

DAFTAR PUSTAKA

- Abla, M.J., Chaturvedula, A., O'Mahony, C., Banga, A.K., 2013. Transdermal delivery of methotrexate for pediatrics using silicon microneedles. *Ther Deliv* 4, 543–551. <https://doi.org/10.4155/tde.13.24>
- Accurso, V., Winnicki, M., Abu, ;, Shamsuzzaman, S.M., Wenzel, A., Alan, ;, Johnson, K., Somers, V.K., 2001. Predisposition to Vasovagal Syncope in Subjects With Blood/Injury Phobia.
- Aishah Ahad, N., Sin Yin, T., Rahman Othman, A., Rohani Yaacob, C., 2011. Sensitivity of Normality Tests to Non-normal Data (Kepekaan Ujian Kenormalan Terhadap Data Tidak Normal), *Sains Malaysiana*.
- Al-Qallaf, B., Das, D.B., 2009. Optimizing Microneedle Arrays to Increase Skin Permeability for Transdermal Drug Delivery. *Ann N Y Acad Sci* 1161, 83–94. <https://doi.org/10.1111/j.1749-6632.2009.04083.x>
- Alsbrooks, K., Hoerauf, K., 2022. Prevalence, causes, impacts, and management of needle phobia: An international survey of a general adult population. *PLoS One* 17, e0276814. <https://doi.org/10.1371/journal.pone.0276814>
- Amarnani, R., Shende, P., 2022. Microneedles in diagnostic, treatment and theranostics: An advancement in minimally-invasive delivery system. *Biomed Microdevices* 24. <https://doi.org/10.1007/s10544-021-00604-w>
- Arya, J., Henry, S., Kalluri, H., McAllister, D. V., Pewin, W.P., Prausnitz, M.R., 2017. Tolerability, usability and acceptability of dissolving microneedle patch administration in human subjects. *Biomaterials* 128, 1–7. <https://doi.org/10.1016/j.biomaterials.2017.02.040>
- Bagde, A., Dev, S., Madhavi K. Sriram, L., Spencer, S.D., Kalvala, A., Nathani, A., Salau, O., Mosley-Kellum, K., Dalvaigari, H., Rajaraman, S., Kundu, A., Singh, M., 2023. Biphasic burst and sustained transdermal delivery in vivo using an AI-optimized 3D-printed MN patch. *Int J Pharm* 636. <https://doi.org/10.1016/j.ijpharm.2023.122647>
- Balmert, S.C., Carey, C.D., Falo, G.D., Sethi, S.K., Erdos, G., Korkmaz, E., Falo, L.D., 2020. Dissolving undercut microneedle arrays for multicomponent cutaneous vaccination. *Journal of Controlled Release* 317, 336–346. <https://doi.org/10.1016/j.jconrel.2019.11.023>
- Bhattacharjee, G., Gohil, N., Shukla, M., Sharma, S., Mani, I., Pandya, A., Chu, D.T., Bui, N. Le, Thi, Y.V.N., Khambhati, K., Maurya, R., Ramakrishna, S., Singh, V., 2023. Exploring the potential of microfluidics for next-generation

