

CURRICULUM VITAE



Niklaus F. Friederich, MD, Prof. em. Dr. med. (Univ. Basel)

Adjunct Professor (emeritus) of Orthopaedic Surgery | University of Basel
Medical Advisor, MIRACLE project
Head, Center of Biomechanics & Biocalorimetry
Senior consultant, Dept. Orthopaedics & Trauma

Personal Data

Birthdate: July 28, 1955 (Zürich)
Marital Status: Married (Zusanne)
Son: Hannes F. Friederich, PhD
Daughter: Rahel A. Friederich, M.A.
Son: David N. Friederich, M.S.

Education

Prof. Dr. med.	University of Basel, Switzerland Adjunct Professor of Orthop. Surgery	2003
P.D. (Private Docent)	University of Basel, Switzerland Medical Faculty <i>Functional Biomechanics</i>	1997
M.D.	University of Berne, Switzerland Medical Faculty	1985
Swiss Federal Licence.	Dept. Interior, Swiss Federal Govt. University of Bern, Medical School	1981

Appointments

2015 – present	Medical Advisor, MIRACLE project, Dept. Biomedical Engineering University of Basel, Switzerland
2012 – present	Head, Center of Biomechanics and Biocalorimetry, Dept. Biomedical Engineering University of Basel, Switzerland
2015 - 2020	Director of Training, Professor, Dept. of Orthopaedic Surgery University Hospital Basel, Switzerland
2013 - 2015	Co-Founder, Orthoklinik Dornach, Switzerland
1998 - 2013	Director and Head of the Dept. of Orthopaedic Surgery, Kantonsspital Bruderholz, BL, Switzerland
1983 - 1997	Resident, Senior resident, Junior staff, Dept. of Orthopaedic Surgery University Hospital Basel and Bruderholz (Academic teaching hospital)

Invited (Salaried) Visiting Professorships

2019	Dept Orthopaedics/Sports Medicine, Sunnybrook Health Sciences Centre University of Toronto, ON, Canada
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Honorary Memberships

1993	American Orthopaedic Society for Sports Medicine AOSSM
1998	Hungarian Orthopaedic Society
2015	Croatian Orthopaedic Society

Awards

- 1990 **Top Video Program Award**, 57th Annual Meeting, American Academy of Orthopaedic Surgeons AAOS
1992 **Venel Award, best research paper** - Swiss Orthopaedics (Swiss Society for Orthopaedic Surgery)
„Anterior Cruciate Ligament Graft Loads During Knee Rehabilitation: An in-vitro study“
1993 **ESSKA-AOSSM Sports Medicine Traveling fellowship**

Major Offices Held in Professional Societies

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| 1. | Magellan Orthopaedic Society (1994 – present) | Historian 1994 – 2016 |
| 2. | Orthopädische Arbeitsgemeinschaft Knie (OAK, Swiss; 1990 – 2010) | President 1997 – 1999 |
| 3. | Deutschsprachige Arbeitsgemeinschaft Arthroskopie AGA (1992 – present) | Treasurer 1997 – 2008 |
| 4. | Deutsche Arthroshilfe e.V., Mannheim, Germany | Board of Trustees 1997-2012 |
| 5. | Pro Motio – Foundation for Orthopaedic Biomechanical Research – | Founder, President 1998 -2013 |
| 6. | Swiss Orthopaedic Club for Exchange and Research SOCA (2000 – present) | President 2010 – present |
| 7. | Anterior Cruciate Ligament Study Group (1990 – present) | President 2008 – 2010) |
| 8. | Asia-Pacific Knee, Sports Medicine and Arthroscopy Society APKASS | Founding member 2014 |
| 9. | EXPAMED, Advisor to the Expert Panel on Medical Devices, EU-Commission, Brussels | Since 2020 - appointed till 7/2026 |

Editorial Boards (past and present)

1. Swiss Surgery (1998 – 2003)
2. Knee Surgery, Sports Traumatology and Arthroscopy KSSTA (1999 – present)
3. Operative Orthopädie und Traumatologie (1999 – 2001)
4. Orthopaedics and Orthopaedics International Edition (1993 – 2001)
5. Arthroscopie (2002 – 2004)
6. Orthopaedic Journal of Sports Medicine (2011 – present)
7. J Children’s Orthopaedics (2018 – present)

Publications/Lectures and Students, Fellows and Junior Faculty supervised

Prof. Friederich has published **307** refereed journal articles, **10** book chapters and **> 500** abstracts and he has also edited 3 books. He has given over **500** lectures, both nationally and internationally. Prof. Friederich has supervised Master-studies, MD-theses and PhD-theses of over 60 students and orthopaedic surgeons from 8 different countries. He has organized and chaired **6 major international** knee conferences in Basel (Basel Knee Congresses, Symposia Werner Müller)

Till April 2024 his research has been cited 5825 times (1784 times since 2019).

