



DAFTAR PUSTAKA

- Aguiar, M., Perinetti, G., Capeli, J., 2017, The gingival crevicular fluid as a source of biomarker to enhance efficiency of orthodontic and functional treatment of growing patients, *Bio Res Int.* 1:1-7.
- Akbar, B., 2010, *Tumbuhan dengan Kandungan Senyawa Aktif yang Berpotensi Sebagai Bahan Antifertilitas*, Jakarta: Adabia Press, 59.
- Alfaqeeh, S.A., Anil, S., 2014, Gingival crevicular fluid flow rate and alkaline phosphatase level as potential marker of active tooth movement, *Oral Health Dent Manag*, 13(2): 458-63.
- Alhasyimi, A.A., Pudyani, P.S., Asmara, W., Ana, I.D., 2017 Locally inhibition of orthodontic relapse by injection of carbonated hydroxyapatite advanced platelet-rich fibrin in a rabbit model, *Key Eng Mater*, 758:255-63.
- Alhasyimi, A.A., Suparwitri, S., Christnawati, 2020, Effect of carbonate apatite hydrogel-advanced platelet-rich fibrin injection on osteoblastogenesis during orthodontic relapse in rabbits, *Eur J Dent*, 4-8.
- Al-Rawi, N.H., Al-Siraj, A.K., Majeed, A.H., 2018, Comparison of osteoclastogenesis and local invasiveness of ameloblastoma and keratocystic odontogenic tumor, *Eur J Dent*, 12(1):36-42.
- Ardhana, W., 2013, Identifikasi Perawatan Ortodontik Spesialistik dan Umum, *Dent. J.* 20(1): 1-8
- Asefi, S., Seifi, M., Fard, G.H., Lotfi, A., 2018, Innovative evaluation of local injective gel of curcumin on the orthodontic tooth movement in rats, *Dent Res J*, 15:40–9.
- Barolet, D., 2008, Light-Emitting Diodes (LEDs) in Dermatology. *Semin Cutan Med Surg*, 27: 227-38.
- Bartold, P.M., Cantley, M.D., Haynes, D.R., 2000, Mechanism and control of pathologic bone loss in periodontitis. *Periodontology 2000*, 53:55-69.
- Batra, P., Kharbanda, O., Duggal, R., Singh, N., Parkash, H., 2006, Alkaline phosphatase activity in gingival crevicular fluid during canine retraction, *Orthod Craniofac Res*, 9: 44-51.



Bhalajhi, S.I., Iyyer, B.S., 2006, *Biology in Tooth Movement. In: Orthodontic-The Art and Science*, 3rd edition, New Delhi: Arya (MEDI) Publishing House, 181- 94.

Bjering, R., Birkeland, K., Vandevska-Radunovic, V., 2015, Anterior tooth alignment: a comparison of orthodontic retention regimens 5 years posttreatment, *Angle Orthod*, 85(3): 353–9.

Chaves, M.E.D.A., Piancastelli, A.C.C., Araujo, A.R.D., Pinotti, M., 2014, Effects of low-power light therapy on wound healing: Laser x LED, *An Bras Dermatol*, 89(4): 616-23.

Chung, S.E.V., 2013, The effect of light emitting diode phototherapy on the rate of orthodontic tooth movement - a clinical study. *Laser Med Sci*, 55(4):124-35.

Craig, R.G., Powers, J.M., dan Walaham, J.C., 2002, *Restorative Dental Materials Properties and Manipulation*, 7th edition, St.Louis: Mosby, 60-9.

Dalapati, P., Manik, N.B., Basu, A.N., 2013, Effect of temperature on the intensity and carrier lifetime of an aigaas based red light emitting diode, *J Semicond*, 34(9): 1-5.

Dempsey, P.A., Dempsey, A.D., 2002, *Riset Keperawatan: Buku Ajar dan Latihan*, Edisi 4, Jakarta: EGC, 148.

Durbin, D.D., 2001, Relapse and the need for permanent fixed retention, *J Clin Orthod*, 35(12): 723-7.

Dolci, G.S., Portela, L.V., de Souza, D.O., Fossatic, A.C.M., 2017, Atorvastatin-induced osteoclast inhibition reduces orthodontic relapse, *Am J Orthod Dentofacia Orthop*, 51: 528–38.

Domínguez, A., Gómez, C., Palma, J.C., 2015, Effects of low-level laser therapy on orthodontics: rate of tooth movement, pain, and release of RANKL and OPG in GCF, *Lasers Med Sci*, 30:915–23.

