Cite this as: Xiaodi ZOU, Yanzhao DONG, Changxing WANG, Hui LU. Application of custom-made joint prostheses in wrist. *Journal of Zhejiang University-SCIENCE B (Biomedicine & Biotechnology)*, 2025, 26(2):200-202.
http://doi.org/10.1631/jzus.B2400102

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Application of custom-made joint prostheses in wrist

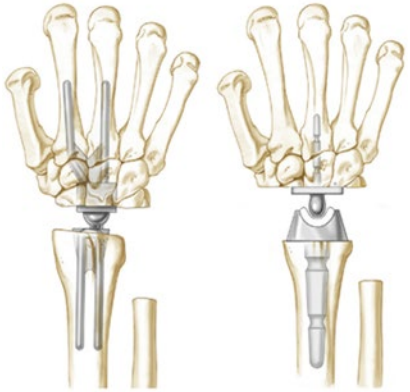
Key words: **Polycomb repressive complexes (PRC), CBX proteins, Epigenetic regulation, Cancer**

Research Summary

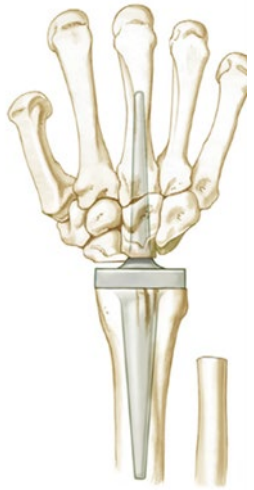
This article critically examines the advancements and applications of custom-made joint prostheses in wrist surgery, while also addressing the potential benefits and challenges they present.



- Traditional custom-made prostheses have high manufacturing costs and long production cycles. The application of 3D printing technology addresses these shortcomings, enabling more personalized designs tailored to patients' anatomical characteristics.



The second-generation implants



The first-generation implant

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Research Summary

- 3D-printed wrist prostheses perform better than traditional methods like allograft reconstructions in alleviating pain and restoring joint mobility.
- there is still a lack of long-term clinical follow-up data on 3D-printed wrist prostheses. Further evaluation of their long-term efficacy and potential complications is needed.



The third-generation implants

Table1 Summary box of contraindications to Total Wrist Arthroplasty (TWA).

Loss of innervation	Chronic subluxation
Lack of active extension	Need for weight bearing through joint
Local infection	Poor bone stock

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Innovation points

●**A** **systematic review of wrist joint prosthesis development, from the first to fourth generations**

●**Identification** **of a lack of long-term follow-up data on 3D-printed wrist prostheses**

● **Emphasis** **of limitations of traditional custom prostheses and detailed the advantages of 3D printing for personalized designs**

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Figure 4