



專任老師

# 戴金龍 教授



Ching-Lung Tai

長庚大學 生物醫學工程學系

## 現職

教授

## 學歷

中原大學-醫學工程 博士  
成功大學-材料科學工程研究所 碩士  
清華大學-材料科學工程學系 學士

## 研究專長

生物力學、骨科實驗力學、骨科植入物設計、醫學工程

## 聯絡分機

03-211-8800 #5342

## E-mail

taicl@mail.cgu.edu.tw

## 經歷

長庚大學 -醫療機電研究所 副教授  
長庚大學 -醫療機電研究所 助理教授  
長庚紀念醫院-骨科部 研究員  
長庚紀念醫院-骨科部 副研究員  
中山科學研究院 -材料研究發展中心-助理研究員

## 實驗室

生醫實驗力學研究室(工學大樓 4 樓)

## 個人研究

- Li YD, Hsieh MK, Chen WP, Lee DM, Tsai TT, Lai PL\*, **Tai CL\*** “Biomechanical evaluation of pedicle screw stability after 360-degree turnback from full insertion: effects of screw shape, pilot hole profile and bone density” *Front. Bioeng. Biotechnol.* 11:1151627. doi: 10.3389/fbioe.2023.1151627, May, 2023. (Corresponding Author) (SCI, IF: 6.064, R: 16/74, Multidisciplinary Sciences)
- Hsieh MK, Lee DM, Li YD, Peng CC, Tsai TT, Lai PL, Chen WP\*, **Tai CL\*** “Biomechanical evaluation of position and bicortical fixation of anterior lateral vertebral screws in a porcine model” *Sci. Rep.*, 13:454, <https://doi.org/10.1038/s41598-023-27433-6>, Jan, 2023. (Corresponding Author) (SCI, IF: 4.997, R: 19/74, Multidisciplinary Sciences)
- **Tai CL**, Chen WP, Liu MY, Li YD, Li YC, Tsai TT, Lai PL, Hsieh MK\*, “Biomechanical Comparison of Pedicle Screw Fixation Strength Among Three Different Screw Trajectories Using Single Vertebrae and One-level Functional Spinal Unit” *Front. Bioeng. Biotechnol.*, *Front. Bioeng. Biotechnol.* 10:1054738. doi: 10.3389/fbioe.2022.1054738, Dec, 2022. (First Author) (SCI, IF: 6.064, R: 16/74, Multidisciplinary Sciences)
- Hsieh MK, Lee MS, Chen WJ, Lin SY, Liu MY, Lee DM\*, **Tai CL\*** “Biomechanical evaluation of a novel expandable vertebral augmentation system using human cadaveric vertebrae” *Appl. Sci.* 12(19), 10165. <https://doi.org/10.3390/app121910165>, Oct, 2022. (Corresponding Author) (SCI, IF: 2.838, R: 39/92, Engineering, Multidisciplinary)
- Hsieh MK, Liu PY, Li YD, Wang CY, Hu CC, **Tai CL**, Lai PL “The role of counter-torque holder in the tightening of pedicle screw-rod constructs: a biomechanical study in a porcine model” *The Spine Journal*, Available online 1 September 2022, <https://doi.org/10.1016/j.spinee.2022.08.021> (SCI, IF: 4.297, R: 15/86, Orthopedics)
- Li YD, Hsieh MK, Lee DM, Lin YJ, Tsai TT, Lai PL\*, **Tai CL\*** “Biomechanical comparison of salvage pedicle screw augmentations using different biomaterials” *Appl. Sci.* 2022, 12(15), 7792. <https://doi.org/10.3390/app12157792>, Aug, 2022. (Corresponding Author) (SCI, IF: 2.838, R: 39/92, Engineering, Multidisciplinary)
- Hsieh MK, Li YD, Hsu YJ, Tsai TT, Lai PL, Lee DM\*, **Tai CL\*** “Novel dual-threaded pedicle screws provide fixation stability that is comparable to that of traditional screws with relative bone preservation: an in vitro biomechanical study” *Appl. Sci.* 2022, 12(12), 6172. <https://doi.org/10.3390/app12126172>, June,

---

2022. (Corresponding Author) (SCI, IF: 2.838, R: 39/92, Engineering, Multidisciplinary)