His h-index is 40 (since 2019 24) his i10 index is 98 (since 2019 46).

Research Interests

- Functional biomechanics of the cruciate ligaments and their substitutes
- An integrated approach to novel bone surgery: 3D-Planning, Deep-learning, osteotomy utilizing laser, smart implants
- Robot assisted bone surgery
- Software and simulator assisted teaching and learning for orthopaedic residents.
- Development of biodegradable metallic materials (Magnesium) to be used in bone surgery and tissue engineering approaches to cartilage defects.

Representative Journal Publications

1. Stolz M, Gottardi R, Raiteri R, Miot S, Martin I, Imer R, Stauffer U, Raducanu A, Düggelin M, Baschong W, Daniels AU, **Friederich NF**, Attila A, Aebi U: Early detection of aging cartilage and osteoarthritis in mice and patient samples using atomic force microscopy. *Nature Nanotechnology*, 4(3):186-192, 2009
Citations: 487
2. Sommer C, **Friederich NF**, Müller W: Improperly placed anterior cruciate ligament grafts: correlation between radiological parameters and clinical results. *Knee Surgery, Sports Traumatology, Arthroscopy*, 8(4):207-213, 2000
Citations: 291
3. Biedert RM, Stauffer E, **Friederich NF**: Occurrence of free nerve endings in the soft tissue of the knee joint. A histologic investigation. *Am J Sport Med*, 20(4):430-433, 1992
Citations: 254
4. Räder DA, **Friederich NF**, Hefti F: Discoid Lateral Meniscus in Children. Long-term Follow-up after Total Meniscectomy. *The Journal of Bone and Joint Surgery*, 80(11):1579-1586, November 1998
Citations: 256
5. Hirschmann MT, Konala P, Amsler F, Iranpour F, **Friederich NF**, Cobb JP: The position and orientation of total knee replacement components: a comparison of conventional radiographs, transverse 2D-CT slices and 3D-CT reconstruction. *J Bone Joint Surgery* 93B(5), 629-633, 2011
Citations: 227
6. Hirschmann MT, Testa E, Amsler F, **Friederich NF**: The unhappy total knee arthroplasty (TKA) patient: Higher WOMAC and lower KSS in depressed patients prior and after TKA. *Knee Surgery, Sports Traumatology, Arthroscopy* 21 (10) 2405-2411, 2013
Citations: 210
7. Amis AA, Beynon B, Blankevoort L, Chambat P, Christel P, Dürselen L, **Friederich NF**, Grood E, Hertel P, Jakob R, Müller W, O'Brien M, O'Connor J: Proceedings of the ESSKA Scientific Workshop on reconstruction of the anterior and posterior cruciate ligaments. *Knee Surg. Sports Traumatol. Arthroscopy* 2(3):124-132, 1994
Citations: 147
8. Hirschmann MT, Zimmermann N, Rychen T, Candrian C, Hudetz D, Lorez LG, Amsler F, Müller W, **Friederich NF**: Clinical and radiological outcomes after management of traumatic knee dislocation by open single stage complete reconstruction. *BMC Musculoskeletal Disorders* 2010. 11:102. DOI 10.1186/1471-2474-11-102
Citations: 84
9. **Friederich NF**, O'Brien WR: Functional anatomy of the cruciate ligaments. In: Jakob RP, Stäubli HU (editors): *The Knee and the cruciate ligaments. Anatomy, biomechanics, reconstruction, complications, rehabilitation*: Springer-Verlag Berlin-Heidelberg-New York-Tokyo 1992, S. 78-91
Book chapter
10. O'Brien WR, **Friederich NF**: Fibre recruitment of the cruciate ligaments. In: Feagin JA Jr (ed): *The Crucial Ligaments*, 2nd edition, Churchill-Livingstone New York, 1993, S. 307-317
Book chapter
11. O'Brien WR, **Friederich NF**: Isometric placement of cruciate ligament substitutes. In: Feagin JA Jr (ed): *The Crucial Ligaments*, 2nd edition, Churchill-Livingstone New York, 1993, S. 595-604
Book chapter