

CURRICULUM VITAE



Name: Koji Ishikawa

Place of Birth: Tokyo, Japan

Citizenship: Japan

Department: Department of Orthopaedic Surgery, School of Medicine, Showa University

Business Address: Department of Orthopaedic Surgery, Showa University School of Medicine, Building No.6 Room 517, 1-5-8 Hatanodai, Shinagawa, Tokyo 142-8666, Japan

Job Position: Associate Professor

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Education

2010 M.D., Showa University School of Medicine (Tokyo, Japan)

2016 Ph.D., Graduate School of Medicine, Showa University (Tokyo, Japan)

Professional Training and Employment

2010-2012 Junior Resident, Showa University Hospital

2012-2013 Senior Resident, Department of Orthopaedic Surgery, Showa University Hospital

2013-2014 Medical staff, Department of Orthopaedic Surgery, Nippon Koukan Hospital

2014-2016 Medical staff, Department of Orthopaedic Surgery, Yamanashi Red Cross Hospital

2016-2017 Assistant Professor, Department of Orthopaedic Surgery, Showa University School of
Medicine

2017-2019 Spine Fellow, Sanraku Hospital, Spine and Spinal Cord Center

2019 Spine Fellow, The Spine Education and Research Foundation, Colorado, USA

2020-2021 Associate Professor Senior, Department of Orthopaedic Surgery, Showa University School
of Medicine

2021-Current Research Associate Senior, Duke University Orthopaedics (North Carolina, USA)

Major Research Interests

Bone biology, Tissue regeneration, Osteoimmunology, Osteoporosis, Spine Surgery, Deformity surgery, Biomechanical analysis

Councilor

Society of Minimally Invasive Spinal Treatment (2019.8-)

Committee

1. Japan Osteoporosis Society Bone Turnover Marker Investigation Committee (2020.2-)
2. Young Committee of Japan Osteoporosis Society (2023.1-)

Societies membership

[International]

1. American Society for Bone Mineral Research (ASBMR)
2. Orthopaedic Research Society (ORS)
3. AOSpine

[Domestic (Japan)]

1. The Japanese Orthopaedic Association
2. The Japanese Society for Spine Surgery and Related Research
3. Japanese Society for Bone Morphometry
4. Japan Osteoporosis Society
5. The Japanese Society for the Study of Low Back Pain
7. Japan Spinal Instrumentation Society
8. Society of Minimally Invasive Spinal Treatment
9. The Kanto Society of Orthopedics and Traumatology
10. Japanese Society for Adult Spinal Deformity
11. Japanese Society for the Study of Surgical Technique for Spine and Spinal Nerves
12. Japanese Scoliosis Society
13. Study Group for Nerve and Spine
14. BioSpine JAPAN

Editorial board

Frontier in Endocrinology (Review editor: 2023.3-)

Editorial Activity

1. Frontier in Endocrinology
2. Osteoporosis International
3. BMC musculoskeletal disorders
4. Global Spine Journal
5. Journal of Spine Research

Awards

- 2008-2010 (College) : Elected to Allstar Team of American Football (3 times: All-Medical Division)
- 2014 Young Investigator Research Award of the the 36th Annual Meeting of Japanese Society for Bone Morphometry
- 2014 Young Investigator Travel Grant of the American Society for Bone Mineral Research
- 2015 Young Investigator Research Award of the 36th Annual Meeting of Japanese Society for Bone Morphometry
- 2015 Young Investigator Travel Grant of the American Society for Bone Mineral Research
- 2016 Young Investigator Research Award of the 36th Annual Meeting of Japanese Society for Bone Morphometry
- 2016 Alumni Association Award of Department of Orthopaedic Surgery, Showa University School of Medicine
- 2017 Medical Research Award of Showa University Medical Association
- 2018 Excellent Paper Award of 46th of Annual Meeting of Japanese Society for Spine Surgery and Related Research
- 2019 Best Discusser Award of 8th Annual Meeting of Japan Association of Spine surgeons with Ambition
- 2019 AOSpine Asia Pacific Fellowship Award (The Spine Education and Research Foundation, Denver, Colorado, U.S)
- 2020 Distinguished Paper Award of the 22nd Annual Meeting of Japan Osteoporosis Society
- 2021 Best Researcher Award of the 41st Annual Meeting of Japanese Society for Bone Morphometry
- 2023 Best Researcher Award; Duke Orthopaedic Surgery, Departmental Research Day and Symposium
- 2023 Young Investigator Award of the American Society for Bone Mineral Research