- Tsai YY, Hsieh MK, Lai PL, **Tai CL**, Chang SW “Predicting pullout strength of pedicle screws in broken bones from X-ray images” *J. Mech. Behav. Biomed. Mater.* <https://www.sciencedirect.com/science/article/abs/pii/S1751616122002764?via%3Dihub>, July, 2022. (SCI, IF: 4.042, R: 48/98, Engineering, Biomedical)
  - Hsieh MK, Li YD, Li YC, Liu MY, Tsai TT, Lai PL, **Tai CL\*** “Improved fixation stability for repairing pedicle screw loosening using a modified cement filling technique in porcine vertebrae” *Sci. Rep.*, 12:2739, <https://doi.org/10.1038/s41598-022-06724-4>, Feb, 2022. (Corresponding Author) (SCI, IF: 4.379, R: 17/129, Multidisciplinary Sciences)
  - Wang CY, Chu SY, Lin YC, Tsai YW, **Tai CL**, Yang KC, Tsui PH “Quantitative imaging of ultrasound backscattered signals with information entropy for bone microstructure characterization” *Sci. Rep.*, 12:414, <https://doi.org/10.1038/s41598-021-04425-y>, Jan, 2022. (SCI, IF: 4.379, R: 17/129, Multidisciplinary Sciences)
  - Hsieh MK, Li YD, Liu MY, Lin CX, Tsai TT, Lai PL, **Tai CL\*** “Biomechanical comparison of fixation stability among various pedicle screw geometries: the effects of screw outer/inner projection shape and thread profile” *Appl. Sci.*, 2021, 11, 9901. [doi.org/10.3390/app11219901](https://doi.org/10.3390/app11219901). Oct., 2021. (Corresponding Author) (SCI, IF: 2.679, R: 38/171, Engineering, Multidisciplinary)
  - Hsieh MK, Liu MY, Tsai TT, Lai PL, **Tai CL\*** “Biomechanical comparison of different numbers and configurations of cross-links in long-segment spinal fixation - an experimental study in a porcine model” *Global Spine Journal*, [doi: 10.1177/2192568221990646](https://doi.org/10.1177/2192568221990646), Jan, 2021. (Corresponding Author) (SCI, IF: 2.683, R: 24/82, Orthopedics)
  - Hsieh MK, Liu MY, Chen JK, Tsai TT, Lai PL, Niu CC, **Tai CL\*** “Use of longer sized screws is a salvage method for broken pedicles in osteoporotic vertebrae” *Sci. Rep.*, 10:10441, <https://doi.org/10.1038/s41598-020-67489-2>, June, 2020. (Corresponding Author) (SCI, IF: 4.011, R: 15/69, Multidisciplinary Sciences)
  - Liu MY, Tsai TT, Lai PL, Hsieh MK, Chen LH, **Tai CL\*** “Biomechanical comparison of pedicle screw fixation strengths on synthetic bones: effects of screw shape, thread profile and cement augmentation” *PLoS ONE*, 15(2):e0229328. <https://doi.org/10.1371/journal.pone.0229328>. Feb, 2020. (Corresponding Author) (SCI, IF: 2.776, R: 24/69, Multidisciplinary Sciences)
-

