Project Notes:

Project Title:

Name:

Note Well: There are NO SHORT-cuts to reading journal articles and taking notes from them. Comprehension is paramount. You will most likely need to read it several times, so set aside enough time in your schedule.

Contents:

Commented [CK1]: 10/3/2024 6 full entries

Keep your knowledge gaps and lit. search parameters updated.

Include detailed captions on pasted figures.
Check your APA citation format.
Make sure you are consistent with adding vocab and definitions.

Commented [2]: remember to share with Dr. C.

Commented [CK3]: 12/19/2024
Be consistent when adding vocab w/definitions.
Double-check your APA citation format.
Keep your Literature search parameters and knowledge gaps up to date.

Had you thought about revising your other entries based on prior comments?

Commented [4]: Table of contents will be generated if using a HEADER format for each sub-section.

KEEPING THIS UP-TO-DATE WILL HELP YOU when it comes time to write your thesis.

Knowledge Gaps:

This list provides a brief overview of the major knowledge gaps for this project, how they were resolved and where to find the information.

Knowledge Gap	Resolved By	Information is located	Date resolved

Commented [5]: Up date this page regularly as this can facilitate the writing process.

Commented [6]: Because this is a living document, you will be updating this table regularly, therefore it doesn't make sense to worry about organizing every time you open this sheet. Remember the A□Z Sort tool. You can sort based on how you resolved your issue, or you can choose a different organizational method. For example, you could add a column for date resolved and organize chronologically.

Commented [7]: Your notes file will grow as you continue to read. As a result, your page numbers might change. How do you ensure your references remain useful?
1. You could include enough information to find the notes page without a page number. Be careful of just using author names because you might have more than one source from the same first author. If you include title or full citation, that should be enough.
2. Insert a cross-reference
a. insert tab, cross-reference
b. If you choose this path DON'T FORGET TO UPDATE THE FIELDS before you submit or print

Literature Search Parameters:

These searches were performed between (Start Date of reading) and XX/XX/2019.
List of keywords and databases used during this project.

Database/search engine	Keywords	Summary of search

Commented [8]: This can help you keep track of the searches you perform and what you searched for so that redundancy does not occur.

Commented [9]: This might seem like a silly addition, but if you read literature reviews or meta-analyses, you will notice this information is preserved. It is good practice to record how you found your information.

Tags:

Tag Name	

Article #1 Notes: Title

Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	
Source citation (APA Format)	
Original URL	
Source type	
Keywords	
#Tags	
Summary of key points + notes (include methodology)	
Research Question/Problem/ Need	
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	

Commented [10]: Remember to take notes and summarize the work in your own words. Doing this upfront will help you avoid PLAGIARISM.

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Commented [12]: Questions are crucial in leading you towards the next paper. This is a MANDATORY section and should include AT LEAST 3 Questions that stem from reading the paper.

Article #1 Notes: Title

Article notes should be on separate sheets

Source Title	Neural prosthesis control restores near-normative neuromechanics in standing postural control
Source citation (APA Format)	Fleming, A., Liu, W., & Huang, H. (2023, October 18). Neural prosthesis control restores near-normative neuromechanics in standing postural control. *ScienceRobotics, 8(83)*. https://www.science.org/doi/10.1126/scirobotics.adf5758
Original URL	https://www.science.org/doi/10.1126/scirobotics.adf5758
Source type	Research Article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	This research article is about a lower appendage prosthesis device acting similarly to how a human ankle joint would function. This allowed those who were part of the testing to use neurological signals to move the prosthetic and balance under controlled stress on their center of gravity. This could be a large step towards fully controllable limbs, as balance is something many people with these prosthetics struggle with, and now they might be able to perform balance required tasks.
Research Question/Problem/ Need	Those with lower limb prosthetic devices have differences in their ability to balance than able bodied people. This results in balancing issues, and inability to perform some tasks.
Important Figures	
VOCAB: (w/definition)	EMG-electromyographic signals, transtibial amputation- a surgical procedure that removes the foot, ankle joint, distal tibia, and fibula, as well as related soft tissue structures, anticipatory- anticipating movement, compensatory- movement as a response to stimuli or a corrective movement.
Cited references to follow up on	F. B. Horak, Postural orientation and equilibrium: What do we need to know about neural control of balance to prevent falls? Age Ageing 35, ii7–ii11 (2006). C. Curtze, A. L. Hof, K. Postema, B. Otten, The relative contributions of the prosthetic and sound limb to balance control in unilateral transtibial amputees. Gait Posture 36, 276–281 (2012). D. F. Rusaw, S. Ramstrand, Validation of the Inverted Pendulum Model in standing for transtibial prosthesis users. Clin. Biomech. (Bristol, Avon) 31, 100–106 (2016).

Commented [CK13]: double-check your entries- there are more authors not listed.

Commented [CK14R13]: also include the volume and issue.

	M. J. Nederhand, E. H. Van Asseldonk, H. van der Kooij, H. S. Rietman, Dynamic Balance Control (DBC) in lower leg amputee subjects; contribution of the regulatory activity of the prosthesis side. Clin. Biomech. (Bristol, Avon) 27, 40–45 (2012).
Follow up Questions	How strong are the pneumatics of the prosthetic, and can it support harsh or active movement? How can the apparatus be made smaller to be more portable and practical? How would the device be powered or operated if in a mobile form?

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Article #2 Notes: Title

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Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**You can get the feeling that you are touching another human': New prosthetic device detects temperature**
Source citation (APA Format)	Cooke, E. (2024, February 9). "you can get the feeling that you are touching another human": New prosthetic device detects temperature. *LiveScience.* https://www.livescience.com/health/anatomy/you-can-get-the-feeling-that you-are-touching-another-human-new-prosthetic-device-detects-temperature
Original URL	https://www.livescience.com/health/anatomy/you-can-get-the-feeling-that-you-are-touching-another-human-new-prosthetic-device-detects-temperature
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	A prosthetic hand was created so a participant could feel temperature through his own nervous system. The participant was able to tell between hot and cold objects, and could even tell the difference between a fake hand and a real hand based on temperature. Feeling heat is important for safety reasons, like avoiding objects that are too hot or too cold. But it is also important for a more human aspect of communication and emotion. This was the main reason for this study and invention.
Research Question/Problem/ Need	Prosthetics don't help with senses like touch or temperature. Can be dangerous without feeling heat.

