THE ANATOLIAN JOURNAL OF CARDIOLOGY

Official journal of the TURKISH SOCIETY OF CARDIOLOGY

# Reply to the Letter to the Editor: "Postimplantation Activity Restrictions and Shoulder Dysfunction After Pacemaker Implantation"

LETTER TO THE EDITOR
REPLY

To the Editor,

We thank the authors[1] for their thoughtful comments on our study[2] comparing kinesiophobia, upper-limb function, shoulder range of motion, and handgrip strength in patients with pacemakers and coronary artery disease.[2] We agree that postoperative activity restrictions, immobilization, and rehabilitation may represent important and potentially modifiable determinants of subsequent shoulder function.

As noted in our article, postoperative recommendations vary considerably among centers, and randomized evidence suggests that early mobilization can be implemented without a significant increase in lead- or pocket-related complications.[3] The study highlighted by the authors, which demonstrated a lower frequency of shoulder pain with a structured shoulder exercise program and no activity-related complications, further supports the potential importance of postoperative shoulder management.[4]

Our study protocol did not include the systematic collection of information regarding postoperative activity restrictions, immobilization, or participation in rehabilitation. Furthermore, the time elapsed since pacemaker implantation varied considerably among participants, making reliable retrospective reconstruction of early postoperative practices difficult. Therefore, the type and duration of activity restrictions, use of immobilization, adherence to movement recommendations, and participation in rehabilitation could not be included in the analyses. We agree that the absence of these data represents an additional limitation of our study.

The selective reduction in ipsilateral shoulder internal rotation observed in the pacemaker group is nevertheless clinically relevant. However, because preimplantation shoulder measurements and longitudinal postoperative data were unavailable, this cross-sectional association cannot establish a causal relationship with pacemaker implantation. The anatomical and soft-tissue mechanisms proposed in our Discussion were intended as plausible explanations rather than evidence of a device-specific causal mechanism. Postoperative movement restriction, pain-related avoidance, and differences in rehabilitation exposure may also have contributed to the observed difference.

Future prospective studies should assess shoulder function before pacemaker implantation and at standardized intervals thereafter. Postoperative instructions, the type and duration of movement restrictions, immobilization, pain, adherence to recommendations, and participation in rehabilitation should also

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**Available Online Date:**
November 12, 2026

**Cite this article as:** Ata BN, Özçete ZA, Ünal B, İnce B. Reply to the letter to the editor: "postimplantation activity restrictions and shoulder dysfunction after pacemaker implantation." *Anatol J Cardiol.* 2026;30(12):980-981.

DOI: 10.14744/AnatolJCardiol.2026.7022

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be documented. Such studies could help distinguish procedure- and device-related effects from the potentially modifiable consequences of postoperative management and contribute to the development of more standardized rehabilitation strategies.

We thank the authors for highlighting this clinically relevant issue and extending the interpretation of our findings.

**Declaration of Interests:** The authors have no conflict of interest to declare.

**Funding:** The authors declare that this study received no financial support.

## REFERENCES

1. Çakmak AC, Sarıbıyık Çakmak B. Postimplantation activity restrictions and shoulder dysfunction after pacemaker implantation. *Anatol J Cardiol*; 2026;30(12):978-979.
2. Ata BN, Özçete ZA, Ünal B, İnce B. Comparison of kinesiophobia, upper limb function, and grip strength in patients with pacemakers and coronary artery disease. *Anatol J Cardiol*. 2026;30(9):599-605. [CrossRef]
3. Miracapillo G, Costoli A, Addonisio L, et al. Early mobilization after pacemaker implantation. *J Cardiovasc Med (Hagerstown)*. 2006;7(3):197-202. [CrossRef]
4. Daniels JD, Sun S, Zafereo J, et al. Preventing shoulder pain after cardiac rhythm management device implantation: a randomized, controlled study. *Pacing Clin Electrophysiol*. 2011;34(6):672-678. [CrossRef]