- drug delivery systems. *OpenNano* 12.
<https://doi.org/10.1016/j.onano.2023.100150>
- Bhattacharyya, S., Kotresh, K.H., 2022. Microneedles-A new paradigm in transdermal delivery of therapeutic agents. *Pharmaceutical Sciences Asia* 49, 435–445. <https://doi.org/10.29090/psa.2022.05.22.230>
- Bok, M., Zhao, Z.-J., Jeon, S., Jeong, J.-H., Lim, E., 2020. Ultrasonically and Iontophoretically Enhanced Drug-Delivery System Based on Dissolving Microneedle Patches. *Sci Rep* 10, 2027. <https://doi.org/10.1038/s41598-020-58822-w>
- Bolton, C.J.W., Howells, O., Blayney, G.J., Eng, P.F., Birchall, J.C., Gualeni, B., Roberts, K., Ashraf, H., Guy, O.J., 2020. Hollow silicon microneedle fabrication using advanced plasma etch technologies for applications in transdermal drug delivery. *Lab Chip* 20, 2788–2795.
<https://doi.org/10.1039/D0LC00567C>
- Bourell, D.L., Wohlers, T., 2020. Introduction to Additive Manufacturing, in: *Additive Manufacturing Processes*. ASM International, pp. 3–10.
<https://doi.org/10.31399/asm.hb.v24.a0006555>
- Cahill, E.M., Keaveney, S., Stuetgen, V., Eberts, P., Ramos-Luna, P., Zhang, N., Dangol, M., O’Cearbhaill, E.D., 2018. Metallic microneedles with interconnected porosity: A scalable platform for biosensing and drug delivery. *Acta Biomater* 80, 401–411.
<https://doi.org/10.1016/j.actbio.2018.09.007>
- Chen, J., Cheng, P., Sun, Y., Wang, Y., Zhang, X., Yang, Z., Ding, G., 2019. A Minimally invasive hollow microneedle with a cladding structure: Ultra-Thin but strong, batch manufacturable. *IEEE Trans Biomed Eng* 66, 3480–3485.
<https://doi.org/10.1109/TBME.2019.2906571>
- Chen, J., Liu, X., Liu, S., He, Z., Yu, S., Ruan, Z., Jin, N., 2021. Fabrication and characterization of dissolving microneedles for transdermal drug delivery of allopurinol. *Drug Dev Ind Pharm* 47, 1578–1586.
<https://doi.org/10.1080/03639045.2022.2027959>
- Chen, W., Liu, C.-H., 2014. Control Automation Robotics & Vision (ICARCV), 2014 13th International Conference on : date 10-12 Dec. 2014. IEEE.
- Chen, Z., Lin, Y., Lee, W., Ren, L., Liu, B., Liang, L., Wang, Z., Jiang, L., 2018. Additive Manufacturing of Honeybee-Inspired Microneedle for Easy Skin Insertion and Difficult Removal. *ACS Appl Mater Interfaces* 10, 29338–29346. <https://doi.org/10.1021/acsami.8b09563>

- Choo, S., Jin, S., Jung, J., 2022. Fabricating High-Resolution and High-Dimensional Microneedle Mold through the Resolution Improvement of Stereolithography 3D Printing. *Pharmaceutics* 14.
<https://doi.org/10.3390/pharmaceutics14040766>
- Chua, C.K., Leong, K.F., 2014. 3D Printing and Additive Manufacturing. *WORLD SCIENTIFIC*. <https://doi.org/10.1142/9008>
- Cleary, G.W., 2011. Microneedles for Drug Delivery. *Pharm Res* 28, 1–6.
<https://doi.org/10.1007/s11095-010-0307-3>
- Dhanunjayarao, B.N., Naidu, N.V.S., Kumar, R.S., Phaneendra, Y., Sateesh, B., Olajide, J.L., Sadiku, E.R., 2020. 3D Printing of Fiber Reinforced Polymer Nanocomposites: Additive Manufacturing, in: *Handbook of Nanomaterials and Nanocomposites for Energy and Environmental Applications*. Springer International Publishing, pp. 1–29. https://doi.org/10.1007/978-3-030-11155-7_166-1
- Divjak, A., Hajdek, K., 2022a. REVIEW OF PHOTOPOLYMER MATERIALS IN MASKED STEREOLITHOGRAPHIC ADDITIVE MANUFACTURING.
- dos Santos, J., de Oliveira, R.S., de Oliveira, T. V., Velho, M.C., Konrad, M. V., da Silva, G.S., Deon, M., Beck, R.C.R., 2021. 3D Printing and Nanotechnology: A Multiscale Alliance in Personalized Medicine. *Adv Funct Mater* 31. <https://doi.org/10.1002/adfm.202009691>
- Economidou, S.N., Pissinato Pere, C.P., Okereke, M., Douroumis, D., 2021. Optimisation of design and manufacturing parameters of 3d printed solid microneedles for improved strength, sharpness, and drug delivery. *Micromachines (Basel)* 12, 1–16. <https://doi.org/10.3390/mi12020117>
- Evens, T., Malek, O., Castagne, S., Seveno, D., Van Bael, A., 2020. A novel method for producing solid polymer microneedles using laser ablated moulds in an injection moulding process. *Manuf Lett* 24, 29–32.
<https://doi.org/10.1016/j.mfglet.2020.03.009>
- Fan, C., Zhang, D., Zhang, C.H., 2011. On Sample Size of the Kruskal-Wallis Test with Application to a Mouse Peritoneal Cavity Study. *Biometrics* 67, 213–224. <https://doi.org/10.1111/j.1541-0420.2010.01407.x>
- Fitaihi, R., Abukhamees, S., Chung, S.H., Craig, D.Q.M., 2024. Optimization of stereolithography 3D printing of microneedle micro-molds for ocular drug delivery. *Int J Pharm* 658. <https://doi.org/10.1016/j.ijpharm.2024.124195>