Ekizer, A., Uysal, T., Güray, E., Akkuş, D., 2015, Effect of LED-mediated-photobiomodulation therapy on orthodontic tooth movement and root resorption in rats, *Lasers Med Sci*, 30 (2): 779-85.

Ekizer, A., Turker, G., Uysal, T., Guray, E., Tasdemir, Z., 2016, Light emitting diode mediated photobiomodulation therapy improves orthodontic tooth movement and miniscrew stability: a randomized controlled clinical trial, *Lasers Surg Med*, 1-8.



- Fitria, L., Mulyati, 2014, Profil hematologi tikus (*rattus norvegicus* berkenhout, 1769) galur wistar jantan dan betina umur 4, 6, dan 8 minggu. *Biogenesis*, 2(2): 94-100.
- Franzen, T.F., Brudvik, P., Vandevska-Radunovic, V., 2013, Periodontal tissue reaction during orthodontic relapse in rat molars, *Eur J Orthod*, 35:152–9.
- Freitas, L.F.D., dan Hamblin, M.R., 2016, Proposed mechanisms of photobiomodulation or low-level light therapy, *IEEE J Sel Top Quantum Electron*, 22 (3): 1-37.
- Goenharto, S., Rusdiana, E., 2015, Peranti retensi pasca perawatan ortodonti, *J of Dent Tech*, 4(1): 1 – 7.
- Goenharto, S., Rusdiana, E., dan Khairyyah, A. N., 2017, Comparison between removable and fixed orthodontic retainers, *J Voc HS*, 01: 82-7.
- Hamblin, M.R., Ferraresi, C., Huang, Y.Y., de Freitas, L.F., Carroll, J.D., 2018, *Low-Lever Light Therapy: Photobiomodulation*, Washington, SPIE Publisher, 3.
- Handayani, B., Brahmanta, A., 2018, Jumlah osteoblas pada daerah tarikan dengan pemberian ekstrak propolis sebagai pencegahan relaps ortodonti, *Dent J Ked Gi*, 12(1): 28-33.
- Hartanto, E., Ismaniati, N.A., Krisnawati, 2005, Evaluasi perubahan susunan gigi anterior bawah pasca perawatan ortodonti menggunakan *irregularity index*, *Indones J of Dent*, 12(3):132-8.
- Heiskanen, V., Hamblin, M.R., 2018, Photobiomodulation: lasers vs. light emitting diodes?, *Photochem Photobiol Sci*, 17: 1003-17.
- Hofbauer, L.C., Heufelder, A.E., 2001, Role of receptor activator of nuclear factor- κ B ligand and osteoprotegerin in bone cell biology, *J Mol Med*, 79(5-6): 243- 53.
- Huang, Y.Y., Sharma, S.K., Carroll, J., Hamblin, M.R., 2011, Biphasic dose response in low level light therapy – an update, *Dose Response*, 9: 602-18.
- Huang, H., Williams, R. C., Kyrianides, S., 2014, Accelerated orthodontic tooth movement: molecular mechanisms, *Am J Orthod Dentofacial Orthop*, 146(5):620-32.
- Hudson, J.B., Hatch, N., Hayami, T., Shin, J.M., Stolina, M., Kostenuik, P.J., Kapila, S., 2012, Local delivery of recombinant osteoprotegerin enhances post-orthodontic tooth stability, *Calcif Tissue Int*, 90:330–342.



