

References

- Anandacoomarasamy, A., Caterson, I., Sambrook, P., Fransen, M., and March, L. (2008). The impact of obesity on the musculoskeletal system. *International Journal of Obesity*, 32(2):211–222.
- Antunes, P. J., Dias, G. R., Coelho, a. T., Rebelo, F., and Pereira, T. (2007). Non-Linear Finite Element Modelling of Anatomically Detailed 3D Foot Model. *Report Paper*, pages 1–11.
- Barba, C., Cavalli-Sforza, T., Cutter, J., Darnton-Hill, I., Deurenberg, P., Deurenberg-Yap, M., and Gill, T. (2004). Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet*, 363(9403):157–63.
- Biomechanics, L. (2012). Lower Limb Structure, Function, and Locomotion Biomechanics. *Orthopaedic Biomechanics*, pages 265–298.
- Birtane, M. and Tuna, H. (2004). The evaluation of plantar pressure distribution in obese and non-obese adults. *Clinical Biomechanics*, 19(10):1055–1059.
- Bucki, M., Lobos, C., and Payan, Y. (2010). A fast and robust patient specific Finite Element mesh registration technique: Application to 60 clinical cases. *Medical Image Analysis*, 14(3):303–317.
- Butterworth, P. a., Urquhart, D. M., Landorf, K. B., Wluka, A. E., Ciccuttini, F. M., and Menz, H. B. (2014). Foot posture, range of motion and plantar pressure characteristics in obese and non-obese individuals. *Gait & Posture*,

- 41(2):465–469.
- Cavanagh, P. R., Rodgers, M., and Virginia, W. (1986). Technical Note the Arch Index : a Useful Measure. *J Biomech*, 20:547–551.
- Chen, W., Lee, P., and Lee, S. (2009). Investigation of Plantar Barefoot Pressure and Soft-tissue Internal Stress: A Three-Dimensional Finite Element Analysis. *13th International Conference on Biomedical Engineering IFMBE Proceedings*, 23:1817–1820.
- Chen, W.-M., Lee, S.-J., and Lee, P. V. S. (2015). Plantar pressure relief under the metatarsal heads Therapeutic insole design using three-dimensional finite element model of the foot. *Journal of Biomechanics*, 48(4):659–665.
- Chen, Y.-N., Chang, C.-W., Li, C.-T., Chang, C.-H., and Lin, C.-F. (2014). Finite Element Analysis of Plantar Fascia During Walking: A Quasi-static Simulation. *Foot & Ankle International*, 36(1):90–97.
- Cheung, J. T.-m. and Zhang, M. (2006). Finite Element Modeling of the Human Foot and Footwear. In *ABAQUS User's Conference*, pages 145–159.
- Cheung, J. T.-M., Zhang, M., Leung, A. K.-L., and Fan, Y.-B. (2005). Three-dimensional finite element analysis of the foot during standinga material sensitivity study. *Journal of Biomechanics*, 38(5):1045–1054.
- Cicuttini, F. M., Baker, J. R., and Spector, T. D. (1996). The association of obesity with osteoarthritis of the hand and knee in women: A twin study. *Journal of Rheumatology*, 23(7):1221–1226.
- Cote, K. P., Brunet, M. E., Gansneder, B. M., and Shultz, S. J. (2005). Effects of pronated and supinated foot postures on static and dynamic postural stability. *Journal of Athletic Training*, 40(1):41–46.
- Dalbeth, N., Deacon, M., Gamble, G. D., Mithraratne, K., and Fernandez, J. (2015). Relationship between tissue stress during gait in healthy volunteers and patterns of urate deposition and bone erosion in gout: A biomechanical computational modelling study. *RMD Open*, 1(1):1–6.