- 
- Liu MY, Tsai TT, Chen LH, Liang WH, Lai PL, **Tai CL\*** “Biomechanical Comparison of Lumbar Motion Unit Stability Following Posterior Instrumentation with Facet Spacers and Facet Screws” *J Med Biol Eng*, doi.org/10.1007/s40846-019-00501-x, Nov, 2019. (Corresponding Author) (SCI, IF: 1.306, R: 66/80, Engineering, Biomedical)
  - Hsieh MK, Liu MY, Chen JK, Tsai TT, Niu CC, Lai PL, **Tai CL\*** “Biomechanical Study of the Fixation Stability of Broken Pedicle Screws and Subsequent Strategies” *PLoS ONE*, 14(6):e0219189. doi: 10.1371/journal.pone.0219189. June, 2019. (Corresponding Author) (SCI, IF: 2.776, R: 24/69, Multidisciplinary Sciences)
  - Tsai TT, Chen YH, Lin HT, Tseng YW, Liao CY, Liu MY, Lai PL, **Tai CL\*** “Biomechanical study of pedicle screw fixation strength: association of screw malposition and screw insertion torque” *J Mech Med Biol*, doi: 10.1142/S0219519419400128, 19(2), Apr, 2019. (Corresponding Author) (SCI, IF: 0.815, R: 75/80, Engineering, Biomedical)
  - Liu MY, Lai PL, **Tai CL\*** “Biomechanical evaluation of low-modulus bone cement for enhancing applicability in vertebroplasty- an experimental study in porcine model” *Biomed Eng-App Bas C*, doi: 10.4015/S1016237218500023, 30(1):1-8, Feb, 2018. (Corresponding Author) (EI)
  - Ma HH, **Tai CL**, Chen LH, Niu CC, Chen WJ, Lai PL “Application of Two-Parameter Scoliometer Values for Predicting Scoliotic Cobb Angle” *BioMed Eng Online*, 16:136, doi.org/10.1186/s12938-017-0427-7, Dec. 2017. (Co-First Author) (SCI, IF: 2.013, R: 52/80, Engineering, Biomedical)
  - Tsai TT, **Tai CL\***, Ho YJ, Lai PL, Fu TS, Niu CC, Chen LH, Chen WJ “Effects of Strontium Ranelate on Spinal Interbody Fusion Surgery in an Osteoporotic Rat Model” *PLoS ONE*, 12(1):e0167296. doi: 10.1371/journal.pone.0167296. Jan, 2017. (Corresponding Author) (SCI, IF: 2.776, R: 24/69, Multidisciplinary Sciences)
  - Yeh YC, Yang CC, **Tai CL**, Tsai TT, Lai PL, Fu TS, Niu CC, Chen LH, Chen WJ “Characterization of a novel caudal vertebral interbody fusion in a rat tail model: An implication for future material and mechanical testing” *Biomed J*, doi:10.1016/j.bj.2016.07.002. 40(1):62-68, Feb, 2017. (SCI, IF: 2.301, R: 198/298, Biochemistry & molecular biology)
  - Lee SH, **Tai CL**, Chen SY, Chang CH, Chang YH, Hsieh PH “Elution and Mechanical Strength of Vancomycin-Loaded Bone Cement: In Vitro Study of the Influence of Brand Combination” *PLoS ONE*, 11(11):e0166545. doi: 10.1371/journal.pone.0166545.
-

---

Nov, 2016 (SCI, IF: 2.776, R: 24/69, Multidisciplinary Sciences)

- **Tai CL\***, Lai PL, Lin WD, Tsai TT, Lee YC, Liu MY, Chen LH “Modification of Mechanical Properties, Polymerization Temperature and Handling Time of Polymethylmethacrylate Cement for Enhancing Applicability in Vertebroplasty” *Biomed Res Int*, Volume 2016, Article ID 7901562, doi.org/10.1155/2016/7901562, Oct, 2016. (Corresponding Author) (SCI, IF: 2.197, R: 94/162, Biotechnology & Applied Microbiology)
  - Chen SH, **Tai CL\***, Yu TC, Wang CW, Lin CW, Chen CY, Liu KC “Modified fixations for distal femur fractures following total knee arthroplasty: A biomechanical and clinical relevance study” *Knee Surg Sports Traumatol Arthrosc*, doi: 10.1007/s00167-016-4107-0. 24(10):3262-3271, Oct, 2016. (Corresponding Author) (SCI, IF: 3.149, R: 13/76, Orthopedics)
  - **Tai CL**, Tsai TT, Lai PL, Chen YL, Liu MY, Chen LH “A Biomechanical Comparison of Expansive Pedicle Screws for Severe Osteoporosis: the Effects of Screw Design and Cement Augmentation” *PLoS ONE*, 10(12):e0146294, doi: 10.1371/journal.pone.0146294. Dec., 2015 (SCI, IF: 2.776, R: 24/69, Multidisciplinary Sciences)
  - Wu CC, **Tai CL** “Anterior transfer of tibialis posterior tendon for treating drop foot: Technique of enforcing tendon implantation to improve success rate” *Acta Orthop Belg*, 81(1): 147-154, Mar, 2015.
  - **Tai CL**, Lee PY, Hsieh PH “Preliminary biomechanical study of different acetabular reinforcement devices for acetabular reconstruction” *PLoS ONE*, 10(3):e0121588, doi: 10.1371/journal.pone.0121588. Mar, 2015. (SCI, IF: 2.776, R: 24/69, Multidisciplinary Sciences)
  - **Tai CL**, Chen YC, Hsieh PH “The effects of necrotic lesion size and orientation of the femoral component on stress alterations in the proximal femur in hip resurfacing - a finite element simulation” *BMC Musculoskelet Disord*, 15(1):262, doi:10.1186/1471-2474-15-262, Aug, 2014 (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - Chang YH, **Tai CL**, Hsu HY, Hsieh PH, Lee MS, Ueng SW “Liquid antibiotics in bone cement: an effective way to improve the efficiency of antibiotic release in antibiotic loaded bone cement” *Bone Joint Res*, 3(8):246-51, Aug, 2014 (SCI, IF: 3.652, R: 9/76, Orthopedics)
  - **Tai CL**, Chen LH, Lee DM, Liu MY, Lai PL “Biomechanical comparison of different combinations of hook and screw in one spine motion unit - an experiment in
-

