

REFERENSI

- American College of Sports Medicine. (2021). *ACSM's guidelines for exercise testing and prescription* (11th ed.). Wolters Kluwer.
- Andapi, A. (2022). The effect of diaphragmatic breathing exercises on peak expiratory flow rate in bronchial asthma patients. *Jurnal Kesehatan Poltekkes Mamuju*. <https://jurnal.poltekkesmamuju.ac.id/index.php/m/article/view/965>
- Anwar, M., & Rismayanthi, C. (2019). Efektivitas Manipulasi Effleurage Terhadap Tingkat Depresi Pada Lansia. *Jurnal Kesehatan Poltekkes Mamuju*, 17, 120-125. <https://doi.org/10.21831/MEDIKORA.V17I2.29183>.
- Badan Pusat Statistik (BPS). (2023). *Statistik Penduduk Lanjut Usia Indonesia 2023*. Jakarta: BPS RI.
- Chiu, H.-L., Lee, T.-S., Chen, P.-Y., Lin, Y.-C., & Hsu, W.-C. (2021). *The effects of the Otago Exercise Programme on actual and perceived balance in older adults: A meta-analysis*. *PLOS ONE*, 16(8), e0255780. <https://doi.org/10.1371/journal.pone.0255780>
- Donner, C. F., Ambrosino, N., & Goldstein, R. S. (2021). *Pulmonary rehabilitation: Guidelines to success* (3rd ed.). CRC Press/Taylor & Francis Group
- Fadli, M., & Hartono, R. (2023). Rumah Kumpul Lansia Di Kabupaten Banjar. *Jurnal Tugas Akhir Mahasiswa Lanting*. <https://doi.org/10.20527/jtamlanting.v12i2.2224>.
- Gregg, I., & Nunn, A. J. (1973). Peak expiratory flow in normal subjects. *British Medical Journal*, 3(5874), 282–284. <https://doi.org/10.1136/bmj.3.5874.282>
- Górski, P., Białas, A. J., & Piotrowski, W. J. (2024). Aging Lung: Molecular Drivers and Impact on Respiratory Diseases—A Narrative Clinical Review. *Antioxidants*, 13(12), 1480. <https://doi.org/10.3390/antiox13121480>
- Guccione, A. A., Wong, R. A., & Avers, D. (2020). *Geriatric physical therapy* (4th ed.). Elsevier.
- Hakim, R. D., & Indriastuti, L. (2025). Effectiveness of adding expiratory muscle strengthening exercise to “senam lansia” on cardiorespiratory fitness of pre-frail elderly. *Journal of The Indonesian Medical Association*. <https://mki-ojs.idionline.org/jurnal/article/view/1445>
- Hall, J. E. (2021). *Guyton and Hall textbook of medical physiology* (14th ed.). Elsevier.
- Hasan, H., & Maranatha, R. A. (2017). Perubahan fungsi paru pada usia tua. *Jurnal Kesehatan Poltekkes Mamuju*, 15(2), 52-57. <https://doi.org/10.20473/jr.v3-i.2.2017.52-57>
- Shang, J., Wang, X. J. (2023). Associations of sarcopenia with peak expiratory flow among community-dwelling elderly population: based on the China Health and Retirement Longitudinal Study (CHARLS). *European Geriatric Journal*. <https://doi.org/10.1007/s41999-023-00838-2>



