

1 **32694-SCIENTIFIC RESEARCH PROCESS**

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4 **Reliability of the pronator quadratus fat pad sign to predict the severity of distal radius**  
5 **fractures**

6 Loesaus J, Wobbe I, Stahlberg E, Barkhausen J, Goltz JP

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9 1 What did this study explore?

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11 This retrospective study evaluated the realibility of pronator quadratus fat pad sign to detect distal  
12 radius fracture and to predict its severity.

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15 2 How did the authors perform all experiments?

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17 Loesaus J and Goltz JP conceptualized and designed the research. Loesaus J and Goltz JP collected  
18 the data. Loesaus J and Stahlberg E analyzed the data. All authors dicussed the results. Loesaus J  
19 and Goltz JP drafted the manuscript. Wobbe I and Barkhausen J performed a critical revision. All  
20 authors approved the final manuscript.

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23 3 How did the authors process all experimental data?

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25 After approval by the Institutional Review Board of University Hospital of Schleswig-Holstein  
26 Loesaus J and Goltz JP identified and collected the data from research dataset of the Department for  
27 Radiology, Neuroradiology and Nuclear Medicine, University Hospital of Schleswig-Holstein,  
28 Campus Lübeck. The original identification number of each patient has been scrambled to protect  
29 patient privacy before analysis. After statistical analysis the initial results were presented in a  
30 discussion meeting. Further data collection and analysis were performed according to the  
31 suggestion of the meeting. Final results were discussed again before drafting of the manuscript.  
32 Corresponding author critically reviewed the paper and all authors approved the final manuscript.

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35 4 How did the authors deal with the pre-study hypothesis?

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37 The pre-study hypothesis was initially reviewed by a routine study meeting held by the Department  
38 for Radiology, Neuroradiology and Nuclear Medicine, University Hospital of Schleswig-Holstein,  
39 Campus Lübeck. After discussing the feasibility and the value of science, the first and  
40 corresponding authors submit the proposal to apply for the Institutional Review Board approval.  
41 After Institutional Review Board approval, the authors began the study according to the study  
42 hypothesis.

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45 5 What are the novel findings of this study?

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47 In conclusion pronator quadratus fat pad complex thickness can reliably be measured on lateral CR  
48 and correlates with CT. Sensitivity of a positive pronator quadratus sign for detecting fractures is  
49 low, but specificity is high. Therefore a positive pronator quadratus sign in putative negative  
50 radiograph should trigger further investigations, e.g. CT scan. Pronator quadratus fat pad complex  
51 thickness cannot predict severity of wrist fractures.