

## DAFTAR PUSTAKA

- Abdelazem, A. S., Assaf, S. A. F. M., Hussein, A. G., & Mousa, M. M. 2022. Influence of Peroxisome Proliferator-Activated Receptor Gamma Coactivator 1 Alpha (PGC-1 $\alpha$ ) in Type 2 Diabetes: Review Article. *The Egyptian Journal of Hospital Medicine*. 87(1): 2147-2151. doi: [org/10.21608/ejhm.2022.233186](https://doi.org/10.21608/ejhm.2022.233186)
- Abrigo, J., Elorza, A.A., Riedel, C.A., Vilos, C., Simon, F., Cabrera, D., Estrada, L., Cabello-Verrugio, C., 2018. "Role of oxidative stress as key regulator of muscle wasting during cachexia". *Oxidative Medicine and Cellular Longevity*. doi: [org/10.1155/2018/2063179](https://doi.org/10.1155/2018/2063179)
- Alatawi, F. S., Faridi, U. A., & Alatawi, M. S. 2018. "Effect of treatment with vitamin D plus calcium on oxidative stress in streptozotocin-induced diabetic rats". *Saudi Pharmaceutical Journal*. 26(8): 1208-1213. doi: [org/10.1016/j.jsps.2018.07.012](https://doi.org/10.1016/j.jsps.2018.07.012)
- American Diabetes Association. 2019. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes. 42 (1): 13-28. doi: [10.2337/dc19-S002](https://doi.org/10.2337/dc19-S002)
- Andreyev, A. Y., Kushnareva, Y. E., Murphy, A. N., & Starkov, A. A. 2015. "Mitochondrial ROS Metabolism: 10 Years Later". *Journal of Biochemistry (Moscow)*. 80(5). 517-531. doi: [10.1134/S0006297915050028](https://doi.org/10.1134/S0006297915050028).
- Arfian, N. *et al.* 2016. "Vitamin D attenuates kidney fibrosis via reducing fibroblast expansion, inflammation, and epithelial cell apoptosis". *Kobe Journal of Medical Sciences*. 62(2). E38–E44.
- Bathina, Siresha, and Undurti N. Das. 2021. "Resolvin D1 Decreases Severity of Streptozotocin-Induced Type 1 Diabetes Mellitus by Enhancing BDNF Levels, Reducing Oxidative Stress, and Suppressing Inflammation." *International Journal of Molecular Sciences*, 22(4): 1–15. doi: [org/10.3390/ijms22041516](https://doi.org/10.3390/ijms22041516)
- Belosludtsev, K. N., Belosludtsev, N. V., & Dubinin, M. V. 2020. "Diabetes Mellitus, Mitochondrial Dysfunction and Ca<sup>2+</sup>-Dependent Permeability Transition Pore". *International Journal Of Molecular sciences*. 21: pp 6559. doi: [10.3390/ijms21186559](https://doi.org/10.3390/ijms21186559)
- Bhat, M., & Ismail, A. 2015. "Vitamin D Treatment Protects against and Reverses Oxidative stress Induced muscle proteolysis". *The Journal of Steroid Biochemistry and Molecular Biology*. 152:171-179. doi:[10.1016/j.jsbmb.2015.05.012](https://doi.org/10.1016/j.jsbmb.2015.05.012)

