

## BIOGRAPHICAL SKETCH

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|  |                           |  |                        |
|--|---------------------------|--|------------------------|
| NAME<br>Kim, Young-Jo  |                           | POSITION TITLE<br>Assistant Professor of Orthopaedic Surgery |                        |
| eRA COMMONS USER NAME (credential, e.g., agency login)<br>YOJKim   |                           |  |                        |
| EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.) |                           |  |                        |
| INSTITUTION AND LOCATION   | DEGREE<br>(if applicable) | YEAR(s)  | FIELD OF STUDY         |
| Massachusetts Institute of Technology  | BS                        | 1986   | Electrical Engineering |
| Massachusetts Institute of Technology  | MS                        | 1989   | Electrical Engineering |
| Massachusetts Institute of Technology  | PhD                       | 1993   | Electrical Engineering |
| Harvard Medical School   | MD                        | 1994   | Medicine/Orthopaedics  |

### A. Positions and Honors.

#### Positions and Employment

2000-2003 Instructor in Orthopaedic Surgery, Harvard Medical School, Boston, Massachusetts  
2003-present Assistant Professor of Orthopaedic Surgery, Harvard Medical School, Boston, Massachusetts

#### Other Experience and Professional Memberships

2008-present Orthopaedic Residency Director, Children's Hospital, Boston, Massachusetts  
2008-present Musculoskeletal Imaging Advisory Board, Siemens Health Care

#### Honors

1984 Korean National Honor Award  
1985 1988 Whitaker Health Sciences Fellowship  
1993 Kappa Delta Award of the American Academy of Orthopaedic Surgeons  
1995 Harris Yett Award in General Surgery at the Beth Israel Hospital, Boston  
2000 Von L. Meyer Fellowship Fund Award at Children's Hospital, Boston  
2007 Kappa Delta Award, American Academy of Orthopaedic Surgeons

#### Professional Societies:

|      |   |               |
|------|---|---------------|
| 1986 | Sigma Xi  | Active Member |
| 1990 | New York Academy of Sciences                                | Active Member |
| 1994 | Orthopaedic Research Society                                | Active Member |
| 2000 | Massachusetts Medical Society                               | Active Member |
| 2000 | Osteoarthritis Research Society International               | Active Member |
| 2001 | Int Society for Magnetic Resonance in Medicine              | Active Member |
| 2003 | Pediatric Orthopaedic Society of North America              | Active Member |
| 2004 | American Academy of Orthopaedic Surgeons                    | Active Member |
| 2005 | SICOT – The Int Society of Orthopaedic Surgery Traumatology | Active Member |

### B. Selected peer-reviewed publications (in chronological order).

(Publications selected from 53 peer-reviewed publications)

1. Kim YJ, Sah RL, Doong JY, Grodzinsky AJ. Fluorometric assay of DNA in cartilage explants using Hoechst 33258. *Anal Biochem.* Oct 1988;174(1):168-176.
2. Sah RL, Kim YJ, Doong JY, Grodzinsky AJ, Plaas AH, Sandy JD. Biosynthetic response of cartilage explants to dynamic compression. *J Orthop Res.* 1989;7(5):619-636.

