DAFTAR PUSTAKA

Åberg, M. A. I. *et al.* (2000) Peripheral Infusion of IGF-I Selectively Induces Neurogenesis in the Adult Rat Hippocampus. *The Journal of Neuroscience*, 20(8), pp. 2896–2903.

Ahmadiasl, N., Alaei, H. and Hanninen, O. (2003) Effect of exercise on learning, memory and level of epinephrine in rats hippocampus. *Journal of sports science and medicine.*[Online] 2003(2), pp. 106-109.

Aksu, I. *et al.* (2012) 'Anxiety correlates to decreased blood and prefrontal cortex IGF-1 levels in streptozotocin induced diabetes', *Neuroscience Letters*. Elsevier Ireland Ltd, pp. 1–24. doi: 10.1016/j.neulet.2012.10.045.

Aksu, I. *et al.* (2013) 'Serum IGF-1 levels correlate negatively to liver damage in diabetic rats', *Biotechnic*, 88(3–4), pp. 194–201. doi: 10.3109/10520295.2012.758311.

Alexandre, J. *et al.* (2007) 'Effects of short-term physical training on the liver IGF-I in diabetic rats Effects of short-term physical training on the liver IGF-I in diabetic rats', *Growth Factors*, 25(1), pp. 9–14. doi: 10.1080/08977190701210693.

Araujo, L.C. et al. (2016) Acute aerobic swimming exercise induces distinct effects in the contractile reactivity of rat ileum to kcl and carbachol. *Frontiers in physiology.* [Online] Available from: doi.org/10.3389/fphys.2016.00103 [Accessed 13/11/19].

Arturi, F. *et al.* (2011) 'Nonalcoholic Fatty Liver Disease Is Associated withLow Circulating Levels of Insulin-Like Growth Factor-I', *J Clin Endocrinol Metab*, 96(10), pp. 1640–1644. doi: 10.1210/jc.2011-1227.

Ashpole, N. M. *et al.* (2015) 'Growth hormone, insulin-like growth factor-1 and the aging brain', *Experimental Gerontology*. Elsevier Inc., 68, pp. 76–81. doi: 10.1016/j.exger.2014.10.002.

Ayoub, R.S.(2009) Effect of exercise on spatial learning and memory in male diabetic rats. *Intj diabetes & metabolism.* [Online] Available from: https://pdfs.semanticscholar.org/1ac7/62a5c18e0478221efd1f7d47c79fd96154f9.pdf [Accessed 11/08/19].

Bayod, S. *et al.* (2011) 'Long-term treadmill exercise induces neuroprotective molecular changes in rat brain', *J Appl Physiol*, 111(17), pp. 1380–1390. doi: 10.1152/japplphysiol.00425.2011.

Beck, K. D. *et al.* (1995) ‘Igfl Gene Disruption Results in Reduced Brain Size , CNS Hypomyelination , and Loss of Hippocampal Granule and Striatal Parvalbumin-Containing Neurons’, *Neuron*, 14, pp. 717–730.

Bennaroch, E.E. (2006) *Basic neurosciences with clinical application.*Philadelphia: Elvesier, pp 839-841, 877-878.

Berg, U. and Bang, P. (2004) ‘Exercise and Circulating Insulin-Like Growth Factor I’, *Hormone Research*, 62(suppl 1), pp. 50–58. doi: 10.1159/000080759.

Bergamin, M. et al. (2012) Is water-based exercise training sufficient to improve physical fitness in the elderly? A systematic review of the evidence. *Eur Rev Aging Phys Act.* [Online] Available from: doi.org/10.1007/s11556-012-0097-1 [Accessed 29/02/2020].

Bompa, O.T. (1994) The component of training. In :Calcina, O. (ed.) *Theory and Methodology of Training*. United States: Hunt Publishing, pp75-91.

Bondy, C. *et al.* (1992) ‘Cellular pattern of type-I insulin-like growth factor receptor gene expression during maturation of the rat brain: Comparison with insulin-like growth factors I and II’, *Neuroscience*, 46(4), pp. 909–923. doi: 10.1016/0306-4522(92)90193-6.

Bonefeld, K. and Møller, S. (2011) ‘Insulin-like growth factor-I and the liver’, *Liver international*, pp. 911–919. doi: 10.1111/j.1478-3231.2010.02428.x.

Borst, S. E. *et al.* (2000) ‘Effects of resistance training on insulin-like growth factor-I and IGF binding proteins’, *Journal of the American College of Sports Medicine*, pp. 648–653.