- Kanzaki, H., Chiba, M., Takahashi, I., Haruyama, N., Nishimura, M., Mitani, H., 2004, Local OPG gene transfer to periodontal tissue inhibits orthodontic tooth movement, *J Dent Res*, 83:920–5.
- Kau, C.H., Kantarci, A., Shaughnessy, T., Vachiramon, A., Santiwong, P., Fuente, A., Skrenes, D., Ma, D., Brawn, P., 2013, Photobiomodulation accelerates orthodontic alignment in the early phase of treatment, *Prog Orthod*, 14(30): 1-9.
- Kennel, K.A., Drake, M.T., 2009, Adverse effects of bisphosphonates: implications for osteoporosis management, *Mayo Clin Proc*, 84(7):632-7.
- Khrisnan, V., Davidovitch, Z., 2006, Cellular, molecular and tissue-level reaction to orthodontic force. *Am J Orthod Dentofacial Orthop*, 129(469):1- 32.
- Kitaura, H., Kimura, K., Ishida, M., Sugisiwa, H., Kohara, H., Yoshimatsu, M., Yamamoto, T. T., 2014, Effect of Cytokines on Osteoclast Formation and Bone Resorption during Mechanical Force Loading of the Periodontal Membrane, *Sci World J*, 1-7.
- Karoussis, I.K., Kyriakidou, K., Psarros, C., Koutsilieris, M., dan Vrotsos, J.A., 2018, Effects and action mechanism of low level laser therapy (LLLT): Applications in periodontology, *Dentistry*, 8 (9): 1-6.
- Krishnan, V., Davidovitch, Z., 2009, *Biology of Orthodontic Tooth Movement*, Blackwell Publishing, Oxford, 201-04.
- Krishnan, V., Davidovitch, Z., 2015, *Biological Mechanisms of Tooth Movement*, John Wiley & Son, Oxford, 70-89.
- Kusumi, A., Sakaki, H., Kusumi, T., Oda, M., Narita, K., Nakagawa, H., 2005, Regulation of synthesis of osteoprotegerin and soluble receptor activator of nuclear factor-kappaB ligand in normal human osteoblasts via the p38 mitogen-activated protein kinase pathway by the application of cyclic tensile strain, *J Bone Miner Metab*, 23:373-81.
- Lacey, D.L., Timms, E., Tan, H.L., 2004, Osteoprotegerin ligand is a cytokine that regulates osteoclast differentiation and activation, *Cell*, 93: 165-76.
- Li, B., Zhang, Y.H., Wang, L.X., Li, X., Zhang, X.D., 2015, Expression of OPG, RANKL, and RUNX2 in rabbit periodontium under orthodontic force, *Genet Mol Res*, 14 (4): 19382-8.
- Lim, H.J., Bang, M.S., Jung, H.M., Shin, J.I., Chun, G.S., Oh, C.H., 2014, A 635-nm light-emitting diode (LED) therapy inhibits bone resorptive osteoclast



formation by regulating the actin cytoskeleton, *Lasers Med Sci*, 29:659-70.

Littlewood, S.J., Tait, A.G., Mandall, N.A., Lewis, D.H., 2001, The role of removable appliances in contemporary orthodontics, *Br Dent J*, 191 (6): 304-9.

Maksmara, H., 2011, Remodeling tulang alveolar untuk reimplantasi dan transplantasi gigi anterior pada kehilangan tulang hebat paska trauma, *Maj Ked Gi*, 18(1): 77-81.

Maltha, J.C., Vandevska-Radunovic, V., Kuijpers-Jagtman, A.M., 2015, *Biological Mechanisms of Tooth Movement*, 2nd edition, UK: John Wiley & Sons, 248- 59.

Meikle, M.C., 2006, The tissue, cellular, and molecular regulation of orthodontic tooth movement: 100 years after Carl Sandstedt, *Eur J Orthod*, 28: 221–240.

Mitchell, L., 2007, *Retention: An Introduction to Orthodontics*, 3rd edition, Oxford, 168-79.

Mogi, M., Otogoto, J., Ota, N., Togari, A., 2004, Differential expression of rankl and osteoprotegerin in gingival crevicular fluid of patient with periodontitis, *J Dent Res*, 83: 166-9.

Mukherjee U., Nayak U.S.K., Nayak U.S.A., Adarsh, N.K., Kuttapa, M.N., Shetty A., 2019, Variations of Salivary Levels of Osteoprotegerin during Orthodontic Tooth Movement, *J Indian Soc*, 53(1): 10-13.

Newman, M.G., Takei, H.H., Carranza, F.A., 2002, *Carranza Clinical Periodontology*, 9th edition. Philadelphia: W.B. Saunders Co, 541-50.

Nugroho, S.W., Kanti, R.F., Dondin, S., Huda, S.D., 2018, Profil tekanan darah normal tikus putih (*rattus norvegicus*) galur wistar dan sprague-dawley, *J Acta Vet Indones*, 6(2): 32-7.

Opel, D.R., Hagstrom, E., Pace, A., Sisto, K., Hirano-Ali, S.A., Desai, S., Swan, J., 2015, Light-emitting diodes a brief review and clinical experience, *J Clin Aesthet Dermatol*, 8(6): 36–44.

Ota, N., Takaishi, H., Kosaki, N., Takito, J., Yoda, M., Tohmonda, T., Kimura, T., Okada, Y., Yasuda, H., Kawaguchi, H., Matsumoto, M., 2009, Accelerated cartilage resorption by chondroclasts during bone fracture healing in osteoprotegerin-deficient mice, *J Endocrinol*, 150:4823–34.



Perinetti, G., Paolantonio, M., D'Attilio, M., Archivio, D., Tripodi, D., Femminella, B., Festa, F., Spoto, G., 2002, Alkaline phosphatase activity in gingival crevicular fluid during human orthodontic tooth movement, *Am J Orthod Dentofacial Orthop*, 122: 548-56.

