensi perempuan
Z	-2,949 ^b	-2,965 ^c	-3,307 ^b	-3,384 ^c

Asymp. Sig. (2-tailed)	,003	,003	,001	,001
a. Wilcoxon Signed Ranks Test				
b. Based on positive ranks.				
c. Based on negative ranks.				

Descriptive Statistics								
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
pre jenis kelamin tugt kontrol laki	9	19,11	2,088	17	23	17,00	19,00	20,50
pre jenis kelamin sppb kontrol laki	9	4,89	,928	3	6	4,50	5,00	5,50
pre jenis kelamin tugt kontrol perempuan	16	16,88	1,928	15	22	15,00	16,50	18,00
pre jenis kelamin sppb kontrol perempuan	16	6,38	1,628	3	10	6,00	6,00	7,00
post jenis kelamin tugt kontrol laki	9	14,22	,972	13	16	13,50	14,00	15,00
post jenis kelamin sppb kontrol laki	9	8,22	1,394	4	9	7,00	8,00	8,00
post jenis kelamin tugt kontrol perempuan	16	12,00	1,461	10	15	11,00	12,00	13,00
post jenis kelamin sppb kontrol perempuan	16	8,63	1,586	5	11	7,25	8,00	10,00

Test Statistics ^a				
	post jenis kelamin tugt kontrol laki - pre jenis kelamin tugt kontrol laki	post jenis kelamin sppb kontrol laki - pre jenis kelamin sppb kontrol laki	post jenis kelamin tugt kontrol perempuan - pre jenis kelamin tugt kontrol perempuan	post jenis kelamin sppb kontrol perempuan - pre jenis kelamin sppb kontrol perempuan
Z	-2,687 ^b	-2,716 ^c	-3,556 ^b	-3,596 ^c

Asymp. Sig. (2-tailed)	,007	,007	,000	,000
a. Wilcoxon Signed Ranks Test				
b. Based on positive ranks.				
c. Based on negative ranks.				

Descriptive Statistics								
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
pre lama dm 3-6 intervensi tugt	19	18,26	2,156	15	23	17,00	18,00	19,00
pre lama dm 7-10 intervensi sppb	6	6,33	2,251	3	8	3,00	6,50	7,25
pre lama dm 3-6 intervensi sppb	19	5,68	1,668	3	9	4,00	6,00	7,00
pre lama dm 7-10 intervensi tugt	6	17,00	1,673	17	21	17,00	17,50	20,25
post lama dm 3-6 intervensi tugt	19	11,95	1,353	10	14	11,00	12,00	13,00
post lama dm 7-10 intervensi sppb	6	8,67	2,251	6	11	6,75	8,50	11,00
post lama dm 3-6 intervensi sppb	19	9,11	1,410	7	11	8,00	9,00	10,00
post lama dm 7-10 intervensi tugt	6	12,00	1,414	10	14	10,75	12,00	13,25

Test Statistics ^a				
	post lama dm 3-6 intervensi tugt - pre lama dm 3-6 intervensi tugt	post lama dm 7-10 intervensi sppb - pre lama dm 7-10 intervensi sppb	post lama dm 3-6 intervensi sppb - pre lama dm 3-6 intervensi sppb	post lama dm 7-10 intervensi tugt - pre lama dm 7-10 intervensi tugt
Z	-3,839 ^b	-2,271 ^c	-3,912 ^c	-2,214 ^b
Asymp. Sig. (2-tailed)	,000	,023	,000	,027

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.
c. Based on negative ranks.

