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DAFTAR PUSTAKA

Bohlen, A., Boll, M., Schwarzer, M., & Groneberg, D.A., 2015. Body-Mass-Index. *Diabetologe* 11: 331–345.

Chew, N.W.S., Ng, C.H., Tan, D.J.H., Kong, G., Lin, C., Chin, Y.H., et al., 2023. The global burden of metabolic disease: Data from 2000 to 2019. *Cell Metab.* 35: 414–428.

Dahlan, M.S., 2019. Besar sampel dalam penelitian kedokteran dan kesehatan (5th ed.). Epidemiologi Indonesia, Jakarta.

Di Cesare, M., Bentham, J., Stevens, G.A., Zhou, B., Danaei, G., Lu, Y., et al., 2016. Trends in adult body-mass index in 200 countries from 1975 to 2014: A pooled analysis of 1698 population-based measurement studies with 19.2 million participants. *Lancet* 387: 1377–1396.

Ekasari, M.F., Riasmini, N.M., & Hartini, T., 2018. Meningkatkan Kualitas Hidup Lansia Konsep dan Berbagai Strategi Intervensi. 119 p.

Farley T, Stokke J, Goyal K, DeMicco R. Chronic Low Back Pain: History, Symptoms, Pain Mechanisms, and Treatment. *Life (Basel).* 2024;14(7):812.

Fernandes IMC, Pinto RZ, Ferreira P, Lira FS. Low back pain, obesity, and inflammatory markers: Exercise as potential treatment. *J Exerc Rehabil.* 2018;14(2):168–174.

Ferreira, M.L., De Luca, K., Haile, L.M., Steinmetz, J.D., Culbreth, G.T., Cross, M., et al., 2023. Global, regional, and national burden of low back pain, 1990–2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *Lancet Rheumatol.* 5: 316–329.

Foye, P.M., 2017. Coccydynia: Tailbone Pain. *Phys. Med. Rehabil. Clin. N. Am.* 28(3):539–549

Garg, B., & Ahuja, K., 2021. Coccydynia-A comprehensive review on etiology, radiological features and management options. *J. Clin. Orthop. Trauma* 12: 123–129.

Gupte, A.A., Pownall, H.J., & Hamilton, D.J., 2015. Estrogen: An emerging regulator of insulin action and mitochondrial function. *J. Diabetes Res.*

Hallgren KA. Computing Inter-Rater Reliability for Observational Data: An Overview and Tutorial. Tutorials in Quantitative Methods for Psychology. 2012;8(1):23–34.

Hayden JA, Dunn KM, van der Windt DA, Shaw WS. What is the prognosis of back pain? Best Pract Res Clin Rheumatol. 2010;24(2):167–179.

Hussain, S.M., Urquhart, D.M., Wang, Y., Shaw, J.E., Magliano, D.J., Wluka, A.E.,

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et al., 2017. Fat mass and fat distribution are associated with low back pain intensity and disability: Results from a cohort study. *Arthritis Res. Ther.* 19: 26.

Indiran, V., Sivakumar, V., & Maduraimuthu, P., 2017. Coccygeal morphology on multislice computed tomography in a tertiary hospital in India. *Asian Spine J.* 11: 694–699.

Kemenkes RI, 2024. Profil Kesehatan Indonesia Tahun 2024.

Kodumuri, P., Raghuvanshi, S., Bommireddy, R., & Klezl, Z., 2018. Coccydynia - could age, trauma and body mass index be independent prognostic factors for outcomes of intervention? *Ann. R. Coll. Surg. Engl.* 100: 12–15.

Lee, S.H., Yang, M., Won, H.S., & Kim, Y.D., 2023. Coccydynia: anatomic origin and considerations regarding the effectiveness of injections for pain management. *Korean J. Pain*. 2023;36(3):272–280.

Lirette LS, Chaiban G, Tolba R, Eissa H. Coccydynia: An Overview of the Anatomy, Etiology, and Treatment of Coccyx Pain. *Ochsner Journal*. 2014;14(1):84–87.

Maigne, J., Doursounian, L., & Chatellier, G., 2020. Causes and mechanisms of common coccydynia: Role of body mass index and coccygeal trauma. *Spine (Phila. Pa. 1976).* 25: 3072–3079.

Markowitz JS. Body Mass Index (BMI). In: Obesity. SpringerBriefs in Public Health. Cham: Springer; 2018. p. 39–49.

