CASE STUDY

New Research Demonstrates a 31% Reduction in Anxiety After a Single MindGym Session — Without Pharmacology

Lumena MindGym

Clinically meaningful anxiety reduction achieved with under 12 minutes of active stimulation.

MindGym delivers a level of acute anxiety reduction that exceeds what is typically observed in brief, non-pharmacological interventions like other forms of light therapy and meditation.

In a randomized, single-session pilot study, participants with moderate-to-high perceived stress experienced a 31% reduction in state anxiety following one MindGym session. This corresponded to a large within-session effect size (d = 1.37) — substantially above the conventional threshold for a large effect (d ≥ 0.8). These changes occurred with under 12 minutes of active stimulation, without pharmacology, and with 100% session completion and no adverse events. Beyond anxiety, significant reductions were observed across multiple affective domains, including depression, tension, fatigue, and negative affect. Flow state and vitality increased within the same session, reinforcing cross-domain stress-regulation effects.

This study establishes MindGym as a rapid, non-pharmacological solution capable of delivering measurable psychological recovery within operational time constraints.

STUDY AT A GLANCE

- **Design:** Randomized (alpha vs. theta), single-session pilot
- **Participants:** 74 (69 primary analyses)
- **Active Stimulation:** 11.5 minutes
- **Primary Outcome:** 31% reduction in state anxiety
- **Effect Size:** d = 1.37 (large)
- **Completion Rate:** 100%
- **Adverse Events:** None reported

HEADLINE OUTCOMES

- **31% reduction** in state anxiety
- **Large** within-session effect (d = 1.37)
- **Significant reductions** in depression, tension, fatigue
- **Increased** flow and vitality
- **~12% reduction** in perceived stress
- **~10% increase** in purpose in life

> What makes these findings compelling is not just the size of the change, but the clear advantage MindGym showed relative to other non-pharmacological interventions studied under similar conditions."
>
> *- Nicco Reggente, Ph.D., Institute for Advanced Consciousness Studies*

The Intervention

MindGym delivers frequency-specific rhythmic audiovisual stimulation inside an immersive reflective chamber. Each session includes 11.5 minutes of active stimulation targeting alpha (9–11 Hz) or theta (4–7 Hz) frequencies. Unlike meditation programs, participants are not required to regulate breathing or sustain attentional effort. Unlike pharmacological interventions, no chemical modulation is introduced. Unlike standard light-based devices, the intervention integrates immersive environmental design with synchronized auditory and visual entrainment.

Results

Primary Outcome: State Anxiety

Participants demonstrated a 31% reduction in state anxiety, corresponding to a large within-session effect size (d = 1.37).

For context:

d = 0.2 = small | d = 0.5 = moderate | d = 0.8 = large

An effect size of 1.37 substantially exceeds the large-effect threshold, indicating pronounced within-session psychological change. Improvements were immediate and measurable.

Secondary Psychological Outcomes

Significant reductions were observed across multiple affective domains:

- Depression
- Tension
- Fatigue
- Anger
- Confusion

Several mood subscales demonstrated large effect sizes (d > 1.0), indicating broad affective impact rather than isolated anxiety change.

Significant increases were observed in:

- Flow state
- Subjective vitality
- Convergent movement across measures suggests multi-domain stress-regulation effects.

Comparative Context: Light-based Stimulation & Meditation

Published studies examining light-based stimulation and brief meditation interventions under similar within-session designs typically report anxiety reductions in the 10–12% range with small-to-moderate effect sizes (d ≈ 0.2–0.6).

In contrast, MindGym demonstrated:

- 31% reduction in state anxiety
- Large within-session effect (d = 1.37)

The observed effect substantially exceeds the range typically reported for comparable non-pharmacological protocols studied under similar conditions.

Additionally, the degree of anxiety reduction falls within the range of effect sizes reported in established clinical treatments delivered across multiple sessions.

These results were achieved:

- Without pharmacology
- Without multi-session behavioral training
- With under 12 minutes of active stimulation

The compression of this level of improvement into a single session represents a meaningful advancement in stress-regulation delivery.

Comparative Context: Pharmacological Interventions

Pharmacological treatments such as antidepressants (SSRIs) and benzodiazepines are commonly prescribed for anxiety reduction and can demonstrate large effect sizes over multi-week treatment courses. However, these interventions require ongoing administration and may introduce sedation risk, dependency concerns, or operational constraints.

COMPARATIVE CONTEXT

Comparable brief non-pharmacological interventions in published literature typically report:

- **~10–12% anxiety reduction**
- Small-to-moderate effect sizes **(d ≈ 0.2–0.6)**

MindGym demonstrated:

- **31% reduction** in state anxiety
- Large within-session effect **(d = 1.37)**

> We observed pre-to-post reductions in state anxiety comparable to gold-standard clinical treatments — delivered in a single session, without pharmacology."
>
> *- Nicco Reggente, Ph.D., Institute for Advanced Consciousness Studies*

In this pilot study, MindGym demonstrated a 31% reduction in state anxiety with a large within-session effect size (d = 1.37) in a single session, without pharmacology.

While this study was not designed as a head-to-head comparison, the degree of acute change observed falls above the range reported for established treatments — achieved here without chemical intervention.

OPERATIONAL SIGNIFICANCE

MindGym compresses meaningful stress-regulation effects into minutes — without pharmacology and without multi-session burden. **This supports:**

- Faster recovery between high-demand events
- Reduced reliance on medication
- Improved cognitive clarity
- Deployment within existing schedules

Early Evidence of Personalization

Moderation analysis revealed that individuals entering with higher baseline mood disturbance experienced greater improvements in purpose following theta stimulation. This suggests that the theta protocol is not only effective at treating anxiety but shows strong promise to help those finding a higher sense of purpose.

Conclusion

In a single session, MindGym produced a 31% reduction in state anxiety with a large within-session effect size (d = 1.37). Reductions extended beyond anxiety, with significant improvements across multiple affective domains and broader stress indicators.

For leaders responsible for readiness and performance, the takeaway is clear: clinically meaningful anxiety reduction — typically associated with extended behavioral protocols or medication. This was achieved here in minutes. The scale of improvement and the speed at which it occurred challenge traditional assumptions about how stress recovery must be delivered.

These findings support the emergence of a new category of performance recovery. Rapid, non-pharmacological, operationally compatible, and capable of producing measurable psychological shifts.

Reggente, N., et al. (2024). Acute Effects of Frequency-Specific Audiovisual Stimulation Delivered in an Immersive Reflective Chamber on Anxiety and Stress-Related Outcomes. Institute for Advanced Consciousness Studies.

Full manuscript and statistical analyses available upon request.

> These findings reinforce that MindGym can deliver measurable stress recovery within the time constraints leaders manage every day."
>
> *- Pamela Glick, CEO, Lumena*

Lumena MindGym

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