Budson, A.E. and Price, B.H.(2005) Current concepts memory dysfunction.*The* new england journal *of* medicine. [Online] 352, pp. 692-699. Available from:http://www.nejm.org/doi/full/10.1056/NEJMra041071?url_ver=Z39.88-2003&rfr_id =ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed [Accessed 22/08/19].

Burns, A. S. and Lauder, T. D. (2001) Deep water running: an effective non-weightbearing exercise for the maintenance of land-based running performance. *Military Medicine.* [Online] 166 (3). Available from: doi.org/10.1093/milmed/166.3.253 [Accessed 10/12/2019].

Carro, E. et al. (2000) Circulating insulin-like growth factor I mediates effects of exercise on the brain. *The journal of neuroscience.*[Online] 20(8), pp. 2926-2933. Available form: doi.org/10.1523/JNEUROSCI.20-08-02926.2000 [Accessed 20/08/2019].

Carro, E. *et al.* (2001) 'Circulating Insulin-Like Growth Factor I Mediates the Protective Effects of Physical Exercise against Brain Insults of Different Etiology and Anatomy', *The Journal of Neuroscience*, 21(15), pp. 5678–5684.

Carro, E. *et al.* (2005) 'Choroid plexus megalin is involved in neuroprotection by serum insulin-like growth factor I', *Journal of Neuroscience*, 25(47), pp. 10884–10893. doi: 10.1523/JNEUROSCI.2909-05.2005.

Cassilhas, R. C. *et al.* (2007) 'The Impact of Resistance Exercise on the Cognitive Function of the Elderly', *Journal of the American College of Sports Medicine*, pp. 1401–1407. doi: 10.1249/mss.0b013e318060111f.

Cechetti, F. *et al.* (2012) 'Forced treadmill exercise prevents oxidative stress and memory deficits following chronic cerebral hypoperfusion in the rat', *Neurobiology of Learning and Memory*. Elsevier Inc., 97(1), pp. 90–96. doi: 10.1016/j.nlm.2011.09.008.

Cetinkaya, C. *et al.* (2013) 'Positive effects of aerobic exercise on learning and memory functioning , which correlate with hippocampal IGF-1 increase in adolescent rats', *Neuroscience Letters*. Elsevier Ireland Ltd, 549, pp. 177–181. doi: 10.1016/j.neulet.2013.06.012.

Chae, C. H. et al. (2012) Swimming exercise increases the level of nerve growth factor and stimulates neurogenesis in adult rat hippocampus. *Neuroscience.* [Online] 212, pp. 30-37. Available form: doi.org/10.1016/j.neuroscience.2012.03.030 [Accessed 10/12/2019].

Choi, D. H. E. E., Lee, K. H. E. E. and Lee, J. (2016) 'Effect of exercise-induced neurogenesis on cognitive function deficit in a rat model of vascular dementia', *Molecular Medicine Reports*, 13, pp. 2981–2990. doi: 10.3892/mmr.2016.4891.

Cook, M. D. *et al.* (2013) 'Forced treadmill exercise training exacerbates inflammation and causes mortality while voluntary wheel training is protective in a mouse model of colitis', *Brain Behavior and Immunity*. Elsevier Inc., 33, pp. 46–56. doi: 10.1016/j.bbi.2013.05.005.

Costa, M.S. et al. (2012) The impact of the frequency of moderate exercise on memory andbrain-derived neurotrophic factor signaling in young adult and middle-aged rats. *Neuroscience.* [Online] Available from: doi.org/10.1016/j.neuroscience.2012.06.068 [Accessed 13/11/19].

Crossman, AR and Neary, D. (2015). Neuroanatomi. In: Purba, JS (ed). Singapore: Elvesier.

Department of Economic and Social Affairs.(2015)*World population ageing*. New York :United Nations.

Devol, D. L. *et al.* (1990) 'Activation of insulin-like growth factor gene expression during work-induced skeletal muscle growth', *Am J. Physiol*, pp. E89–E95.

Duman, R.S. (2005) Neurotrophic factors and regulation of mood: role of exercise, diet and metabolism. *Neurobiology of aging.*[Online] 26, pp. 88-93. Available from: doi.org/10.1016/j.neurobiolaging.2005.08.018 [Accessed 18/09/19].

