

CURRICULUM VITAE

Harry A. McKellop, Ph.D.

Harry Alden McKellop

(abridged version)

Educational Background

High School

Phineas Banning High School, Wilmington, CA, 1963

University

El Camino College, Torrance, CA: A.A. Engineering, 1969

University of California Los Angeles: B.S. Mechanical Engineering, 1970

University of California Los Angeles: M.S. Mechanical Engineering, 1973

University of Southern California: Ph.D. Mechanical Engineering, 1988

Dissertation: "Viscoelastic Constitutive Models of Acrylic Surgical Cements"

Military Service

Active: United States Army, June 1963-June 1966

Inactive: U.S. Army Reserve, June 1966-June 1969

Honorable discharge: June 1969

Academic Appointments

Adjunct Assistant Professor of Surgery (Orthopaedics), University of California at Los Angeles, 1979-1980

Research Associate, University of Southern California, 1980-1982

Instructor in Research, Orthopaedics, University of Southern California, 1982-1989

Assistant Professor of Research, Orthopaedics, University of Southern California

July 1989 to April 1995

Assistant Professor of Research, Biomedical Engineering, University of Southern California, October 1993 to April, 1995.

Associate Professor of Research, Department of Orthopaedics and Department of Biomedical Engineering, University of Southern California, April 1995 to June 1998

Professor in Residence, Department of Orthopaedic Surgery, University of California at Los Angeles, July 1, 2001 to present.

Administrative Positions

Director, Biomechanics Research Laboratory, Orthopaedic Hospital & USC, 1985-present

Director, The J. Vernon Luck Orthopaedic Research Center, Orthopaedic Hospital, 1993-present

Director of Research, Department of Orthopaedics, USC, 1994-1998

Vice President for Research, Orthopaedic Hospital, 1996-present

Honors and Awards

1968 Most Outstanding Student: Physics and Chemistry, El Camino College

- 1968 Most Outstanding Student: Engineering and Mathematics, El Camino College
- 1968 Servco Foundation Engineering Scholarship
- 1968 Life Member: Alpha Gamma Sigma, National Community College Honor Society
- 1973 Cum Laude, UCLA
- 1973 Tau Beta Pi, National Engineering Honor Society
- 1994 John Charnley Award, The Hip Society
- 1996 Fifty Distinguished Alumni, El Camino College Golden Anniversary
- 1997 Who's Who In: The World; America; Medicine and Healthcare; Engineering & Medicine
- 1998 CeramTec Award for Research on Biomedical Ceramics
- 1998 Invited Speaker, Gordon Conference on Bioengineering and Orthopaedic Science
- 1998 Kappa Delta Ann Doner Vaughn Award for Outstanding Orthopaedic Research,
Orthopaedic Research Society and the American Academy of Orthopaedic Surgeons
- 1999 Presidential Guest Speaker, Japanese Orthopaedic Association 14th Annual Meeting
- 1999 Fellow: American Institute for Medical and Biological Engineering (AIMBE)
- 2000 Ramon B. Gustilo MD Visiting Professor in Biomechanics. University of Minnesota
- 2000 John Charnley Award, the Hip Society
- 2001 Research Associate Member, California Orthopaedic Association
- 2001 Presidential Guest Speaker, Japanese Society for Biomechanics
- 2003 Research cited in Arthritis Foundation's Top Ten Research Advances of 2003
- 2004 Invited Speaker: Hip Society of Japan

Titles of Award Papers:

- John Charnley Award, 1994: The Origin of Sub-micron Polyethylene Wear Debris in Total Hip Arthroplasty.
- CeramTec Award, 1998: Frictional Heating of Bearing Materials Tested in a Hip Joint Wear Simulator.
- Kappa Delta Award, 1998: Development of an Extremely Wear Resistant Ultra High Molecular Weight Polyethylene for Total Hip Replacements
- John Charnley Award, 2000: Wear is a Function of Use, not Time.

