

DR. GEORGE JACOB

MBBS, MS Ortho, FAOrthoA, Joint Preservation Fellow (Japan)

MBBS: Manipal University, Manipal

MS Ortho: Nitte University, Mangalore

Joint Preservation Fellow: Osaka University, Japan

Fellows of the Australian Orthopedic Association

MEMBERSHIPS

- **ICRS** International Cartilage Regeneration Society
- **ISAKOS** International Society of Arthroscopy, Knee Surgery, Orthopaedic Sports Medicine
- **IMA** Indian Medical Association
- **AO** Trauma
- **SKI** Society of Knee Surgeons India
- **IAS** Indian Arthroscopic Society
- **COS** Canara Orthopaedic Society
- **KOA** Kerala Orthopaedic Academy
- **COS** Cochin Orthopaedic Society

REGISTRATION

- **Karnataka Medical Council**
- **Travancore – Cochin Medical Council**
- **Australian Health Practitioner Regulation Agency**

PUBLICATIONS

- 1) Sai Sathikumar A, **Jacob G**, Thomas AB, Varghese J, Menon V. [Acetabular cup positioning in primary routine total hip arthroplasty—a review of current concepts and technologies.](#) *Arthroplasty*. 2023 Dec 1;5(1):59.
- 2) Nakagawa, S., Ando, W., Shimomura, K., Hart. D., Hanai. H., **Jacob. G**, Chijimatsu. R, Yarimitu. S, Fujie. H, Okada. S, Noriyuki. T, Nakamura.N [Repair of osteochondral defects: efficacy of a tissue-engineered hybrid implant containing both human MSC and human iPSC-cartilaginous particles.](#) *npj Regen Med* 8, 59 (2023).
<https://doi.org/10.1038/s41536-023-00335-x>
- 3) Sathikumar AS, **Jacob G**, Varghese J, Mathew V. [Total Knee Arthroplasty in Paget’s Disease using 3D-Printed Patient-Specific Femoral Jig—A Case Report.](#) *Journal of Orthopaedic Case Reports*. 2023 Aug;13(8):84.
- 4) Hanai H, Hart DA, **Jacob G**, Shimomura K, Ando W, Yoshioka Y, Ochiya T, Nakagawa S, Nakamura M, Okada S, Nakamura N. [Small extracellular vesicles derived from human adipose-derived mesenchymal stromal cells cultured in a new chemically defined contaminate-free media exhibit enhanced biological and therapeutic effects on human chondrocytes in vitro and in a mouse osteoar.](#) *Journal of Extracellular Vesicles*. 2023 Jul;12(7):12337.
- 5) Shimomura K, **Jacob G**, Hanai H, Nakamura N. [Utilization of Orthobiologic Augmentation for Meniscal Repairs: Current Concepts and Future Perspectives.](#) *Journal of Cartilage & Joint Preservation*. 2022 Nov 17:100090.
- 6) Ando W, Nakagawa S, Shimomura K, Hart D, Hanai H, **Jacob G**, Chijimatsu R, Yarimitsu S, Fujie H, Okada S, Tsumaki N. Repair of Osteochondral Defects: [Efficacy of a tissue-engineered hybrid implant containing both human MSC and human iPSC-cartilaginous particles.](#)
- 7) **Jacob G**, Shimomura K, Yogesh K, Nakamura N. [Tissue Wrapping Augmentation for Anterior Cruciate Ligament Reconstruction: A Review of Clinical Literature.](#) *Biologic Orthopaedics Journal*. 2021 Dec 20;3(SP2):e1-6.

doi: 10.22374/boj.v3iSP2.31

- 8) Suresh A N, Jacob G, Varughese J | [Symptomatic Calcification within the Lateral Collateral Ligament of Knee: A Case Report on Rare Abnormality](#) | Journal of Karnataka Orthopaedic Association | August-September 2021; 9(2): 12-14
doi: 10.13107/jkoa.2021.v09i02.039
- 9) Hamamoto S, Chijimatsu R, Shimomura K, Kobayashi M, Jacob G, Yano F, Saito T, Chung UI, Tanaka S, Nakamura N. [Enhancement of chondrogenic differentiation supplemented by a novel small compound for chondrocyte-based tissue engineering](#). Journal of experimental orthopaedics. 2020 Dec;7(1):1-4.
doi: 10.1186/s40634-020-00228-8
- 10) Kobayashi M, Chijimatsu R, Hart DA, Hamamoto S, Jacob G, Yano F, Saito T, Shimomura K, Ando W, Chung UI, Tanaka S. [Evidence that TD-198946 enhances the chondrogenic potential of human synovium-derived stem cells through the NOTCH3 signaling pathway](#). Journal of Tissue Engineering and Regenerative Medicine. 2021 Feb;15(2):103-15.
doi: 10.1002/term.3149
- 11) Hanai. H, Jacob. G, Nakagawa. S, Tuan. R, Nakamura. N, Shimomura. K [Potential of soluble decellularized extracellular matrix for musculoskeletal tissue engineering - comparison of various mesenchymal tissues](#). Frontiers in Cell and Developmental Biology. 2020 Nov 24; 8:1431
doi: 10.3389/fcell.2020.581972
- 12) Jacob G, Shimomura K, Nakamura N. [Osteochondral Injury, Management and Tissue Engineering Approaches](#). Frontiers in Cell and Developmental Biology. 2020; 8:1118.
doi: 10.3389/fcell.2020.580868