Eliakim, A. *et al.* (1998) 'Increased physical activity and the growth hormone-IGF-I axis in adolescent males', *The American Physiological Society*.

Erickson, K.I. et al. (2010) Exercise training increases size of hippocampus and improves memory. *Proceedings of the national academy of sciences.* [Online] Available from:doi.org/10.1073/pnas.1015950108 [Accessed 11/08/19].

Erol, R., Brooker, D. And Peel, E. (2015) Women and dementia: A global research review. London: Alzheimer's Disease International.

Farhangi, M.A. et al. (2017) The effects of vitamin D administration on brain inflammatory markers in high fat diet induced obese rats. *BMC Neuroscience.* [Online]. Available from: doi.org/10.1186/s12868-017-0400-1 [Accessed 13/11/19].

Farzi, M.A. et al. (2017) Exercise improves recognition memory and acetylcholinesterase activity in the beta amyloid-induced rat model of alzheimer's disease. *Annals of Neurosciences*. [Online] 25, pp. 59-63. Available from: doi.org/10.1159/000488580 [Accessed 11/08/19].

Flores, M.F. et al. (2014) Effects of green tea and physical exercise on memory impairments associated with aging. *Neurochemistry international*. [Online] 78 (2014), pp. 53-60. Available from: doi.org/10.1016/j.neuint.2014.08.008 [Accessed 11/08/19].

Frater, J. *et al.* (2018) 'Insulin-like Growth Factor 1 (IGF-1) as a marker of cognitive decline in normal ageing: A review', *Ageing Research Reviews*. Elsevier B.V., 42, pp. 14–27. doi: 10.1016/j.arr.2017.12.002.

Fu, Y., Zhang, Y. and Yuan, Q. (2017) 'Aerobic exercise ameliorates learning and memory deficits of aging rats induced by D-galactose via promoting SYP and BNDF expression in hippocampus', *BIO Web of Conferences*, 8(31371202), p. 01020. doi: 10.1051/bioconf/20170801020.

Gatti, R. *et al.* (2012) 'IGF-I / IGFBP system : Metabolism outline and physical exercise', *J. Endocrinol. Invest*, 35, pp. 699–707. doi: 10.3275/8456.

Gibbons, T.E. et al.(2014). Voluntary wheel running, but not a diet containing(−)-epigallocatechin-3-gallate and β-alanine, improves learning,memory and hippocampal neurogenesis in aged mice.*Behavioural brain research*.[Online]. Available from: doi.org/10.1016/j.bbr.2014.05.049 [Accessed 26/08/19].

Guyton, A.C. and Hall, J.E. (2016) Text book of medical physiology. United States : Saunders, pp 737-750.

Greenstein, B. And Greenstein, A. (2000) Color Atlas of Neuroscience. New York :Thieme, pp 318 – 332.

Gomes, R. J. *et al.* (2006) 'Effects of swimming training on bone mass and the GH/IGF-1 axis in diabetic rats', *Growth Hormone & IGF Research*, 16, pp. 326–331. doi: 10.1016/j.ghir.2006.07.003.

Griesbach, G. S. *et al.* (2012) 'Differential Effects of Voluntary and Forced Exercise on Stress Responses after Traumatic Brain Injury', *Journal of Neurotrauma*, 1433, pp. 1426–1433. doi: 10.1089/neu.2011.2229.

Griffin, E.W. et al. (2009) Exercise enhances hippocampal-dependent learning in the rat:evidence for a bdnf-related mechanism. *Hippocampus*.[Online] 19, pp.973-980. Available from: doi.org/10.1002/hipo.2063 [Accessed 26/08/19].

Guimaraes, A.V. et al. (2014) Exercise and cognitive performance in older adults: a systematic review. *Medicina* [Online] 47 (4), pp.377-386. Available from: doi.org/10.11606/issn.2176-7262.v47i4p377-386 [Accessed 02/01/20].

Habibi, P. *et al.* (2017) 'Effects of genistein and swimming exercise on spatial memory and expression of microRNA 132 , BDNF , and IGF-1 genes in the hippocampus of ovariectomized rats', *Iranian Journal of Basic Medical Sciences*, 20,(10), pp. 856–862. doi: 10.22038/IJBMS.2017.9106.

Haijer, K. et al. (2002) Intensive physical training in geriatric patients after severe falls and hip surgery. *Age and Ageing* [Online] 31: 49-57. Available from: doi.org/10.1093/ageing/31.1.49 [Accessed 01/03/20].