- Bikle, D. D. 2021. "Vitamin D: production, metabolism and mechanism of action". *Nathional Library of Medicine*. Terdapat di <https://www.ncbi.nlm.nih.gov/books/NBK278935/#:~:text=The%20metabolism%20of%20vitamin%20D,main%20source%20for%201%CE%B1%2Dhydroxylation>.
- Ceglia, L. 2009. "Vitamin D and its role in skeletal muscle", *Current Opinion in Clinical Nutrition and Metabolic Care*. 12(6): 628–633. doi: 10.1097/MCO.0b013e328331c707.
- D'Souza, D.M., Al-Sajee, D., Hawke, T.J., 2013. "Diabetic myopathy: Impact of diabetes mellitus on skeletal muscle progenitor cells". *Frontiers in Physiology*. 4: 1–7. doi: org/10.3389/fphys.2013.00379
- Dahlan, S. M. 2011. *Statistik untuk Kedokteran dan Kesehatan*. Jakarta: Salemba Medika
- Dong, J., Wong, S. L., Lau, C. W., Lee, H. K., Fai, C. N., Zhangm L., Yao, X., Chen, Z. Y., Vanhoutte, P. M.m & Huang, Y. 2012. "Calcitriol protects renovascular function in hypertension by down-regulating angiotensin II type 1 receptors and reducing oxidative stress". *European Heart Journal*. 33: 2980-2990. doi:10.1093/eurheartj/ehr459
- Duguez, S., Feasson, L., Denis, C., & Freyssenet, D. 2022. "Mitochondrial biogenesis during skeletal muscle regeneration". *Americal Journal of Physiology*. 282(4):802-809. doi:10.1152/ajpendo.00343.2001
- Dzik, K. P., & Kaczor, J. 2018. "Mechanisms of vitamin D on skeletal muscle function: oxidative stress, energy metabolism and anabolic state". *European Journal of Applied Physiology*. 119: 825–839. doi: 10.1007/s00421-019-04104-x
- Dzik, K. P., Skrobot, W., Kaczor, K. B. Flis, D. J., Karnia, M. J., Libionka, W., Antosiewicz, J., Koc, W., & Kaczor, J. J. 2019. "Vitamin D Deficiency Is Associated with Muscle Atrophy and Reduced Mitochondrial Function in Patients with Chronic Low Back Pain". *Oxidative Medicine and Cellular Longevity*. Article Id 6835341, 11 pages. doi:10.1155/2019/6835341
- Farhangi, M.A., Nameni, G., Hajiluiian, G., & Abbasi, M. M. 2017. "Cardiac Tissue Oxidative sStress and Inflammation after vitamin D administrations in high fat-diet induced obese rats. *BMC Cardiovascular Disorder*. 17(161): 1-7. doi:10.1186%2Fs12872-017-0597-z
- Fukai, T., & Fukai, M. U. 2011. "Superoxide Dismutases: Role in Redox Signaling, Vascular Function, and Diseases". *Journal Antioxidants & Redox Signaling*, 15(16). doi: 10.1089/ars.2011.3999

- Gogulothu, R., Nagar, D., Gopalakrishnan, S., Garlapati, V. R., Kallamadi, P. R., & Ismail, A. 2020. "Disrupted expression of genes essential for skeletal muscle fibre integrity and energy metabolism in Vitamin D deficient rats". *The Journal of Steroid Biochemistry and Molecular Biology*. 197. doi: 10.1016/j.jsbmb.2019.105525.
- Goyal, Sameer N. et al. 2016. "Challenges and Issues with Streptozotocin-Induced Diabetes - A Clinically Relevant Animal Model to Understand the Diabetes Pathogenesis and Evaluate Therapeutics." *Chemico-Biological Interactions* 244: 49–63. doi: org/10.1016/j.cbi.2015.11.032
- Halling, J. F., & Pilegaard, H. 2020. "PGC-1 $\alpha$ -mediated regulation of mitochondrial function and physiological implications". *Journal Physiology, Nutrition, and Metabolism*. 45(9):9 27-936. doi: 10.1139/apnm-2020-0005.
- Hamden, K., Carreau, S., Jamoussi, K., Miladi, S., Lajmi, S., Aloulou, D., Ayadi, F., & Elfeki, A. 2009. "1 $\alpha$ ,25 Dihydroxyvitamin D3: Therapeutic and Preventive Effects against Oxidative Stress, Hepatic, Pancreatic and Renal Injury in Alloxan-Induced Diabetes in Rats". *Journal Of Nutrional Science and Vitaminology*. 55: 215-222. doi: 10.3177/jnsv.55.215
- Hassani, M. k. and Ibrahim, M. K. 2018."The effect of Diabetes mellitus (DM) induction on the Structure of Skeletal Muscle in experimental rats and the protective role of arginine on (DM) complications (Ultrastructural Study)". *Scientific Journal of Medical Research*. 02(07):113–123. doi: 10.37623/sjmr.2018.2702
- Ighodaro, O. M., & Akinloye, O. A. 2018. "First line defence antioxidants-superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPX): Their fundamental role in the entire antioxidant defence grid. *Journal of medicine*. 54: 287-293. doi: 10.1016/j.ajme.2017.09.001
- International Diabetes Federation. 2021 IDF Diabetes Atlas, 10<sup>th</sup> edn. Brussels Belgium. Terdapat di <https://diabetesatlas.org/>
- Jackson, S. J. et al. 2017. "Does age matter? The impact of rodent age on study outcomes", *Laboratory Animals*, 51(2): 160–169. doi: 10.1177/0023677216653984.
- Joseph, A. et al. (2012). "Mitochondrial Dysregulation in the Pathogenesis of Diabetes: Potential for Mitochondrial Biogenesis-Mediated Interventions". *Journal of Diabetes Research*. Article ID 642038. doi: 10.1155/2012/642038.
- Kementerian Kesehatan RI Badan Penelitian dan Pengembangan. 2018. 'Hasil Utama Riset Kesehatan Dasar', *Kementrian Kesehatan Republik Indonesia*, pp. 1–100.

