# Article information:

Motion-corrected 4D-Flow MRI for neurovascular applications - PubMed  
<https://pubmed.ncbi.nlm.nih.gov/36307060/>

# Article summary:

1. Neurovascular 4D-Flow MRI is a powerful tool for comprehensive cerebrovascular hemodynamic characterization.

2. This study developed and characterized a 3D self-navigation approach for retrospective rigid motion correction of neurovascular 4D-Flow data.

3. Motion correction produced images with increased vessel conspicuity, reduced image blurring, and decreased variability in quantitative measures.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Motion-corrected 4D-Flow MRI for neurovascular applications” provides an overview of the development and characterization of a 3D self-navigation approach for retrospective rigid motion correction of neurovascular 4D-Flow data. The authors conducted simulations, phantom and volunteer experiments to evaluate the ability to correct for different amounts of induced motions, as well as applied the approach to clinical research exams from ongoing aging studies to characterize performance in the clinical setting. The results showed that motion correction produced images with increased vessel conspicuity, reduced image blurring, and decreased variability in quantitative measures.

The article is generally reliable and trustworthy due to its use of evidence from simulations, phantom and volunteer experiments as well as clinical research exams from ongoing aging studies to support its claims. Furthermore, the authors provide detailed descriptions of their methods which allows readers to assess the validity of their findings. However, there are some potential biases that should be noted such as the fact that all experiments were conducted at 3T which may limit generalizability to other settings or scanners with different magnetic field strengths. Additionally, it is unclear if any ethical considerations were taken into account when conducting experiments on volunteers or if any risks associated with using this technology were discussed with participants prior to their involvement in the study.

# Topics for further research:

* Neurovascular 4D-Flow MRI
* Motion correction techniques
* Magnetic field strength effects
* Clinical research ethics
* Phantom experiments
* Quantitative measures of motion correction

# Report location:

<https://www.fullpicture.app/item/03f38c84b2c394304e4b50b1826d88ec>