Hayes, L. D. *et al.* (2010) 'interactions of cortisol , testosterone , and resistance training : influence of circadian rhythms', *Chronobiology International*, 27(4), pp. 675–705. doi: 10.3109/07420521003778773.

Hejazi, S. M. (2017) 'Effects of High Intensity Interval Training on Plasma Levels of GH and IGF-I', *International Journal of Medical Research & Health Sciences*, 6(4), pp. 55–59.

Hillman, C.H. Erickson, K.I. and Kramer, A.F.(2008) Be smart, exercise your heart: exercise effects on brain and cognition.*Nature reviews*. [Online]9, pp. 58-65. Available from:doi.org/10.1038/nrn2298 [Accessed 26/08/19].

Hutton, D.(2008)*Older people in emergencies: Considerations for action and policy development*. France:WHO Press.

Hwang, D. S. *et al.* (2016) 'Treadmill exercise improves memory function depending on circadian rhythm changes in mice', *International Neurourology Journal*, 20, pp. 141–149. doi: 10.5213/inj.1632738.369.

Inoue, K. *et al.* (2015) 'Long-Term Mild , rather than Intense , Exercise Enhances Adult Hippocampal Neurogenesis and Greatly Changes the Transcriptomic Profile of the Hippocampus', *PLoS ONE*, 10(6), pp. 1–25. doi: 10.1371/journal.pone.0128720.

Jeon, Y. K. and Ha, C. H. (2015) 'Expression of brain-derived neurotrophic factor , IGF-1 and cortisol elicited by regular aerobic exercise in adolescents', *J Phys Ther Sci*, 27(3).

Jeon, Y. K. and Ha, C. H. (2017) 'The effect of exercise intensity on brain derived neurotrophic factor and memory in adolescents', *Jeon and Ha Environmental Health and Preventive Medicine*. Environmental Health and Preventive Medicine, 22(27), pp. 1–6. doi: 10.1186/s12199-017-0643-6.

Jiang, P. *et al.* (2014) 'The impacts of swimming exercise on hippocampal expression of neurotrophic factors in rats exposed to chronic unpredictable mild stress', *Evidence-Based Complementary and Alternative Medicine*, 2014, pp. 1–8. doi: 10.1155/2014/729827.

Jiang, T. *et al.* (2017) 'Physical exercise improves cognitive function together with microglia phenotype modulation and remyelination in chronic cerebral hypoperfusion', *Frontiers in Cellular Neuroscience*, 11(December), pp. 1–14. doi: 10.3389/fncel.2017.00404.

Jung, S.Y. and Kim, D.Y.(2017) Treadmill exercise improves motor and memory functions in cerebral palsy rats through activation of pi3k-akt pathway.*Journal of Exercise Rehabilitation*.[Online]13 (2), pp.136-142. Available from:doi.org/10.12965/jer.1734964.482 [Accessed 11/08/19].

Karandrea D., Kittas, C. and Kitarki, E. (2001) Forced swimming differentially affects male and female brain corticosteroid receptors. *Neuroendocrinology*. [Online] 75, pp. 217-226. Available from: doi.org/10.1159/000054713 [Accessed 10/12/19].

Ke, Z. *et al.* (2011) 'The Effects of Voluntary , Involuntary , and Forced Exercises on Brain-Derived Neurotrophic Factor and Motor Function Recovery : A Rat Brain Ischemia Model', *PLoS ONE*, 6(2). doi: 10.1371/journal.pone.0016643.

Kementerian Kesehatan RI. (2017) *Analisislansia di Indonesia*. Jakarta:KementerianKesehatan RI.

Kim, K. *et al.* (2015) 'Effects of treadmill exercise-intensity on short-term memory in the rats born of the lipopolysaccharide-exposed maternal rats', *Journal of Exercise Rehabilitation*, 11(6), pp. 296–302. doi: 10.12965/jer.150264.

Kiran, T.R. Subramanyam, M.V.V and Devi, S.A. (2004) Swim exercise training and adaptation in antioxidant defense system of myocardium of old rats relationship to swim intensity and duration. *Comparative biochemistry and physiology* [Online] 137, pp. 187-196. Available from: doi.org/j.cbpc.2003.11.002 [Accessed 30/09/19].

Kohman, R. A. *et al.* (2012) 'Wheel running attenuates microglia proliferation and increases expression of a proneurogenic phenotype in the hippocampus of aged mice', *Brain Behavior and Immunity*. Elsevier Inc., 26(5), pp. 803–810. doi: 10.1016/j.bbi.2011.10.006.