Important Figures	 Image credit: © 2024 EPFL/Caillet
VOCAB: (w/definition)	Phantom Limb- amputees often continue to sense their lost limb as if it were still there, thermode-connection to the temperature nerves of the nervous system.
Cited references to follow up on	
Follow up Questions	How accurately can the prosthetic detect temperature? Can this technology be applied to touch as well? Does the prosthetic require specific setup depending on the participant or does it work universally?

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Article #3 Notes: Title

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Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**Musicians Read Emotions Better**
Source citation (APA Format)	Moskowitz C. (2009, March 6) Musicians Read Emotions Better**.** *Live Science.* https://www.livescience.com/9626-musicians-read-emotions.html
Original URL	https://www.livescience.com/9626-musicians-read-emotions.html
Source type	Research web article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	This study researched how musicians are naturally better at perceiving and understanding emotion. They are more able to relate to it, and feel compassion to those around them. Through having participants try to focus while also listening to the sound of a baby crying, the researchers could scan the brain waves and see that musicians were more empathetic towards the sound. This could apply to other areas of life where determining emotion takes place, and could even help those with dyslexia or other language disorders.

Research Question/Problem/ Need	Do musicians have an increased sensitivity and understanding of emotion?
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Can the increased level of understanding by musicians be quantified? How much musical knowledge is needed/how do different levels of knowledge affect results? Does this apply to other forms of art and expression?

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Article #4 Notes: Title

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Article notes should be on separate sheets

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Source Title	**Successful aging of musicians: Preservation of sensorimotor regions aids audiovisual speech-in-noise perception**
Source citation (APA Format)	Zhang, L., Wang, X., Alain, C., & Du, Y. (2023). Successful aging of musicians: Preservation of sensorimotor regions aids audiovisual speech-in-noise perception. *Science Advances, 9*(17). DOI: 10.1126/sciadv.adg7056
Original URL	https://www.science.org/doi/10.1126/sciadv.adg7056
Source type	Website research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	Musical ability to hear specific sounds through noise becomes most prevalent in later stages of life, so older people with a background in music might be less affected by this form of cognitive deterioration. The areas of the brain that tend to deteriorate in old age, should be the same areas that are trained and supported through music training. Musical training might help because those areas of the brain are more developed due to more consistent work, or because this training allows musicians to gain support from other areas of the brain to compensate for deterioration. By having participants of all ages and levels of musical backgrounds perform a number of cognitive tests, including listening for speech through noise, the study was able to see how similar older musicians were to older non-musicians, as well as younger non-musicians, in terms of ability to pick out speech through sound. It was found that in terms of picking out the correct syllable through noise, older musicians did just as well as younger non-musicians, while older non-musicians did far worse.

Research Question/Problem/ Need	Can a background in music help prevent or slow the effects of cognitive deterioration as a result of age?
Important Figures	
VOCAB: (w/definition)	OM-older musicians, ONM-older non musicians, YNM-younger non-musicians, Scaffolding theory-a model of cognition that attempts to describe the complex effects of aging and how it produces the different levels of cognitive function. Reuter-Lorenz, P.A., & Park, D.C. (2014). How Does it STAC Up? Revisiting the scaffolding Theory of Aging and Cognition. *Neuropsychol Rev. 24*(3): 355–370. 10.1007/s11065-014-9270-9
Cited references to follow up on	P. A. Reuter-Lorenz, D. C. Park, How does it STAC up? Revisiting the scaffolding theory of aging and cognition. *Neuropsychol. Rev.* **24**, 355–370 (2014). D. C. Park, P. Reuter-Lorenz, The adaptive brain: Aging and neurocognitive scaffolding. *Annu. Rev. Psychol.* **60**, 173–196 (2009). D. Boebinger, S. Evans, S. Rosen, C. F. Lima, T. Manly, S. K. Scott, Musicians and non-musicians are equally adept at perceiving masked speech. *J. Acoust. Soc. Am.* **137**, 378–387 (2015). C. Alain, B. R. Zendel, S. Hutka, G. M. Bidelman, Turning down the noise: The benefit of musical training on the aging auditory brain. *Hear. Res.* **308**, 162–173 (2014).
Follow up Questions	What other possible positive effects does music have? How much of a musical background is necessary to reduce deterioration?

Commented [24]: Questions are crucial in leading you towards the next paper. This is a MANDATORY section and should include AT LEAST 3 Questions that stem from reading the paper.

Article #5 Notes: Title

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Article notes should be on separate sheets

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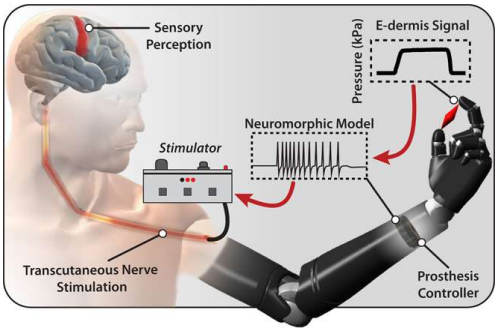
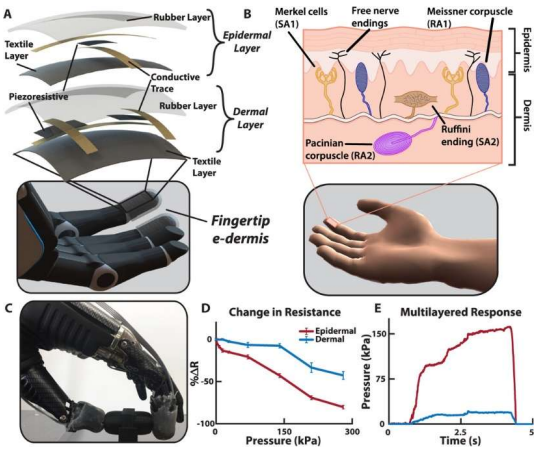
Source Title	**Prosthesis with neuromorphic multilayered e-dermis perceives touch and pain**
Source citation (APA Format)	Osborn, L., Dragomir, A., Betthauser, J., Hunt, C., Nguyen, H., Kaliki, R., & Thakor, N. (2018). Prosthesis with neuromorphic multilayered e-dermis perceives touch and pain. *Science Robotics, 3*(19). DOI:10.1126/scirobotics.aat3818
Original URL	https://www.science.org/doi/10.1126/scirobotics.aat3818
Source type	Research article
Keywords	