- Gastwirth, J.L., Gel, Y.R., Miao, W., 2009. The Impact of Levene's Test of Equality of Variances on Statistical Theory and Practice. *Statistical Science* 24, 343–360. <https://doi.org/10.1214/09-STS301>
- Gebhardt, A., Hötter, J.-S., 2016. Additive manufacturing : 3D printing for prototyping and manufacturing.
- Gill, H.S., Denson, D.D., Burriss, B.A., Prausnitz, M.R., 2008. Effect of Microneedle Design on Pain in Human Volunteers. *Clin J Pain* 24, 585–594. <https://doi.org/10.1097/AJP.0b013e31816778f9>
- Gittard, S.D., Miller, P.R., Jin, C., Martin, T.N., Boehm, R.D., Chisholm, B.J., Stafslie, S.J., Daniels, J.W., Cilz, N., Monteiro-Riviere, N.A., Nasir, A., Narayan, R.J., 2011. Overview structural, Functional, and Biological thin Films deposition of antimicrobial coatings on microstereolithography-fabricated microneedles, *JOM*.
- Guillot, A.J., Cordeiro, A.S., Donnelly, R.F., Montesinos, M.C., Garrigues, T.M., Melero, A., 2020. Microneedle-based delivery: An overview of current applications and trends. *Pharmaceutics*. <https://doi.org/10.3390/pharmaceutics12060569>
- Gupta, J., Denson, D.D., Felner, E.I., Prausnitz, M.R., 2012. Rapid Local Anesthesia in Humans Using Minimally Invasive Microneedles. *Clin J Pain* 28, 129–135. <https://doi.org/10.1097/AJP.0b013e318225dbe9>
- Gupta, J., Park, S.S., Bondy, B., Felner, E.I., Prausnitz, M.R., 2011. Infusion pressure and pain during microneedle injection into skin of human subjects. *Biomaterials* 32, 6823–6831. <https://doi.org/10.1016/j.biomaterials.2011.05.061>
- Haider, K., Lijnse, T., Shu, W., O'Cearbhaill, E., Dalton, C., 2024. From microchips to microneedles: semiconductor shear testers as a universal solution for transverse load analysis of microneedle mechanical performance. *Journal of Micromechanics and Microengineering* 34. <https://doi.org/10.1088/1361-6439/ad6dfe>
- Hair Joseph, Black William, Babin Barry, Anderson Rolph, 2010. *Multivariate Data Analysis*.
- Hao Feng, Y., Ling Liu, J., Zhu, D.D., Hao, Y.Y., Dong Guo, X., 2020. Multiscale simulations of drug distributions in polymer dissolvable microneedles. *Colloids Surf B Biointerfaces* 189, 110844. <https://doi.org/10.1016/j.colsurfb.2020.110844>

