biomechanics

MDPI

Editorial

Biomechanics Is Marching Forward to Become a Trustworthy and Indexed Journal

Tibor Hortobágyi [1,2,3]

[1] Department of Kinesiology, Hungarian University of Sports Science, 1123 Budapest, Hungary; t.hortobagyi@umcg.nl
[2] Institute of Sport Sciences and Physical Education, Faculty of Sciences, University of Pécs, 7624 Pécs, Hungary
[3] Department of Human Movement Sciences, University Medical Center Groningen, 9700 Groningen, The Netherlands

Biomechanics (ISSN 2673-7078) is an international, peer-reviewed, open access journal covering all aspects of biomechanics, which can be described as the application of principles and methods of mechanics to the quantitative study of biological systems. Its research scope ranges from whole organisms to systems and organs (including blood, body fluids, organs and bones) within the human body as well as animals and plants. Under Dr. Justin Keogh Editor-in-Chief's leadership (Bond University, Robina QLD 4226, Australia), *Biomechanics* was launched in June 2021 with 13 articles.

First, I thank the Editorial Office for the indefatigable effort in managing *Biomechanics*. Second, the Editorial Office and myself would like to thank the 49 Editorial Board Members for their time, energy, and expertise in providing leadership for *Biomechanics*. Such an outstanding effort is necessary for a new journal to move forward and publish high-quality papers in an increasingly competitive market [1,2]. Special acknowledgements go to Section-Editor-in-Chiefs Prof. Dr. Francois Prince (Sports Biomechanics Section) and Dr. Luis Augusto Teixeira (Neuromechanics Section). We also thank the past Editorial Board Members for their work (Dr. Claudia Mazzà, Porf. dr. Jim Dickey, Prof. dr. Jaap van Dieën). We are grateful to the nine members of the Topical Advisory Panel for their work. Moreover, we are all indebted to the 128 reviewers for providing professional and helpful comments to screen and improve the quality of the submissions.

To briefly summarize the journal metrics, during the time period between Dr. Justin Keogh's EiC welcome note on 17 June 2021 and December 2023, *Biomechanics* has published 126 articles (11 reviews, 3 systematic reviews). The number of submissions to *Biomechanics* was 84 in 2021, 89 in 2022, and 149 in 2023. In those 3 years, the median publication times were 64, 63, and 64 days, respectively. The plan is to publish ~50 papers within four issues in 2024. *Biomechanics* is now indexed by Scopus. We hope that *Biomechanics* will enter PubMed in 2025. We applied for Web of Science (WoS) comprehensive citation indexing in June 2023 and are targeting the indexing in WoS (ESCI/SCIE) by 2024/2025. *Biomechanics* will receive its first CiteScore in July 2024. It is our vision to raise the quality of the papers accepted so that *Biomechanics* can excel through ever-improving citation metrics!

The purpose of this editorial is to assure readers that the editorial board of *Biomechanics* addresses the most pressing issue in scholarly publishing: quality control. The editorial board of *Biomechanics* takes full responsibility for quality control. We do this by respecting reviewers' comments. Nevertheless, as experienced by many authors during the review process at times, I personally take an unusually critical look at submissions for the benefit of the authors, the *Journal*, and science. I encourage my editorial colleagues to exercise reasonable but rigorously critical assessments of submissions and reviews so that *Biomechanics* can truly move forward to become a highly ranked journal and a respected center of knowledge distribution.

Quality control in this context has at least two sources. One is that researchers want and need to publish their work, and this publication pressure, paradoxically, leaves little

check for updates

Citation: Hortobágyi, T. *Biomechanics* Is Marching Forward to Become a Trustworthy and Indexed Journal. *Biomechanics* **2024**, *4*, 319–322. https://doi.org/10.3390/biomechanics4020021

Received: 30 April 2024
Accepted: 21 May 2024
Published: 27 May 2024

Copyright: © 2024 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

time and energy for the same researchers to judge their peers' papers, i.e., to review submissions. A second challenge is uncertainty regarding the role of AI in research in general, as well as in peer reviewing specifically.