Descriptive Statistics								
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
pre lama dm 3-6 kontrol tugt	22	17,59	1,992	15	22	16,00	17,50	19,00
pre lama dm 7-10 kontrol sppb	3	6,00	2,646	3	8	3,00	7,00	8,00
pre lama dm 3-6 kontrol sppb	22	5,82	1,468	3	10	5,00	6,00	6,25
pre lama dm 7-10 kontrol tugt	3	17,33	4,163	15	23	15,00	16,00	23,00
post lama dm 3-6 kontrol tugt	22	12,77	1,602	10	15	11,00	13,00	14,00
post lama dm 7-10 kontrol sppb	3	7,67	3,215	4	10	4,00	9,00	10,00
post lama dm 3-6 kontrol sppb	22	8,23	1,412	5	11	7,00	8,00	9,25
post lama dm 7-10 kontrol tugt	3	13,00	2,646	11	16	11,00	12,00	16,00

Test Statistics ^a				
	post lama dm 3-6 kontrol tugt - pre lama dm 3-6 kontrol tugt	post lama dm 7-10 kontrol sppb - pre lama dm 7-10 kontrol sppb	post lama dm 3-6 kontrol sppb - pre lama dm 3-6 kontrol sppb	post lama dm 7-10 kontrol tugt - pre lama dm 7-10 kontrol tugt
Z	-4,139 ^b	-1,633 ^c	-4,184 ^c	-1,604 ^b
Asymp. Sig. (2-tailed)	,000	,102	,000	,109
a. Wilcoxon Signed Ranks Test				

b. Based on positive ranks.

c. Based on negative ranks.

C. UJI PERBANDINGAN

Mann-Whitney Test

Ranks					
		Kelompok	N	Mean Rank	Sum of Ranks
IntervensiTUGT		Grup Intervensi	25	31.94	798.50
		Grup Kontrol	25	19.06	476.50
		Total	50		
IntervensiSPPB		Grup Intervensi	25	17.40	435.00
		Grup Kontrol	25	33.60	840.00
		Total	50		
Statistics					
		IntervensiTU GT	KontrolTUG T	IntervensiSP PB	KontrolSPP B
N	Valid	25	25	25	25
	Missing	0	0	0	0
Mean		6.4800	4.8800	-3.4000	-2.3600
Std. Error of Mean		.33724	.29052	.12910	.16207
Median		6.0000	5.0000	-3.0000	-2.0000
Mode		5.00	5.00	-4.00	-2.00
Std. Deviation		1.68622	1.45258	.64550	.81035
Variance		2.843	2.110	.417	.657
Range		5.00	5.00	2.00	3.00
Minimum		4.00	3.00	-4.00	-4.00
Maximum		9.00	8.00	-2.00	-1.00
Sum		162.00	122.00	-85.00	-59.00

Test Statistics ^a		
	IntervensiTUGT	IntervensiSPPB
Mann-Whitney U	151.500	110.000
Wilcoxon W	476.500	435.000
Z	-3.185	-4.138
Asymp. Sig. (2-tailed)	.001	.000
a. Grouping Variable: Kelompok		

Lampiran 5. Dokumentasi





Lampiran 6. Riwayat Hidup

RIWAYAT HIDUP PENULIS

Identitas Pribadi

Nama : Rezki Syamsuriyana Halmu
Tempat/Tanggal Lahir : Ujung Pandang, 16 Maret 1995
Alamat : BTP BLOK AC No.182 Makassar
No.Telp : 082293823235
Email : ReskySH16@gmail.com
Jurusan : Biomedik Kons. Fisiologi
Fakultas : Kedokteran
Nama Ayah : Syamsu, S.I.Kom.
Nama Ibu : Hidayana Muchtar, S.Pd.



Riwayat Pendidikan

1. 2001 – 2006 : SD Inpres Tello Baru 1/1 Makassar
2. 2006 – 2009 : SMP Negeri 08 Makassar
3. 2009 – 2012 : SMA Negeri 21 Makassar
4. 2012 – 2016 : S1 Fisioterapi Fakultas Keperawatan Universitas Hasanuddin Makassar
5. 2018 – 2019 : Profesi Fisioterapi Fakultas Keperawatan Universitas Hasanuddin Makassar
6. 2020 – Sekarang : Program Magister Ilmu Biomedik Sekolah Pascasarjana Universitas Hasanuddin Makassar