Available at: <http://www.depkes.go.id/resources/download/info-terkini/hasil-risikesdas-2018.pdf>

- King, A. J. F. 2012. "The use of animal models in diabetes research". *British Journal of Pharmacology*. 166(3): 877–894. doi: 10.1111/j.1476-5381.2012.01911.x.
- Kong, S., Cai, B., & Nie, Q. 2022. "PGC-1 $\alpha$  affects skeletal muscle and adipose tissue development by regulating mitochondrial biogenesis". *Journal Molecular Genetics and Genomics*. 297: 621–633. doi: 10.1007/s00438-022-01878-2
- Krause, M.P., Riddell, M.C., Hawke, T.J., 2011. "Effects of type 1 diabetes mellitus on skeletal muscle: Clinical observations and physiological mechanisms. *Journal Pediatric Diabetes*. 12(4): 345–364. doi: org/10.1111/j.1399-5448.2010.00699.x
- Leary, S. et al. 2015. *AVMA Guidelines for The Euthanasia of Animals: 2020 Edition, Nūbat Ramal al-Māya in Cultural Context*. doi: 10.1163/9789004294530\_006
- Lee, W. C., Mokhtar, S. S., Munisamy, S., Yahaya, S., & Rasool, A. H. G. 2017. "Vitamin D status and oxidative stress in diabetes mellitus". *Journal Cellular and Molecular Biology*. 64(7): 60-69 E-ISSN : 1165-158X / P-ISSN : 0145-5680. doi: 10.14715/cmb/2018.64.7.11
- Liang, H., & Ward, W. F. 2006. "PGC-1 $\alpha$ : a key regulator of energy metabolism". *Advances in Physiology Education* 30:145-151. doi:10.1152/advan.00052.2006
- Liu, W. C., Wu, C. C., Hung, Y. M., Liao, M. T., Shyu, J. F., Lin, Y. F., Yeh, K. C. 2015. "Pleiotropic effects of vitamin D in chronic kidney disease". *Clinica Chimica Acta*. 453(2016): 1-12. doi: org/10.1016/j.cca.2015.11.029
- Lukaszuk, B., Kurek, K., Miklosz, A., Piotrowska, M. Z., & Chanowski, A. 2015. "The Role of PGC-1 $\alpha$  in the Development of Insulin Resistance in Skeletal Muscle – Revisited". *Cellular Physiology and Biochemistry*. 37: 2288-2296. doi: 10.1159/000438584
- Machrina, Y., Lindarto, D., Pane, Y. S., & Harahap, N. S. 2021. "The Pattern of Peroxisome Proliferator-activated Receptor Gamma Coactivator 1-alpha Gene Expression in Type-2 Diabetes Mellitus Rat Model Liver: Focus on Exercise". *Macedonian Journal of Medical Sciences*. 9 (3): 124-126. doi: org/10.3889/oamjms.2021.6362
- Mastrocola, R., Reffo, P., Penna, F., Tomasinelli, C.E., Boccuzzi, G., Baccino, F.M., et al. 2008. "Muscle wasting in diabetic and in tumor-bearing rats: Role of oxidative stress". *Free Radical Biology and Medicine*. 44(4): 584–593. doi: 10.1016/j.freeradbiomed.2007.10.047