Perinetti, G., Contardo, L., dan Baccetti, T., 2012, *Gingival crevicular fluid as a source of biomarkers of patient responsiveness to orthodontic treatment*, Needham Press, USA, 197-222.

Proffit, W.R., Fields, H.W., Sarver D.M., 2012, *Contemporary Orthodontics*, 5th ed., Mosby Elsevier, St. Louis, pp.286-87, 607.

Pudyani, S.P., Asmara, W., Ana, I.D., Utari, T.R., 2014, Alkaline phosphatase expression during relapse after orthodontic tooth movement, *Dent J*, 47(1): 25-30.

Rahardjo, P., 2009, *Ortodonsia Dasar*, edisi 1, Airlangga University Press: Surabaya, 143-59.

Rahardjo, C., Prameswari, N., Rahardjo, P., 2014, Pengaruh Gel Teripang Emas Terhadap Jumlah Fibroblas di Daerah Tarikan pada Relaps Gigi Setelah Perawatan Ortodonti, *Dent J Ked Gi*, 8(1):26-33.

Rahmah, N.E., Christnawati, Suparwitri, S., 2020, The effect of blue-light emitting diode irradiation to alkaline phosphatase levels of orthodontic tooth movement, *J Int Dent Med Res*, 13(4):1242-7.

Reddy, S.V., 2004, Regulatory mechanisms operative in osteoclasts, *Crit Rev Eukaryot Gene Exp*, 14: 255-70.

Roberts, W. E., Epker, B. N., Burr, D. B., 2006, Remodeling of mineralized tissues, part II: control and pathophysiology, *Semin Orthod*, 12: 238–53.

Sativa, O., Yuliet, Sulastri, E., 2014, Uji aktivitas antiinflamasi gel ekstrak buah kaktus (*Opuntia elatior* Mill.) pada tikus (*Rattus norvegicus* L.) yang diinduksi lamda karagenan, *J Nat Sci*, 3(2): 79-94.

Sengupta, P., 2013, The laboratory rat: relating its age with human's, *Prev Med*, 4(6): 624–30.

Setyorini, A., Suandi, I., Sidiarta, I., Suryawan, W., 2009, Pencegahan osteoporosis dengan suplementasi kalsium dan vitamin d pada penggunaan kortikosteroid jangka panjang, *Sari Pediatri*, 11(1): 32-8.



Sihombing, M., Tuminah, S., 2011, Perubahan nilai hematologi, biokimia darah, bobot organ dan bobot badan tikus putih pada umur berbeda, *J Vet*, 12(1): 58-64.

Singh, G., 2015, *Textbook of Orthodontics*, 3rd ed, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, 230 – 231.

Sommer, A.P., Pinheiro, A.L., Mester, A.R., Franke, R.P., Whelan, H.T., 2001, Biostimulatory windows in low-intensity laser activation: lasers, scanners, and NASA's light-emitting diode array system, *J Clin Laser Med Surg*, 19(1):29-33.

Struillou, X., Boutigny, H., Soueidan, A., Layrolle, P., 2010, Experimental animal models in periodontology: a review, *Open Dent J*, 4(3): 37–47.

Toms, S.R., Lemons J.E., Bartolucci, A.A., Eberhardt, A.W., 2002, Nonlinear stress- strain behavior of periodontal ligament under orthodontic loading, *Am J Orthod Dentofacial Orthop*, 122: 174-9.

Tuchin, V.V., 2007, *Optical Biomedical Diagnostics*, Moscow, Physmathlit Publ., 560.

Ubolviroj, C., Komoltri, C., Manopattanakul, S., Viwattanatipa, N., 2018, Effect of light emitting diodes (led) with 430-480 nm wavelength upon tooth movement, *Biomed J Sci Technol Res*, 5(4): 7778–86.

Utari, T.R., 2011, Bisphosphonate: brief review of its development for usage in dentistry. *J Dent Indones*, 18(1):21-7.

William, J.K., 2000, *Prinsip dan praktik alat-alat ortodontik cekat*, Penerbit Buku Kedokteran EGC, Jakarta.

Yassaei, S., Fekrazad, R., Shahraki, N., 2013, Effect of low level laser therapy on orthodontic tooth movement: a review article, *J Dent*, 10(3): 264-72.

Zhao, N., Lin, J., Kanzaki, H., Ni, J., Chen, Z., Liang, W., Liu, Y., 2012, Local osteoprotegerin gene transfer inhibits relapse of orthodontic tooth movement, *Am J Orthod Dentofacial Orthop*, 141: 30–40.