Research Grants (Role: Principal Investigator)

- 2017 Grant-in-Aid for Young Scientists B (17K18114) from Japan Society for the Promotion of Science (2017-2019)
Title: Evaluation of Novel Surrogate Marker for Hypocalcemia Following Denosumab Treatment in Patients with Metastasis.
- 2018 Grant of Japan Osteoporosis Society, Young Scientist Award
Title: Management of Osteoporosis Treatment during Spinal Surgery
- 2019 Grant of Japan Orthopaedics and Traumatology Research Foundation, Inc (Grant No.399)
Title: Analysis of Osteoporosis Treatment Discontinuation during Spinal Fixation
- 2019 Grant-in-Aid for Young Scientists (19K18544) from Japan Society for the Promotion of Science (2019-2021)

- Title: Comprehensive Assessment of Osteoporosis Treatment during Spinal Instrumentation Using Finite Element Analysis
- 2019 Joint research project (DAIICHI SANKYO COMPANY, LIMITED)
- Title: Effect of Denosumab on Bone Fusion in the Mice Posterolateral Spinal Fusion Model
- 2019 Joint research project (GENE TECHNO SCIENCE Co., Ltd)
- Title: Development of Treatments for Spinal Fusion Surgery using Stem Cells from Human Exfoliated Deciduous Teeth
- 2020 Japan Society for the Promotion of Science Fujita Memorial Fund for Medical Research
- Title: Cell Therapy for Successful Bone Fusion using Stem Cells from Human Exfoliated Deciduous Teeth
- 2021 Overseas research fellowship of Uehara memorial foundation
- 2022 Grant-in-Aid for Scientific Research (C) (22K12896) from Japan Society for the Promotion of Science (2022-2025)
- Title: Visualizing for Surgical Risk in the Elderly: Optimize the Surgical Procedures Based on a Prediction Model of Post-operative Complications
- 2023 Fostering Joint International Research (A) (22KK0265) from Japan Society for the Promotion of Science (2023-2025)
- Title: A Novel predictive Approach for Implant-Related Complications Using Bone Quality-Based Biomechanical Analysis

Research Grants (Role: Co-Investigator)

- 2021 Grant-in-Aid for Scientific Research (C) (21K09333)
- Title: Comprehensive analysis of dropped head syndrome
- 2023 Grant-in-Aid for Scientific Research (B) (23H03339)
- Title: Molecular mechanisms of skin diseases caused by alterations in the local endocrine system in aging

Lectures (Invited Speaker)

- 8 International Lectures
- 65 National Lectures

1. *Spine Group for Nerve and Spine in Japan (English) (Mar-3-2019)*
2. *APOA-21st Asia Pacific Orthopaedic Association Congress in Malaysia (Jul-31-2021)*
3. *International Joint Meeting of KSNS and WSCS (Korean Spinal Neurosurgical Society Meeting and World Spinal Column Society) in Korea (Sep-30-2021)*
4. *Japan Bone Academy (English) in Japan (Dec-4-2021)*
5. *Bone Builder Forum 2022 in Singapore (May-22-2022)*

