Intro Outline

1. Exposure is one of the most effective treatments for anxiety disorders (Norton 2007)
   1. However, can be aversive and lots of people don’t seek treatment (wang 2002, wang 2005) or end early (loerinc 2015)
2. Multivoxel neuro-reinforcement was developed to circumvent this problem
   1. It rewards unconscious activation of a neural category representation through fMRI (Wantanabe 2017, Koizumi 2016, Shibata 2019)
   2. Previous research has found that it can decrease amygdala activity in response to feared animals (taschereau dumochel 2018)
3. However, the mechanics of neuro-reinforcement are still understudied (taschereau dumochel 2020, Shibata 2019)
   1. Understanding intermediate neural changes is an unmet need to elucidate mechanisms of decnef
   2. Other studies have looked for changes related to neuro-reinforcement in resting state connectivity but not yet in a sample of clinically severe animal phobic participants (Scheinost 2013, Megumi 2015)
   3. Other studies have also been with ROI-based and functional connectivity neuro-reinforcement, not multivoxel
4. We conducted an unrestricted connectivity analysis of resting state data collected as part of a greater study reported elsewhere (cite) in order to examine changes in resting state pre to post treatment
   1. The ICA allows us to explore brain in a model free fashion
5. Because decnef targeted the VT, we hypothesize that we will see changes in connectivity in the visual area
6. We also hypothesize that because we saw amygdala changes we will see these changes be associated with those changes

500 – 1000 words for intro total

Don’t get too specific with number 4

Don’t focus on repeating decnef itself

Focus on how mechanics are understudied, uncertain, unmet needs,

This is a look to see what kinds of changes we can see before/after

Not quite exploratory but as part of a greater study reported elsewhere, looked at differences in functional connectivity in resting state

Hypothesis: Would make sense if changes in connectivity were in visual area

Expected to see something broadly in the VT area because of where decnef was rewarding

Hypothesis: Would make sense if these changes were related to amygdala

Only predict what is directly justified by the literature

“Unrestricted connectivity analysis”

Look at decnef intro for verbiage

Question for cody:

Is there more that I am missing in the intro

It isn’t a mechanisms study, how should I word this?

Move to discussion:

1. Decnef was specifically reinforcing the Ventral Temporal Cortex, which is implicated in discriminating between categories of visual stimuli
   1. HOW DO I CONNECT THIS TO THE RESTING STATE CHANGES AND THEN AMYGDALA CHANGES
   2. Following neuro-feedback, we expect that connectivity with the areas of the brain that handle visual category discrimination would increase
      1. Can observe this change during resting state
2. We hypothesize that the greater change of these visual category discriminating areas (as measured during resting state) would also be related to greater reductions in amygdala activity because the extinction effect would be greater
   1. The better participants are at these unconscious representations of the feared animal, the quicker the fear reaction is extinguished during assessment?