3. Sandor T, Metcalf D, **Kim YJ**. Segmentation of brain CT images using the concept of region growing. *Int J Biomed Comput*. Nov 1991;29(2):133-147.
4. **Kim YJ**, Sah RL, Grodzinsky AJ, Plaas AH, Sandy JD. Mechanical regulation of cartilage biosynthetic behavior: physical stimuli. *Arch Biochem Biophys*. May 15 1994;311(1):1-12.
5. **Kim YJ**, Bonassar LJ, Grodzinsky AJ. The role of cartilage streaming potential, fluid flow and pressure in the stimulation of chondrocyte biosynthesis during dynamic compression. *J Biomech*. Sep 1995;28(9):1055-1066.
6. Buschmann MD, Hunziker EB, **Kim YJ**, Grodzinsky AJ. Altered aggrecan synthesis correlates with cell and nucleus structure in statically compressed cartilage. *J Cell Sci*. Feb 1996;109 ( Pt 2):499-508.
7. **Kim YJ**, Grodzinsky AJ, Plaas AH. Compression of cartilage results in differential effects on biosynthetic pathways for aggrecan, link protein, and hyaluronan. *Arch Biochem Biophys*. Apr 15 1996;328(2):331-340.
8. Quinn TM, Grodzinsky AJ, Buschmann MD, **Kim YJ**, Hunziker EB. Mechanical compression alters proteoglycan deposition and matrix deformation around individual cells in cartilage explants. *J Cell Sci*. Mar 1998;111 ( Pt 5):573-583.
9. Buschmann MD, **Kim YJ**, Wong M, Frank E, Hunziker EB, Grodzinsky AJ. Stimulation of aggrecan synthesis in cartilage explants by cyclic loading is localized to regions of high interstitial fluid flow. *Arch Biochem Biophys*. Jun 1 1999;366(1):1-7.
10. **Kim YJ**, Otsuka NY, Flynn JM, Hall JE, Emans JB, Hresko MT. Surgical treatment of congenital kyphosis. *Spine*. Oct 15 2001;26(20):2251-2257.
11. **Kim YJ**, Glazer PA. Delayed esophageal perforation and abscess formation after cervical vertebrectomy and fusion. *Orthopedics*. Oct 2002;25(10):1091-1093.
12. **Kim YJ**, Jaramillo D, Millis MB, Gray ML, Burstein D. Assessment of early osteoarthritis in hip dysplasia with delayed gadolinium-enhanced magnetic resonance imaging of cartilage. *J Bone Joint Surg Am*. Oct 2003;85-A(10):1987-1992.
13. DiMicco MA, Patwari P, Siparsky PN, Kumar S, Pratta MA, Lark MW, **Kim YJ**, Grodzinsky AJ. Mechanisms and kinetics of glycosaminoglycan release following in vitro cartilage injury. *Arthritis Rheum*. Mar 2004;50(3):840-848.
14. Kocher MS, Bishop JA, Hresko MT, Millis MB, **Kim YJ**, Kasser JR. Prophylactic pinning of the contralateral hip after unilateral slipped capital femoral epiphysis. *J Bone Joint Surg Am*. Dec 2004;86-A(12):2658-2665.
15. Kocher MS, Bishop JA, Weed B, Hresko MT, Millis MB, **Kim YJ**, Kasser JR. Delay in diagnosis of slipped capital femoral epiphysis. *Pediatrics*. Apr 2004;113(4):e322-325.
16. Murphy S, Tannast M, **Kim YJ**, Buly R, Millis MB. Debridement of the adult hip for femoroacetabular impingement: indications and preliminary clinical results. *Clin Orthop Relat Res*. Dec 2004(429):178-181.
17. Katz DA, **Kim YJ**, Millis MB. Periacetabular osteotomy in patients with Down's syndrome. *J Bone Joint Surg Br*. Apr 2005;87(4):544-547.
18. **Kim YJ**, Kassab F, Berven SH, Zurakowski D, Hresko MT, Emans JB, Kasser JR. Serum levels of nickel and chromium after instrumented posterior spinal arthrodesis. *Spine*. Apr 15 2005;30(8):923-926.
19. Kocher MS, **Kim YJ**, Millis MB, Mandiga R, Siparsky P, Micheli LJ, Kasser JR. Hip arthroscopy in children and adolescents. *J Pediatr Orthop*. Sep-Oct 2005;25(5):680-686.
20. Leunig M, Beck M, Kalhor M, **Kim YJ**, Werlen S, Ganz R. Fibrocystic changes at anterosuperior femoral neck: prevalence in hips with femoroacetabular impingement. *Radiology*. Jul 2005;236(1):237-246.
21. Cunningham T, Jessel R, Zurakowski D, Millis MB, **Kim YJ**. Delayed gadolinium-enhanced magnetic resonance imaging of cartilage to predict early failure of Bernese periacetabular osteotomy for hip dysplasia. *J Bone Joint Surg Am*. Jul 2006;88(7):1540-1548.
22. Spencer S, Millis MB, **Kim YJ**. Early results of treatment of hip impingement syndrome in slipped capital femoral epiphysis and pistol grip deformity of the femoral head-neck junction using the surgical dislocation technique. *J Pediatr Orthop*. May-Jun 2006;26(3):281-285.
23. Kocher MS, Kasser JR, Waters PM, Bae D, Snyder BD, Hresko MT, Hedequist D, Karlin L, **Kim YJ**, Murray MM, Millis MB, Emans JB, Dichtel L, Matheney T, Lee BM. Lateral entry compared with medial and lateral entry pin fixation for completely displaced supracondylar humeral fractures in children. A