---

porcine model” *BMC Musculoskelet Disord*, 15(1):197, doi:10.1186/1471-2474-15-197, June, 2014. (SCI, IF: 2.002, R: 34/76, Orthopedics)

- Chang YH, **Tai CL**, Hsieh PH, Ueng SW “Gentamicin in bone cement: A potentially more effective prophylactic measure of infection in joint arthroplasty” *Bone Joint Res*, 2(10):220-226, Oct. 2013. (SCI, IF: 3.652, R: 9/76, Orthopedics)
  - Wu MH, Wang HY, **Tai CL**, Chang YH, Chen YM, Huang SB, Chiu TK, Yang TC, Wang SS “Development of perfusion-based microbio-reactor platform capable of providing tunable dynamic compressive loading to 3-D cell culture construct- Demonstration study of the effect of compressive stimulations on articular chondrocyte functions” *Sensory Actuator B-Chem* 176:86-96, Jan., 2013. (1 Equal Contribution) (SCI, IF: 6.393, R: 6/84, Chemistry, Analytical)
  - Lai PL, **Tai CL\***, Chu IM, Fu TS, Chen LH, Chen WJ “Hypothermic manipulation of bone cement can extend the handling time during vertebroplasty” *BMC Musculoskelet Disord*, 13:198, doi:10.1186/1471-2474-13-198, Oct., 2012. (Co-First & Corresponding Author) (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - Wu CC, **Tai CL** “Retrograde nailing of a femoral supracondyle” *Orthopedics*, 35(4):e491-6. doi: 10.3928/01477447-20120327-20, Apr., 2012. (SCI, IF: 1.608, R: 44/76, Orthopedics)
  - **Tai CL**, Tsai SL, Chang YH, Hsieh PH “Study the effect of polymerization temperature in the release of antibiotic from bone” *Bio-Med Mater Eng*, 21(5-6):341-346, 2012. (SCI, IF: 0.993, R: 71/80, Engineering, Biomedical)
  - Lai PL, **Tai CL\***, Chen LH, Nien NY “Cement leakage causes potential thermal injury in vertebroplasty” *BMC Musculoskelet Disord*, 12:116, doi:10.1186/1471-2474-12-116, May, 2011. (Corresponding Author) (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - Chen LH, **Tai CL\***, Lee DM, Lai PL, Lee YC, Niu CC, Chen WJ “Pullout strength of pedicle screws with cement augmentation in severe osteoporosis: A comparative study between cannulated screws with cement injection and solid screws with cement pre-filling” *BMC Musculoskelet Disord*, 12:33, doi:10.1186/1471-2474-12-33, Feb, 2011. (Corresponding Author) (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - **Tai CL**, Lin CL, Wang HW, Lee DM, Hsieh PH “Stress distribution of a modified periacetabular osteotomy for treatment of dysplastic acetabulum” *J Med Biol Eng*, 31(1):53-58, 2011. (SCI, IF: 1.306, R: 66/80, Engineering, Biomedical)
-