- 13) Huggi. V, K, Yogesh, Jacob. G, Pai. S, Kumar. M. A, Arya. S. [Femoral Notch and Proximal Tibial Morphology and their Relationship with an ACL injury in the Indian population: An MRI based study.](#) **J of Arthrosc Surg and Sports Med** 2020;1(2):193-8
doi: 10.25259/JASSM_36_2020
- 14) Jacob G, Pai S, Huggi V, Kotekar MF, Yogesh K, Kumar MA, Tirumalesh GN, Shetty MS. [Lag screw with DHS \(LSD\) for vertical angle femoral neck fractures in young adults.](#) **Injury.** 2020;51(11):2628-2633
doi: 10.1016/j.injury.2020.07.050
- 15) Jacob. G, A.N Suresh, Kumar.G, Varghese. J. [“Percutaneous Arthroscopic Assisted Knee Medial Collateral Ligament Repair”.](#) **Arthroscopic Techniques** 2020 Oct 1;9(10):e1511-7
doi: 10.1016/j.eats.2020.06.014
- 16) Hevesi M, Jacob G, Shimomura K, Ando W, Nakamura N, Krych AJ. [Current hip cartilage regeneration/repair modalities: a scoping review of biologics and surgery.](#) **International Orthopaedics.** 2020 Sep 10:1-5.
doi: 10.1007/s00264-020-04789-2
- 17) Uchida R., Jacob G., Shimomura K., Horibe S, Nakamura N. [Biological augmentation of ACL repair - Current status and future perspective](#) - **Sports Med Arthroscopy Rev.** June 2020 28(2):49-55
doi: 10.1097/JSA.0000000000000266
- 18) Jacob. G, Shimomura. K, Krych. AJ, Nakamura. N. [The Meniscus: Stem cell Therapies.](#) **Cells** 2020, 9(1), 92
doi: 10.3390/cells9010092
- 19) Jacob. G, Chacko JC, Varghese J. [Is abductor lurch a certainty after extended trochanteric osteotomy?](#) **Kerala Journal of Orthopaedics-** Jan-June 2019 32;(1):7-10

doi: 10.13107/kjo.2019.v32i01.0003

- 20) Shetty Y N, Jacob G, Thomas A B, Varughese J. [Management of multifactorial causes of Patellofemoral Instability in a 19 year old girl.](#) **Journal of Karnataka Orthopaedic Association** May – Aug 2019; 7(2): 34-37.
doi: 10.13107/jkoa.2019.v05i01.019
- 21) Jacob G, Shetty V, Shetty S.M, Varughese J, Singh R.P, Kadage. V. [An in vitro study on the effects of various concentrations of low and high molecular weight hyaluronic acid on human chondrocyte cell metabolism.](#) **J Arthrosc and J Surg** Volume 6, Issue 2, May-August 2019, Pages 123-127
doi: 10.1016/j.jajs.2018.11.004
- 22) Jacob G, Shetty V, Shetty S.M. [A study assessing intra-articular PRP vs PRP with HMW HA vs PRP with LMW HA in early knee osteoarthritis.](#) **J Arthrosc and J Surg** Volume 4, Issue 2 May-Aug 2017 p65-71
doi: 10.1016/j.jajs.2017.08.008
- 23) Jacob G, Shetty V, Shetty S.M, Varughese J, Singh R.P, Malgatti SS, Kadage. V [A comparative study on the effects of methylprednisolone concentration on human chondrocyte cell metabolism in vitro](#) **J of Ortho & Rheum Open-Source** Volume 5 Issue 2 - March 2017
doi: 10.19080/oroaj.2017.05.555660
- 24) Vijayan S, Mehta O, Jacob G, Siddesh ND, Shah H, Joseph B. [The fate of the joint space in Legg–Calvé–Perthes’ disease.](#) **Skeletal radiology.** 2013 Mar 1;42(3):341-5.
doi: 10.1007/s00256-012-1474-6