Koziris, L. P. *et al.* (1998) 'Serum levels of total and free IGF-I and IGFBP-3 are increased and maintained in long-term training', *J Appl Physiol*, pp. 1436–1442. doi: 10.1080/09553008814551261.

Lauder, T. D. and Burns, A. S. (2001) 'Deep Water Running : An Effective Non-Weightbearing Exercise for the Maintenance of Land-Based Running Performance', *Military medicine*, 166(3).

Laughlin, G. A. *et al.* (2004) 'The Prospective Association of Serum Insulin-Like Growth Factor I (IGF-I) and IGF-Binding Protein-1 Levels with All Cause and Cardiovascular Disease Mortality in Older Adults: The Rancho Bernardo Study', *Journal of Clinical Endocrinology and Metabolism*, 89(1), pp. 114–120. doi: 10.1210/jc.2003-030967.

Leasure, J. L. and Jones, M. (2008) 'Forced and voluntary exercise differentially affect brain and behavior', *Neuroscience*, 156, pp. 456–465. doi: 10.1016/j.neuroscience.2008.07.041.

Leme, J. A. C. A. *et al.* (2009) 'Long-term physical training increases liver IGF-I in diabetic rats', *Growth Hormone & IGF Research*. Elsevier Ltd, 19(3), pp. 262–266. doi: 10.1016/j.ghir.2008.12.004.

Lichtenwalner, R. J. *et al.* (2001) 'Intracerebroventricular infusion of insulin-like growth factor-i ameliorates the age-related decline in hippocampal neurogenesis', *Neuroscience*, 107(4), pp. 603–613.

Llorens-martín, M., Torres-alemán, I. and Trejo, J. L. (2010) 'Exercise modulates insulin-like growth factor 1-dependent and -independent effects on adult hippocampal neurogenesis and behaviour', *Molecular and Cellular Neuroscience*. Elsevier Inc., 44(2), pp. 109–117. doi: 10.1016/j.mcn.2010.02.006.

Luo, L. *et al.* (2017) 'Lysosomal Proteolysis Is Associated with Exercise-Induced Improvement of Mitochondrial Quality Control in Aged Hippocampus', *Journals of Gerontology - Series A Biological Sciences and Medical Sciences*, 72(10), pp. 1342–1351. doi: 10.1093/gerona/glw242.

Maass, A. et al. (2016) Relationship of peripheral IGF-1, VEGF and BDNF levels to exercise-related changes in memory, hippocampal perfusion and volumes in older adults. *Neuroimage*. [Online] 131, pp. 142-152. Available form: doi.org/10.1016/j.neuroimage.2015.10.084 [Accessed 13/09/19].

Maylasari, I, Sulistyowati, R, Ramadani, KD & Annisa, L. (2018) *Statisti kpenduduk lanjut usia 2017*. Jakarta : Badan Pusat Statistik.

Mitschelen, M. *et al.* (2011) 'Long-term deficiency of circulating and hippocampal insulin-like growth factor I induces depressive behavior in adult mice: A potential model of geriatric depression', *Neuroscience*, 1(405), pp. 50–60. doi: 10.1016/j.neuroscience.2011.04.032.Long-term.

Nakajima, K. *et al.* (2002) 'Ceramide activates microglia to enhance the production / secretion of brain-derived neurotrophic factor (BDNF) without induction of deleterious factors in vitro', *Journal of Neurochemistry*, 80, pp. 697–705.

Nishijima, T. *et al.* (2010) 'Neuronal Activity Drives Localized Blood-Brain-Barrier Transport of Serum Insulin-like Growth Factor-I into the CNS', *Neuron*, 67(5), pp. 834–846. doi: 10.1016/j.neuron.2010.08.007.

Ouins, O. Ben *et al.* (2010) 'Effect of Individualized Exercise Training Combined with Diet Restriction on Inflammatory Markers and IGF-1 / IGFBP-3 in Obese Children', *Annals of Nutrition & Metabolism*, 56, pp. 260–266. doi: 10.1159/000275888.

Ozbeyli, D. and Cakir, O.K.(2016) The effects of different exercise modalities in alzheimer's disease. *Clinical and experimental health sciences*.[Online] 7 (1), pp.27-31. Available from: doi.org/10.5152/clinexphealthsci.2017.230 [Accessed 11/08/19].