#Tags	
Summary of key points + notes (include methodology)	Our samotosensory system which allows us to feel pain and touch is incredibly important for survival. It is also necessary for many of our daily dexterous tasks. Some nerve endings (merkel cells and ruffini endings) are slow adapting and give information based on sustained nerve loads, while others (meissner and pacinian corpuscles) are rapidly adapting and react immediately to stimuli. This study is looking into upper limb prosthetics which could restore tactile feeling. Artificial skin with receptors acting similarly to nerve endings have also been developed. Current prosthetics don't take into account to potential danger that pain can prevent, so this study attempted to apply this to a prosthesis by having an instant release of a "painful" object as a real arm reflex would. Using fake skin like material with imbedded mechanical sensory receptors, this study created a representation of how touch works in a real limb. Connecting this "feeling" ability to the participant through electrode connections to the residual nerves in their arm, the participant would be able to feel the sharpness or shape of the object. This was shown to be true as the participant could feel when the sensors were being stimulated, and could tell between differently sharpened objects.
Research Question/Problem/ Need	Can a pain based release reflex be added to a prosthetic to help reduce harmful situations?
Important Figures	

	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Can this be applied to all parts of the prosthetic or just sensitive areas like finger pads? Does the reflex need to be as strong if the prosthetic won't get as damaged as a normal limb? How good of a condition do the residual nerves need to be for this system to work accurately?

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Article #6 Notes: Title

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Article notes should be on separate sheets

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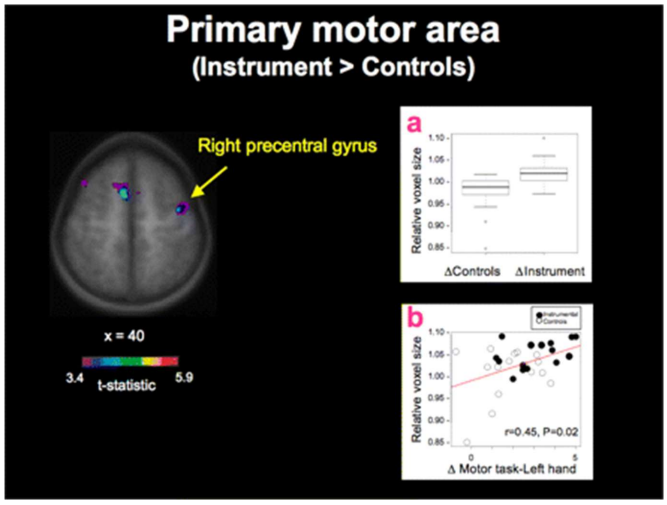
Source Title	Musical Training Shapes Structural Brain Development
Source citation (APA Format)	Hyde, K. L., Lerch, J., Norton, A., Forgeard, M., Winner, E., Evans A. C., & Schlaug, G. (2009). Musical Training Shapes Structural Brain Development. *Journal Of Neuroscience, 29*(10), 3019-3025. https://doi.org/10.1523/JNEUROSCI.5118-08.2009
Original URL	https://www.jneurosci.org/content/29/10/3019
Source type	Research Article
Keywords	
#Tags	

Summary of key points + notes (include methodology)	The human brain is able to adjust and adapt to environments and conditions. Musical training is an intense process that goes on for many years, and thus this study wanted to research its ability to promote brain development. This development could be especially important to younger children. This study tested two groups of children with a mean age of 6 years old, and who had no prior musical training or knowledge. One group was given weekly half hour lessons in how to play the keyboard, and the other group was not given this training, but had weekly 40 music class in school with singing, bells, and drums. This study went on for 15 months in which the cognitive development of the two groups was recorded using behavioral tests and an MRI before and after the 15 months with the musical training. The musically relevant tests were the only ones to show significant difference between the two groups. They tested for brain deformation occurrences at baseline (before musical training), brain deformation differences over time, and intensity differences between groups for a relationship of behavioral changes. There was significant differences in the changes that occurred to behavior in the two groups. The instrumental group did far better in the motor control test for the right hand, and moderately better in the left hand as well. The instumental group also preformed better in auditory and rhythm determination tests.
Research Question/Problem/ Need	How does musical training affect brain development, specifically in younger children?
Important Figures	
VOCAB: (w/definition)	Voxel-A **voxel** is a three-dimensional counterpart to a pixel. It represents a value on a regular grid in a three-dimensional space.
Cited references to follow up on	

Follow up Questions	How does this effect change with a group that has no musical experience? How does continued training affect further brain development into late childhood? Does this change the brain structure or function of adults or does this require brain development?