6. *Taipei Municipal Wan Fang Hospital 25th Anniversary Cross-Talk with Masters in Taipei (June-25-2022)*
7. *9th International Malaysian Spine Society Scientific Congress 2022 in Malaysia (Aug-5-2022)*
8. *Roles of Bone Building Therapy in Osteoporosis Management in Spinal Surgery in Hong Kong University (Aug-18-2022)*

Publications: [= First Author or Corresponding Author] 41 English papers out of 82 papers in total (7 review articles)

1. Ishikawa K (Corresponding Author), et al. The potential effect of romosozumab on perioperative management for instrumentation surgery. MS ID#: MEDRXIV/2023/298298 (Preprint: medRxiv)
2. Guo W, Hoque J, Garcia C, ..., Ishikawa K, et al. Targeting HIF-2 α in skeletal progenitors and their descendants for the radioprotection of bone. *Sci Transl Med.* 2023; 29;15(724):eabo5217.
3. Nagai T, Kuroda T, Ishikawa K, et al. Postpartum osteoporosis in the mother after both the first and second child: A case report. *Int J Surg Case Rep.* (In press)
4. Kudo Y, Okano I, Toyone T, ..., Ishikawa K, Inagaki K. Distal junctional failure after corrective surgery without pelvic fixation for thoracolumbar junctional kyphosis due to osteoporotic vertebral fracture. *J Orthop Sci.* 2023 Mar 15:S0949-2658(23)00073-8.
5. Yahara Y, Nguyen T*, Ishikawa K* (* Contribution equally), et al. The origins and roles of osteoclasts in bone development, homeostasis and repair. *Development.* 2022; 15;149(8). *[Review article]*
6. Itose M, Suzawa T, Shibata Y, Ohba S, Ishikawa K, et al. Kee meniscus regeneration using autogenous transplantation of uncultured adipose tissue-derived regenerative cells. *Regen Ther.* 2022 (In press)
7. Okamura H, Ishikawa H, Ohno T, Fujita S, Yamakami S, Akezuma H, Ishikawa K, et al. Potential of the non-weight-bearing tunnel view in diagnosing medical meniscus posterior root tear: a pilot study of X-ray characteristics. *J Exp Orthop.* 2021; 30: 8(1): 99.
8. Kudo Y, Toyone T, Okano I, Ishikawa K, et al. Radiological features of cervical spine in dropped head syndrome: a matched case-control study. *Eur Spine J.* 2021 (in press)
9. Tsuchiya K, Ishikawa K (Corresponding Author), et al. Analysis of the subsequent treatment of osteoporosis by transitioning from bisphosphonates to denosumab, using quantitative computed tomography: a prospective cohort study. *Bone Rep.* 2021; 14: 101090.
10. Tani S, Ishikawa K (Corresponding Author), et al. The effect of denosumab on pedicle screw fixation: A prospective 2-year longitudinal study using finite element analysis. *J Orthop Surg Res.* 2021; 219: 16.
11. Ishikawa K, Nakao Y, Oguchi F, et al. Thoracic Reciprocal Change can be Predicted before the Surgery in Adult Spinal Deformity. *Global Spine J.* 2021; 11(8): 1230-1237.
12. Nagai T, Okano I, Ishikawa K, et al. The serum 25(OH)D level and hand grip strength for fall risk assessment among elderly osteoporotic Japanese women. *Arch Osteoporosis.* 2021; 24: 16(1): 42.
13. Hosonuma M, Sakai N, Furuya H, Kurotaki Y, Sato Y, Handa K, Dodo Y, Ishikawa K et al.