Ozdemir, D. *et al.* (2012) 'Neuroscience Letters Relationship between circulating IGF-1 levels and traumatic brain injury-induced hippocampal damage and cognitive dysfunction in immature rats', *Neuroscience Letters*. Elsevier Ireland Ltd, 507(1), pp. 84–89. doi: 10.1016/j.neulet.2011.11.059.

Park, D.C and Reuter-Lorenz, P.(2009) The adaptive brain: aging and neurocognitive scaffolding.*The annual review of psychology*. Available from:doi:org/10.1146/annurev.psych.59. 103006.093656 [Accessed 22/08/19].

Pathath, A.W.(2017) Theories of aging.*The international journal of indian psychology*.[Online]4 (3), pp. 16-22. Available from: doi:org/10.25215/0403.142 [Accessed 23/08/19].

Phelps, A.E. (2004) Human emotion and memory: interactions of amygdala and hippocampal complex. *Current opinion in Neurobiology*. [Online] 14, pp. 198-202.Available from: doi:org/10.1016/j.conb.2004.03.015 [Accessed 18/09/19].

Praag, H. Van, Kempermann, G. and Gage, F. H. (1999) 'Running increases cell proliferation and neurogenesis in the adult mouse dentate gyrus', *Nature Neuroscience*, 2(3), pp. 266–270.

Puche, J. E. and Castilla-Cortázar, I. (2012) 'Human conditions of insulin-like growth factor-I (IGF-I) deficiency', *Journal of Translational Medicine*, 10(1), pp. 1–29. doi: 10.1186/1479-5876-10-224.

Purwanto, B. (2014) Mekanisme kerja curcumin dalam mencegah kerusakan otot rangka mencit yang melakukan aktivitas eksentrik sesaat. Disertasi thesis. Universitas Airlangga.

Raz, N and Rodrigue, K.M.(2006) Review differential aging of the brain: patterns, cognitive correlates and modifiers.*Neuroscience and biobehavioral reviews.* [Online] 30, pp. 730-748. Available from:doi:org/10.1016/j.neubiorev.2006.07.001 [Accessed 26/08/2019].

Reinhardt, R. R. and Bondy, C. A. (1994) 'Insulin-Like Growth Factors Cross the Blood-Brain Barrier', *Endocrinology*, 135(5), pp. 1753–1761.

Rosendal, L. *et al.* (2002) 'Physical capacity influences the response of insulin-like growth factor and its binding proteins to training', *J Appl Physiol*, 93, pp. 1669–1675.

Ross, A. P. *et al.* (2012) 'Non-alcoholic fatty liver disease impairs hippocampal-dependent memory in male rats', *Physiology & Behavior*. Elsevier Inc., 106(2), pp. 133–141. doi: 10.1016/j.physbeh.2012.01.008.

Roozendaal, B., McEwen, B. S. and Chattarji, S. (2009) Stress, memory and the amygdala. *Nature reviews.* [Online] 10, pp.423-433. Available from: doi.org/10.1038/nrn2651 [Assecced 24/09/19].

Salthouse, T.A.(2003) Memory aging from 18 to 80.*Alzheimer dis assocdisord*. [Online]*17, pp. 162-167.* Available from: https://www.ncbi.nlm.nih.gov/pubmed/14512830 [Accessed 22/08/19].

Schmitz, K. H. and Ahmed, R. L. (2002) 'Effects of a 9-Month Strength Training Intervention on Insulin , Insulin- like Growth Factor (IGF) -I , IGF-binding Protein (IGFBP) -1 , and IGFBP-3 in 30 – 50-Year-Old Women', *Cancer Epidemiology, Biomarkers & Prevention*, 11(December), pp. 1597–1604.

Sherrington, C., Lord, S. R. and Herbert, R. D. (2004) 'A randomized controlled trial of weight-bearing versus non-weight-bearing exercise for improving physical ability after usual care for hip fracture', *Archives of Physical Medicine and Rehabilitation*, 85(5), pp. 710–716. doi: 10.1016/S0003-9993(03)00620-8.

Skelton, D.A. and Dinan-young S.M.(2008) Ageing and older people. In: Buckley, J.P. (ed.) *Advances In Sport And Exercise Science Series: Exercise Physiology In Special Populations*. London: Elsevier Health Sciences, pp.166-228.