BOOK CHAPTERS

- **Springer/ Orthopaedic Sports Medicine**
Chapter: Failed Cartilage Surgery
- **ISAKOS Springer Nature: Joint function preservation: a focus on the osteochondral unit**
Chapter: Bi-phasic osteochondral restoration techniques using synovial stem cells and artificial bone (HA) for osteoarthritis and ON.
(publication Dec 2021 at ISAKOS biannual meeting
Cape town)
- **ISAKOS Springer Nature: Orthopedic Biomechanics in Sports Medicine**
Chapter: Biomechanical properties of the Articular cartilage
(publication Dec 2021 at ISAKOS biannual meeting
Cape town)
- **ISAKOS Springer Nature: Cartilage Injury of the Knee in Athletes**
Chapter: Role of MSCs in Symptomatic Cartilage Defects
(publication Dec 2021 at ISAKOS biannual meeting
Cape town)
- **ISAKOS Springer Nature Early: Osteoarthritis**
Chapter: The current role of Stem cell Therapy and iPS cells

Chapter: Meniscus injury and early OA
(publication Dec 2021 at ISAKOS biannual meeting
Cape town)

ORAL PRESENTATIONS

- 1. Australian Knee Society, Nov 17th-20th 2023 Mornington Peninsula** Does the use of LEAT, Improve ACL graft healing?
Parker. D, Jacob. G
- 2. Australian Knee Society, Nov 17th-20th 2023 Mornington Peninsula,** Oral Presentation: Is the Knee Out Straight? Well it depends. Jacob. G, Parker. D
- 3. 19th Annual Conference of Indian Arthroscopy Association 2022 Coimbatore, Tamil Nadu Oral paper presentation:**
Synovial Tissue Augmentation of Meniscal Tears. Jacob.G, Thomas. AB, Varghese J
- 4. KOACON 2018 Mangalore, Karnataka Oral paper presentation:**
A study assessing intra-articular PRP vs PRP with HMW HA vs PRP with LMW HA in early knee.
Jacob G, Shetty V, Shetty S.M
- 5. Asia Pacific Arthroplasty 2017 Chennai August 17th, 2017, Oral paper presentation:**
An in vitro study assessing the effects of methyl prednisolone and hyaluronic acid on human chondrocyte cell metabolism. Jacob G, Shetty V, Shetty SM, Varughese J, Singh. RP, Malgatti SS, Kadage V
- 6. 2017 11th Biennial ISAKOS Congress Shanghai China June 6th, 2017, Oral Paper presentation:**
A study on the effects of various concentrations of low and high molecular weight hyaluronic acid on human chondrocyte cell metabolism in vitro. Jacob G, Shetty V, Shetty SM, Varughese J, Singh. RP, Malgatti SS and Kadage V
- 7. Indian Orthopaedic Association Conference December 15th, 2016 Kochi Oral Paper presentation:**
A Comparative study on the effect of methylprednisolone on human chondrocytes in vitro. Jacob G, Shetty V, Shetty SM, Varughese J, Singh. RP, Malgatti SS and Kadage V
- 8. STEMCON KS Hegde October 3rd, 2015, Oral Paper presentation:**
The effect of Platelet rich plasma vs Platelet rich plasma + Low Molecular Weight Hyaluronic Acid in osteoarthritis of the knee joint Jacob G, Shetty V, Shetty SM

POSTER PRESENTATIONS

1) **AAOS February 2024 San Francisco** Does the use of Lateral Extra-Articular tenodesis in ACL reconstruction enhance graft healing? A Matched Cohort Study Jacob.G, Lim. Y, Ayet. CB, Parker. D

2) **ISAKOS June 2021 Congress South Africa**

Percutaneous Arthroscopic Assisted Knee Medial Collateral Ligament Repair: A Novel Technique and Results. Jacob. G, A.N Sukesh, Kumar.G, Varghese. J.

3) **IFAO 8th Meeting Osaka Japan 2019: Poster Presentation**

Comparing the effects of LMW and HMW HA on human chondrocytes invitro. Jacob.G, Shetty V, Shetty SM

4) **Christian Medical College Vellore Winter symposium January 2015**
Poster presentation:

A pilot study on Platelet rich plasma vs Low Molecular Weight Hyaluronic Acid + Platelet rich plasma in the treatment of osteoarthritis of the knee joint. Jacob G, Shetty V, Shetty SM

ONGOING RESEARCH PROJECTS

- Studying the effects of TEC (Tissue Engineered Construct) and their effects in aiding chondrogenic cell culture in vitro and in vivo
- Tissue Specific bioactivity of solubilized ECM derived from various porcine tissues.
- Fracture hematoma for treatment of bone non-union and the possible benefits of hematoma cell banking

- Variations in knee state data using navigational technologies and robotics.
- Femoral trochlea morphology for patella femoral joint tracking in total knee replacement.