- 
- Ueng SW, Lee MS, Tai CL, Hsu KY, Lin SS, Chan YS, Chen WJ “Hyperbaric oxygen therapy improves medial collateral ligament healing in a rabbit model” *Formosa J Musculoskelet Disord*, 2:7-11, 2011.
  - Tai CL, Lee DM, Hsieh PH “The influence of surface roughness and cementing technique on the microstructure and mechanical strength at the cement-prosthesis interface” *Biomed Eng-App Bas C*, Oct; 22(5):419-26, 2010.
  - Wu CC, Tai CL “Effect of lag-screw positions on modes of fixation failure in elderly patients with unstable intertrochanteric fractures of the femur” *J Orthop Surg (Hong Kong)*, 18(2):158-65, 2010. (SCI, IF: 0.957, R: 63/76, Orthopedics)
  - Chang SCN, Chung HY, Tai CL, Chen KT, Lin TM, Jeng LB “Repair of large scale cranium bone defects by hBMP-2 expressing bone marrow stromal cells: comparison between alginate and collagen type I systems” *J Biomed Mater Res A*, 94(2):433-41, 2010. (SCI, IF: 3.221, R: 25/80, Engineering, Biomedical).
  - Lin CY, Chang YH, Lin KJ, Yen TC, Tai CL, Chen CY, Lo WH, Hsiao IT, Hu YC “The healing of critical-sized femoral segmental bone defects in rabbits using baculovirus-engineered mesenchymal stem cells” *Biomaterials*, 31(12):3222-3230, 2010. (SCI, IF: 10.273, R: 3/80, Engineering, Biomedical).
  - Huang TW, Huang KC, Lee PC, Tai CL, Hsieh PH. “Encouraging Outcomes of Staged, Uncemented Arthroplasty With Short-Term Antibiotic Therapy for Treatment of Recalcitrant Septic Arthritis of the Native Hip” *J Trauma*, 68(4):965-9, 2010. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Tai CL, Chen WP, Chen SH, Lin CY, Lee MS “Biomechanical optimization of different fixation modes for a proximal femoral L-osteotomy” *BMC Musculoskelet Disord*, 10:112, doi:10.1186/1471-2474-10-112, 2009. (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - Wu CC, Tai CL “Reconstruction interlocking nails for ipsilateral femoral neck and shaft fractures: biomechanical analysis of effect of supplementary cannulated screw on intracapsular femoral neck fracture” *Clin Biomech*, 24(8):642-7, 2009. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - Chen LH, Tai CL, Lai PL, Lee DM, Tsai TT, Fu TS, Niu CC, Chen WJ “Pullout strength for cannulated pedicle screws with bone cement augmentation in severely osteoporotic bone: Influences of radial hole and pilot hole tapping” *Clin Biomech*, 24(8):613-8, 2009. (SCI, IF: 1.977, R: 35/76, Orthopedics)
-

- 
- Chang SCN, **Tai CL**, Chung HY, Lin TM, Jeng LB “Bone marrow mesenchymal stem cells form ectopic woven bone in vivo through endochondral bone formation.” *Artif Organs*, 33(4):301–8, 2009. (SCI, IF: 2.379, R: 37/80, Engineering, Biomedical)
  - Hsieh PH, Huang KC, **Tai CL** “Liquid gentamicin in bone cement spacers: in vivo antibiotic release and systemic safety in two-stage revision of infected hip arthroplasty.” *J Trauma*, 66(3):804–8, 2009. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Hsieh PH, **Tai CL\***, Lee PC, Chang YH “Liquid Gentamicin and Vancomycin in Bone Cement– A Potentially More Cost-Effective Regimen” *J Arthroplasty*, 24(1):125–30, 2009. (Corresponding Author) (SCI, IF: 3.524, R: 10/76, Orthopedics)
  - **Tai CL**, Hsieh PH, Chen WP, Chen LH, Chen WJ, Lai PL “Biomechanical comparison of lumbar spine instability between laminectomy and bilateral laminotomy for spinal stenosis syndrome– an experimental study in porcine model” *BMC Musculoskelet Disord*. 9(1):84, doi:10.1186/1471-2474-9-84, 2008. (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - Hsieh PH, **Tai CL**, Liaw JW, Chang YH “Thermal damage potential during hip resurfacing in osteonecrosis of the femoral head” *J Orthop Res*, 26(9):1206–1209, 2008. (SCI, IF: 3.043, R: 16/76, Orthopedics)
  - Chen SH, **Tai CL**, Lin CY, Chen WP “Biomechanical comparison of a new stand-alone anterior lumbar interbody fusion cage with established fixation techniques– a three-dimensional finite element analysis” *BMC Musculoskelet Disord*, 9(1):88, doi:10.1186/1471-2474-9-88, 2008. (SCI, IF: 2.002, R: 34/76, Orthopedics)
  - **Tai CL**, Lee MS, Lian LL, Chen WP “The biomechanical study of a modified intertrochanteric valgus osteotomy– A three-dimensional finite element analysis” *Chin J Orthop Trauma*; 9(6):510–14, 2007.
  - Lee MS, Chen CY, Kuo CH, **Tai CL**, Vinesh Senan, Shih CH “The position of the bipolar cup reflects the direction of the hip contact force acting on it” *J Arthroplasty*, 22(2):189–94, 2007. (SCI, IF: 3.524, R: 10/76, Orthopedics)
  - Wu CC, **Tai CL** “Plating treatment for tibial plateau fractures: a biomechanical comparison of buttress and tension band positions” *Arch Orthop Trauma Surg*, 127:19–24, 2007. (SCI, IF: 1.973, R: 36/76, Orthopedics)
  - Hsieh PH, **Tai CL**, Chang YH, Lee MS, Shih HN, Shih CH “Pre-cooling of the femoral canal enhances the shear strength at the cement-prosthesis interface and reduces
-