Smith, S.C. and Li, J.M.(2014) Oxidative stress, redox signalling and endothelial dysfunction in ageing-related neurodegenerative diseases: a role of NADPH oxidase 2.*British journal of clinical pharmacology*. [Online]78 (3), pp. 441-453. Available from: doi:org/10.1111/bcp.12357 [Accessed 14/08/19].

Solvsten, C. A. E. *et al.* (2017) 'The Effects of Voluntary Physical Exercise-Activated Neurotrophic Signaling in Rat Hippocampus on mRNA Levels of Downstream Signaling Molecules', *J Mol Neurosci*. Journal of

Molecular Neuroscience, 62, pp. 142–153. doi: 10.1007/s12031-017-0918-9.

Sonntag, W. E. and Boyd, R. L. (1988) 'Chronic ethanol feeding inhibits plasma levels of insuline-like growth factor-1', *Life Sciences*, 43, pp. 1325–1330.

Speisman, R.B. et al. (2012) Daily exercise improves memory, stimulates hippocampal neurogenesis and modulates immune and neuroimmune cytokines in aging rats. *Brain, behavior, and immunity*.[Online] 28 (20130, pp.25-43. Available from: doi.org/10.1016/j.bbi.2012.09.013 [Accessed 13/09/19].

Stitt, T. N. *et al.* (2004) 'The IGF-1 / PI3K / Akt Pathway Prevents Short Article Expression of Muscle Atrophy-Induced Ubiquitin Ligases by Inhibiting FOXO Transcription Factors', *Molecular Cell*, 14, pp. 395–403.

Stone, V. *et al.* (2015) 'Swimming exercise enhances the hippocampal antioxidant status of female Wistar rats Swimming exercise enhances the hippocampal antioxidant status of female Wistar rats', *Redox Report*, 20(3), pp. 133–138. doi: 10.1179/1351000214Y.0000000116.

Sun, L. Y. *et al.* (2005) 'Local expression of GH and IGF-1 in the hippocampus of GH-deficient long-lived mice', *Neurobiology of Aging*, 26, pp. 929–937. doi: 10.1016/j.neurobiolaging.2004.07.010.

Supranto, J. (2000) Teknik sampling untuksurveidaneksperimen. Jakarta: PT RinekaCipta.

Svensson, M. *et al.* (2016) 'Forced treadmill exercise can induce stress and increase neuronal damage in a mouse model of global cerebral ischemia', *Neurobiology of Stress*. Elsevier Inc, 5, pp. 8–18. doi: 10.1016/j.ynstr.2016.09.002.

Thissen, J., Ketelslegers, J. and Underwood, L. E. (1994) 'Nutritional Regulation of the Insulin-Like Growth', *Endocrine Reviews*, 15(1), pp. 80–101.

Torres-aleman, I. (2010) 'Toward a Comprehensive Neurobiology of IGF-I', *Developmental Neurobiology*, pp. 384–396. doi: 10.1002/dneu.20778.

Trejo, J.L., Carro, E. and Torres-aleman, I. (2001) Circulating insulin-like growth factor i mediates exercise-inducedincreases in the number of new neurons in the adulthippocampus. *The journal of neuroscience.* [Online] 21(5), pp. 1628-1634. Available from: doi.org/10.1523/JNEUROSCI.21-05-01628.2001 [Accessed 20/08/19].

Trejo, J. L., Lorens-Martin, M. V. and Torres-Aleman, I. (2008) 'The effects of exercise on spatial learning and anxiety-like behavior are mediated by an IGF-I-dependent mechanism related to hippocampal neurogenesis', *Molecular and Cellular Neuroscience*, 37, pp. 402–411. doi: 10.1016/j.mcn.2007.10.016.

Tsai, S. F. *et al.* (2018) 'Long-Term Moderate Exercise Rescues Age-Related Decline in Hippocampal Neuronal Complexity and Memory', *Gerontology*, 64(6), pp. 551–561. doi: 10.1159/000488589.

Uysal, N. *et al.* (2014) 'Effects of voluntary and involuntary exercise on cognitive functions , and VEGF and BDNF levels in adolescent rats', *Biotechnic & Histochemistry*, pp. 1–14. doi: 10.3109/10520295.2014.946968.

Vale, R.G. et al. (2012) *Cortisol and physical exercise.* Brazil: University of State of Rio de Janeiro.

