What happens in our brain when we scroll through media?

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The purpose of this annotated bibliography is to collect research to understand the neuroscience that is going on inside my head when I scroll for hours on my phone, and to be able to share that research, or a summary of that research, with others. Most of my research is from academic papers, with some less academic sources because they are easier to digest. I chose this research topic because everyone and their mom consumes short form content, and often for far longer than they intended. I would like to find out why this happens.

**Su, C., Zhou, H., Gong, L., Teng, B., Geng, F., & Hu, Y. (2021). Viewing personalized video clips recommended by TikTok activates default mode network and ventral tegmental area. NeuroImage, 237, 118136.** [**https://doi.org/10.1016/j.neuroimage.2021.118136**](https://doi.org/10.1016/j.neuroimage.2021.118136)

This study put 208 people in MRI machines and scanned their neural activity when watching videos personalized to them and videos not personalized to them. The study found that when watching Personalized Videos the Default Mode Network activates coupled with the Visual and Auditory systems, while the General Videos activates the Default Mode Network coupled with the Medial Temporal Lobe subsystem which processes future plans. This means when someone watches Personalized Videos they are thinking less about their future, and more about the present stimulus, leading to unintended prolonged usage. I would classify this as a great source, it’s relatively current, it’s 100% relevant to me question, and the fact that it is a scholarly paper published in a Journal satisfies my need for Authority, Accuracy, and a good Purpose.

**Raichle, M. E. (2015). The brain’s default mode network. Annual Review of Neuroscience, 38(1), 433–447. https://doi.org/10.1146/annurev-neuro-071013-014030**

This paper is doing a high-level consolidation of 17 years of research. As such it is very dense with information and is hard to understand if you aren’t already in the field of neuroscience. The Default Mode Network isn’t fully understood, but it is known that it is associated with emotional processing, activities regarding oneself, memory recollection. This source is significantly less helpful. It’s almost a decade old, did not contain much relevant info about my question. The paper does succeed in establishing authority, the Default Mode Network was named after a different paper written by this author. The purpose of this paper is to bring 17 years of research into one place.

**Smallwood, J., Bernhardt, B. C., Leech, R., Bzdok, D., Jefferies, E., & Margulies, D. S. (2021). The default mode network in Cognition: A Topographical Perspective. Nature Reviews Neuroscience, 22(8), 503–513.** [**https://doi.org/10.1038/s41583-021-00474-4**](https://doi.org/10.1038/s41583-021-00474-4)

This paper dives into the function of the Default Mode Network’s (DMN) positioning in the brain and what that tells us about its function. The paper finds that its distance from other sensory sections of the brain and its constant activity may indicate that it may be at least partially responsible for conceptual/abstract thought. This source is recent, and a little more relevant to my research topic. The paper has authority and assumed accuracy due to being an academic paper in a journal, with the purpose being a call for more research specifically with how the DMN integrates data from other regions of the brain.

**AsapSCIENCE. (2022, Mar 30). *What Happens To Your Brain When You Mindlessly Scroll?* [Video]. YouTube.** [**https://www.youtube.com/watch?v=aNvvOQMx0jY**](https://www.youtube.com/watch?v=aNvvOQMx0jY)

This source is a perfect example of why YouTube is not a very good research tool. This video’s title is misleading, the content of the video is about why you become addicted to your phone, and that it’s because of the dopamine reward from notifications training us that our phone is rewarding to have around and use. The video is fairly current, with its sources ranging from 2006 to 2022. The video wasn’t relevant to me at all until I found the next source. Despite the misleading thumbnail and title, I would say that this channel has authority, it has 10.5 million subscribers, and it sites its sources in APA format in the description. I am not sure how accurately they represent their sources. The purpose of this video was to make money and to persuade viewers to ditch their phone more often, the information provided from their sources feels negatively influenced by these goals.

**Jezzini, A., Bromberg-Martin, E. S., Trambaiolli, L. R., Haber, S. N., & Monosov, I. E. (2021). A prefrontal network integrates preferences for advance information about uncertain rewards and punishments. Neuron, 109(14).** [**https://doi.org/10.1016/j.neuron.2021.05.013**](https://doi.org/10.1016/j.neuron.2021.05.013)

This paper explains that humans and animals are motivated to seek out information to resolve uncertainty about rewards and punishments. The paper’s focus is the fact that information about rewards and punishments are treated differently. The part of this paper that is relevant to my question is when you apply it to the training your brain is getting from tiktok, some videos are rewarding while some aren’t, you want to solve the uncertainty of whether the next video will be rewarding by swiping to it and watching it.