Professional Society Memberships

- Orthopaedic Research Society
- American Academy of Orthopaedic Surgeons (Associate Member)
- California Orthopaedic Association (Research Associate Member)
- The Hip Society (Adjunct Member)
- Society for Biomaterials
- American and International Societies of Biomechanics
- American Society of Mechanical Engineers
- American Society for Testing and Materials
- International Society for Fracture Repair
- International Society for Technology in Arthroplasty
- Sigma Xi

American Institute for Medical and Biological Engineering

Journals

Editor for North America: Journal of Clinical Materials, 1993-1995

Editorial Boards:

Biomaterials, 1996-present (Associate Editor, 2002-present)

Journal of Applied Biomaterials, 1997-present

Orthopedics Today, 1997-2003

Journal of Arthroplasty, 2000-present

Consultant Manuscript Reviewer:

Journal of Bone and Joint Surgery

Journal of the American Academy of Orthopaedic Surgeons

Clinical Orthopaedics and Related Research

Journal of Arthroplasty

Acta Orthopaedica Scandinavica

Biomaterials

Engineering in Medicine

Journal of Biomechanics

Journal of Clinical Materials

Journal of Orthopaedic Research

Journal of Orthopaedic Trauma

Journal of Biomedical Materials Research

Journal of Applied Biomaterials

Journal of Biomaterials Science

Journal of Biomechanical Engineering (ASME)

Journal of the Society of Tribologists and Lubrication Engineers

Journal of Tribology

Journal of Molecular Structure

Journal of Rehabilitation Research and Development

Proceedings of the Institute of Mechanical Engineers

Annals of Biomedical Engineering

American Society for Testing and Materials

Wear

Science

Major Areas of Research

Design and clinical performance of artificial joints. Wear of prosthetic joints and the effects of wear particles on the surrounding bone and soft tissue.

Biomechanics of injury and healing of bone, articular cartilage, ligaments and tendons. Interaction of growth factors and mechanical stimulation in healing tissues and grafts.

Design and clinical performance of devices for stabilization of fractures.

US Patents

Wear Resistant Surface-Gradient Crosslinked Polyethylene

H. McKellop and F.W. Shen. USA Issued: December 26, 2000

Crosslinking of Polyethylene for Low Wear using Radiation and Thermal Treatments:

F.W. Shen, H. McKellop, R. Salovey. USA Issued: May 8, 2001

Chemically Crosslinked Ultrahigh Molecular Weight Polyethylene and Uses Thereof:

R. Salovey, H. McKellop, F.W. Shen: USA Issued: August 28, 2001

Wear Resistant Surface-Gradient Crosslinked Polyethylene (continuation)

H. McKellop and F.W. Shen: USA Issued December 17, 2002

Oxidation-Resistant and Wear-Resistant Polyethylenes for Human Joint Replacements and Methods for Making Them

H. McKellop and F.W. Shen. International application filed April 27, 2001

Chemically Crosslinked Ultrahigh Molecular Weight Polyethylene and Uses Thereof (Continuation)

R. Salovey, H. McKellop, F.W. Shen: USA Approved June 2003

Bibliography

Peer-reviewed: published – 2000 to present

65. McKellop, H., Shen, F.-W., Lu., B., Salovey, R., Campbell, P.
The effect of sterilization method and other modifications on the wear resistance of acetabular cups of ultra-high molecular weight polyethylene. A hip simulator study. *J. Bone and Joint Surgery*, 82-A (12), 1708-1725, 2000
66. Schmalzried, T. P., Shepherd, E.F., Dorey, F.J., Jackson, W.O., de la Rosa, M., Fa'vae, F., McKellop, H., McClung, C.D., Martell, J., Moreland, J.R., Amstutz, H.C.
Wear is a function of use, not time. The John Charnley Award Paper, *Clinical Orthopaedics and Related Research* 381, 36-46, 2000
67. Clarke, I.C., Chan, F.W., Essner, A., Good, V., Kaddick, C., Lappalainen, R., Laurent, M., McKellop, H., McGarry, W., Schroeder, D., Selenius, M., Shen, M.C., Ueno, M., Wang, A., Yao, J.