- Hao, Y., Li, W., Zhou, X., Yang, F., Qian, Z., 2017. Microneedles-Based Transdermal Drug Delivery Systems: A Review. *J Biomed Nanotechnol* 13, 1581–1597. <https://doi.org/10.1166/jbn.2017.2474>
- He, X., Sun, J., Zhuang, J., Xu, H., Liu, Y., Wu, D., 2019. Microneedle System for Transdermal Drug and Vaccine Delivery: Devices, Safety, and Prospects. Dose-Response. <https://doi.org/10.1177/1559325819878585>
- Herwadkar, A., Banga, A.K., 2012. An Update on the Application of Physical Technologies to Enhance Intradermal and Transdermal Drug Delivery. *Ther Deliv* 3, 339–355. <https://doi.org/10.4155/tde.12.1>
- Howells, O., Blayney, G.J., Gualeni, B., Birchall, J.C., Eng, P.F., Ashraf, H., Sharma, S., Guy, O.J., 2022. Design, fabrication, and characterisation of a silicon microneedle array for transdermal therapeutic delivery using a single step wet etch process. *European Journal of Pharmaceutics and Biopharmaceutics* 171, 19–28. <https://doi.org/10.1016/j.ejpb.2021.06.005>
- Ito, Y., Yoshimitsu, J.-I., Shiroyama, K., Sugioka, N., Takada, K., 2006. Self-dissolving microneedles for the percutaneous absorption of EPO in mice. *J Drug Target* 14, 255–261. <https://doi.org/10.1080/10611860600785080>
- Johnson, A.R., Caudill, C.L., Tumbleston, J.R., Bloomquist, C.J., Moga, K.A., Ermoshkin, A., Shirvanyants, D., Mecham, S.J., Luft, J.C., De Simone, J.M., 2016. Single-step fabrication of computationally designed microneedles by continuous liquid interface production. *PLoS One* 11. <https://doi.org/10.1371/journal.pone.0162518>
- Johnson, A.R., Procopio, A.T., 2019. Low cost additive manufacturing of microneedle masters. *3D Print Med* 5. <https://doi.org/10.1186/s41205-019-0039-x>
- Joo, S.H., Kim, J., Hong, J., Fakhraei Lahiji, S., Kim, Y.H., 2023. Dissolvable Self-Locking Microneedle Patches Integrated with Immunomodulators for Cancer Immunotherapy. *Advanced Materials* 35. <https://doi.org/10.1002/adma.202209966>
- Kannan, T.R., 2017. Design for additive manufacturing. *Assembly* 60, 42–46. <https://doi.org/10.1016/b978-0-12-818482-0.00039-6>
- Katsileros, A., Antonetsis, N., Mouzaidis, P., Tani, E., Bebeli, P.J., Karagrigoriou, A., 2024. A comparison of tests for homoscedasticity using simulation and empirical data. *Commun Stat Appl Methods* 31, 1–35. <https://doi.org/10.29220/CSAM.2024.31.1.001>

- Kavaldzhiev, M., Perez, J.E., Ivanov, Y., Bertoncini, A., Liberale, C., Kosel, J., 2017. Biocompatible 3D printed magnetic micro needles. *Biomed Phys Eng Express* 3, 025005. <https://doi.org/10.1088/2057-1976/aa5ccb>
- Kim, H.E., Yoon, H.R., Lee, I.H., Ko, T.J., 2012. Exposure time variation method using DMD for microstereolithography, in: *Journal of Advanced Mechanical Design, Systems and Manufacturing*. pp. 44–51. <https://doi.org/10.1299/jamdsm.6.44>
- Kim, M.J., Park, S.C., Rizal, B., Guanes, G., Baek, S.-K., Park, J.-H., Betz, A.R., Choi, S.-O., 2018. Fabrication of Circular Obelisk-Type Multilayer Microneedles Using Micro-Milling and Spray Deposition. *Front Bioeng Biotechnol* 6. <https://doi.org/10.3389/fbioe.2018.00054>
- Kim, T.K., Park, J.H., 2019. More about the basic assumptions of t-test: Normality and sample size. *Korean J Anesthesiol* 72, 331–335. <https://doi.org/10.4097/kja.d.18.00292>
- King, B.M., 2010. *Analysis of Variance*.
- Klein, I., Doll, M., 2021. Tests on asymmetry for ordered categorical variables. *J Appl Stat* 48, 1180–1198. <https://doi.org/10.1080/02664763.2020.1757045>
- Kolli, C.S., 2015. Microneedles: Bench to Bedside. *Ther Deliv* 6, 1081–1088. <https://doi.org/10.4155/tde.15.67>
- Krieger, K.J., Bertollo, N., Dangol, M., Sheridan, J.T., Lowery, M.M., O’Cearbhaill, E.D., 2019. Simple and customizable method for fabrication of high-aspect ratio microneedle molds using low-cost 3D printing. *Microsyst Nanoeng* 5. <https://doi.org/10.1038/s41378-019-0088-8>
- Li, J., 2016. Assessing spatial predictive models in the environmental sciences: Accuracy measures, data variation and variance explained. *Environmental Modelling and Software*. <https://doi.org/10.1016/j.envsoft.2016.02.004>
- Lijnse, T., Mendes, M., Shu, W., O’Cearbhaill, E.D., 2024. Low-cost fabrication of digital light processing 3D printed conical microneedles for biomedical applications. *Appl Mater Today* 41. <https://doi.org/10.1016/j.apmt.2024.102482>
- Loh, J.M., Lim, Y.J.L., Tay, J.T., Cheng, H.M., Tey, H.L., Liang, K., 2024. Design and fabrication of customizable microneedles enabled by 3D printing for biomedical applications. *Bioact Mater*. <https://doi.org/10.1016/j.bioactmat.2023.09.022>
- Luzuriaga, M.A., Berry, D.R., Reagan, J.C., Smaldone, R.A., Gassensmith, J.J., 2018. Biodegradable 3D printed polymer microneedles for transdermal drug delivery. *Lab Chip* 18, 1223–1230. <https://doi.org/10.1039/c8lc00098k>