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Article #7 Notes: Title

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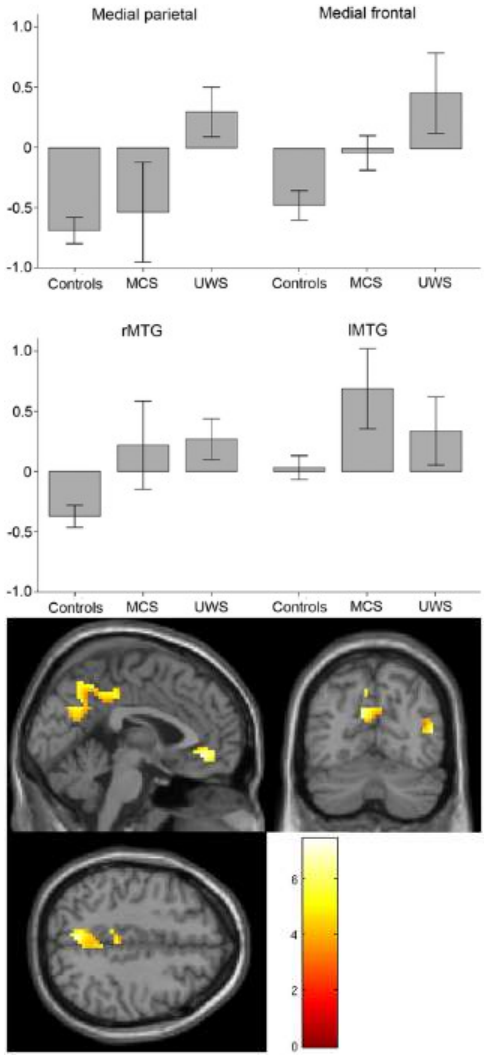
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**Deactivation of the Default Mode Network as a Marker of Impaired Consciousness: An fMRI Study**
Source citation (APA Format)	Crone, J.S., Ladurner, G., Höller, Y., Golaszewski, S., Trinka, E., & Kronbichler, M. (2011). Deactivation of the Default Mode Network as a Marker of Impaired Consciousness: An fMRI Study. *PLoS ONE 6*(10), e26373. https://doi.org/10.1371/journal.pone.0026373
Original URL	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0026373
Source type	Research study
Keywords	
#Tags	
Summary of key points + notes (include methodology)	Many diagnoses for DOCs are incorrect and no real metric has been found and used. This study researched and tested the deactivation of DMNs in patients with various DOCs as well as healthy participants to see if the deactivation of these networks could be correlated to the level of consciousness a patient was capable of. Out of three features of DMNs, one has been studied far less than the other two, and this is the deactivation of these regions during cognitive tasks that require large amounts of attention. Participants were told to listen closely to 64 short sentences through 2 sessions in a random order. They were told to answer true or false surrounding the statement that was said in each sentence. During this testing, the DMN regions in question were being monitored with one of three fMRI scanners. The results of this study showed that the deactivation of DMNs was reduced in some DOCs like MCS, and completely absent in DOCs like UWS compared to high levels of deactivation for healthy participants. Because of this, it was concluded that lack of deactivation of DMNs is a sign of an interrupted mental stream, and therefore is a potential sign that a patient might have a DOC.
Research Question/Problem/ Need	Can consciousness disorders be diagnosed through the study of task induced deactivation of default mode networks?

Important Figures	
VOCAB: (w/definition)	DOC-disorder of consciousness, MCS-minimally conscious state, DMN-Default mode network, UWS-unresponsive wakefulness syndrome
Cited references to follow up on	Owen A.M., Coleman M.R. (2008). Using neuroimaging to detect awareness in disorders of consciousness. *Funct Neurol 23*, 189–194. *DOI:* 10.1097/AIA.0b013e318181adcc

Follow up Questions	Can EEG technology be used to scan activation levels of similar brain areas? What are other sensory test capable of studying the activation levels of brain regions? Were there any other areas that a spike or fall was observed in, and how could those contribute to the potential use of DMN regions as a test for DOCs?

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Article #8 Notes: Title

Commented [34]: Remember to take notes and summarize the work in your own words. Doing this upfront will help you avoid PLAGIARISM.

Commented [35]: If you keep this as a HEADER- it will show up in your Table of Contents automatically.

Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	The Electroencephalographic Brainwave Spectrum, Mindful Meditation, and Awareness
Source citation (APA Format)	Deshmukh, V.D. (2023). The Electroencephalographic Brainwave Spectrum, Mindful Meditation, and Awareness. *International Journal of Yoga 16*(1),42-48. *DOI:* 10.4103/ijoy.ijoy_34_23
Original URL	https://journals.lww.com/ijoy/fulltext/2023/16010/the_electroencephalographic_brainwave_spectrum,.8.aspx
Source type	Perspective article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	Brainwaves of different frequencies can be connected to different emotions, as well as states of mind. By studying these bioelectric system, we can gain further insight into what areas of the brain are being connected to, and used for a specific task, by observing what regions are experiencing these different waves. It was found that alpha and theta frequencies are important for memory and motor control. It was also found that delta frequencies usually correlate to calm feelings.
Research Question/Problem/ Need	This article talks about identifying what brainwave frequencies connect to what emotions and actions.
Important Figures	
VOCAB: (w/definition)	Alpha,beta,theta, and delta waves-brainwaves of differing frequencies, usually connecting to different emotions,
Cited references to follow up on	
Follow up Questions	What areas of the brain are the frequencies common in? How does EEG equipment read these signals? Can these signals be misinterpreted or skewed by outside forces?

Commented [36]: Questions are crucial in leading you towards the next paper. This is a MANDATORY section and should include AT LEAST 3 Questions that stem from reading the paper.

Article #9 Notes: Title

Commented [37]: Remember to take notes and summarize the work in your own words. Doing this upfront will help you avoid PLAGIARISM.

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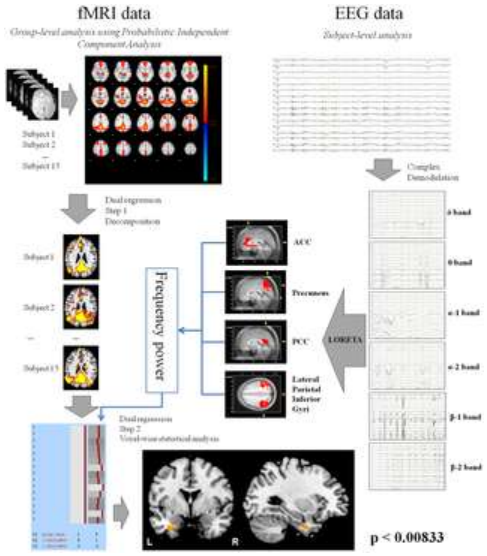
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**The Default Mode Network and EEG Regional Spectral Power: A Simultaneous fMRI-EEG Study**
Source citation (APA Format)	Neuner, I., Arrubla, J., Werner, C.J., Hitz, K., Boers, F., Kawohl, W., & Shah, J. (2014). The Default Mode Network and EEG Regional Spectral Power: A Simultaneous fMRI-EEG Study. *PLoS ONE 9*(2), e88214. https://doi.org/10.1371/journal.pone.0088214
Original URL	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0088214
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	The authors of this study hoped to find a correlation between delta brain waves and BOLD/DMN deactivation. This would gain a better understanding of what goes on when no active task is being performed vs when a deactivation level task is occurring. They also wanted to see if EEG technology could be used to study these deactivations, along with fMRI equipment. fMRI and EEG are used to together to gain info from both temporal and spatial resolutions. The results show that Beta and Delta powers were directly correlated with the DMN signals, meaning that the DMN regions do not function as a single unit, and different parts function off of different brainwave frequencies.
Research Question/Problem/ Need	To provide more evidence to support the idea that different EEG frequencies can be directly correlated to the deactivation of DMN regions.