- Janssen, T. A. H., Lowisz, C. V., & Phillips, S. (2024). From molecular to physical function: the aging trajectory. *Current Research in Physiology*, 8, 100138. <https://doi.org/10.1016/j.crphys.2024.100138>
- Kartikasari, D., Jenie, I. M., & Primanda, Y. (2019). Latihan pernapasan diafragma meningkatkan arus puncak ekspirasi dan menurunkan frekuensi kekambuhan pasien asma. *Jurnal Keperawatan Indonesia*, 22(1), 13–21. <https://jki.ui.ac.id/index.php/jki/article/view/1002>
- Kera, T., Kawai, H., Ejiri, M., Imamura, K., Hirano, H., Fujiwara, Y., Ihara, K., & Obuchi, S. (2024). Validating respiratory sarcopenia diagnostic criteria by mortality based on a position paper by four professional organizations: Insights from the Otassha study. *Geriatrics & Gerontology International*, 24(9), 948-953. <https://doi.org/10.1111/gqi.14937>
- Khumpaneid, N., Phoka, T., & Khongprasert, S. (2022). Effects of a modified Otago exercise program on balance, muscle strength, and fall risk in community-dwelling older adults. *Geriatrics*, 7(5), 88. <https://doi.org/10.3390/geriatrics7050088>
- Levy, M. L., & Quanjer, P. H. (2022). *Peak flow measurement: An illustrated guide* (2nd ed.). CRC Press.
- Mahardika, Y. A. (2022). Perbedaan PEFR pada lansia yang mengikuti senam tera dengan yang tidak mengikuti senam tera. Universitas Kristen Duta Wacana Repository. <https://repository.ukdw.ac.id/4835>
- Martin. (2022). Book: *The respiratory system*. <https://doi.org/10.1201/9781846197925-9>
- Maryati, E., & Sinaga, M. R. E. (2023). Faktor pendukung tingkat kepatuhan lansia mengikuti posyandu pada era pandemi Covid-19 di Klaten. *Jurnal Penelitian Kesehatan Suara Forikes*, 14(1), 149–153. <https://doi.org/10.33846/sf14149>
- Morucci G, Ryskalin L, Pratesi S, Branca JJV, Modesti A, Modesti PA, Gulisano M, Gesi M. Effects of a 24-Week Exercise Program on Functional Fitness, Oxidative Stress, and Salivary Cortisol Levels in Elderly Subjects. *Medicina (Kaunas)*. 2022 Sep 23;58(10):1341. doi: 10.3390/medicina58101341. PMID: 36295502; PMCID: PMC9610519.
- Paital, B. (2025). *Understanding the concept aging beyond the years*. https://doi.org/10.70593/978-93-49910-64-5_1
- Puspitosari, D. P., Herawati, I., & Fis, S. (2020). Pengaruh senam asma terhadap peningkatan arus puncak ekspirasi dan kualitas hidup. Universitas Muhammadiyah Surakarta Repository. <https://eprints.ums.ac.id/82655>
- et al. (2025). Baseline and longitudinal changes in peak expiratory predictors of sarcopenia in older adults: a 4-year cohort study. (Artikel tersedia di PubMed Central) <https://pubmed.ncbi.nlm.nih.gov/pmc/articles/PMC12311495/>



- Ritonga, D. (2020). Pengaruh senam asma terhadap peningkatan kekuatan otot pernapasan (arus puncak ekspirasi) pada penderita asma usia produktif. *Tanjungpura Journal of Nursing Practice*. <https://jurnal.untan.ac.id/index.php/KNJ/article/view/37993>
- Saragih, I., Gaol, H., Ginting, A., Sembiring, F., Saragih, H., & Simbolon, M. (2024). Implementasi Senam Asma Pada Lansia di UPT Pelayanan Sosial Lanjut Usia Binjai. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*. <https://doi.org/10.33024/jkpm.v7i2.13083>.
- Tetuko, S. B. (2023). Hubungan antara senam lansia dengan kapasitas vital paru-paru pada lansia: Studi kasus observasional di Rumah Pelayanan Sosial Lansia. Universitas Islam Sultan Agung Repository. <http://repository.unissula.ac.id/32375>
- Torrelles, J. B., Restrepo, B. I., Bai, Y., Ross, C., Schlesinger, L. S., & Turner, J. (2022). The impact of aging on the lung alveolar environment, predetermining susceptibility to respiratory infections. *Frontiers in Aging*, 3, 818700. <https://doi.org/10.3389/fragi.2022.818700>
- University of North Carolina School of Medicine. (2024, April). *The Otago Exercise Program: Patient exercise guide (April 2024 revision)*. Chapel Hill, NC: Department of Allied Health Sciences, University of North Carolina School of Medicine. Retrieved from <https://www.med.unc.edu/aging/cgwp/wp-content/uploads/sites/865/2024/04/Patient-Exercise-Guide-April-2024-Revision.pdf>
- WHO. (2021). *World Report on Ageing and Health*. Geneva: World Health Organization.
- Wu, S., Guo, Y., Cao, Z., Nan, J., Zhang, Q., Hu, M., Ning, H., Huang, W., Xiao, L. D., & Feng, H. (2024). Effects of Otago exercise program on physical function in older adults: A systematic review and meta-analysis of randomized controlled trials. *Archives of gerontology and geriatrics*, 124, 105470. <https://doi.org/10.1016/j.archger.2024.105470>
- Xia, Y., Ji, C., Dai, H., Liu, T., & Tong, S. (2021). Reference values and related factors for peak expiratory flow in middle-aged and elderly Chinese. *Frontiers in Public Health*, 9, 706524. <https://doi.org/10.3389/fpubh.2021.706524>
- Yáñez Sepúlveda, R., Monsalves Álvarez, M., & Tuesta, M. (2025). Effects of inspiratory muscle training on lung function, muscle oxygenation and functional capacity in older adults. Universidad de Las Américas Repository. <https://repositorio.udla.cl/xmlui/bitstream/handle/udla/1882/38-Effects%20of%20inspiratory%20muscle%20training.pdf>



). The impact of Otago exercise programme on the prevention of adults: A systematic review. *Frontiers in Public Health*, 10, Article [:://doi.org/10.3389/fpubh.2022.953593](https://doi.org/10.3389/fpubh.2022.953593)