

Research confirms benefits of resistance exercise training in treatment of anxiety and depression

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A new study by researchers at the University of Limerick in Ireland and at Iowa State University has demonstrated the impact resistance exercise

training can have in the treatment of anxiety and depressive symptoms.

The new study provides evidence to support the benefits resistance exercise training can have on anxiety and depression and offers an examination of possible underlying mechanisms.

The research, [published](#) in the *Trends in Molecular Medicine* journal, was carried out by Professor Matthew P Herring at the University of Limerick and Professor Jacob D Meyer at Iowa State University.

The researchers said there was "exciting evidence" that resistance exercise training may be an accessible alternative therapy to improve anxiety and depression-like more established therapies while also improving other important aspects of health.

Dr. Herring explained, "Anxiety and depressive symptoms and disorders are prevalent and debilitating public health burdens for which successful treatment is limited."

"The healthful benefits of resistance exercise training, or muscle-strengthening exercise involving exerting force against a load repeatedly for the purpose of generating a training response, are well-established," said Dr. Herring, Associate Professor in the Physical Activity for Health Research Centre, Health Research Institute, and Department of Physical Education and Sport Sciences within the Faculty of Education and Health Sciences in UL.

"However, the potential impact of resistance exercise training in the treatment of anxiety and depressive symptoms and disorders remains relatively understudied. Moreover, the plausible psychobiological mechanisms, which help us to better understand how and why resistance exercise training may improve these mental health outcomes, are poorly understood."

The researchers argue that, while the available studies in this area are focused on relatively small sample sizes, there is sufficient evidence from previous and ongoing research at UL and the research with Dr. Meyer and colleagues at Iowa State University to suggest that resistance exercise training does improve anxiety and [depressive symptoms](#) and disorders—though disorders themselves are scarcely studied.

"There is a critical need for confirmatory, definitive trials that adequately address limitations, including small sample sizes, but the limited evidence available to us provides initial support for the beneficial effects of resistance exercise training on these mental [health](#) outcomes, including increased insulin-like growth factor 1, cerebrovascular adaptations, and potential neural adaptations influenced by controlled breathing inherent to resistance exercise," Dr. Herring explained.

"We are tremendously excited to have what we expect to be a highly cited snapshot of the promising available literature that supports resistance exercise training in improving anxiety and depression."

"Notwithstanding the limitations of the limited number of studies to date, there is exciting evidence, particularly from our previous and ongoing research of the available studies, that suggests that resistance exercise training may be an accessible alternative therapy to improve anxiety and depression."

"A more exciting aspect is that there is substantial promise in investigating the unknown mechanisms that may underlie these benefits to move us closer to maximizing benefits and to optimizing the prescription of resistance exercise via precision medicine approaches," Dr. Herring added.

Professor Meyer, a co-author of the study, said, "The current research provides a foundation for testing if [resistance training](#) can be a key

behavioral treatment approach for depression and [anxiety](#)."

"As resistance training likely works through both shared and distinct mechanisms to achieve its positive mood effects compared to aerobic exercise, it has the potential to be used in conjunction with [aerobic exercise](#) or as a standalone therapy for these debilitating conditions."

"Our research will use the platform established by current research as a springboard to comprehensively evaluate these potential benefits of resistance exercise in clinical populations while also identifying who would be the most likely to benefit from resistance exercise."

More information: Matthew P. Herring et al, Resistance exercise for anxiety and depression: efficacy and plausible mechanisms, *Trends in Molecular Medicine* (2024). [DOI: 10.1016/j.molmed.2023.11.016](https://doi.org/10.1016/j.molmed.2023.11.016)

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