

# WELLNESS TEAM CULTURE

*Evidence-based wellness, leadership, and team dynamics*

RESEARCH BRIEF · THE EVIDENCE, PLAINLY

## Your Brain Grows When You Move

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*The strongest case for exercise was never the body you can see. Movement raises BDNF, a protein that helps neurons survive and connect, within the hour of a single workout, and across large bodies of evidence it eases depression and anxiety on the order of therapy and medication.*

### WHAT WAS ACTUALLY STUDIED

01

#### Szuhany, Bugatti & Otto (2014), Journal of Psychiatric Research

TIER 1 · META-ANALYSIS

A meta-analysis of 29 studies (1,111 participants) measuring how exercise changes blood levels of brain-derived neurotrophic factor (BDNF) across three paradigms: a single session, a session performed after a period of regular training, and resting levels after a training program.

02

#### Noetel et al. (2024), BMJ

TIER 1 · META-ANALYSIS

A systematic review and network meta-analysis of 218 randomized trials (14,170 participants) comparing exercise modalities against controls, psychotherapy, and antidepressants for adults meeting clinical cut-offs for major depression.

03

#### Singh et al. (2023), British Journal of Sports Medicine

TIER 1 · UMBRELLA REVIEW

An umbrella review pooling 97 systematic reviews (1,039 trials, 128,119 participants) on the effect of physical activity on depression, anxiety, and psychological distress across healthy adults, people with mental health conditions, and people with chronic disease.

## WHAT THEY FOUND

The brain responds before the body changes. BDNF is a protein that supports the survival of neurons and the growth of new connections between them. Pooling 29 studies, a single session of exercise produced a moderate rise in circulating BDNF (Hedges'  $g = 0.46$ ), and following a program of regular training intensified that response ( $g = 0.59$ ), while resting levels rose more modestly ( $g = 0.27$ ) (Szuhany et al.). The first workout already moves the marker.

That biology tracks with symptom relief. In a network meta-analysis of 218 trials, exercise produced moderate reductions in depression versus active controls, led by walking or jogging ( $g = -0.62$ ), yoga ( $g = -0.55$ ), and strength training ( $g = -0.49$ ), with effects proportional to the intensity prescribed (Noetel et al.). The authors concluded these forms of exercise could sit alongside psychotherapy and antidepressants as core options.

128,119

the number of people, across 1,039 trials, whose pooled data shows exercise produces medium reductions in depression, anxiety, and distress (Singh et al.).

At population scale the picture holds. Across 97 reviews, physical activity showed medium effects on depression (median effect size  $-0.43$ ), anxiety ( $-0.42$ ), and psychological distress ( $-0.60$ ) compared with usual care, on the same order as, or slightly greater than, the effects reported for talk therapy and medication, with higher intensity linked to greater improvement (Singh et al.).

## WHERE THE EVIDENCE STANDS

### *Three sources, one throughline.*

One shows the brain responds to movement fast, raising a growth protein within a single session and more so with a regular habit (Szuhany et al.). One shows that response tracks with real symptom relief in people with clinical depression, and that the common, accessible modalities work best (Noetel et al.). One shows the effect holds across more than 128,000 people and rivals the size of the effects seen for therapy and medication (Singh et al.). Read together, they move the reason to exercise off the scale and onto the brain.

That is the shift. The point most people were sold, weight and tone, is the least important thing movement does. The strongest case is for the brain you cannot see and the mood it lifts.

## WHAT THIS DOES NOT PROVE

Confidence in the exercise-for-depression evidence is graded low. In the network meta-analysis, only one included study met the Cochrane criteria for low risk of bias, and confidence under the CINeMA framework was low for walking or jogging and very low for the other modalities, largely because participants cannot be blinded to whether they are exercising, so expectancy effects are hard to rule out (Noetel et al.). In the umbrella review, most of the pooled reviews scored critically low on the AMSTAR quality tool (Singh et al.). The direction of the evidence is consistent and large, but the certainty is not yet high.

BDNF measured in blood is a useful but imperfect window into what happens in the brain, and the exercise response was smaller in studies with more women, so the effect is not uniform (Szuhany et al.). None of this is diagnostic. This is education, not medical advice. If you are carrying persistent depression or anxiety, movement is a powerful complement to care from a clinician, not a replacement for it.

## WHAT IT MEANS FOR YOU

If exercise keeps falling off your calendar on the hard days, the frame may be the problem. Filed as a body project, movement competes with everything else and loses. Filed as brain maintenance, it changes what it is for and survives a bad week. The moves: move first on the low days, even a ten-minute walk, because the first workout already raises BDNF. Pick the modality you will actually repeat, since walking, jogging, yoga, and strength all worked. Let intensity climb once the habit is steady. Reframe it from punishment to maintenance. And judge it over weeks rather than any single session. The newsletter lays out the five moves. The research above is why they aim at the right system.

## GO TO THE SOURCE

### TIER 1 · META

Szuhany, K. L., Bugatti, M., & Otto, M. W. (2014). Journal of Psychiatric Research.

[pubmed.ncbi.nlm.nih.gov/25455510](https://pubmed.ncbi.nlm.nih.gov/25455510)

### TIER 1 · META

Noetel, M., Sanders, T., Gallardo-Gómez, D., et al. (2024). BMJ. [pubmed.ncbi.nlm.nih.gov/38355154](https://pubmed.ncbi.nlm.nih.gov/38355154)

### TIER 1 · REVIEW

Singh, B., Olds, T., Curtis, R., et al. (2023). British Journal of Sports Medicine.

[pubmed.ncbi.nlm.nih.gov/36796860](https://pubmed.ncbi.nlm.nih.gov/36796860)

Tier 1 means peer-reviewed primary research or meta-analysis, the strongest evidence. Tier 2 means an expert framework or smaller study that traces to peer-reviewed work. We grade every source so you can see the weight behind each claim.

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resources behind it.

*Education, not medical advice.*