- Madden, J., O'Mahony, C., Thompson, M., O'Riordan, A., Galvin, P., 2020. Biosensing in dermal interstitial fluid using microneedle based electrochemical devices. *Sens Biosensing Res.* <https://doi.org/10.1016/j.sbsr.2020.100348>
- Madžarević, M., Ibrić, S., 2021. Evaluation of exposure time and visible light irradiation in LCD 3D printing of ibuprofen extended release tablets. *European Journal of Pharmaceutical Sciences* 158. <https://doi.org/10.1016/j.ejps.2020.105688>
- McIntosh, M.S., Glaz, B., Yeater, K.M., 2018. Chapter 2: Analysis of Variance and hypothesis testing. <https://doi.org/10.2134/appliedstatistics.2016.0009>
- Melchels, F.P.W., 2012a. Celebrating three decades of stereolithography. *Virtual Phys Prototyp.* <https://doi.org/10.1080/17452759.2012.723408>
- Mhetre, G.N., Jadhav, V.S., Deshmukh, S.P., Thakar, C.M., 2022. A Review on Additive Manufacturing Technology. *ECS Trans* 107, 15355–15374. <https://doi.org/10.1149/10701.15355ecst>
- Miller, P.R., Taylor, R.M., Tran, B.Q., Boyd, G., Glaros, T., Chavez, V.H., Krishnakumar, R., Sinha, A., Poorey, K., Williams, K.P., Branda, S.S., Baca, J.T., Polsky, R., 2018. Extraction and biomolecular analysis of dermal interstitial fluid collected with hollow microneedles. *Commun Biol* 1. <https://doi.org/10.1038/s42003-018-0170-z>
- Mitra, A., 2011. The Taguchi method. *Wiley Interdiscip Rev Comput Stat* 3, 472–480. <https://doi.org/10.1002/wics.169>
- Mohd Razali, N., Bee Wah, Y., 2011. Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests, *Journal of Statistical Modeling and Analytics.*
- Montgomery, S.M., Hamel, C.M., Skovran, J., Qi, H.J., 2022. A reaction–diffusion model for grayscale digital light processing 3D printing. *Extreme Mech Lett* 53. <https://doi.org/10.1016/j.eml.2022.101714>
- Mutlu, M.E., Akdag, Z., Pilavci, E., Ulag, S., Daglilar, S., Gunduz, O., 2025. Production of microneedle patches coated with polyvinyl-alcohol/sucrose/gentamicin sulfate for skin treatment. *Mater Lett* 378. <https://doi.org/10.1016/j.matlet.2024.137557>
- Nagarkar, R., Singh, M., Nguyen, H.X., Jonnalagadda, S., 2020. A review of recent advances in microneedle technology for transdermal drug delivery. *J Drug Deliv Sci Technol.* <https://doi.org/10.1016/j.jddst.2020.101923>

