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Education and Training

- Graduate school: Medical school of Chang Gung university, 2006
- Internship: Chang Gung Memorial Hospital, 2005~2006
- Post-graduate first year training: 2006/9~2007/8
- Residency : Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, 2007/9~2011/6
- Chief residency : Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, 2011/7~2012/6
- Fellowship : Division of Joint Reconstruction, Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, 2012/7~2013/6
- Attending doctor: Division of Joint Reconstruction, Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, 2013/7~
- Visiting scholar: Department of Orthopaedic Surgery, Kanazawa University Hospital, 2013/12
- Visiting scholar: Department of Orthopaedic Surgery, Tokyo University Hospital, 2015/08
- Visiting scholar: Department of Orthopaedic Surgery, Massachusetts General Hospital, 2016/6~2016/12

Publication

1. **Chang CH**, CHEN CH*, Su CY, Liu HT, Yu CM. Rotator cuff repair with periosteum for enhancing tendon-bone healing: A biomechanical and histological study in rabbits. *Knee Surg Sports Traumatol Arthrosc* (2009), 17(12):1447-1453 (SCI)
2. Chen CH*, **Chang CH**, Su CI, Wang KC, Liu HT, Yu CM MD, Wong CB, Wang IC. Arthroscopic Single-Bundle Anterior Cruciate Ligament Reconstruction With Periosteum-Enveloping Hamstring Tendon Graft, clinical outcome in 2 to 7 years. *Arthroscopy* (2010), 26(7):907-917 (SCI)
3. Chen CH*, **Chang CH**, Su CI, Wang KC, Liu HT, Yu CM MD, Wong CB, Wang IC. Enhancement of rotator cuff tendon-bone healing with injectable periosteum progenitor

- cells-BMP-2 hydrogel in vivo. *Knee Surg Sports Traumatol Arthrosc* (2011), 19(9):1597-1607 (SCI)
4. Chen CH*, **Chang CH**, Su CI, Whu SW. The gene and protein expressions of auto-bone marrow mesenchymal stem cells in a bone tunnel for tendon-bone healing. *Formos J Muscul Dis* (2011), 2(3): 85-93.
 5. **Chang CH**, Chen CH*, Liu HW, Whu SW. Bioengineered Periosteal Progenitor Cell Sheets to Enhance Tendon-Bone Healing in A Bone Tunnel. *Biomed J* (2012), 35:473-80
 6. Chen CH, CHEN CH*, **Chang CH**, Su CI, Wang KC, Kiu HT, Yu CM, Hsu KY. Classification and analysis of long head of biceps tendon pathology in complete rotator cuff tear. *Chang Gung Med J* (2012), 35(3):263-270.
 7. Chen LY, Whu SW, CHEN CH*, Liu HW, Liu HT, **Chang CH**, Tsai CL, Chen SH, Hsiue GH. Single-layer periosteum progenitor cell sheet significantly promotes tendonebone healing in comparison with acellular collagen sheet in anterior cruciate ligament reconstruction. *Formos J Muscul Dis* (2012), 3(1):1-8.
 8. **Chih-Hsiang Chang**, Yuhan Chang, Dave W. Chen, PhD, Steve W. N. Ueng, Mel S. Lee*. Topical Tranexamic Acid Reduces Blood Loss and Transfusion Rates Associated With Primary Total Hip Arthroplasty. *Clin Orthop Relat Res* (2014) 472(5): 1552-1557 (SCI)
 9. I.-J. Chen, C.-Y. F. Chiang, Y.-H. Li, **C.-H. Chang**, C.-C. Hu, D. W. Chen, Y. Chang, W.-E. Yang, H.-N. Shih, S. W.-N. Ueng, P.-H. Hsieh*. Nationwide cohort study of hip fractures: time trends in the incidence rates and projections up to 2035. *Osteoporos Int* (2015) 26:681–688. (SCI)
 10. Y-C Lin, Y-H Li, **C-H Chang**, C-C Hu, D.W. Chen, P-H. Hsieh & M. S. Lee & S. W.-N. Ueng, Y. Chang*. Rheumatoid arthritis patients with hip fracture: a nationwide study. *Osteoporos Int* (2015) 26:811-817. (SCI)
 11. Chen SY, **Chang CH**, Hu CC, Chen CC, Chang YH, Hsieh PH*. Metal ion concentrations and semen quality in patients undergoing hip arthroplasty: A prospective comparison between metal-on-metal and metal-on-polyethylene implants. *J Orthop Res*, 34:544–551, 2016
 12. Chen CC, Liau CT, **Chang CH**, Hsu YH, Shih HN*. Giant Cell Tumors of the Bone With Pulmonary Metastasis. *Orthopedics* 2016; 39(1): e68-73.
 13. Sheng-Hsun Lee, Ching-Lung Tai, Szu-Yuan Chen, **Chih-Hsiang Chang**, Yu-Han Chang, Pang-Hsin Hsieh*. Elution and Mechanical Strength of Vancomycin-Loaded Bone Cement: In