Editors and journal managers have great difficulties identifying and recruiting researchers to review submissions. This issue is not unique to *Biomechanics*. While on the surface 'paying' researchers to review submissions would be an 'easy' solution, this approach is untenable fiscally and for other reasons. Open access has been a great achievement in scholarly publishing, as it allows for readers to download paper PDFs free of charge. Publishing an entire journal in a PDF-only format still accrues costs associated with copy-editing, typesetting, long-term archiving, and website and journal management. Hence, an article processing charge (APC) of CHF 1000 (Swiss Francs) applies to peer-reviewed papers accepted in *Biomechanics*. MDPI, including *Biomechanics*, acknowledges reviewers for their services by issuing reviewer vouchers that authors can use to reduce APC fees when they subsequently submit a paper to an MDPI journal. Even for a new journal, such as *Biomechanics*, the voucher costs can be high; and it can still backfire. The fallacy of such a fiscally motivated peer review is that certain researchers do take on papers to review in order to receive the vouchers. However, the reviews can be subpar, hastily prepared, and unprofessional. Such reviews are not only unhelpful but disrespect the authors who spent substantial time, potentially years, to gather data, culminating in a submission. We, editors, and by the same token authors, have no choice but to be patient; at times, we ask up to 12 potential reviewers to review a submission, alas to no avail. The high number of invitations might suggest that the match between the journal scope and the theme of the submission is sub-optimal. Editors should be on the lookout and screen out such papers ab ovo for the benefit of the journal and the authors. As finding time is also a problem for reviewers, they can always ask the Editorial Office to extend the default review period of 10 days and such an extension might nudge potential reviewers to accept invitations. Inviting reviewers from outside the system first, followed by a formal invitation might also speed up the review. Researchers and associate editors could also facilitate the review process by exercising flexibility, and review submissions that are a slightly outside their highly specialized field of expertise. A mentor program could facilitate reviewer recruitment. Senior researchers should take on papers to review and train junior colleagues, postdoctoral fellows, and PhD students to review submissions. There are several tools and websites that provide information on how to review. We are developing a 'participatory reviewer system' that would require reviewing evidence in a given journal before submitting a paper to the same journal. Structured peer reviews could reduce reviewers' burden by focusing on specific tasks and shifting the assessment of novelty, impact, language, and formatting to editors, journal staff, or AI [3]. Overall, nothing, not even AI, can replace careful, rigorous, and constructive reviews, 'manual' scrutiny of the writing, data, tables, figures, and references [4]. Researchers must realize that they need to prioritize reviewing papers because if they do so, the chances increase that their own work will be reviewed on time.

While AI can certainly aid academic writing [5], it cannot and should not replace the creative generation of novel ideas because the work will not be the authors' own [6,7]. The quality control of submissions to *Biomechanics*, as to any journal for that matter, must now consider whether AI was used during any steps along the scientific research continuum leading to a scholarly paper. Exercising such 'considerations' is easier said than done, as regulatory transparency in publishing is lacking to maximize AI's benefits and minimize its potential harms [4–6,8–15]. For now, editors and reviewers can be on the lookout for images and data that appear 'too good to be true', implying the use of AI from potentially fake data. They can also check, if not all, 5–6 references at random and a few key references for misattribution, determine if the statistical analyses match the experimental design, see if the conclusions match the data, check if figures show individual data, allowing for readers to inspect the distribution of the data, and evaluate if a submission has a large enough scope so that the core data are not presented narrowly in a fragmented manner,

resulting in three papers instead of one. Still, it is possible that reviewers' expertise does not fully match the scope of a submission and what they do not comment upon contained erroneous information [3]. An experienced reviewer will perform all these tasks effectively in 30 min, much shorter than writing lengthy instruction scripts for AI to perform each task element. Reviewers should use AI as an aid to peer-review, and then edit the output to make it their own work. Reviewers should never hide behind the 'safety' of a AI-generated peer review. Indeed, Liang et al. identified an unreasonable number of adjectives in ~20% of conference abstract reviews, indicating and insulting authors that the peer review text was most likely written by chatbots [16]. The current Instructions for Authors (https://www.mdpi.com/journal/biomechanics/instructions, accessed on 30 April 2024) do not yet address issues concerning the use of AI in writing scholarly articles and writing peer review reports. MDPI does use ChatGP and other methods to check submissions and if a red flag appears, consults relevant editors. The quality control of publishing requires editors of *Biomechanics* to remain up to date with the ever-expanding repertoire of technological advancements in science publishing. Only such vigilance can ensure the quality control of publishing in *Biomechanics*.