- Inhibition of hepatocyte growth factor/c-Met signaling abrogates joint destruction by suppressing monocyte migration in rheumatoid arthritis. *Rheumatology (Oxford)*. 2021; 60(1): 408-419.
14. Usui R, Kudo Y, Hayakawa C, Yamamura R, Maruyama H, Matsuoka A, Ishikawa K, et al. *Showa Univ J Med Sci*. 2021; 33(4): 149-153
 15. Okamura H, Ishikawa K (Corresponding Author), et al. Risk factors predicting osteosarcopenia in postmenopausal women with osteoporosis: A retrospective study. *PLoSOne*. 2020; 7:15(8):e0237454.
 16. Yagi T, Oshita Y, Okano I, Kuroda T, Ishikawa K, et al. Controlling nutritional status score predicts postoperative complications after hip fracture surgery. *BMC Geriatr*. 2020;20(1):243.
 17. Yamakawa T, Okamatsu N, Ishikawa K, Kiyohara S, Handa K, Hayashi E, Sakai N, Karakawa A, Chatani M, Tsuji M, Inagaki K, Kiuchi Y, Takami M, Negishi-Koga T. Novel gene Merlot inhibits differentiation and promotes apoptosis of osteoclasts. *Bone*. 2020;138:115494.
 18. Kudo Y, Toyone T, Endo K, Matsuoka Y, Okano I, Ishikawa K, et al. Impact of Spinopelvic Sagittal Alignment on the Surgical Outcomes of Dropped Head Syndrome: A Multi-center Study. *BMC Musculoskeletal Disord*. 2020;21(1):382.
 19. Kudo Y, Okano I, Toyone T, Matsuoka A, Maruyama H, Yamamura R, Ishikawa K, et al. Lateral lumbar interbody fusion in revision surgery for restenosis after posterior decompression. *Neurosurgical focus*. 2020; 49(3): E11.
 20. Ito H, Toyone T, Nagai T, Ishikawa K, et al. Relationship Between Muscle Mass of the Lower Limbs and Falls Caused by Spinal Misalignment in Women Aged 70 Years: A Retrospective Study. *Clin Spine Surg*. 2020;10.1097.
 21. Kiyohara S, Sakai N, Handa K, Yamakawa T, Ishikawa K, et al. Effects of N-methyl-D-aspartate (NMDA) receptor antagonist MK-801 (dizocilpine) on bone homeostasis in mice. *J Oral Biosci*. 2020;62(2):131-138.
 22. Oshita Y, Tsuchiya K, Ishikawa K, et al. Ambulance Use by International Travelers in Japan: A Retrospective Descriptive Study. *Int J Travel Med Glob Health*. 2020;8(1):13-17.
 23. Yamamura R, Kudo Y, Matsuoka A, Maruyama H, Ishikawa K, et al. Anterior Column Reconstruction Performed for Complete Anterior Longitudinal Ligament Rupture Caused by Surgical Correction with Lateral Interbody Fusion for Kyphosis. *Spine Surg Relat Res*. 2019;4(1):87-90.
 24. Handa K, Kiyohara S, Yamakawa T, Ishikawa K, et al. Bone loss caused by dopaminergic degeneration and levodopa treatment in Parkinson's disease model mice. *Sci Rep*. 2019; 24;9(1):13768.
 25. Tsuchiya K, Ishikawa K (Corresponding Author), Tani S, et al. Analysis of three-dimensional bone mineral density and bone strength measured by quantitative computed tomography following denosumab discontinuation in a patient with postmenopausal osteoporosis. *Clin Interv Aging*. 2019; 14: 1445-1450
 26. Dodo Y, Kudo Y, Ishikawa K, et al. Fracture-Dislocation of the Cervical Spine secondary to Low-