- Nahm, F.S., 2016. Nonparametric statistical tests for the continuous data: The basic concept and the practical use. *Korean J Anesthesiol* 69, 8–14. <https://doi.org/10.4097/kjae.2016.69.1.8>
- Nalbant, M., Gökkaya, H., Sur, G., 2007. Application of Taguchi method in the optimization of cutting parameters for surface roughness in turning. *Mater Des* 28, 1379–1385. <https://doi.org/10.1016/j.matdes.2006.01.008>
- Newbold, Paul., Carlson, W.L., Thorne, Betty., 2013. *Statistics for business and economics*. Pearson.
- Nguyen, V., Altarazi, F., Tran, T., 2022. Optimization of Process Parameters for Laser Cutting Process of Stainless Steel 304: A Comparative Analysis and Estimation with Taguchi Method and Response Surface Methodology. *Math Probl Eng* 2022. <https://doi.org/10.1155/2022/6677586>
- Ochoa, M., Zhou, J., Rahimi, R., Badwaik, V., Thompson, D., Ziaie, B., 2015. Rapid 3D-print-and-shrink fabrication of biodegradable microneedles with complex geometries, in: *2015 Transducers - 2015 18th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS)*. IEEE, pp. 1251–1254. <https://doi.org/10.1109/TRANSDUCERS.2015.7181157>
- O'Neill, P.F., Kent, N., Brabazon, D., 2017. Mitigation and control of the overcuring effect in mask projection micro-stereolithography. p. 200012. <https://doi.org/10.1063/1.5008249>
- Pere, C.P.P., Economidou, S.N., Lall, G., Ziraud, C., Boateng, J.S., Alexander, B.D., Lamprou, D.A., Douroumis, D., 2018. 3D printed microneedles for insulin skin delivery. *Int J Pharm* 544, 425–432. <https://doi.org/10.1016/j.ijpharm.2018.03.031>
- Pham, H.P., Vo, V.T., Nguyen, T.Q., 2024. Optimizing CNC milling parameters for manufacturing of ultra-sharp tip microneedle with various tip angles. *Drug Deliv Transl Res*. <https://doi.org/10.1007/s13346-024-01740-5>
- Rad, Z.F., Nordon, R.E., Anthony, C.J., Bilston, L., Prewett, P.D., Arns, J.Y., Arns, C.H., Zhang, L., Davies, G.J., 2017. High-fidelity replication of thermoplastic microneedles with open microfluidic channels. *Microsyst Nanoeng* 3. <https://doi.org/10.1038/micronano.2017.34>
- Rianmora, S., Koomsap, P., 2010. Recommended slicing positions for adaptive direct slicing by image processing technique. *International Journal of Advanced Manufacturing Technology* 46, 1021–1033. <https://doi.org/10.1007/s00170-009-2162-0>

- Salelkar, S., Motghare, D., Kulkarni, M., Vaz, F., 2010. Study of needle stick injuries among health care workers at a tertiary care hospital. *Indian J Public Health* 54, 18. <https://doi.org/10.4103/0019-557X.70540>
- Shin, C.I., Jeong, S.D., Rejinold, N.S., Kim, Y.-C., 2017. Microneedles for Vaccine delivery: Challenges and Future Perspectives. *Ther Deliv* 8, 447–460. <https://doi.org/10.4155/tde-2017-0032>
- Sivaprakasam, T., Hasan, Sulaiman, Thamizhmanii, S., Saparudin, S., Hasan, S., 2007. Analyses of surface roughness by turning process using Taguchi method Analyses of surface roughness by turning process using Taguchi method *Manufacturing and processing*.
- Sosina, S., Remillard, E.M., Zhang, Q., Vecitis, C., Dasgupta, T., 2019. Response Surface Optimization in the Presence of Internal Noise With Application to Optimal Alignment of Carbon Nanotubes. *Technometrics* 61, 50–65. <https://doi.org/10.1080/00401706.2018.1442750>
- Szeto, B., Aksit, A., Valentini, C., Yu, M., Werth, E.G., Goeta, S., Tang, C., Brown, L.M., Olson, E.S., Kysar, J.W., Lalwani, A.K., 2021. Novel 3D-printed hollow microneedles facilitate safe, reliable, and informative sampling of perilymph from guinea pigs. *Hear Res* 400. <https://doi.org/10.1016/j.heares.2020.108141>
- Touri, M., Kabirian, F., Saadati, M., Ramakrishna, S., Mozafari, M., 2019. Additive Manufacturing of Biomaterials – The Evolution of Rapid Prototyping. *Adv Eng Mater* 21. <https://doi.org/10.1002/adem.201800511>
- Tuan-Mahmood, T.M., McCrudden, M.T.C., Torrisi, B.M., McAlister, E., Garland, M.J., Singh, T.R.R., Donnelly, R.F., 2013. Microneedles for intradermal and transdermal drug delivery. *European Journal of Pharmaceutical Sciences*. <https://doi.org/10.1016/j.ejps.2013.05.005>
- Unkovskiy, A., Bui, P.H.B., Schille, C., Geis-Gerstorfer, J., Huettig, F., Spintzyk, S., 2018. Objects build orientation, positioning, and curing influence dimensional accuracy and flexural properties of stereolithographically printed resin. *Dental Materials* 34, e324–e333. <https://doi.org/10.1016/j.dental.2018.09.011>
- Usmadi, 2020. PENGUJIAN PERSYARATAN ANALISIS. *Inovasi Pendidikan* 7.
- Vinayakumar, K.B., Hegde, G.M., Nayak, M.M., Dinesh, N.S., Rajanna, K., 2014. Fabrication and characterization of gold coated hollow silicon microneedle array for drug delivery. *Microelectron Eng* 128, 12–18. <https://doi.org/10.1016/j.mee.2014.05.039>

