

Ejtm3 experiences after ChatGPT and other AI approaches: values, risks, countermeasures

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Abstract

We invariably hear that Artificial Intelligence (AI), a rapidly evolving technology, does not just creatively assemble known knowledge. We are told that AI learns, processes and creates, starting from fixed points to arrive at innovative solutions. In the case of scientific work, AI can generate data without ever having entered a laboratory, (*i.e.*, blatantly plagiarizing the existing literature, a despicable old trick). How does an editor of a scientific journal recognize when she or he is faced with something like this? The solution is for editors and referees to rigorously evaluate the track records of submitting authors and what they are doing. For example, false color evaluations of 2D and 3D CT and MRI images have been used to validate functional electrical stimulation for degenerated denervated muscle and a home Full-Body In-Bed Gym program. These have been recently published in Ejtm and other journals. The editors and referees of Ejtm can exclude the possibility that the images were invented by ChatGPT. Why? Because they know the researchers: Marco Quadrelli, Aldo Morra, Daniele Coraci, Paolo Gargiulo and their collaborators as well! Artificial intelligence is not banned by the EJTm, but when submitting their manuscripts to previous and to a new Thematic Section dedicated to Generative AI in Translational Mobility Medicine, authors must openly declare whether they have used artificial intelligence, of what type and for what purposes. This will not avoid risks of plagiarism or worse, but it will better establish possible liabilities.

Key Words: Ejtm3; ChatGPT; generative AI; values; risks; countermeasures.

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We now hear a great deal about Artificial Intelligence (AI), a rapidly evolving technology that synthesizes existing knowledge with remarkable precision into logical communications, however, AI is not limited to this activity. Artificial Intelligence describes computer systems which perform complex tasks that once only humans could do, such as making decisions or solving problems. AI learns, processes and creates, starting from fixed points (chosen by some person) to arrive at innovative solutions. In the case of scientific work and writing, AI can start

from some premises (chosen by some person), develop an experimental strategy, generate feasible data based on the available knowledge and the chosen strategy, discuss them and write the conclusions without ever entering a laboratory. This action results in blatant misuse of the vast existing literature, an established challenge in scholarly work. And it does all of this at incredible speed! How do the editors and referees of a journal realize that they are dealing with something like this and not true experimental work as we know it? If this is a problem, then a (partial)

solution is for editors and referees to check what the submitting authors have published in the past and what they are currently doing. They may also determine what funding they have had or are managing and what topics these grants cover. Of course, in 10 years these efforts may no longer be enough because of the unstoppable proliferation of AI publications. However, the personal relationships between Authors, Editors and Referees of every magazine, which has a good history and knows how to enhance it, will always stand as a countermeasure.¹ Readers will tell us that we are satisfied with little, like all the things that interest some of us. But we have no doubt that we can trust the participants of the 2025 2nd Meeting of Science at the Frontier - *Scienza in Frontiera – Wissenschaft an der Grenze: Artificial Intelligence (AI), a rapidly evolving technology, vs Human Intelligence (HI): two myths compared*” held in San Candido/Innichen, Bolzano/Bozen, Italy, 16-18 January 2025 (Figure 1). They will never rely on AI to publish in “fake journals with stratospheric level impact factors managed by unknown people”... a very current stigma of the worst journalism based on the worst artificial intelligence. Soon a report of this interesting meeting will appear in the Ejtm3 new Thematic Section: AI in Translational Mobility Medicine. In the meantime, we hope you will be satisfied with a

good example of the use of AI taken from Ejtm3. The summary of this recent article follows:²

Chat Generative Pre-Trained Transformer (ChatGPT) in the medical field has had applications in numerous studies with promising results. The authors chose the assessment of low back pain and asked ChatGPT to generate a questionnaire on this very common clinical condition and then compared the results with those of clinically validated questionnaires. On a sample of 20 subjects suffering from low back pain, important consistencies were found between the already validated questionnaires and the one generated by ChatGPT. The ChatGPT questionnaire showed a significantly acceptable correlation only with the Oswestry Disability Index and the Quebec Back Pain Disability Scale. Further, ChatGPT added some peculiarities, especially in the evaluation of quality of life and in medical consultations and treatments.

The authors conclude that ChatGPT can help in patient triage, but its power is limited and further research and validation is needed to consider its use beyond that.

In our opinion, this described work is a serious study that adds something to existing knowledge without making miraculous claims. It is a good example then.