- impact Trauma in a patient with Klippel-Feil syndrome: A Case Report. *Spine Surg and Relat Res.* 2019; 16;4(1):84-86.
27. **Ishikawa K (Corresponding Author)**, Nagai T, Kuroda T, et al. Fracture management and current concepts related to pregnancy-associated osteoporosis. *Clin Calcium.* 2019; 29(1): 78-84
 28. Endo K, Kudo Y, Suzuki H, Aihara T, Matsuoka Y, Murata K, Takamatsu T, Sawaji Y, Nishimura H, Matsuoka A, Ishikawa K, et al. Overview of dropped head syndrome: Combined survey report of three facilities. *J Orthop Sci.* 2019 ;24(6):1033-1036.
 29. Oshita Y, Kuroda T, Ishikawa K, et al. Teriparatide Treatment for An Atypical Fracture of the Femoral Shaft: A Case Report. *Showa Univ J Med Sci.* 31(1):73-77. 2019
 30. Kuroda T, Nagai T, Ishikawa K, et al. Clinical features and diagnosis of lumbar fractures caused by pregnancy- and lactation-associated osteoporosis. *Clin Calcium.* 2019; 29(1): 46-50
 31. **Ishikawa K (Corresponding Author)**, Toyone T, Shirahata T, et al. A Novel Method for the Prediction of the Pedicle Screw Stability: Regional Bone Mineral Density Around the Screw. *Clin Spine Surg.* 2018; 31(9): E473-E480.
 32. **Ishikawa K (Corresponding Author)**, Nagai T, Tsuchiya K, et al. High bone turnover status as a risk factor for symptomatic hypocalcemia following denosumab treatment in a male patient with osteoporosis. *Clin Interv Aging.* 2018; 8; 13: 1929-1934.
 33. Kuroda T, **Ishikawa K (Corresponding Author)**, Nagai T, et al. Quadrant analysis of quantitative computed tomography scans of the femoral neck reveals superior region-specific weakness in young and middle-aged men with type 1 diabetes mellitus. *J Clin Densitom.* 2018; 21(2):172-178.
 34. Nagai T, Ishikawa K, Kuroda T, et al. New methods for the evaluation of bone quality. Relationship between bone resorption inhibitors and bony quality. *Clin Calcium.* 2018; 27(8): 1161-1167.
 35. **Ishikawa K (Corresponding Author)**, Nagai T, Sakamoto K, Ohara K, Eguro T, Ito H, Toyoshima Y, Kokaze A, Toyone T, Inagaki K. High Bone Turnover Elevates the Risk of Denosumab-induced Hypocalcemia in Women with Postmenopausal Osteoporosis. *Ther Clin Risk Manag.* 2016; 12; 1831-1840.
 36. **Ishikawa K**, Fukui T, Nagai T, Kuroda T, Hara N, Yamamoto T, Inagaki K. Type 1 diabetic patients have lower strength in femoral bone determined by quantitative computed tomography: a cross-sectional study. *J Diabetes Investig.* 2015; 6(6); 726-33.
 37. Nagai T, Sakamoto K, Osawa N, Mikumo H, Ishiguro H, Jin Y, Ishikawa K, Kuroda T, Inagaki K. Should Bone Turnover be Suppressed Quickly after Daily Teriparatide Treatment? *Osteoporosis Jpn.* 2015; 23(3); 360-364
 38. Nagai T, Sakamoto K, Kuroda T, Ishikawa K, Saito E, Inagaki K: The relationship between serum homocysteine levels and vertebral fractures: *Showa Univ J Med Sci* 27,103-110,2015
 39. Nagai T, Sakamoto K, Ishikawa K, Saito E, Kuroda T, Inagaki K. Case of femoral diaphyseal

stress fracture after long-term risedronate administration diagnosed by iliac bone biopsy. *Ther Clin Risk Manag.* 2013; 9:191-5.

40. Nagai T, Sakamoto K, Fujino H, Saito E, Ishikawa K, Inagaki K. Results of 10 years of etidronate for osteoporosis patients. *Journal of Japanese Society of Bone Morphometry.* 2013; 23:156-161
41. Nagai T, Sakamoto K, Matsunaga A, Ishikawa K, Saito E, Inagaki K. Effects of 3 Years of Treatment with a Selective Estrogen Receptor Modulator for Postmenopausal Osteoporosis on Markers of Bone Turnover and Bone Mineral Density. *Showa Univ J Med Sci.* 2012; 12: 301-308