Miller, R., Beck, N.A., Sampson, N.R., Zhu, X., Flynn, J.M., & Drummond, D., 2013. Imaging modalities for low back pain in children: A review of spondyloysis and undiagnosed mechanical back pain. *J. Pediatr. Orthop.* 33: 282–288.

Musradinur, 2016. STRES DAN CARA MENGATASINYA DALAM PERSPEKTIF PSIKOLOGI. *J. Kedokt. Indones.* 2: 183–200.

Nathan, S.T., Fisher, B.E., & Roberts, C.S., 2010. Coccydynia: A review of pathoanatomy, aetiology, treatment and outcome. *J. Bone Jt. Surg. - Ser. B*. 2010;92-B(12):1622–1627.

Nitecki, M., Shapiro, G., Orr, O., Levitin, E., Sharshevsky, H., Tzur, D., et al., 2023. Association Between Body Mass Index and Nonspecific Recurrent Low Back Pain in Over 600,000 Healthy Young Adults, in: American Journal of Epidemiology. pp. 1371–1378.

Onyemaechi, N.O.C., Anyanwu, G.E., Obikili, E.N., Onwuasoigwe, O., & Nwankwo, O.E., 2016. Impact of overweight and obesity on the musculoskeletal system using lumbosacral angles. *Patient Prefer. Adherence* 10: 291–296.

Pan, Y., Qin, F., Shen, Y., Hapulile, N.T., & Zhang, H., 2025. Imaging study of

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**Hubungan indeks massa tubuh dengan tipe angulasi os coccygis berdasarkan pemeriksaan MRI pada pasien
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adult coccygeal morphology using direct digital radiography technology in China. *Nature* 15: 1–7.

Parfenov, V.A., & Golovacheva, V.A., 2019. Diagnosis and treatment of acute low back pain. *Ter. Arkh.* 91.

Patel, N.D., Broderick, D.F., Burns, J., Deshmukh, T.K., Fries, I.B., Harvey, H.B., et al., 2016. ACR Appropriateness Criteria Low Back Pain. *J. Am. Coll. Radiol.* 13: 361–379.

Pennekamp, P.H., Kraft, C.N., Stütz, A., Wallny, T., Schmitt, O., & Diedrich, O., 2005. Coccygectomy for coccygodynia: Does pathogenesis matter? *J. Trauma - Inj. Infect. Crit. Care* 59: 1414–1419.

Samsell, L., Regier, M., Walton, C., & Cottrell, L., 2014. Importance of Android/Gynoid Fat Ratio in Predicting Metabolic and Cardiovascular Disease Risk in Normal Weight as well as Overweight and Obese Children. *J. Obes.* 8: 65–78.

Shams, A., Gamal, O., & Mesregah, M.K., 2023. Sacrococcygeal Morphologic and Morphometric Risk Factors for Idiopathic Coccydynia: A Magnetic Resonance Imaging Study. *Glob. Spine J.* 13: 140–148.

Sherwood, L., 2014. Fisiologi Manusia Dari Sel ke Sistem, 8th ed. EGC, Jakarta.

Sudargo, T., Freitag, H., Kusmayanti, A.N., & Rosiyani, F., 2018. Pola makan dan Obesitas, in: Pola Makan Dan Obesitas. 198 p.

Vismara, L., Menegoni, F., Zaina, F., Galli, M., Negrini, S., & Capodaglio, P., 2010. Effect of obesity and low back pain on spinal mobility: A cross sectional study in women. *J. Neuroeng. Rehabil.* 7: 3–8.

Woon, J.T.K., Perumal, V., Maigne, J.Y., & Stringer, M.D., 2013. CT morphology and morphometry of the normal adult coccyx. *Eur. Spine J.* 22: 863–870.

Woon, J.T.K., & Stringer, M.D., 2012. Clinical anatomy of the coccyx: A systematic review. *Clin. Anat.* 2012;25(2):158–167.

Yamato, T.P., Maher, C.G., Saragiotto, B.T., Hancock, M.J., Ostelo, R.W.J.G., Cabral, C.M.N., et al., 2016. Pilates for low back pain. *Sao Paulo Med. J.* 134: 366–367.

Zhang, T.-T., Liu, Z., Liu, Y.-L., Zhao, J.-J., Liu, D.-W., Tian, Q.-B., et al., 2016. Obesity as a Risk Factor for Low Back Pain A Meta-Analysis. *Clin Spine Surg* 31: 22–27.

Zhang, Y., & Gao, G., 2025. Progress in the diagnosis and treatment of fracture-dislocation of the coccyx (Review). *Exp. Ther. Med.* 30: 1–8.