Important Figures	
VOCAB: (w/definition)	EEG- Electroencephalography or the process of reading the frequency of the electromagnetic waves produced by the brains functions, DMN-default mode network, RSN-resting state network, BOLD-blood oxygenation level dependent,
Cited references to follow up on	
Follow up Questions	How is BOLD recorded, and does MAMS have this technology? Can an increase in these waves be used as definitive evidence of increased deactivation of DMNs? Does the effectiveness of this strategy get significantly worse without the use of fMRI equipment?

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Article #10 Notes: Title

Commented [40]: Remember to take notes and summarize the work in your own words. Doing this upfront will help you avoid PLAGIARISM.

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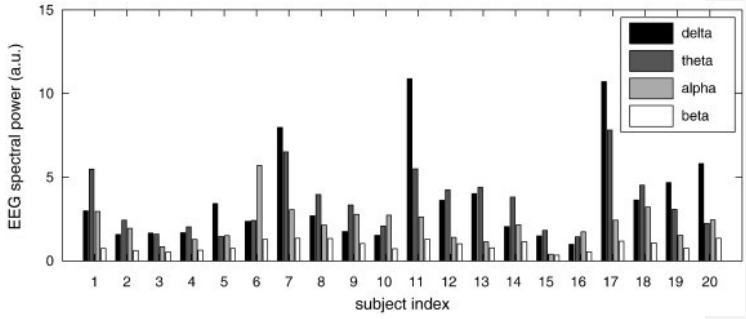
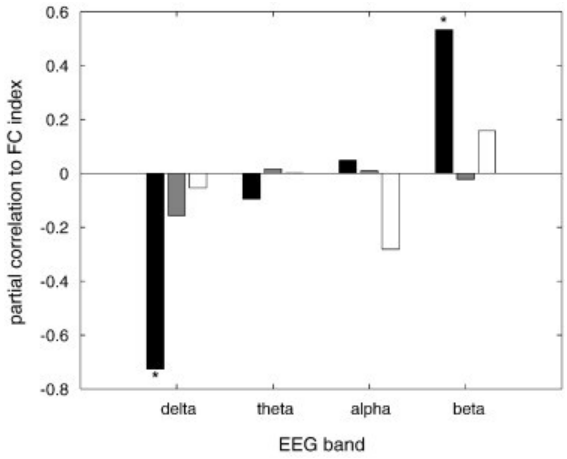
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	Slow EEG pattern predicts reduced intrinsic functional connectivity in the default mode network: An inter-subject analysis
Source citation (APA Format)	Hlinka, J., Alexakis , C., Diukova, A., Liddle, P.F., & Auer, D.P. (2010). Slow EEG pattern predicts reduced intrinsic functional connectivity in the default mode network: An inter-subject analysis. *NeuroImage* *53*(1), 239-246. https://doi.org/10.1016/j.neuroimage.2010.06.002
Original URL	https://www.sciencedirect.com/science/article/pii/S1053811910008451?casa_tok

	en=yk6z28WvgOIAAAAA:oWJHIeA0BRMXaV3lenTGTh1wDKyQrZsyoNr2maZHagNaubAmCRd1R1rQCxoemZlz1mCbMoar
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	This study attempted to show correlation between EEG band powers and the FC of DMN regions. 20 healthy voluteers were tested with both EEG and fMRI technology, and found a strong correlating relationship between the DMN FC areas, and the powers of the EEG frequencies. Increased delta power and decreased beta power could be connected to DMN hypoconnectivity. Lower power EEG signals were correlated with increased connectivity, and therefore more interactions in the default mode areas of the brains network functioning.
Research Question/Problem/ Need	Can EEG patterns help to predict reduced connectivity in DMN regions?
Important Figures	

	
VOCAB: (w/definition)	FC-functional connectivity, DMN-default mode networks,
Cited references to follow up on	
Follow up Questions	What are the most accurate ways to collect EEG readings? Are there other potential factors affecting the results of connectivity for delta and beta waves? What other areas of DMN regions are affected in this way, and what are the brainwave frequencies most common in them?

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Patent #1 Notes: Title

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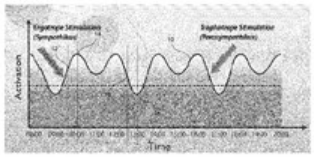
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	Systems and Methods for Music Therapy
Source citation (APA Format)	Brandes, V. M. (2013). *Systems and Methods for Music Therapy* (US20140249358A1). U.S. Patent and Trademark Office.
Original URL	https://patents.google.com/patent/US20140249358A1/en
Source type	patent
Keywords	
#Tags	

Summary of key points + notes (include methodology)	Particular musical compositions are useful for treating depression, autism, and other disorders. Methods revolving around the use of these certain musical elements to create responses in a patient are being patented. Vocal, rhythmic, language elements, tempo, and frequency are all devices that can be used to elicit a response, and therefore can be labeled as patented for the use of musical therapy. These methods can be helpful without the use of antidepressant based
Research Question/Problem/ Need	Patenting certain methods for use of music compositions.
Important Figures	  FIG. 3
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	How are claims about patent breaches decided? How are these strategies implemented? What are some specific tones or rhythms that can give these kinds of benefits?