Biomechanics welcomes nominations for a Section Editor-in-Chief of the "Injury Biomechanics and Rehabilitation" and the "Tissue and Vascular Biomechanics" sections. We are still soliciting submissions for Special Issues:

a. Advances in Sensing-Based Animal Biomechanics (edited by Christian Peham);
b. Personalized Biomechanics and Orthopedics of the Lower Extremity (edited by Gabriëlle Tuijthof, Malte Asseln);
c. Locomotion Biomechanics and Motor Control (edited by Ka-Chun (Joseph Siu));
d. Effect of Neuromuscular Deficit on Gait (edited by Pantelis T. Nikolaidis);
e. Advances in Sport Injuries (edited by Shaghayegh Bagheri, Francois Prince);
f. Inertial Sensor Assessment of Human Movement (edited by Elissavet Rousanoglou, John Buckley, Alan Godfrey);
g. Gait and Balance Control in Typical and Special Individuals (edited by Luis Augusto Teixeira);
h. Biomechanics in Sport and Ageing: Artificial Intelligence (edited by Tibor Hortobágyi);
i. Biomechanics in Sport, Exercise and Performance (edited by Stuart Evans, Kevin M. Carroll and Ryan Worn).

(See: https://www.mdpi.com/journal/biomechanics/special_issues, accessed on 30 April 2024).

Conflicts of Interest: The author declares no conflicts of interest.

References

1. Sanderson, K. Editors quit top neuroscience journal to protest against open-access charges. *Nature* **2023**, *616*, 641. [CrossRef] [PubMed]
2. Sanderson, K. Journal editors are resigning en masse: What do these group exits achieve? *Nature* **2024**, *628*, 244–245. [CrossRef] [PubMed]
3. Malicki, M. Structure peer review to make it more robust. *Nature* **2024**, *628*, 476. [CrossRef] [PubMed]
4. Singh Chawla, D. Is ChatGPT corrupting peer review? Telltale words hint at AI use. *Nature* **2004**, *628*, 483–484. [CrossRef] [PubMed]
5. Gruda, D. Three ways ChatGPT helps me in my academic writing. *Nature* **2024**. [CrossRef] [PubMed]
6. Van Noorden, R.; Webb, R. ChatGPT and science: The AI system was a force in 2023—For good and bad. *Nature* **2023**, *624*, 509. [CrossRef] [PubMed]
7. Mitchell, M. *Artificial Intelligence: A Guide for Thinking Humans*; Pelican: New Orleans, LA, USA, 2019.
8. Naddaf, M. ChatGPT generates fake data set to support scientific hypothesis. *Nature* **2023**, *623*, 895–896. [CrossRef] [PubMed]
9. Callaway, E. AI writes summaries of preprints in bioRxiv trial. *Nature* **2023**, *623*, 677. [CrossRef] [PubMed]
10. O'Callaghan, J. How OpenAI's text-to-video tool Sora could change science—And society. *Nature* **2024**, *627*, 475–476. [CrossRef] [PubMed]
11. Else, H.; Van Noorden, R. The fight against fake-paper factories that churn out sham science. *Nature* **2021**, *591*, 516–519. [CrossRef] [PubMed]

12. Anonymous. Why scientists trust AI too much—And what to do about it. *Nature* **2024**, *627*, 243. [CrossRef] [PubMed]
13. Stokel-Walker, C.; Van Noorden, R. What ChatGPT and generative AI mean for science. *Nature* **2023**, *614*, 214–216. [CrossRef] [PubMed]
14. Messeri, L.; Crockett, M.J. Artificial intelligence and illusions of understanding in scientific research. *Nature* **2024**, *627*, 49–58. [CrossRef] [PubMed]
15. Castelvecchi, D. DeepMind AI outdoes human mathematicians on unsolved problem. *Nature* **2024**, *625*, 12–13. [CrossRef] [PubMed]
16. Liang, W.; Izzo, Z.; Zhang, Y.; Lepp, H.; Cao, H.; Chen, L.; Ye, H.; Liu, S.; Huang, Z.; McFarland, D.A.; et al. Monitoring AI-Modified Content at Scale: A Case Study on the Impact of ChatGPT on AI Conference Peer Reviews. *arXiv* **2024**. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.