- Davinci, L. (2006). Foot Biomechanics. (*Hunt* 1993):1–9.
- Dowling, a. M., Steele, J. R., and Baur, L. a. (2001). Does obesity influence foot structure and plantar pressure patterns in prepubescent children? *International journal of obesity and related metabolic disorders : journal of the International Association for the Study of Obesity*, 25(6):845–852.
- Felson, D. T., Zhang, M. B., Anthony, J. M., Naimark, A., and Anderson, J. J. (1992). Weight Loss Reduces the Risk for Symptomatic Knee Osteoarthritis in Women: The Framingham Study. *Annals of Internal Medicine*, 116(7):535–539.
- Felson, D. T., Zhang, Y., Hannan, M. T., Naimark, A., Weissman, B., Aliabadi, P., and Levy, D. (1997). Risk factors for incident radiographic knee osteoarthritis in the elderly. *Arthritis and Rheumatism*, 40(4):728–733.
- Fernandez, J., Ul Haque, M., Hunter, P., and Mithraratne, K. (2012). Mechanics of the foot Part 1: A continuum framework for evaluating soft tissue stiffening in the pathological foot. *International Journal for Numerical Methods in Biomedical Engineering*, 28:1056–1070.
- Gomes, G. T., Cauter, S. V., Beule, M. D., Vigneron, L., Pattyn, C., and Aude-naert, E. A. (2013). Biomedical Imaging and Computational Modeling in Biomechanics. 4:109–129.
- Gu, Y. D., Li, J. S., Lake, M. J., Zeng, Y. J., Ren, X. J., and Li, Z. Y. (2011). Image-based midsole insert design and the material effects on heel plantar pressure distribution during simulated walking loads. *Computer Methods in Biomechanics and Biomedical Engineering*, 14(8):747–753.
- Gu, Y. D., Ren, X. J., Li, J. S., Lake, M. J., Zhang, Q. Y., and Zeng, Y. J. (2010). Computer simulation of stress distribution in the metatarsals at different inversion landing angles using the finite element method. *International Orthopaedics*, 34(5):669–676.
- Guiotto, A., Sawacha, Z., Guarneri, G., Avogaro, A., and Cobelli, C. (2014). 3D

- finite element model of the diabetic neuropathic foot: a gait analysis driven approach. *Journal of biomechanics*, 47(12):3064–71.
- Isvilanonda, V., Dengler, E., Iaquinto, J. M., Sangeorzan, B. J., and Ledoux, W. R. (2012). Finite element analysis of the foot: Model validation and comparison between two common treatments of the clawed hallux deformity. *Clinical Biomechanics*, 27(8):837–844.
- Katulanda, P., Jayawardena, M. A. R., Sheriff, M. H. R., Constantine, G. R., and Matthews, D. R. (2010). Prevalence of overweight and obesity in Sri Lankan adults. *Obesity Reviews*, 11(11):751–756.
- Kimizuka, M., Kurosawa, H., and Fukubayashi, T. (1980). Load-bearing pattern of the ankle joint. Contact area and pressure distribution. *Archives of orthopaedic and trauma surgery*, 96(1):45–49.
- Ko, S. U., Stenholm, S., and Ferrucci, L. (2010). Characteristic gait patterns in older adults with obesity—Results from the Baltimore Longitudinal Study of Aging. *Journal of Biomechanics*, 43(6):1104–1110.
- Koikkalainen, J. and Lötjönen, J. (2004). Reconstruction of 3-D head geometry from digitized point sets: An evaluation study. *IEEE Transactions on Information Technology in Biomedicine*, 8(3):377–386.
- Lai, P. P. K., Leung, A. K. L., Li, A. N. M., and Zhang, M. (2008). Three-dimensional gait analysis of obese adults. *Clinical Biomechanics*, 23(SUPPL.1):2–6.
- Lemmon, D., Shiang, T. Y., Hashmi, a., Ulbrecht, J. S., and Cavanagh, P. R. (1997). The effect of insoles in therapeutic footwear—a finite element approach. *Journal of biomechanics*, 30(6):615–620.
- M Moerman, K. (2018). GIBBON: The Geometry and Image-Based Bioengineering add-On. *The Journal of Open Source Software*, 3(22):506.
- Mansour, J. M. (2009). Biomechanics of Cartilage. *Kinesiology: the mechanics and pathomechanics of human movement*, pages 66–79.