- Matrini, F. H., Ober, W. C., Nath, J. L., Bartholow, E. F., & Petti, K. 2017. *Visual anatomy and Physiology*. 3<sup>rd</sup> ed. US: Pearson
- Mitri, J., & Pittas, A. G. 2014. "Vitamin D and diabetes". *Endocrinology and Metabolism Clinics of North America*. 43(1): 205–232. doi: [org/10.1016/j.ecl.2013.09.010](https://doi.org/10.1016/j.ecl.2013.09.010)
- Mokhtari, Z., Hekmatdoost, A., & Nurian, M. 2017. "Antioxidant efficacy of vitamin D". *Journal of Parathyroid Disease*. 5(1): 11-16. Terdapat di [https://jparathyroid.com/Article/JPD\\_20160924145139](https://jparathyroid.com/Article/JPD_20160924145139)
- Moore, T.M., Mortensen, X.M., Ashby, C.K., Harris, A.M., Kump, K.J., Laird, D.W., Adams, A.J., Bray, J.K., Chen, T., Thomson, D.M., 2017. "The effect of caffeine on skeletal muscle anabolic signaling and hypertrophy". *Applied Physiology, Nutrition and Metabolism*. 42: 621–629. Doi:10.1139/apnm-2016-0547
- Naylor, A. J. D. & Edwards, S. L. 2011. "The effect of Vitamin D on Skeletal muscle Function and Cellular Signaling". *Journal Of Steroid Biochemistry & Molecular Biology*. 125(3-5): 159-168. doi: [10.1016/j.jsbmb.2011.03.003](https://doi.org/10.1016/j.jsbmb.2011.03.003)
- Nojima, Y., Ito, K., Oni, H., Nakazato, T., Bono, H., Yokoyama, T., Sato, R., Suetsugu, Y., Nakamaru, Y., Yamamoto, K., Satoh, J. i., Tabunoki, H., & Fugo, H. 2015. "Superoxide Dismutases, SOD1 and SOD2, Play a Distinct Role in the Fat Body during Pupation in Silkworm Bombyx mori". *PLoS ONE*. 10(2): 1-20 doi:10.1371/journal.pone.0116007
- Oliver, K., Seddon, A., & Trask, R. S. 2016. "Morphing in nature and beyond: a review of natural and synthetic shape-changing materials and mechanisms". *Journal of Material Science*. 51:10663-10689. doi: [10.1007/s10853-016-0295-8](https://doi.org/10.1007/s10853-016-0295-8)
- Peng, J. R., Lu, T. T., Changm H. T., Ge, X., Huang, B., & Li, W. M. 2016. "Elevated Levels of Plasma Superoxide Dismutases 1 and 2 in Patients with Coronary Artery Disease". *BioMed Research International*. Article ID 3708905: 9 pages. doi: [10.1155/2016/3708905](https://doi.org/10.1155/2016/3708905)
- Quan Y.m Xin, Y., Tian, G., Zhou, J., & Liu, X. 2020. "Mitochondrial ROS-Modulated mtDNA: A Potential Target for Cardiac Aging". *Journal Hindawi*. Article ID 9423593. Doi: [org/10.1155/2020/9423593](https://doi.org/10.1155/2020/9423593)
- Roberts-Wilson,T.K., Reddy, R.N., Bailey, J.L., Zheng, B., Ordas, R., Gooch, J.L., et al. 2010. "Calcineurin signaling and PGC-1 $\alpha$  expression are suppressed during muscle atrophy due to diabetes". *Biochimica et Biophysica Acta - Molecular Cell Research*. Elsevier B.V. 1803(8): 960–967. doi: [10.1016/j.bbamcr.2010.03.019](https://doi.org/10.1016/j.bbamcr.2010.03.019)

- Rolo, A. P., & Palmeira, C. M. 2006. "Diabetes and mitochondrial function: role of hyperglycemia and oxidative stress". *Toxicology and Applied Pharmacology*. 212(2):167-178. doi:10.1016/j.taap.2006.01.003
- Russo, C., Valle, M. S., Casabona, A., Spicuzza, L., Sambataro, G., & Malaguarnera. 2022. "Vitamin D Impacts on Skeletal Muscle Dysfunction in Patients with COPD Promoting Mitochondrial Health". *Jurnal Medicines*. 10(4): 898. doi: 10.3390/biomedicines10040898
- Safaei, Z., Bakhshalizadeh, S., Esfahani, M. H. N., Sene, A. A., Najafzadeh, V., Soleimani, M., Shirazi, R. 2020. "Effect of Vitamin D3 on Mitochondrial Biogenesis in Granulosa Cells Derived from Polycystic Ovary Syndrome". *International Journal o Fertility and Sterility*. 14(2): 143-149. doi: 10.22074%2Fijfs.2020.6077
- Sanesi L., Dicarlo, M., Pignataro, p., Zerlotin, R., Piugliese, F., Columbu, C., Carnevale, V., Tunnera, S., Scilltani, A., Grano, M., Colaianni, G., & Collucci, S. 2023. "Vitamin D Increases Irisin Serum Levels and the Expression of Its Precursor in Skeletal Muscle". *International Journal Of Molecular Sciences*. 24: 4129. doi: 10.3390/ijms24044129
- Savastio, S., Cadario, F., Beux, S., giorgis, A., Genoni, G., Bagnati, M., Bellomo, G., Giani, B., & Maiuri, L. 2018. "Vitamin D and Type I Diabetes". *The Open Rheumatology Journal*. 12 (1): 289-299. doi: org/10.2174/1874312901812010289
- Scheele, C., Nielsen, S., & Pedersen, B. K. 2008. "ROS and Myokines Promote Muscle Adaptation To Exercise". *A Cell Press Journal*. 20 (3): 95-99. doi: 10.1016/j.tem.2008.12.002
- Sherwood, L. 2016. *Human Physiology from cells to systems*. 9<sup>th</sup> Ed. USA: Cengage Learning
- Skipworth, R, J, E., Steewart,G,D., Ross,J,A., Guttridge,D,C., Fearon,K,C,H. 2006. "The molecular mechanisms of skeletal muscle wasting: Implications for therapy". *The Surgeon*. 4(5): 273–283. Doi: 10.1016/S1479- 666X(06)80004-1
- Soviana, E., Rachmawati, B., & Widyastiti, N. S. 2014. "Pengaruh suplementasi  $\beta$ -carotene terhadap kadar glukosa darah dan kadar malondialdehida pada tikus sprague dawley yang diinduksi Streptozotocin". *Jurnal Gizi Indonesia (The Indonesian Journal of Nutrition*. 2(2): 41–46
- Srikuea, R., Hirunsai, M., & Charoenphandhu, N. 2020. "Advanced Sci Rep . 2020 May 19;10(1):8239. doi: 10.1038/s41598-020-65067-0. Regulation of vitamin D system in skeletal muscle and resident myogenic stem cell during