---

the polymerization temperature” J Orthop Res, 24(9):1809-14, 2006. (SCI, IF: 3.043, R: 16/76, Orthopedics)

- Chen LH, Lai PL, **Tai CL**, Niu CC, Fu TS, Chen WJ “The effect of supraspinous ligament integrity on adjacent instability after lumbar instrumentation and laminectomy - An experimental study in porcine model” Bio-Med Mater Eng, 16(4):261-267, 2006. (SCI, IF: 0.993, R: 71/80, Engineering, Biomedical)
  - Lee MS, **Tai CL**, Vinesh Senan, Shih CH, Lo SW, Chen WP “The effect of necrotic lesion size and rotational degree on the stress reduction in transtrochanteric rotational osteotomy for femoral head osteonecrosis-A three-dimensional finite element simulation” Clin Biomech, 21(9): 969-76, 2006. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - Wu CC, **Tai CL** “A biomechanical comparison of unlocked or locked reamed intramedullary nails in the treatment of mid-third simple transverse femoral shaft fractures” Biomed J, 29:275-82, 2006. (SCI, IF: 2.301, R: 198/298, Biochemistry & molecular biology)
  - Wang IC, Ueng SW, Yuan LJ, Tu YK, Wang CR, Lin SS, **Tai CL**, Wang KC “Early administration of hyperbaric oxygen therapy in distraction osteogenesis- a quantitative study in New Zealand rabbits” J Trauma, 58(6):1230-1235, 2005. (SCI, IF: 3.377, R: 36/203, Surgery)
  - **Tai CL**, Lee MS, Chen WP, Hsieh PH, Lee PC, Shih CH “Biomechanical comparison of newly designed stemless prosthesis and the conventional hip prosthesis- an experimental study” Bio-Med Mater Eng, 15(3):239-249, 2005. (SCI, IF: 0.993, R: 71/80, Engineering, Biomedical)
  - Chen WP, **Tai CL**, Tan TF, Shih CH, Hou SH, Chen CY, Lee MS “The degree to which transtrochanteric rotational osteotomy in osteonecrosis of the femoral head moves the region of necrosis out of the weight bearing area as evaluated by computer simulation” Clin Biomech, 20(1):63-69, 2005. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - **Tai CL**, Chen WP, Lee MS, Lee PC, Shih CH “Comparison of stress shielding between straight and curved stems in cementless total hip arthroplasty - an in vitro experimental study” J Med Biol Eng, 24(4):177-181, Dec, 2004. (SCI, IF: 1.306, R: 66/80, Engineering, Biomedical)
  - Chen WP, **Tai CL**, Lee MS, Lee PC, Shih CH “Comparison of stress shielding among different cement fixation modes of femoral stem in total hip arthroplasty- a
-