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Patent #2 Notes: Title

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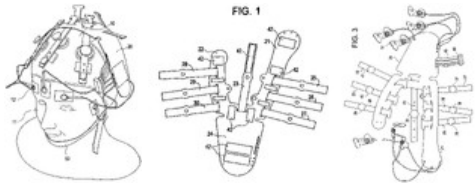
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	EEG electrode headset
Source citation (APA Format)	Gevins, A., Howard, R., & Sandoval, A. (2005). *EEG electrode headset* (US7551952B2). U.S. Patent and Trademark Office. https://patents.google.com/patent/US7551952B2/en
Original URL	https://patents.google.com/patent/US7551952B2/en
Source type	Patent
Keywords	
#Tags	
Summary of key points + notes (include methodology)	This patent is for a full head EEG set. It contains a large amount of electrodes for non-invasive brainwave imaging and scanning. The patent mostly contains to the headset itself, and its ability to consistently position the electrodes to get high

	quality imagery. These devices record actual neuron activity, and are therefore a current point of interest in the scientific fields surrounding brain activity and developments. Because of the connections and insights to cognitive functions, tis technology is under high demand and use, and patents on devices capable of these high quality images are important.
Research Question/Problem/ Need	Creation of a patent for an EEG headset.
Important Figures	
VOCAB: (w/definition)	EEG-Electroencephalography,
Cited references to follow up on	
Follow up Questions	What other options are available for EEG headsets? How does the geometry help with stability and image quality specifically? What electrodes and materials are used, and do these have any importance?

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Article #11 Notes: Title

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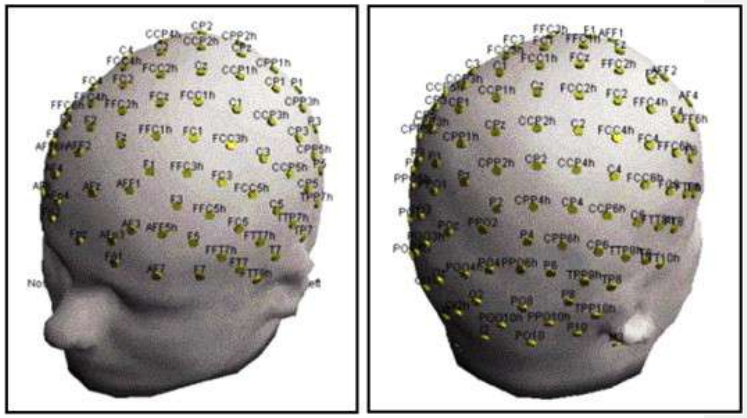
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	EEG default mode network in the human brain: Spectral regional field powers
Source citation (APA Format)	Chen, A.C.N., Feng, W., Zhao, H., Yin, Y., & Wang, P. (2008). EEG default mode network in the human brain: Spectral regional field powers. *ScienceDirect, 41(2), 561-574*. *https://doi.org/10.1016/j.neuroimage.2007.12.064*
Original URL	https://www.sciencedirect.com/science/article/pii/S1053811907011639
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Use of 128 channel EEG electrode headset to record eyes open and eyes closed

	• Recorded differing brainwaves and their strengths • Delta (0.5–3.5 Hz) power was predominantly distributed in the prefrontal area, with an increase in field power from EC to EO. • Theta (4–7 Hz) power was found in the fronto-central region and decreased significantly from EC to EO. • Alpha-1 (7.5–9.5 Hz) and Alpha-2 (10–12 Hz) power was mostly in the posterior brain areas, with a significant reduction in power from EC to EO. • Beta-1 (13–23 Hz) showed a similar distribution to alpha-2 and also exhibited reduced power from EC to EO. • Beta-2 and Gamma frequencies showed no significant change in spatial distribution or power between EC and EO. • Default mode networks reflect brain activity that can be used to assess brain functions in all individuals
Research Question/Problem/ Need	Are there EEG-DMN differences between eyes open and eyes closed patients?
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Do these results apply to other patient forms (men, children, elderly)? What are differences between EEG headsets of different electrode numbers? Does this apply to other mammals, or potentially model organisms?

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Article #12 Notes: Title

Article notes should be on separate sheets

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KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	Relationship Between Alpha Rhythm and the Default Mode Network: An EEG-fMRI Study
Source citation (APA Format)	Bowman, A.D., Griffis, J.C., Visscher, K.M., Dobbins, A.C., Gawne, T.J., DiFrancesco, M.W., & Szaflarski, J.P. (2017). Relationship Between Alpha Rhythm and the Default Mode Network: An EEG-fMRI Study. *Journal of Clinical Neurophysiology, (34(6), 527-533. 10.1097/WNP.0000000000000411*
Original URL	https://journals.lww.com/clinicalneurophys/abstract/2017/11000/relationship_between_alpha_rhythm_and_the_default.9.aspx
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Study relationship between EEG and alpha brainwave power • fMRI and EEG technology equipment used • fMRI fluctuations as alpha spikes • tested against EEG data • Four of six components related to DMN regions • Some components had opposite effects • Different parts of DMN regions have differing effects on alpha power and behaviors
Research Question/Problem/ Need	To assess the relationship between EEG-DMN and alpha power
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Do these results affect other brain areas? Do these results occur for other brain wave frequencies? What causes the changes in alpha power in terms of the DMN regions?

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Article #13 Notes: Title

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Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**Comparative analysis of default mode networks in major psychiatric disorders using resting-state EEG**
Source citation (APA Format)	Choi, K.M., Kim, J.Y., Kim, Y.W. et al. (2021). Comparative analysis of default mode networks in major psychiatric disorders using resting-state EEG. *Scientific Reports, 11(22007).* https://doi.org/10.1038/s41598-021-00975-3
Original URL	https://www.nature.com/articles/s41598-021-00975-3
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Creation of DMN network models for major psychiatric disorders • Compare characteristics • Conditions like PTSD, OCD, MDD, SZ, and MCI • Matched to healthy control groups • Clustering in both the low-alpha, low-beta, high-beta, and theta bands •
Research Question/Problem/ Need	To compare the DMNs in major psychiatric disorders using EEG
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	What are the changes to other brain wave frequencies? What do these heightened areas mean? What do these results mean for non psychiatric patients?

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Article #14 Notes: Title

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Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	The default mode network and EEG alpha oscillations: An independent component analysis
Source citation (APA Format)	Knyazev, G.G., Slobodskoj-Plusnin, J.Y., Bocharov, A.V., & Pylkova, L.V. (2011). The default mode network and EEG alpha oscillations: An independent component analysis. *Science Direct, 1402, 67-79. https://doi.org/10.1016/j.brainres.2011.05.052*

Commented [CK58]: This entry does not have the journal title.