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14. Sheng-Hsun Lee, I-Jung Chen, Ya-Hsin Li, Chih-Yun Fan Chiang, **Chih-Hsiang Chang**, Pang-Hsin Hsieh*. Incidence of second hip fractures and associated mortality in Taiwan: A nationwide population-based study of 95,484 patients during 2006–2010. *Acta Orthopaedica et Traumatologica Turcica*, Volume 50, Issue 4, August 2016, Pages 437–442
15. **Chih-Hsiang Chang**, Szu-Yuan Chen, Jang-Jih Lu, Chee-Jen Chang, Yuhan Chang, Pang-Hsin Hsieh*. Nasal colonization and bacterial contamination of mobile phones carried by medical staff in the operating room. PLoS ONE, 2017 May 31;12(5): e017581.
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16. **Chih-Hsiang Chang**, Po-Chun Lin, Cheng-Min Shih, Chun-Chieh Chen, Pang-Hsin Hsieh, Hsin-Nung Shih*. Fracture of cobalt chrome, fully-coat beaded femoral revision long stem, a clinical outcomes study. *Biomed J.* 2018 Feb;41(1):46-51. doi: 10.1016/j.bj.2018.02.001.
17. Kuo-Ti Peng, Meng-Hsueh Tsai¹, Chiang-Wen Lee, Yao-Chang Chiang, Pei-Chun Chen, Chun-Chieh Chen, **Chih-Hsiang Chang**, Hsin-Nung Shih*, Pey-Jium Chang*. Dysregulated expression of antioxidant enzymes in polyethylene particle-induced periprosthetic inflammation and osteolysis. PLoS One. 2018 Aug 20;13(8):e0202501.
doi:10.1371/journal.pone.0202501. eCollection 2018.
18. Yu-Chih Lin, Shen-Hsun Lee, I-Jung Chen, **Chih-Hsiang Chang**, Chee-Jen Chang, Yi-Chun Wang, Yuhan Chang, Pang-Hsin Hsieh*. Symptomatic pulmonary embolism following hip fracture: A nationwide study. *Thrombosis Research* 172 (2018) 120–127
19. **Chih-Hsiang Chang**, Chih-Chien Hu, Yuhan Chang, Pang-Hsin Hsieh, Hsin-Nung Shih, Steve Wen-Neng Ueng*. Two-stage revision arthroplasty for Mycobacterium Tuberculosis periprosthetic joint infection: An outcome analysis. PLoS One. 2018 Sep 7;13(9):e0203585. doi: 10.1371/journal.pone.0203585. eCollection 2018.
20. Yu-Chih Lin, **Chih-Hsiang Chang**, Chee-Jen Chang, Yi-Chun Wang, Pang-Hsin Hsieh, Yuhan Chang*. Vascular injury during primary total knee arthroplasty: A nationwide study. *J Formos Med Assoc.* 2019 Jan;118(1 Pt 2):305-310.
21. **Chih-Hsiang Chang**, Chih-chien Hu, Chun-Chieh Chen, John Mahajan, Yuhan Chang, Hsin-Nung Shih, Young-Min Kwon*. Revision Total Hip Arthroplasty for Paprosky Type III Acetabular Defect With Structural Allograft and Tantalum Trabecular Metal Acetabular Cup. *Orthopedics.* 2018 Nov 1;41(6):e861-e867.
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23. Tsai Y, **Chang CH**, Lin YC, Lee SH, Hsieh PH, Chang Y*. Different microbiological profiles between hip and knee prosthetic joint infections. *J Orthop Surg (Hong Kong)*. 2019 May-Aug;27(2)
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26. Mei-Feng Chen, **Chih-Hsiang Chang**, Chih-Chien Hu, Ying-Yu Wu, Yuhan Chang and Steve W. N. Ueng*. Periprosthetic Joint Infection Caused by Gram-Positive Versus Gram-Negative Bacteria: Lipopolysaccharide, but not Lipoteichoic Acid, Exerts Adverse Osteoclast-Mediated Effects on the Bone. *J. Clin. Med.* 2019, 8, 1289
27. Chun-Yu Hung, **Chih-Hsiang Chang**, Yu-Chih Lin, Shen-Hsun Lee, Szu-Yuan Chen and Pang-Hsin Hsieh*. Predictors for Unfavorable Early Outcomes in Elective Total Hip Arthroplasty: Does Extreme Body Mass Index Matter? *Biomed Res Int*. 2019 Oct 7;2019:4370382.
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- Differentiation and Inhibiting Osteoclast Activation in a Mouse Model of Femoral Defects. *Int. J. Mol. Sci.* 2020, 21(15), 5550-5562.
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 35. Sheng-Hsun Lee, Yu-Chih Lin, Chee-Jen Chang, Chih-Yun Fan Chiang, Szu-Yuan Chen, Yu-Han Chang, Pang-Hsin Hsieh, **Chih-Hsiang Chang**. Outcome and cost analysis of primary total knee arthroplasty in end-stage renal disease patients: A nationwide population-based study. *Biomedical journal*, 2021: 44 620-626