- 
- three-dimensional finite element analysis” J Med Biol Eng, 24(4):183-187, Dec, 2004. (SCI, IF: 1.306, R: 66/80, Engineering, Biomedical)
- Hsu RWW, Hsu WH, **Tai CL**, Lee KF “Effect of hyperbaric oxygen therapy on patellar tendinopathy in a rabbit model” J Trauma, 57(5):1060-1064, 2004. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Chen WJ, Lai PL, **Tai CL**, Chen LH, Niu CC “The effect of sagittal alignment on adjacent instability after lumbar instrumentation - a biomechanical study of lumbar vertebrae in the porcine model” Clin Biomech, 19(8):763-768, 2004. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - Chen WP, **Tai CL**, Shih CH, Hsieh PH, Leou MC, Lee Mel S “Selection of fixation devices in proximal femur rotational osteotomy- a report of clinical complications and finite element analysis” Clin Biomech, 19(3):255-262, 2004. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - Lee PC, Yu SW, Hsieh PH, Chuang TY, **Tai CL**, Shih CH “Treatment of early cut-out of a lag screw using a trochanter supporting plate: 11 consecutive patients with unstable intertrochanteric fractures” Arch Orthop Trauma Surg, 124(2):119-122, 2004. (SCI, IF: 1.973, R: 36/76, Orthopedics)
  - Hsu RWW, Hsu WH, **Tai CL**, Lee KF “Effect of shock wave therapy on patellar tendinopathy in a rabbit model” J Orthop Res, 22:221-227, 2004. (SCI, IF: 3.043, R: 16/76, Orthopedics)
  - Chang SCN, Wei FC, Chuang H, Chen YR, Chen JK, Lee KC, Chen PKT, **Tai CL**, Lou J “Ex vivo gene therapy in autologous critical size craniofacial bone regeneration” Plast Reconstr Surg, 112(7):1841-50, 2003. (SCI, IF: 3.946, R: 20/203, Surgery)
  - Chang SCN, Chuang HL, Chen YR, Chen JK, Chung HY, Liu YL, Lin HY, **Tai CL**, Lou J. “Ex vivo gene therapy in autologous bone marrow stromal stem cells for tissue-engineered maxillofacial bone regeneration” Gene ther, 10:2013-2019, 2003. (SCI, IF: 3.749, R: 45/136, Medicine, Research & Experimental)
  - **Tai CL**, Shih CH, Chen WP, Lee Mel S, Liu YL, Hsieh PH, Chen WJ “Finite element analysis of the Cervico-Trochanteric stemless prosthesis” Clin Biomech, 18(6):S53-S58, 2003. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - Hsu RWW, **Tai CL**, Chen CYC, Hsu WH “Enhances mechanical strength during early fracture healing via shockwave treatment: an animal study. Clin Biomech,
-

---

18(6):S33-S39, 2003. (SCI, IF: 1.977, R: 35/76, Orthopedics)

- Huang TJ, Hsu RWW, Tai CL, Chen WP “A biomechanical analysis of triangulation of anterior vertebral double-screw fixation” Clin Biomech, 18 (6):S40-S45, 2003. (SCI, IF: 1.977, R: 35/76, Orthopedics)
  - Chen WJ, Lai PL, Chang CH, Lee Mel S, Chen CH, Tai CL “The effect of hyperbaric oxygen therapy on spinal fusion: using the model of posterolateral intertransverse fusion in rabbits” J Trauma, 52 (2):333-338, 2002. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Wu CC, Shih CH, Chen WJ, Tai CL “Tension-band technique for ankle fusion” Orthopedics, 24(1):37-40, 2001. (SCI, IF: 1.608, R: 44/76, Orthopedics)
  - Wu CC, Tai CL, Chen, WJ “Patellar tension band wiring: a revised technique” Arch Orthop Trauma Surg, 121, 12-16, 2001. (SCI, IF: 1.973, R: 36/76, Orthopedics)
  - Wu CC, Tai CL, Shih, CH “Biomechanical comparison for different configurations of tension band wiring techniques in treating an olecranon fracture” J Trauma, 48(6):1063-1067, 2000. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Lee PC, Shih CH, Yen WL, Yang WE, Tu YK, Tai CL “Complications of liner locking system in Micro-structured Omnifit acetabular components: a radiographic evaluation of 887 hips followed for 5-10 years” Acta Orthop Scand, 71(1):31-33, 2000.
  - Lee PC, Shih CH, Yu SW, Yen WL, Su JY, Tai CL “MicroStructured Omnifit acetabular components: concerns with locking system complications and excessive polyethylene wear” Biomed J, 23:156-163, 2000. Biomed J(SCI, IF: 2.301, R: 198/298, Biochemistry & molecular biology)
  - Lee PC, Shih CH, Chen WJ, Tu YK, Tai CL “Early polyethylene wear and osteolysis in cementless total hip arthroplasty—the influence of femoral head size and polyethylene thickness” J Arthroplasty, 14(8):976-981, 1999. (SCI, IF: 3.524, R: 10/76, Orthopedics)
  - Ueng SW, Lee Mel S, Lin SS, Wang CR, Liu SJ, Tai CL, Shih CH “Hyperbaric oxygen therapy mitigates the adverse effect of cigarette smoking on the bone healing of tibia lengthening: An experimental study on rabbits” J Trauma, 47(4):752-759, 1999. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Wu CC, Shih CH, Chen WJ, Tai CL “Treatment of ununited femoral shaft fractures
-