Original URL	https://www.sciencedirect.com/science/article/abs/pii/S0006899311009863?casa_token=EqWT-laK7UEAAAAA:-VCOVKmGGf6AdCX2DZqO7CDjyLg6jy3Z7Hr5FhdShuyPnYkqvKFRHDxysTdu3wwb24VU2HqB
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• DMN regions have been looked at using fMRI, but not EEG as much • Links between DMN and EEG frequency bands can't be established with current data • Can blind decomposition methods identify EEG data resembling the DMNs • Does this data resemble data collected by fMRI and other more studied methods • Only alpha band data resembled DMNs described by other methods •
Research Question/Problem/ Need	Provide more data to be used to link DMN with EEG frequency bands
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Why has EEG not been studied to a degree as is seen in other methods, does it have weaknesses? Why do these results appear primarily in alpha regions? Why the use of blind Decomposition methods?

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Article #15 Notes: Title

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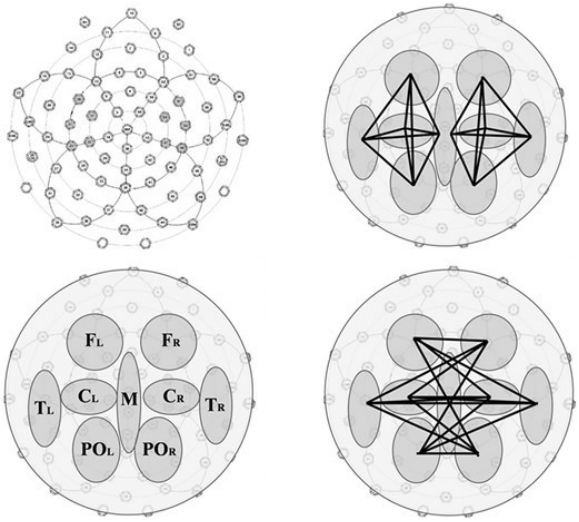
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**Studying the default mode and its mindfulness-induced changes using EEG functional connectivity**
Source citation (APA Format)	Berkovich-Ohana, A., Glicksohn, J., & Goldstein, A. (2014). Studying the default mode and its mindfulness-induced changes using EEG functional connectivity. *Social Cognitive and Affective Neuroscience 9(10), 1616-1624. https://doi.org/10.1093/scan/nst153*

Original URL	https://academic.oup.com/scan/article/9/10/1616/1655803
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Bring neurodynamics to the topic of DMN regions • Training is hypothesized to reduce DMN activity • Three meditation groups tested • Explored the use of EEG-FC for looking at DMN • DMN was reduced during transition from resting to productivity • 36 MM patients • 12 controls • 5 mins of resting with eyes closed • 15 mins of meditation session with eyes closed • 65 channel EEG • DMN deactivation was correlated with changes in EEG readings • Decrease in gamma power in regions like MPC
Research Question/Problem/ Need	To explore the usefulness of EEG as a way to read DMN changes in resting and meditative states
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	

Follow up Questions	What brain regions had what frequencies as normal and abnormal? What was the reason for the study based on EEG-FC equipment? Why has this equipment not been utilized before?

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Article #16 Notes: Title

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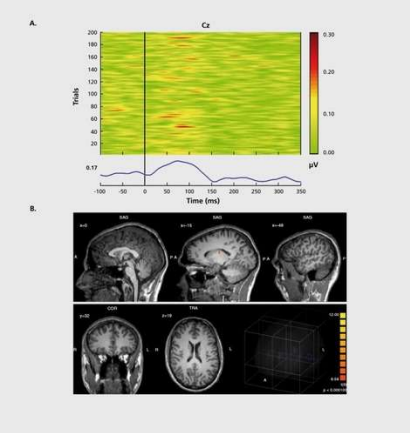
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	**Simultaneous EEG and fMRI: towards the characterization of structure and dynamics of brain networks**
Source citation (APA Format)	Mulert, C. (2013). Simultaneous EEG and fMRI: towards the characterization of structure and dynamics of brain networks. *Dialogues in Clinical Neuroscience, 15(3), 381–386.* https://doi.org/10.31887/DCNS.2013.15.3/cmulert
Original URL	https://www.tandfonline.com/doi/full/10.31887/DCNS.2013.15.3/cmulert
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Both EEG and fMRI are useful for brain function scanning • Different in some ways • EEG uses direct neural activity scanning • fMRI shows special resolution through dynamic changes • They are best utilized together for a complete analysis of brain regions • Particularly useful for observing brain network communication
Research Question/Problem/ Need	Understand brain functions using both EEG and fMRI technology

Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	If only able to utilize one form, which is better used for brain network imaging? What are specific drawbacks helped by the other method? Are there other methods that pertain to other brain functions?

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Article #17 Notes: Title

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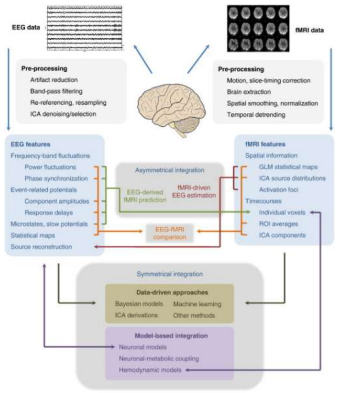
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	EEG–fMRI integration for the study of human brain function
Source citation (APA Format)	Jorge, J., van der Zwaag, W., & Figueiredo, P. (2014). EEG–fMRI integration for the study of human brain function. *Science Direct, 102(1), 24-34. https://doi.org/10.1016/j.neuroimage.2013.05.114*
Original URL	https://www.sciencedirect.com/science/article/pii/S1053811913006174?casa_token=YkgCcaE3hE8AAAAA:UscSz86b0ou5qMaD82GAMtMjI5CfSro5TPsQ75alCLHZiTZvjVkXe6n0IW4hASdByuGRxS1g
Source type	Research article
Keywords	
#Tags	

Summary of key points + notes (include methodology)	• EEG-fMRI was originally used for the understanding of epilepsy • Brought to the topic of healthy brain functions • Helped to determine many paths and connections in the brain • Being applied to many other functions • Artifact reduction, brain extraction, motion, cognition, locomotion, and normalization
Research Question/Problem/ Need	Give a general description of the uses and innovations in EEG-fMRI brain imaging
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Why was this technology not originally applied to these areas? What are the connections between the EEG signals, fMRI mapping, and brain functions as a whole? What can be inferred for the future of EEG-fMRI equipment with these areas in mind?