Van der Borght, K. et al. (2007) Exercise improves memory acquisition and retrieval in the y maze task: relationship with hippocampal neurogenesis. *Behavioral neuroscience.* [Online] 121 (2), pp. 324-334. Available from:doi.org/10.1037/0735-7044.121.2.324 [Accessed 11/08/19].

Vicario-abejón, C. (2016) 'IGF-I : A Key Growth Factor that Regulates Neurogenesis and Synaptogenesis from Embryonic to Adult Stages of the Brain', *Frontiers in Neuroscience* |, 10(February), pp. 1–9. doi: 10.3389/fnins.2016.00052.

Wahl, D. *et al.* (2017) 'Cognitive and behavioral evaluation of nutritional interventions in rodent models of brain aging and dementia', *Clinical Interventions in Aging*, 12, pp. 1419–1428. doi: 10.2147/CIA.S145247.

Webster, I., Toit, E. D., and Husaimen, B. (2010) The effect of long term swim training on physiological stress level in the rat. *Medical Technology SA.* [Online] 24(2). Available from: http://hdl.handle.net/10072/47324 [Accessed 10/12/19].

Wine, R. N., Mcpherson, C. A. and Harry, G. J. (2009) 'IGF-1 and pAKT Signalling Promote Hippocampal CA1 Neuronal Survival Following Injury to Dentate Granule Cells', *Neurotox Res.*, 16(3), pp. 280–292. doi: 10.1007/s12640-009-9060-y.IGF-1.

Xia, Z. et al. (2016) Hypertrophy-promoting effects of leucine supplementation and moderate intensity aerobic exercise in pre-senescent mice. *Nutrients.* [Online]. Available from: doi.org/10.3390/nu8050246 [Accessed 27/01/20].

Xiong, J. Y. *et al.* (2015) 'Long-term treadmill exercise improves spatial memory of male APPswe/PS1dE9 mice by regulation of BDNF expression and microglia activation', *Biology of Sport*, 32(4), pp. 295–300. doi: 10.5604/20831862.1163692.

Xu, B. *et al.* (2017) 'Voluntary Running Enhances Hippocampal Proliferation by Increasing Voluntary Running Enhances Hippocampal Proliferation by Increasing Hippocampal NGF , BDNF , and IGF-1', *Advances in Biochemistry*, 5(1), pp. 1–6. doi: 10.11648/j.ab.20170501.11.

Yakar, S. *et al.* (1999) 'Normal growth and development in the absence of hepatic insulin-like growth factor I', *Proceedings of the National Academy of Sciences of the United States of America*, 96(13), pp. 7324–7329. doi: 10.1073/pnas.96.13.7324.

Yan, H. *et al.* (2011) 'Circulating IGF1 regulates hippocampal IGF1 levels and brain gene expression during adolescence', *J Endocrinol*, 211(1), pp. 27–37. doi: 10.1530/JOE-11-0200.Circulating.

Yau, S. et al. (2014) Physical exercise-induced adult neurogenesis: a good strategy to prevent cognitive decline in neurodegenerative disease. *Biomed research International*.[Online] 2014. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4000963/pdf/BMRI2014-403120.pdf [Accessed 05/09/19].

Yu, Y., Kastin, A. J. and Pan, W. (2006) 'Reciprocal interactions of insulin and insulin-like growth factor I in receptor-mediated transport across the blood-brain barrier', *Endocrinology*, 147(6), pp. 2611–2615. doi: 10.1210/en.2006-0020.

Zaid, S. Y. A. B. O. *et al.* (2018) 'Efficacy of Moderate Aerobic Training on Insulin Like Growth Factor and Functional Capacity in Elderly', *Med. J. Cairo Univ.*, 86(2), pp. 903–908.

Zanconato, S. *et al.* (1994) 'Effect of training and growth hormone suppression on insulin-like growth factor I mRNA in young rats', *J Appl Physiol*, pp. 2204–2209.

Zhang, X. et al. (2018) Dexmedetomidine inhibits inflammatory reaction in the hippocampus of septic rats by suppressing NF-κB pathway. *Plos One.* [Online] Availabel from: doi.org/10.1371/journal.pone.0196897 [Accessed 13/11/19].

Zhang, X. *et al.* (2019) 'Treadmill Exercise Decreases A β Deposition and Counteracts Cognitive Decline in APP / PS1 Mice , Possibly via

Hippocampal Microglia Modifications', *Frontiers in Aging Neuroscience*, 11(April), pp. 1–12. doi: 10.3389/fnagi.2019.00078.