development, maturation, and ageing”. *Scientiifc Reports*. 10:8239. doi:10.1038/s41598-020-65067-0

Turner, P. V., Brabb, T., Pekow, C., & Vasbinder, M. A.. 2011. “Administration of substances to laboratory animals: Routes of administration and factors to consider”. *Journal of the American Association for Laboratory Animal Science*. 50(5): 600–613

Untari., Fulyani, F., Pramono, A., Mahati, E., Putri, S. R., Maulana, R. A., & Anjani, G. 2023. “The Effect of Liprotide-Encapsulated Vitamin D3 on MDA and SOD in Rats Deficient Vitamin D and Calcium”. *Journal of Biomedicine and Translational Research*. 9 (1): 1-6. doi: org/10.14710/jbtr.v9i1.16289

Wang, Y., He, D., Ni, C., Zhou, H., Wu, S., Xue, Z., & Zhou, Z. 2016. “Vitamin D induces autophagy of pancreatic  $\beta$ -cells and enhances insulin secretion”. *Melecular Medicine Report*. 14 (1): 2644-2650. doi: 10.3892/mmr.2016.5531

Wong, H. S., Dighe, P. A., Mezera, V., Monternier, P. A., & Brand, M. D. 2017. “Production of superoxide and hydrogen peroxide from specific mitochondrial sites under different bioenergetic conditions”. *Journal Of Biological Chemistry*. 292(41): 16804-16809. doi: 10.1074/jbc.R117.789271

Workeneh, B. and Bajaj, M. 2013. “The regulation of muscle protein turnover in diabetes”. *International Journal of Biochemistry and Cell Biology*. 45(10),: 2239–2244. doi: 10.1016/j.biocel.2013.06.028.

World Health Organization. 2019. *Classification of diabetes mellitus, World Health Organization*. doi: 10.5005/jp/books/12855\_84.

Wu, H., Deng, X., Shi, Y., Su, Y., Wei, J., & Duan, H. 2016. “PGC-1 $\alpha$ , glucose metabolism and type 2 diabetes mellitus”. *Journal of Endocrinology*. 229 (3): 99-115. doi: org/10.1530/JOE-16-0021

Wu, J., & Yan, L. J. 2015. “Streptozotocin-induced type 1 diabetes in rodents as a model for studying mitochondrial mechanisms of diabetic  $\beta$  cell glucotoxicity. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*. 8: 181–188. doi: org/10.2147/DMSO.S82272

Wu, J., Atkins, A., Downes, M., & Wei, Z. 2023. “Vitamin D in Diabetes: Uncovering the Sunshine Hormone’s Role in Glucose Metabolism and Beyond”. *Journal Nutriens*. 15(98). doi: org/10.3390/nu15081997

Younous, H., 2018. “Therapeutic potentials of superoxide dismutase. *International Journal Of Helath Sciences*. 12(3):88-93. Terdapat di <https://pubmed.ncbi.nlm.nih.gov/29896077>