



# *In vivo* magnetic resonance imaging morphometry of the patella bone in South Indian population

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Dear editor,

We recently read the article “*In vivo* magnetic resonance imaging (MRI) morphometry of the patella bone in South Indian population” by Muhamed et al. [1] published in your esteemed journal of Anatomy and Cell Biology in 2017. The aim of the study was to provide the morphometric data of the patella bone and to describe the gender variations of the patella bone in South Indian population by studying the MRI films [1].

The study included 140 subjects with 70 males and 70 females. The study nature was retrospective and the sample were randomly selected. The age of the subjects ranged from 20 to 70 years. The exclusion criteria included were patients with congenital anomaly, severe trauma, surgery, acute patellar dislocation, patellar fracture, knee joint tumour, and rheumatoid arthritis. We have certain reservations regarding the study.

First, the study fails to mention whether it has included the cartilage of the patella (medial and lateral facets) in the measurements. In total knee replacements, the thickness of the patella is calculated along with the facet cartilage [2]. Hence, it would have been prudent to include the cartilage thickness which would give a better assessment of the racial characteristics. Computed tomography would have been a

better option for measuring the bone parameters if cartilage is not taken in to account.

Second, the methodology in the article says T2 weighted images were used for the calculation of the parameters. But the figure published is a T1 weighted image. T1 images in MRI helps in assessing the bone whereas, the T2 images helps in assessing the cartilage and soft tissues in the knee [3]. This needs clarification.

Third, the subjects were randomly selected and the design of the study is retrospective. The authors fail to mention whether any patient with acquired deformities such as poliomyelitis, and those with history of any joint infections such as (septic arthritis, tuberculosis of knee and osteomyelitis) of the knee were excluded or not. The presence of any of the above diseases can change the bone morphology This needs further clarification.

Fourth, the age of the subjects ranged from 20 to 70 years. Age related changes occur in the bone and cartilage and knee joint is often prone to develop osteoarthritis. Older age groups are seen to have osteophytes in the patella and they can be even seen in compartments with normal cartilage [4]. The current study involves patients with age more than 60 years. Did the authors include subjects with osteophytes in the patella. The measurement of the mediolateral thickness of patella would have altered if such cases were included along with the axis for rest of the measurements. This needs further clarification.

To conclude, the methodology used in the study needs to be verified and the exclusion criteria should also include poliomyelitis, infections in and around knee and osteoarthritis.

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## Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

## References

1. Muhamed R, Saralaya VV, Murlimanju BV, Chettiar GK. *In vivo* magnetic resonance imaging morphometry of the patella bone in South Indian population. *Anat Cell Biol* 2017;50:99-103.
2. Hamilton WG, Ammeen DJ, Parks NL, Goyal N, Engh GA, Engh CA Jr. Patellar cut and composite thickness: the influence on postoperative motion and complications in total knee arthroplasty. *J Arthroplasty* 2017;32:1803-7.
3. Crema MD, Roemer FW, Marra MD, Burstein D, Gold GE, Eckstein F, Baum T, Mosher TJ, Carrino JA, Guermazi A. Articular cartilage in the knee: current MR imaging techniques and applications in clinical practice and research. *Radiographics* 2011;31:37-61.
4. Markhardt BK, Li G, Kijowski R. The clinical significance of osteophytes in compartments of the knee joint with normal articular cartilage. *AJR Am J Roentgenol* 2018;210:W164-71.