- Morales-Orcajo, E., Bayod, J., and Barbosa de Las Casas, E. (2015). Computational Foot Modeling: Scope and Applications. *Archives of Computational Methods in Engineering*.
- Nakamura, S., Crowninshield, R. D., and Cooper, R. R. (1981). An analysis of soft tissue loading in the Foot A preliminary report. *Bulletin of Prosthetics Research*, 18(1):27–34.
- O'Brien, D. L. and Tyndyk, M. (2014). Effect of arch type and Body Mass Index on plantar pressure distribution during stance phase of gait. *Acta of Bioengineering and Biomechanics*, 16(2):131–135.
- Paterson, K. L., Kasza, J., Hunter, D. J., Hinman, R. S., Menz, H. B., Peat, G., and Bennell, K. L. (2017). Longitudinal association between foot and ankle symptoms and worsening of symptomatic radiographic knee osteoarthritis : data from the osteoarthritis initiative. pages 1–7.
- Petre, M., Erdemir, A., Panoskaltsis, V. P., Spirka, T. a., and Cavanagh, P. R. (2013). Optimization of nonlinear hyperelastic coefficients for foot tissues using a magnetic resonance imaging deformation experiment. *Journal of biomechanical engineering*, 135(June 2013):61001–12.
- Pinto, V. C., Ramos, N. V., and Vaz, M. A. P. (2011). 3D modelling for FEM simulation of an obese foot. pages 19–22.
- Qian, Z., Ren, L., Ren, L.-q., and Boonpratatong, A. (2010). A Three-Dimensional Finite Element Musculoskeletal Model of the Human Foot Complex. *IFMBE Proceedings*, 31:297–300.
- Quinn, K. P., Georgakoudi, I., and Winkelstein, B. A. (2012). Imaging Approaches to Quantify Tissue Structure and Function from the Microscale to the Macroscale. *Orthopaedic Biomechanics*, pages 485–512.
- Riskowski, J. L., Hagedorn, T. J., Dufour, A. B., and Hannan, M. T. (2014). Associations of Region-Specific Foot Pain and Foot Biomechanics: The Framingham Foot Study. *Journals of Gerontology - Series A Biological*

- Sciences and Medical Sciences*, 70(10):1281–1288.
- Scarton, A., Sawacha, Z., Cobelli, C., and Li, X. (2016). Towards the generation of a parametric foot model using principal component analysis: A pilot study. *Medical Engineering & Physics*, 38(6):547–559.
- Shim, V. B., Fernandez, J. W., Gamage, P. B., Regnery, C., Smith, D. W., Gardiner, B. S., Lloyd, D. G., and Besier, T. F. (2014). Subject-specific finite element analysis to characterize the influence of geometry and material properties in Achilles tendon rupture. *Journal of Biomechanics*, 47(15):3598–3604.
- Taha, Z., Norman, M. S., Faris, S., Omar, S., and Suwarganda, E. (2016). A Finite Element Analysis of a Human Foot Model to Simulate Neutral Standing on Ground. *Procedia Engineering*, 147:240–245.
- Telfer, S., Erdemir, A., Woodburn, J., and Cavanagh, P. R. (2014). What Has Finite Element Analysis Taught Us about Diabetic Foot Disease and Its Management? A Systematic Review. *PLoS ONE*, 9(10):e109994.
- Tsai, L.-C., Yu, B., Mercer, V. S., and Gross, M. T. (2006). Comparison of Different Structural Foot Types for Measures of Standing Postural Control. *Journal of Orthopaedic & Sports Physical Therapy*, 36(12):942–953.
- Waggoner, B. M. and Ralphs, J. R. (1997). Tendon and Ligament. pages 49–74.
- Wearing, S. C., Hills, A. P., Byrne, N. M., Hennig, E. M., and McDonald, M. (2004). The arch index: a measure of flat or fat feet? *Foot & Ankle International*, 25(8):575–581.
- Wu, G., Siegler, S., Allard, P., Kirtley, C., Leardini, A., Rosenbaum, D., Whittle, M., DLima, D. D., Cristofolini, L., Witte, H., Schmid, O., and Stokes, I. (2002). ISB recommendation on definitions of joint coordinate system of various joints for the reporting of human joint motionpart I: ankle, hip, and spine. *Journal of Biomechanics*, 35(4):543–548.

- Yousefi Azarfam, A. A., Özdemir, O., Altunta, O., Çetin, A., and Gökçe Kut-sal, Y. (2014). The relationship between body mass index and footprint parameters in older people. *The Foot*, 24(4):186–189.
- Zhang, M. and Mak, A. (1999). In vivo friction properties of human skin. *Prosthetics and orthotics international*, 23(2):135–141.