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Article #18 Notes: Title

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Article notes should be on separate sheets

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Source Title	Fluctuations of the EEG-fMRI correlation reflect intrinsic strength of functional connectivity in default mode network
Source citation (APA Format)	Keinänen, T., Rytky, S., Korhonen, V., Huotari, N., Nikkinen, J., Tervonen, O., Palva, J.M., & Kiviniemi, V. (2018). Fluctuations of the EEG-fMRI correlation

	reflect intrinsic strength of functional connectivity in default mode network. *Journal of NeuroScience Research, 96(10), 1689-1698. https://doi.org/10.1002/jnr.24257*
Original URL	https://onlinelibrary.wiley.com/doi/abs/10.1002/jnr.24257
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Resting state connectivity is viable in the human brain • Used MREG to statistically significantly test BOLD and fbEEG signals for comparisons • Fluctuations in these areas were correlated to RSN connectivity strength, but not by RSN mean activation magnitude • Weak versions of these signals led to activation in deeper cerebral areas
Research Question/Problem/ Need	Correlations between BOLD and fbEEG could be explained by the activation of resting state networks
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	What do the states of resting areas mean for other brain areas? Are these resting states connected to the DMNs? What EEG or fMRI signals gave these BOLD destinctions?

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Article #19 Notes: Title

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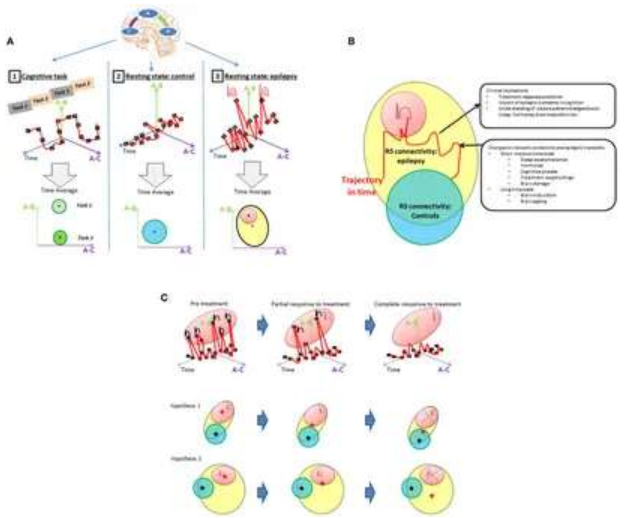
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	Network connectivity in epilepsy: resting state fMRI and EEG–fMRI contributions
Source citation (APA Format)	Centeno, M., & Carmichael, D.W. (2014). Network connectivity in epilepsy: resting state fMRI and EEG–fMRI contributions. *Frontiers in Neurology, 5. https://doi.org/10.3389/fneur.2014.00093*
Original URL	https://www.frontiersin.org/journals/neurology/articles/10.3389/fneur.2014.00093/full

Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Brain networks have a lot of connection to epilepsy • Functional imaging techniques are useful for understanding these networks • Particularly the RSN areas • The use of EEG and fMRI have shown abnormalities in brain areas surrounding congnition, epileptogenic, and sensory processing • Impact of epileptic transients are often neglected • These regions can be seen through the use of EEG and fMRI, making them useful tools for the study of these brain regions • Highlights the importance of these transients and their study
Research Question/Problem/ Need	Describe how fMRI and EEG can be used to provide new information on epilepsy and the brain areas included in the disease.
Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Do epileptic regions have connections to DMN regions? What makes EEG and fMRI important to the scanning of these regions? What do they scan and map that other methods cannot?

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Article #20 Notes: Title

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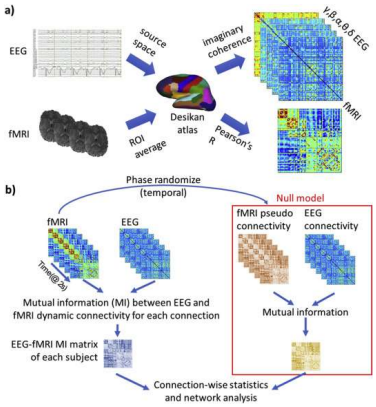
Article notes should be on separate sheets

KEEP THIS BLANK AND USE AS A TEMPLATE

Source Title	Concurrent EEG- and fMRI-derived functional connectomes exhibit linked dynamics
Source citation (APA Format)	Wirsich, J., Giraud, A., & Sadaghiani, S. (2020). Concurrent EEG- and fMRI-derived functional connectomes exhibit linked dynamics. *Science Direct, 219, 116998. https://doi.org/10.1016/j.neuroimage.2020.116998*
Original URL	https://www.sciencedirect.com/science/article/pii/S1053811920304845
Source type	Research article
Keywords	
#Tags	
Summary of key points + notes (include methodology)	• Most info surrounding brain region connectivity has been achieved through fMRI • EEG could provide further insights that other methods including fMRI have not been able to achieve • Whole brain dynamics and electrophysiological connectivity are unknown areas and are relatively unstudied • EEG can assist in knowledge surrounding these areas • Brain regions surrounding this connectivity were scanned with both fMRI and EEG equipment • Focus primarily on rest areas of the brain • Conclusions show that some information is overlapped between the two methods • EEG also provided information that fMRI did not show
Research Question/Problem/ Need	To gain insights as to the connectivity of certain brain regions through both fMRI and EEG study

Important Figures	
VOCAB: (w/definition)	
Cited references to follow up on	
Follow up Questions	Are there other methods besides fMRI and EEG that could provide even more insights? Do certain technologies work better for certain brain areas or functions? Why are these brain areas so misunderstood, and why has data not been collected on them before?

Commented [77]: Questions are crucial in leading you towards the next paper. This is a MANDATORY section and should include AT LEAST 3 Questions that stem from reading the paper.