- Vinayakumar, K.B., Silva, M.D., Martins, A., Mundy, S., González-Losada, P., Sillankorva, S., 2023. Levofloxacin-Loaded Microneedles Produced Using 3D-Printed Molds for *Klebsiella Pneumoniae* Biofilm Control. *Adv Ther (Weinh)* 6. <https://doi.org/10.1002/adtp.202200320>
- Waghule, T., Singhvi, G., Dubey, S.K., Pandey, M.M., Gupta, G., Singh, M., Dua, K., 2019. Microneedles: A smart approach and increasing potential for transdermal drug delivery system. *Biomedicine and Pharmacotherapy*. <https://doi.org/10.1016/j.biopha.2018.10.078>
- Wang, Q.L., Zhu, D.D., Chen, Y., Guo, X.D., 2016. A fabrication method of microneedle molds with controlled microstructures. *Materials Science and Engineering: C* 65, 135–142. <https://doi.org/10.1016/j.msec.2016.03.097>
- Xenikakis, I., Tsongas, K., Tzintzimis, E.K., Tzetzis, D., Fatouros, D., 2021. Additive manufacturing of hollow microneedles for insulin delivery. *International Journal of Modern Manufacturing Technologies* 13, 185–190. <https://doi.org/10.54684/ijmmt.2021.13.3.185>
- Xenikakis, I., Tzintzimis, M., Tsongas, K., Andreadis, D., Demiri, E., Tzetzis, D., Fatouros, D.G., 2019. Fabrication and finite element analysis of stereolithographic 3D printed microneedles for transdermal delivery of model dyes across human skin in vitro. *European Journal of Pharmaceutical Sciences* 137. <https://doi.org/10.1016/j.ejps.2019.104976>
- Xu, K., Chen, Y., 2015. Mask Image Planning for Deformation Control in Projection-Based Stereolithography Process. *J Manuf Sci Eng* 137. <https://doi.org/10.1115/1.4029802>
- Yang, K., Teo, E.C., Fuss, F.K., 2007. Application of Taguchi method in optimization of cervical ring cage. *J Biomech* 40, 3251–3256. <https://doi.org/10.1016/j.jbiomech.2006.12.016>
- Yang, Q., Zhong, W., Liu, Y., Hou, R., Wu, Y., Yan, Q., Yang, G., 2023. 3D-printed morphology-customized microneedles: Understanding the correlation between their morphologies and the received qualities. *Int J Pharm* 638. <https://doi.org/10.1016/j.ijpharm.2023.122873>
- Yeung, C., Chen, S., King, B., Lin, H., King, K., Akhtar, F., Diaz, G., Wang, B., Zhu, J., Sun, W., Khademhosseini, A., Emaminejad, S., 2019. A 3D-printed microfluidic-enabled hollow microneedle architecture for transdermal drug delivery. *Biomicrofluidics* 13. <https://doi.org/10.1063/1.5127778>
- Yuan, W., Xiaoyun Hong, Zaozhan Wu, Lizhu Chen, Liu, Z., Fei Wu, Liangming Wei, L., 2013. Dissolving and biodegradable microneedle technologies for transdermal sustained delivery of drug and vaccine. *Drug Des Devel Ther* 945. <https://doi.org/10.2147/DDDT.S44401>

Zeng, L., Wu, W., Zou, X., 2023. Experimental Study on the Influence of Model Parameters on the Dimensional Deviation of Printed Parts, in: Journal of Physics: Conference Series. Institute of Physics.
<https://doi.org/10.1088/1742-6596/2566/1/012107>

Zhang, Z., Ding, Y., Hong, J., 2005. Triangulating algorithm for cutting cross-section of STL model. Jisuanji Fuzhu Sheji Yu Tuxingxue Xuebao/Journal of Computer-Aided Design and Computer Graphics 17, 1240–1245.