OBSERVERSHIPS

Brown University Department of Emergency Medicine: January 24th, 2011 - February 18th, 2011

St Anne's hospital Fall River. Shadowed emergency medicine attendings and drafted treatment plans in the emergency room for various clinical scenarios and real-life patients. Attended grand rounds and clinical teaching programs with residents.

Missouri Orthopaedic Institute: January 21st, 2014– February 14th, 2014

Observational Fellow at Missouri Orthopaedic Institute under Dr. James Stannard. Observed attendings/fellows performing ankle, knee, shoulder, and elbow arthroscopy as well as primary and revision arthroplasty of knee. Observed two cases of autologous osteochondral fresh allograft transplant. Attending resident grand rounds and morning lectures and meetings.

Englewood Orthopaedic Associates: December 4th, 2017- December 9th, 2017

Observership under Dr. Asit Shah. Attended knee clinic and operation theatre primary and revision arthroplasty cases of the knee and hip along with peri-prosthetic fracture management.

CONFERENCES AND WORKSHOPS

- Australian Knee Society, Mornington Peninsula Nov 17th-20th 2023
- ISAKOS World Congress Boston, USA 2023
- ROSA Knee Instructional Course Zimmer Biomet, Sydney 2nd-3rd June 2023
- Smith and Nephew CORI Robot Journey II Cadaver Lab 25th February 2023
- 19th IASCON September 15th-17th 2022 Coimbatore, Tamil Nadu
- Arthrex Shoulder and Knee Cadaveric Course Singapore 24-26th August 2022
- AANA Annual Meeting San Francisco May 19th -22nd 2022
- Biological Alliance Orthobiologics Summit San Francisco May 17th 2022
- Tejasvini Orthopaedic Symposium April 15th -17th 2022
- AO Trauma Masters Hybrid Course- Fractures of the Foot and Ankle Bangalore, India Nov 6-7th 2021
- Arthrex Advanced knee cadaveric lab Bangalore, India 25th March 2021
- AO Trauma Masters Hybrid Course—Fracture around the Knee Mangalore, India October 31st, 2020
- IFAO 8th Meeting Osaka, Japan November 13th – 15th
- ICRS World Congress Vancouver October 5-8th 2019
- 11th Annual Meeting of the Japanese Orthopaedic Society of Knee, Arthroscopy and Sports Medicine Sapporo, Japan June 13th-15th 2019
- 18th Congress for Japanese Society for Regenerative Medicine Kobe, Japan March 21st- 23rd 2019
- 'I AM NOT READY FOR METAL' ICRS focus meeting Milan, Italy Dec 13th-14th 2018
- 91st Japanese Orthopaedic Association Meeting Kobe, Japan May 2018
- Advanced fracture fixation AO Trauma certification Mumbai, India March 2018
- KOACON, Mangalore, India 2nd-4th February 2018
- AAOS/OTA Orthopaedic Updates Trauma and Techniques Chicago, USA Dec 2017
- Asia Pacific Arthroplasty Society 2017 Chennai, India August 2017
- ICRS Heritage Summit Gothenburg, Sweden June 2017

- ISAKOS World Congress Shanghai, China June 2017
- Basic fracture fixation AO Trauma certification Chennai, India January 2017
- IOACON Kochi, India December 2016
- STEMCON KS Hegde Medical Academy Mangalore, India December 2015
- Sancheti Pune Trauma Course Pune, India June 2015
- Christian Medical College Vellore Winter symposium: Orthopaedics Vellore India January 2015
- Flaps for trauma surgeons CME Mangalore, India August 2014
- ICRS lab skills Cartilage research and regeneration techniques hands on workshop Colorado, USA October 2014

AWARDS

- Best Postgraduate Case presentation Mangalore Orthopedic Course 2017
- Best Oral Paper Presentation Asia Pacific Arthroplasty Chennai, India 2017
- International Federation of Artificial Organs Investigator Award Osaka, Japan November 2019

INTERESTS

Music
 Painting
 HI Fidelity Audio
 Long distance Swimming
 Endurance Cycling
 Scuba Diving

REFEREES

The following consultants have kindly consented to act as my referees:

Dr David. Parker

The Knee Institute & Sydney Orthopaedic Research Institute
 Sydney
 NSW, Australia

Dr. Brett Fritsch

The Knee Institute & Sydney Orthopaedic Research Institute
Sydney
NSW, Australia

Professor Norimasa Nakamura
Dept Orthopaedics
Osaka Healthy Science University
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Dr. Ajith Kumar
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