Do 8-minute Meditations Help You Stay Alert?

The Effects of Longitudinal Short Meditation Interventions on the Cognitive Alerting Network.

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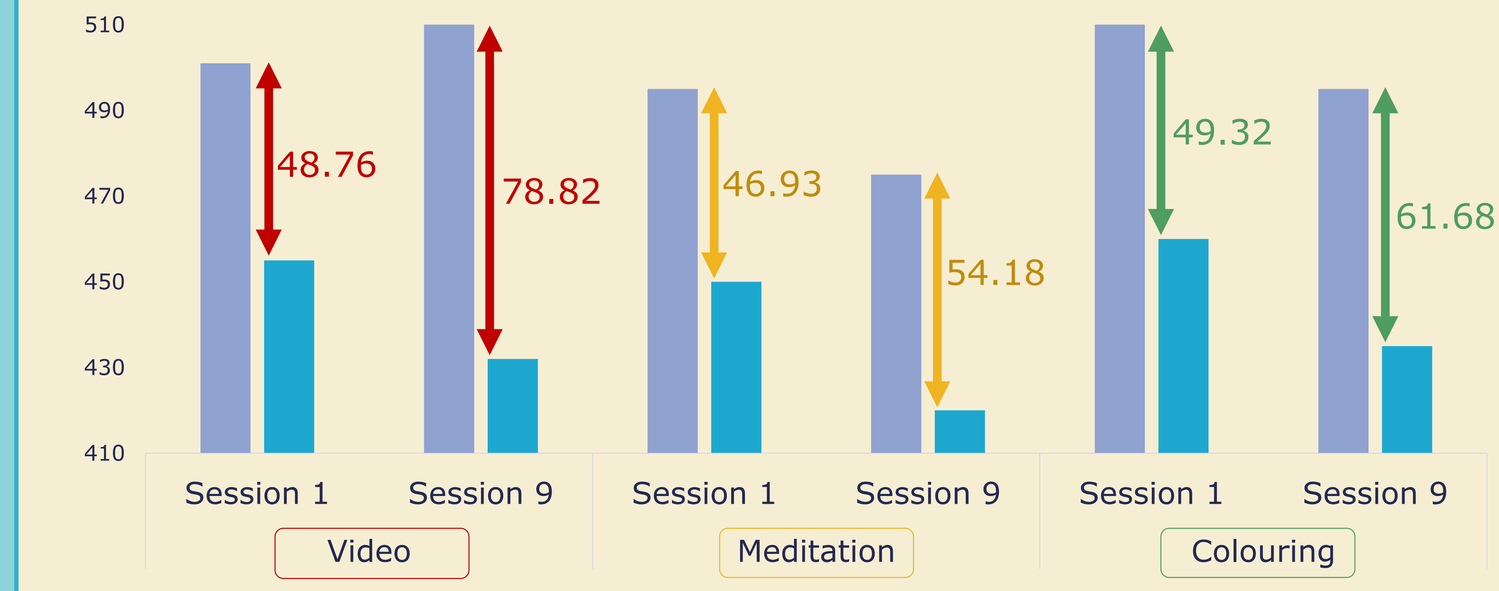
1. Introduction

- Mindfulness meditation: Training to increase non-judgmental awareness in the present moment.
  - Believed to work by training cognitive processes such as the attentional networks
  - Relatively little research on the cognitive effects of mindfulness
  - Understanding these effects could lead to more targeted uses
- The alerting network: the individual's readiness for a stimulus to appear
  - Differences have been found in long-term meditators but not in short-term interventions (Tang, Hölzel, & Posner, 2015).



2. Method

- 57 meditation-novices.
- Three different 8-minute interventions:
  - Meditation, Colouring (active control) and a nature Video (control)
- Mindfulness measured using MAAS State
- Alerting was measured using the Attention Network Test (ANT_1)
  - A modified flanker task
  - Four cueing conditions
- An ANT with alternative stimuli was used to control for stimulus learning (ANT_2)

Wk 1	Session. 1	Demographics, MAAS State, ANT_1, ANT_2
	Session 2	MAAS State, Intervention, MAAS State, ANT_1
Wk 2	S 3 & 4	MAAS State, Intervention, MAAS State, ANT_1
Wk 3	S. 5 & 6	MAAS State, Intervention, MAAS State, ANT_1
Wk 4	S. 7 & 8	MAAS State, Intervention, MAAS State, ANT_1
Wk 5	S. 9	MAAS State, Intervention, MAAS State, ANT_1, ANT_2

3. Results

Alerting (ANT_1)

Alerting Score =

Mean 'double cue' RTs - Mean 'no cue' RTs.

- Alerting scores of session1 & 9 show a two-way interaction by session and intervention, $F(2, 54)=3.13$; $p=0.05$, $\eta p^2= .104$
  Meditation and Colouring groups show maintained alerting scores
  - Video group show increased alerting scores

Filtered by reported extra mindfulness practice:

- Alerting scores (session 1 & 9) show a two-way interaction by session and intervention, $F(2, 29)=3.89$; $p=.03$, $\eta p^2= .212$ (N=32)
- Effects were not found in the ANT_2

State Mindfulness Scores

- There was a two-way interaction by session, pre/post intervention and intervention, $F(2, 76)=4.37$, $p=.021$, $\eta p^2= .175$
  - Colouring and Meditation groups became more mindful post intervention

4. Discussion

- Alerting may be manipulated over only a few short sessions
- Colouring conditions showed similar effects to Meditation
  - Unclear which element(s) of the two tasks created similar effects
- Findings converge with previous studies (MacLean et al., 2010)
  - Mindfulness can help you stay alert (improve sustained voluntary attention)
- Effects may not have been found in the ANT with alternative stimuli as the effects of the intervention may not have lasted that long

5. Where Next?

- Break down of the Colouring condition
  - Splitting the elements of the Colouring task should help to identify the elements that are leading to maintained alerting scores
  - These could then be compared to mindfulness Meditation

Want to give colouring a go?

Here's what to do: first grab a **pattern**…

Sit **comfortably** & allow yourself to focus on the pattern.

Move your **focus** to the lowest point of the pattern.

Slowly spread your awareness up the **pattern**,

until the whole pattern is in your **awareness**.

Pick an area and

start to **colour**…

Questions you may have…

1. What were the major problems that you encountered?
2. What meditation exercises did you use?
3. What do you mean by 'filtered by extra mindfulness practice' ?

References

MacLean, K. A., Ferrer, E., Aichele, S. R., Bridwell, D. A., Zanesco, A. P., Jacobs, T. L., … Saron, C. D. (2010). Intensive Meditation Training Improves Perceptual Discrimination and Sustained Attention. *Psyc. Sci. 21*(6), 829-839.

Tang, Y.-Y., Hölzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nat. Rev. Neuroscience*, *16*(4), 213–225.

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