# Article information:

Frontiers | Postural Hand Synergies during Environmental Constraint Exploitation
<https://www.frontiersin.org/articles/10.3389/fnbot.2017.00041/full>

# Article summary:

1. The human hand utilizes synergistic patterns of movement to cope with its complex structure and achieve dexterous actions.

2. Environmental constraint exploitation (ECE) strategies, which involve using external constraints to manipulate or grasp objects, play a crucial role in hand movements.

3. Cutaneous impairment and the interaction with the environment can modify higher order synergies, but the first synergy remains consistent and similar to grasping of imagined objects.

# Article rating:

Appears strongly imbalanced: The article is written in a biased or one-sided way, and the information it provides is not trustworthy enough to be considered a reliable source. You should consult other sources to find reliable information on the presented issues.

# Article analysis:

The article titled "Postural Hand Synergies during Environmental Constraint Exploitation" discusses the concept of hand synergies and their role in the manipulation and grasping of objects. The authors explore how the human nervous system leverages synergistic patterns to generate movements by combining pre-organized patterns, rather than acting separately on each joint or muscle.

One potential bias in this article is the lack of discussion on alternative theories or explanations for hand movements and grasping. The authors present the concept of hand synergies as a central mechanism for motor control, but they do not mention any other theories or perspectives that may exist in the field. This one-sided reporting limits the reader's understanding of the broader scientific discourse on this topic.

Additionally, the article makes unsupported claims about the impact of cutaneous impairment on hand synergies. While the authors state that impairing tactile information decreases performance, they do not provide any evidence or data to support this claim. Without empirical evidence, it is difficult to determine whether cutaneous impairment truly affects hand synergies as suggested.

Furthermore, there are missing points of consideration in this article. For example, the authors discuss how hand synergies can inform the design and control of robotic hands but do not address any potential risks or limitations associated with this approach. It would be valuable to explore potential drawbacks or challenges that may arise when implementing hand synergies in robotics.

The article also lacks exploration of counterarguments or alternative perspectives. By only presenting one viewpoint on hand synergies and their role in environmental constraint exploitation, the authors fail to acknowledge any potential criticisms or limitations of this theory. Including a balanced discussion would provide a more comprehensive analysis of the topic.

In terms of promotional content, while there is mention of previous successful applications of hand synergies in robotics, there is no clear indication that this article has any commercial interests or affiliations that could influence its findings or conclusions.

Overall, while this article provides some insights into the concept of hand synergies and their role in environmental constraint exploitation, it has several limitations. These include a lack of discussion on alternative theories, unsupported claims, missing points of consideration, unexplored counterarguments, and a one-sided reporting approach. A more balanced and evidence-based analysis would strengthen the article's credibility and provide a more comprehensive understanding of the topic.

# Topics for further research:

* Alternative theories of hand movements and grasping
* Impact of cutaneous impairment on motor control
* Limitations and challenges of implementing hand synergies in robotics
* Criticisms of the concept of hand synergies
* Risks and drawbacks of using hand synergies in robotic hand design
* Commercial interests or affiliations in research on hand synergies

# Report location:

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