 36. Chih-Chien Hu, **Chih-Hsiang Chang**, Yuhan Chang, Jang-Hsing Hsieh, Steve Wen-Neng Ueng. Beneficial Effect of TaON-Ag Nanocomposite Titanium on Antibacterial Capacity in Orthopedic Application. *International Journal of Nanomedicine* 2020:15 7889–7900
 37. Yuhan Chang, Chih-Chien Hu, Ying-Yu Wu, Steve W. N. Ueng, **Chih-Hsiang Chang**, Mei-Feng Chen. Ibuprofen Mitigates Delayed Bone Healing Caused by Lipopolysaccharide by Altering Osteoblast and Osteoclast Activity. *Int. J. Mol. Sci.* 2021, 22, 1169
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 41. Chen-Heng Hsu, Chih-Chien Hu, **Chih-Hsiang Chang**, Yu-Han Chang, Hsin-Nung Shih and Chun-Chieh Chen. Acetabular Revision Surgery with Tantalum Trabecular Metal Acetabular Cup for Failed Acetabular Cage Reconstruction with Bone Allografts: A Retrospective Study with Mid- to Long-Term Follow-Up. *J. Clin. Med.* 2022: 11, 3428.
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44. Sheng-Hsun Lee, Chun-Ting Chu, **Chih-Hsiang Chang**, Chih-Chien Hu, Szu-Yuan Chen , Tung-Wu Lu 1 and Yu-Chih Lin. Do Serum C-Reactive Protein Trends Predict Treatment Outcome in Patients with Knee Periprosthetic Joint Infection Undergoing Two-Stage Exchange Arthroplasty? Diagnostics 2022: 12, 1030.
45. Yu-Chih Lin, Yi-Hsuan Lin, Jian-Hong Chou1, Yu-Tai L, **Chih-Hsiang Chang**, Sheng-Hsun Lee1,2,3 and Sheng-Hsuan Lin. Higher reinfection rate after two-stage revision arthroplasty in patients with refractory diabetes mellitus: a retrospective analysis with a minimum ten-year follow up. BMC Musculoskeletal Disorders 2022: 23:990.
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47. Meng-Huan Tsai, Chun-Chieh Chen, **Chih-Hsiang Chang**, Yuhan Chang, Pang-Hsin Hsieh, Chih-Chien Hu. Revision Total Hip Arthroplasty with Primary Stem or Full-Porous-Coated Long Stem for Aseptic Femoral Component Loosening: A Matched-Pair Study. Orthopedic Research and Reviews 2022: 14 25–33
48. Shih-Hui Peng, Chun-Chieh Chen, Sheng-Hsun Lee, Yu-Chih Lin, Jui-Fan Chiang, Szu-Yuan Chen, Chih-Chien Hu, Yuhan Chang, Pang-Hsin Hsieh, Hsin-Nung Shih and **Chih-Hsiang Chang**. Clinical outcomes of various types of revision surgeries after unicompartmental knee arthroplasty failure. BMC Musculoskeletal Disorders (2023) 24:302
49. Chun-Chieh Chen, Shih-Sheng Chang, **Chih-Hsiang Chang**, Chih-Chien Hu, Yoshihiro Nakao5, Shan May Yong, Yen Ling Ow Mandy, Chia Juan Lim, Eric Kian-Shiun Shim and Hsin-Nung Shih. Randomized, double-blind, four-armed pilot study on the effects of chicken essence and type II collagen hydrolysate on joint, bone, and muscle functions. Nutrition Journal (2023) 22:17
50. Chia-Hung Liu, Chih-Hsiang Chang, Yu-Han Chang, Hsin-Nung Shih and Chih-Chien Hu. Topical Fibrin Sealant (Tisseel®) Does Not Provide a Synergic Blood-Conservation Effect with

Tranexamic Acid in Total Knee Arthroplasty—A Prospective Randomized Controlled Trial.
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Books & Chapters

1. C-H Chang, P-H Hsieh. Chapter 85: Total Hip Arthroplasty in Patients Undergoing Dialysis. In: Javad Parvizi eds The Hip: Preservation, Replacement, and Revision. Data Trace Publishing Company, 2015. (ISBN: 978-1-57400-149-5)
2. C-H Chen , C-H Chang, C-H Lee. Chapter 187: Usage of Growth Factors in Acute Muscle Injuries. In: Jon Karlsson eds Sports Injuries: Prevention, Diagnosis, Treatment and Rehabilitation. (ISBN: 978-3-642-36568-3), 2014: 2343-235
3. Po-Ting Wu, Chih-Hsiang Chang, Hsin-Nung Shih, Yu-Han Chang, Mel S. Lee, and Kuo-An Lai. Chapter 5: Outcome of Total Hip Arthroplasty in Patients with Dysplasia/Dislocation and Planning for Revision. In: Developmental Dysplasia and Dislocation of the Hip in Adults. 2018, 71-88 (ISBN: 978-9-811-30413-2)