- randomized clinical trial. *J Bone Joint Surg Am.* Apr 2007;89(4):706-712.
24. Tiderius CJ, Jessel R, **Kim YJ**, Burstein D. Hip dGEMRIC in asymptomatic volunteers and patients with early osteoarthritis: the influence of timing after contrast injection. *Magn Reson Med.* Apr 2007;57(4):803-805.
  25. Clohisy JC, Carlisle JC, Beaulé PE, **Kim YJ**, Trousdale RT, Sierra RJ, Leunig M, Schoenecker PL, Millis MB. A systematic approach to the plain radiographic evaluation of the young adult hip. *J Bone Joint Surg Am.* Nov 2008;90 Suppl 4:47-66.
  26. Clohisy JC, Carlisle JC, Trousdale R, **Kim YJ**, Beaulé PE, Morgan P, Steger-May K, Schoenecker PL, Millis M. Radiographic Evaluation of the Hip has Limited Reliability. *Clin Orthop Relat Res.* Dec 2 2008.
  27. Espinosa N, Strassberg J, Belzile EL, Millis MB, **Kim YJ**. Extraarticular fractures after periacetabular osteotomy. *Clin Orthop Relat Res.* Jul 2008;466(7):1645-1651.
  28. Mamisch TC, Dudda M, Hughes T, Burstein D, **Kim YJ**. Comparison of delayed gadolinium enhanced MRI of cartilage (dGEMRIC) using inversion recovery and fast T1 mapping sequences. *Magn Reson Med.* Oct 2008;60(4):768-773.
  29. Mamisch TC, **Kim YJ**, Richolt JA, Millis MB, Kordelle J. Femoral Morphology Due to Impingement Influences the Range of Motion in Slipped Capital Femoral Epiphysis. *Clin Orthop Relat Res.* Oct 22 2008.
  30. Rebello G, Spencer S, Millis MB, **Kim YJ**. Surgical Dislocation in the Management of Pediatric and Adolescent Hip Deformity. *Clin Orthop Relat Res.* Nov 12 2008.
  31. Zilkens C, Spencer S, Millis M, **Kim YJ**. Die Behandlung der Epiphyseolysis Capitis Femoris mittels Chirurgischer Hüftluxation und subkapitaler Osteotomie. *Orthopädische Praxis.* 2008;44(6):297-303.
  32. Jessel R, Zurakowski D, Zilkens C, Burstein D, Gray ML, **Kim YJ**. Radiographic and patient factors associated with pre-radiographic osteoarthritis in hip dysplasia. *J Bone Joint Surg Am.* 2009.
  33. Jette AM, McDonough CM, Haley SM, Ni P, Olarsch S, Latham N, Hambleton RK, Felson D, **Kim YJ**, Hunter D. A computer-adaptive disability instrument for lower extremity osteoarthritis research demonstrated promising breadth, precision, and reliability. *J Clin Epidemiol.* Feb 10 2009.
  34. Mahan S, Katz J, **Kim YJ**. To Screen or Not to Screen? A Decision Analysis of the Utility of Screening for Developmental Dysplasia of the Hips. *J Bone Joint Surg Am.* 2009.
  35. Mamisch TC, Richolt JA, **Kim YJ**, Zilkens C, Kikinis R, Millis M, Kordelle J. Range of motion after CT based simulation of intertrochanteric corrective osteotomy in cases of slipped capital femoral epiphysis: Comparison of uniplanar flexion osteotomy and multiplanar flexion-valgisation and rotational osteotomy. *J Pediatr Orthop.* 2009.
  36. Tiderius C, Jaramillo D, Connolly S, Griffey M, Rodriguez DP, Kasser JR, Millis MB, Zurakowski D, **Kim YJ**. Post-closed reduction perfusion magnetic resonance imaging as a predictor of avascular necrosis in developmental hip dysplasia: a preliminary report. *J Pediatr Orthop.* Jan-Feb 2009;29(1):14-20.
  37. Ziebarth K, Zilkens C, Spencer S, Leunig M, Ganz R, **Kim YJ**. Capital Realignment for Moderate and Severe SCFE Using a Modified Dunn Procedure. *Clin Orthop Relat Res.* Jan 14 2009.

## C. Research Support

### ACTIVE

Orthopaedic Research and Education Foundation 2008-present

#### **Imaging and Clinical Outcome after Periacetabular Osteotomy for Developmental Dysplasia of the Hip (Kim)**

The goal of this grant is to demonstrate the disease modifying potential of periacetabular osteotomy for osteoarthritis due to hip dysplasia using advanced MR imaging. Role: PI

Siemens Health Care 2009-present

#### **Multicenter Surgical Validation of 3T Hip Imaging for Femoroacetabular Impingement (Kim)**

The goal of this study is to surgically validate 3T MR imaging findings in femoroacetabular impingement and to demonstrated the added value of dGEMRIC imaging in diagnosis of cartilage delamination. Role: PI

Bayer Health Care 2009-present

**Comparison of Single vs. Double Dose dGEMRIC (Kim)**

The goal of the project is to compare the diagnostic characteristics of single vs. double dose dGEMRIC imaging for early hip osteoarthritis. Role: PI

**COMPLETED**

Orthopaedic Research and Education Foundation 1999-2002

**Clinical and Noninvasive Mechanical and Physiochemical Analysis of Hip Dysplasia (Millis and Kim)**

The goal of this grant was to implement the use of dGEMRIC imaging for hip dysplasia. Role: Co-PI

Orthopaedic Research and Education Foundation 2003-2005

**ADAMTS-4 Activation and the Chondrocyte Response to Joint Injury (Gao)**

The goal of this grant was to understand the cartilage degradative response to joint injury. Role: Co-PI

U01 AR051870-02 (1 RO1 AR051870-01) 2004-2007

PHS/NIH/NIAMS (Jette)

**Computer Adaptive Testing for OA Clinical Trials**

The overall objective of this project is to apply contemporary Item Response Theory (IRT) and Computer Adaptive Test (CAT) methods to develop clinical outcome instruments that permit OA clinical trials to be done with greater efficiency and effectiveness. The expected advantages of a CAT outcome system for OA research are: conceptual clarity, improved sensitivity to clinically meaningful change, reduced respondent burden, increased score precision over fixed-length forms, elimination of ceiling and floor effects, monitoring of data quality in real time, and lower data collection costs. We expect the gains in precision and efficiency of score estimation to be superior over traditional fixed forms of assessments and transform outcomes monitoring in OA clinical trials research. Role: Consultant