

Body scan meditation enhances the autonomous sensory meridian response to auditory stimuli

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Abstract

Autonomous sensory meridian response (ASMR) is a pleasant, tingling sensation on the skin that can be elicited by certain auditory and visual stimuli, with the intertwining of sensory modalities and emotional reactions observable in this phenomenon resembling that of synesthesia. The current study shows that the perception of ASMR-associated tingles can be enhanced by means of a prior mindfulness exercise in which attention is drawn to the body. This finding contributes to a better understanding of the crossmodal mechanisms behind ASMR and emphasizes the role that attentional processes play in its unfolding.

Keywords

autonomous sensory meridian response, crossmodal processing, mindfulness, attention to bodily sensations

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Autonomous sensory meridian response (ASMR) is a fascinating perceptual phenomenon in which certain auditory and visual stimuli elicit a tingling sensation across the observer's scalp, neck, and shoulders as well as a relaxing, positive emotional response (Barratt & Davis, 2015). ASMR has gained worldwide popularity over the internet, with millions of users viewing videos of strangers whispering, turning the pages of books, or opening and closing lids, for example, to experience this sensory-emotional reaction, colloquially called a brain orgasm (Beck, 2013; note, though, that the phenomenon is widely described as non-sexual). While online communities have long begun to

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explore the workings of ASMR, including sensory and situational variables that increase the experience, thoroughly conducted research on the topic is still surprisingly rare.

Barratt and Davis (2015) suggested that ASMR might be a subtype of synesthesia. In this condition, stimulation of one sensory modality elicits an internal experience in another, unstimulated modality (Hubbard & Ramachandran, 2005), with the synesthetic binding of information being enabled by the deployment of selective attention (Rich & Mattingley, 2013). Another state that phenomenologically overlaps with ASMR is mindfulness, the core components of which are the focusing of attention on immediate external and internal experiences and an accepting openness to those experiences (Barratt & Davis, 2015; Bishop et al., 2004; Fredborg et al., 2018). Based on this overlap between ASMR and (the attentional component of) mindfulness, Fredborg et al. (2018) hypothesized that it might be possible to enhance the sensory-emotional effects of ASMR through mindfulness training (but see Roberts et al., 2021, for a possible divergence between the two concepts). Since the induction of such effects has been suggested to improve symptoms of depression and chronic pain (Barratt & Davis, 2015), the possibility of an enhancement might not only be of scientific but also of therapeutic interest.

In the current online study, 90 participants (70 female, 19 male, 1 other/non-binary; 28.02 ± 11.79 years of age [$M \pm SD$]) listened to several ASMR-associated auditory stimuli (whispering, tapping, scratching, crisp sounds, typing on a keyboard) and then rated their sensory tingle experience as well as the change in their relaxation level compared to the beginning of the study on scales from 1 ('no tingles'/'a lot less relaxed') to 7 ('very intense tingles'/'a lot more relaxed') each. Ratings of the control group, which did not perform any further tasks, were compared to those of a body scan and a music group (each $n = 30$; random group assignment). The groups did not differ significantly with regard to gender (Fisher's exact test: two-tailed $p = .899$) or age (one-way analysis of variance: $F(2,87) = 1.37, p = .258$). Participants in the body scan group started the study with an auditory mindfulness exercise, which was created to reduce mental stress by moving the participants' focus of attention around their body (Melbourne Mindfulness Centre & Still Mind, 2011). Participants in the music group on the other hand listened to Frédéric Chopin's Nocturne Op. 9, No. 2 (Chopin, 1832/1996), which has been associated with mental stress relief (Chennafi et al., 2018) but does not guide bodily attention, before continuing with the ASMR material.

The data analysis revealed significant group differences in the intensity of tingling sensations that were elicited by the ASMR-associated auditory stimuli (body scan: 3.27 ± 1.60 , music: 2.47 ± 1.55 , control: 2.37 ± 1.45 [$M \pm SD$]; one-way analysis of variance: $F(2,87) = 3.11, p = .0497$). As hypothesized, the body scan group experienced significantly more sensory tingles than the control group (one-tailed two-sample t -test: $t(58) = 2.29, p = .013$), with no other group difference reaching statistical significance after Bonferroni correction. Besides, the groups did not differ significantly with regard to the induced level of relaxation (body scan: 4.93 ± 1.53 , music: 4.53 ± 1.41 , control: 4.27 ± 1.28 [$M \pm SD$]; one-way analysis of variance: $F(2,87) = 1.70, p = .189$). It should be noted, though, that participants in the body scan and the music group, but not in the control group, felt significantly more relaxed compared to when they started the study (with a rating of 4 on the relaxation scale indicating no change; two-tailed one-sample t -tests: $t(29) = 3.34, p = .002$ for the body scan group, $t(29) = 2.08, p = .047$ for the music group).