- Multi-laboratory simulator studies on effects of serum proteins on PTFE cup wear. *Wear*, 250, 188-198, 2001
68. Shen, F.-W., McKellop, H.
Interaction of oxidation and crosslinking in gamma-irradiated ultrahigh molecular-weight polyethylene. *J. Biomed. Mater. Res.* 61, 430-439, 2002
69. Park, S.-H., Silva, M., Bahk, W.-J., McKellop, H., Lieberman, J.
Effect of repeated irrigation and debridement on fracture healing in an animal model. *J. Orthop. Res.*, 20 (6), 1197-1204, 2002
70. Park, S.H., O'Connor, K.M., McKellop, H.
Interaction between active motion and exogenous transforming growth factor beta (TGF β) during fracture repair. *J. Orthopaedic Trauma*, 17 (1), 2-10, 2003
71. Liao, P., McKellop, H., Lu, Z., Campbell, P., Benya, P.
The effect of frictional heating and forced cooling on the serum lubricant and wear of UHMW polyethylene cups against cobalt-chromium and zirconia balls. *Biomaterials*, 24(18), 3047 – 3059, 2003
72. Ebramzadeh, E., Normand, P., Sangiorgio, S., Llinas, A., Gruen, T., McKellop, H.A. and Elkins, S., Long-term radiographic changes in cemented total hip arthroplasty with six designs of femoral components. *Biomaterials*, 24(19), 3331-3343, 2003
73. Campbell, P., Shen, F.-W., McKellop, H.
Biologic and tribologic considerations of alternative bearing surfaces. *Clinical Orthopaedics and Related Research*, 418, 98-111, 2004
74. Ebramzadeh, E., Sangiorgio, S.N., Lattuada, F., Kang J.-S., Chiesa, R., McKellop, H.A., Dorr, L.D.:
Accuracy of the measurement of polyethylene wear with use of radiographs of total hip replacements. *JBJS Am*, Volume 85: 12, 2003, 2378-2384

Peer-reviewed: submitted

1. Ebramzadeh, E., Longjohn, D., Buhari, C., Liang, M., Culwell, J., McKellop, H., Dorr, L.
Contribution of cemented femoral stem surface roughness, collar and size to initial stability and load transfer. *J. Bone and Joint Surgery (American Volume)*
2. Shen, F.-W. and McKellop, H.
Surface-gradient crosslinked polyethylene: Oxidation resistance and wear against smooth and roughened femoral balls. *Clinical Orthopaedics and Related Research*

Book chapters and non-peer reviewed articles (2000 – present):

24. Out of the Laboratory and into the Patient (Roundtable discussion on new crosslinked polyethylenes). *Orthopaedics Today*, 20 (2), February 2000, 50-68
25. **McKellop, H.**
Bearing surfaces in total hip replacements: State of the art and future development. American Academy of Orthopaedic Surgeons, Instructional Course Lectures, Vol. 50, 2001
26. Schmalzried, T., Barrack, R.L., Berry, D.J., Maloney, W.J., **McKellop, H.**
Contemporary issues in total hip arthroplasty. Roundtable Discussion. *American Journal of Orthopaedics*, XXX, No. 8, 626-635, 2001
27. **McKellop, H.**
Bearing surfaces in total hip replacement: State of the art and future developments. Chapter 10 in *Controversies in Hip Surgery*, Robert B. Bourne, ed., Oxford University Press, Oxford, 2003, 249-278
28. **McKellop, H.**
[In Chinese] Bearing surfaces in total hip replacement: State of the art and future developments. Chapter 6 in *Surgery of Artificial Hip Replacement*. Xianzheng Luo, Guixing Qiu, Eds., Union Medical University Press, Beijing, 96-110, 2003.

Books

1. Finerman, G., Dorey, F., Grigoris, P. and **McKellop, H.** (Eds.)
Total Hip Arthroplasty Outcomes, Churchill Livingstone, New York, 1997

Scientific Exhibits

1. **McKellop, H.**, Ebramzadeh, E., Park, S.H., Wiss, D., Brien, W., Sarmiento, A.
Development and Clinical Evaluation of a Reversible Titanium Alloy Femoral Interlocking Nail, Scientific Exhibit #3152, 58th Annual Meeting, American Academy of Orthopaedic Surgeons, March, 1991.
2. Schmalzried, T., Campbell, P., **McKellop, H.**
The Multi-Factorial Nature of Polyethylene Wear In Vivo. Scientific Exhibit # SE034, American Academy of Orthopaedic Surgeons, 66th Annual Meeting, Anaheim, 1999