---

associated with locked nail breakage: comparison between closed and open revision technique” J Orthop Trauma, 13(7):494-500, 1999. (SCI, IF: 1.826, R: 41/76, Orthopedics)

- Wu CC, Shih CH, Chen WJ, Tai CL “Effect of reaming bone grafting on treating femoral shaft aseptic nonunion after plating” Arch Orthop Trauma Surg, 119(5/6):303-307, 1999. (SCI, IF: 1.973, R: 36/76, Orthopedics)
  - Wu CC, Shih CH, Chen WJ, Tai CL “Treatment of femoral neck nonunions with a sliding compression screw: comparison with and without subtrochanteric valgus osteotomy” J Trauma, 46(2):312-317, 1999. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Ueng SW, Lin SS, Wang CR, Liu SJ, Tai CL, Shih CH “Bone healing of tibial lengthening is delayed by cigarette smoking: study of bone mineral density and torsional strength on rabbits” J Trauma, 46(1):110-115, 1999. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Wu CC, Shih CH, Chen WJ, Tai CL “High success rate with exchange nailing to treat a tibial shaft aseptic nonunion” J Orthop Trauma, 13(1):33-38, 1999. (SCI, IF: 1.826, R: 41/76, Orthopedics)
  - Wu CC, Shih CH, Chen WJ, Tai CL “Treatment of clavicular aseptic nonunion: comparison of plating and intramedullary nailing techniques” J Trauma, 45(3):1-5, 1998. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Wu CC, Shih CH, Chen WJ, Tai CL “Staple augmentation to treat a humeral nonunion after failed seidel locked nailing” Arch Orthop Trauma Surg, 118:42-44, 1998. (SCI, IF: 1.973, R: 36/76, Orthopedics)
  - Yang WE, Shih CH, Tai CL, Lin SS, Shih IJ “Biomechanical properties of bone ingrowth cement” J Orthop Surg, 15:83-88, 1998.
  - Ueng SW, Lee Mel S, Lin SS, Wang CR, Liu SJ, Tai CL, Shih CH “Bone healing of tibia lengthening is enhanced by hyperbaric oxygen therapy: A study of bone mineral density and torsional strength on rabbits” J Trauma, 44(4):676-681, 1998. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Wu CC, Shih CH, Chen WJ, Tai CL, “Treatment of cutout of a lag screw of a dynamic hip screw in an intertrochanteric fracture” Arch Orthop Trauma Surg, 117:193-196, 1998. (SCI, IF: 1.973, R: 36/76, Orthopedics)
  - Shih CH, Chen WP, Tai CL, Kuo RF, Wu CC, Chen CH “New concept- biomechanical
-

---

studies of newly designed femoral prosthesis (cervical - trochanter prosthesis)" Clin Biomech, 12(7):482-490, 1997. (SCI, IF: 1.977, R: 35/76, Orthopedics)

- Shih CH, Lee PC, Chen JH, Tai CL, Chen LF, Wu SS, Chang Walter H "Measurement of polyethylene wear in cementless total hip arthroplasty" J Bone Joint Surg Br, 79(3):361-365, 1997. (SCI, IF: 4.301, R: 6/76, Orthopedics)
  - Tai CL, Shih CH "Mechanical testing of polymethyl methacrylate bone cement impregnated with bone and hydroxyapatite" J Med Biol Eng, 17(1):1-8, 1997. (SCI, IF: 1.306, R: 66/80, Engineering, Biomedical)
  - Ueng SW, Lee MY, Li FY, Tai CL, Shih CH "Effect of intermittent cigarette smoke inhalation on tibia lengthening: experimental study on rabbits" J Trauma, 42(2):231-238, 1997. (SCI, IF: 3.377, R: 36/203, Surgery)
  - Wu CC, Shih CH, Chen WJ, Tai CL "Quiescent infected nonunion of a tibia treated by intramedullary reaming with external fixation" J Orthop Surg, 5(2):57-64, 1997.
  - Chen WP, Yen CG, Shih CH, Tai CL "Automatic finite element mesh generation of proximal femur and prosthesis" J Med Biol Eng, 17(4):231-240, 1997. (SCI, IF: 1.306, R: 66/80, Engineering, Biomedical)
  - Wu CC, Shih CH, Lee MY, Tai CL "Biomechanical analysis of location of lag screw of a dynamic hip screw in treatment of unstable intertrochanteric fracture" J Trauma, 41(4):699-702, 1996. (SCI, IF: 3.377, R: 36/203, Surgery)
-