Smith et al. (2017, 2019) proposed that the multisensory-emotional associations of ASMR are related to atypical patterns of brain functional connectivity and in particular to the blending of multiple resting-state networks. Interestingly, these atypicalities seem to involve several attention-related networks (Smith et al., 2019)—a finding that, together with the roles attention plays in the associated concepts of synesthesia and mindfulness, supports the relevance of attentional processes in ASMR. With regard to the characteristic tingling sensation, the externally caused activation of auditory brain regions might co-activate somatosensory areas and pathways, and an attention-related enhancement of somatosensory processing (brought about by body-focused

mindfulness training) might then amplify the neural and perceptual consequences of this co-activation. While the mindfulness exercise together with the auditory ASMR stimuli also increased the level of relaxation felt by participants in the current study, the music group demonstrated that such an increase alone is not sufficient to modulate the sensory components of ASMR.

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References

- Barratt, E. L., & Davis, N. J. (2015). Autonomous sensory meridian response (ASMR): A flow-like mental state. *PeerJ*, 3, Article e851. <https://doi.org/10.7717/peerj.851>
- Beck, J. (2013, December 16). How to have a ‘brain orgasm’: Intimate videos of whispering and tapping fingernails cause pleasurable tingles, or ASMR, for some. *The Atlantic*. <https://www.theatlantic.com/health/archive/2013/12/how-to-have-a-brain-orgasm/282356>
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, 11, 230–241. <https://doi.org/10.1093/clipsy.bph077>
- Chennafi, M., Khan, M. A., Li, G., Lian, Y., & Wang, G. (2018). *Study of music effect on mental stress relief based on heart rate variability* [Paper presentation]. 2018 IEEE Asia Pacific Conference on Circuits and Systems, Chengdu, China, pp. 131–134. <https://doi.org/10.1109/APCCAS.2018.8605674>
- Chopin, F. F. (1996). Nocturne No. 2 in E-flat major, Op. 9, No. 2 [Music recorded by D. Várjon]. On Classic masterworks—Frederic Chopin. Capriccio (Original work published 1832).
- Fredborg, B. K., Clark, J. M., & Smith, S. D. (2018). Mindfulness and autonomous sensory meridian response (ASMR). *PeerJ*, 6, Article e5414. <https://doi.org/10.7717/peerj.5414>
- Hubbard, E. M., & Ramachandran, V. S. (2005). Neurocognitive mechanisms of synesthesia. *Neuron*, 48, 509–520. <https://doi.org/10.1016/j.neuron.2005.10.012>
- Melbourne Mindfulness Centre & Still Mind. (2011). Four minute body scan [Audio file]. The Free Mindfulness Project. <https://www.freemindfulness.org/download>
- Rich, A. N., & Mattingley, J. B. (2013). The role of attention in synesthesia. In J. Simner & E. M. Hubbard (Eds.), *The Oxford handbook of synesthesia* (pp. 265–282). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199603329.001.0001>
- Roberts, N., Beath, A., & Boag, S. (2021). Autonomous sensory meridian response: Individual differences and consciousness correlates. *Psychology of Consciousness: Theory, Research, and Practice*, 8, 27–51. <https://doi.org/10.1037/cns0000243>
- Smith, S. D., Fredborg, B. K., & Kornelsen, J. (2017). An examination of the default mode network in individuals with autonomous sensory meridian response (ASMR). *Social Neuroscience*, 12, 361–365. <https://doi.org/10.1080/17470919.2016.1188851>
- Smith, S. D., Fredborg, B. K., & Kornelsen, J. (2019). Atypical functional connectivity associated with autonomous sensory meridian response: An examination of five resting-state networks. *Brain Connectivity*, 9, 508–518. <https://doi.org/10.1089/brain.2018.0618>