

### Reading/discussion questions for Johnson et al., 2016 and Counotte et al., 2010

1. Why do you think the authors chose these particular brain regions (PFC, OFC, and BLA) for their study of adolescent brain maturation?
2. What are the advantages and disadvantages of using fixed tissue from animals that were euthanized at specific ages (e.g. Counotte et al., 2010) vs live animals for synapse imaging studies (e.g. Johnson et al., 2016)?
3. Could Johnson et al. have drawn the same conclusions if they had used fixed tissue?
4. In Johnson et al., the authors concluded that the density of dendritic spines in dmPFC decreases with age, the density of BLA→dmPFC boutons increases with age, and the density of OFC→dmPFC boutons does not change with age. Which figure(s) show the data for this conclusion?
5. Interpret the graphs in Fig. 3c-d (Johnson et al.) in your own words (i.e. state the conclusions you would draw from the data shown).
6. Based on Fig. 5f (in Johnson et al.), are BLA axons growing, shrinking, or showing no net change in juvenile mice? In adult mice, are the BLA axons growing, shrinking, or showing no net change?
7. In Counotte et al., describe the control group(s) for Fig. 1. If none, justify your answer.
8. In Counotte et al., the authors claimed that nearly 35% of the identified synaptic proteins undergo significant changes in expression. Do you agree with the statement? What figure(s) support this claim?
9. Based on the proposed model of synapse development in Counotte et al. (Fig. 4), the synaptic vesicle proteins undergo the most pronounced change in levels. Which figure(s) support this claim? Would you have done the same experiment?

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