Just as we could bring you excellent examples in the field of clinical imaging. We may refer to evaluations on false colors using 2D and 3D CT and MRI in the case of the validation of FES for DDM (Functional Electrical Stimulation for Denervated Degenerating Muscles) and the home Full-Body In-Bed Gym. We know that the images were not invented by AI, even if they are refined post-scan color analyses of work acquired with Computerized Axial Tomography (CT) and Magnetic Resonance Imaging (MRI). Why? Because there is a well-established familiarity with the contributors. In these cases, we know very well the people responsible for this work: Marco Quadrelli and Aldo Morra of the SynLab Euganea of Padua,³ and Paolo Gargiulo and his Icelandic, Neapolitan, French and American collaborators.⁴⁻⁷

In conclusion, AI is not banned by the EJTM, but authors submitting manuscripts, at least from the end of 2024, must openly declare whether they have used artificial intelligence, of what type, and for what purposes. Further, a new Thematic Section of Ejtm3 will be dedicated to “Generative AI in Translational Mobility Medicine” following the path open by a prestigious journal.¹ This process was started at recent Padua Days on Muscle and Mobility Medicine, and a dedicated Session is in the Program of the 2025Pdm3.⁸

This will not eliminate risks of plagiarism or worse, but it will better establish responsibilities, as has happened (and still happens) with traditional plagiarism. Francesca Rossi in her Italian Book *Intelligenza artificiale: Come funziona e dove ci porta la tecnologia che sta trasformando il mondo*,⁹ tries to convince readers that artificial intelligence is an unstoppable technology and that the solution is to regulate its use according to globally accepted ethical laws. Some of us agree, others are less optimistic.

The final conclusion is that the possible countermeasures will be in the human minds and hands, including those of the readers of this Ejtm3 document.

Scienza in Frontiera
Wissenschaft an der Grenze

16. - 18.01.2025
San Candido - Innichen
Casa Josef Resch Haus

"Intelligenza artificiale (AI) vs Intelligenza umana (HI): due miti a confronto"

"Künstliche Intelligenz (AI) vs. Menschliche Intelligenz (HI): Vergleich zweier Mythen"

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Sotto il patrocinio - unter der Förderung von
IIT - Istituto Italiano di Tecnologia
IIM - Interuniversity Institute of Myology
Compressorio sanitario di Brunico - Gesundheitsbezirk Bruneck
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3 ZINNEN
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IIM
INSTITUTE OF INTERUNIVERSITY MYOLOGY

IIT
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Figure 1. Science at the Frontier - Scienza in Frontiera - Wissenschaft an der Grenze.

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List of abbreviations

2D, bidimensional
3D, Tridimensional
AI, Artificial Intelligence
ChatGPT, Chat Generative Pre-Trained Transformer
CT, Computerized Axial Tomography
EJTM, European Journal of Translational Myology
Ejtm3, European Journal of Translational Myology and Mobility Medicine
FES for MDD, Functional electrical stimulation for de-nervated degenerating muscles
HI, Human Intelligence
MRI, Magnetic Resonance Imaging
Pdm3, Padua Days on Muscle and Mobility Medicine

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Ethical publication statement

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References

1. AI in Medicine: The New England Journal of Medicine 2024. <https://www.nejm.org/ai-in-medicine>.
2. Coraci D, Maccarone MC, Regazzo G, et al. ChatGPT in the development of medical questionnaires. The example of the low back pain. Eur J Transl Myol 2023; 33:12114.
3. Quadrelli M, Baccaglioni T, Morra A. Quantitative 3D-CT imaging of sarcopenia mitigation in the elderly: evidence from a case report. Eur J Transl Myol 2024;34:12715.
4. Forni R, Gargiulo P, Boretti G, et al. The Impact of Persevering Home Full-Body In-Bed Gym Exercise on Body Muscles in Aging: A Case Report by Quantitative Radio-Densitometric Study Using 3D and 2D Color CT. Diagnostics (Basel) 2024;14:2808.
5. Khatun Z, Jónsson H Jr, Tzirilaki M, et al. Beyond pixel: Superpixel-based MRI segmentation through traditional machine learning and graph convolutional network. Comput Methods Programs Biomed 2024; 256:108398.
6. Ricciardi C, Ponsiglione AM, Recenti M, et al. Development of soft tissue asymmetry indicators to characterize aging and functional mobility. Front Bioeng Biotechnol 2023;11:1282024.
7. Edmunds KJ, Okonkwo OC, Sigurdsson S, et al. Soft tissue radiodensity parameters mediate the relationship

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between self-reported physical activity and lower extremity function in AGES-Reykjavik participants. *Sci Rep* 2021;11:20173.

8. Carraro U, Albery MS, Anton S, et al. Mobility Medicine: A call to unify hyper-fragmented specialties by abstracts sent to 2025Pdm3, and typescripts to Ejtm3, and Diagnostics. *Eur J Transl Myol* 2024;34:13432.
9. Francesca Rossi *Intelligenza artificiale: Come funziona e dove ci porta la tecnologia che sta trasformando il mondo*. Edizione digitale: Ottobre 2024. Realizzato da Graphiservice s.r.l. – Bari (Italy) per conto di Gius. Laterza & Figli Spa ISBN 9788858156957.

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