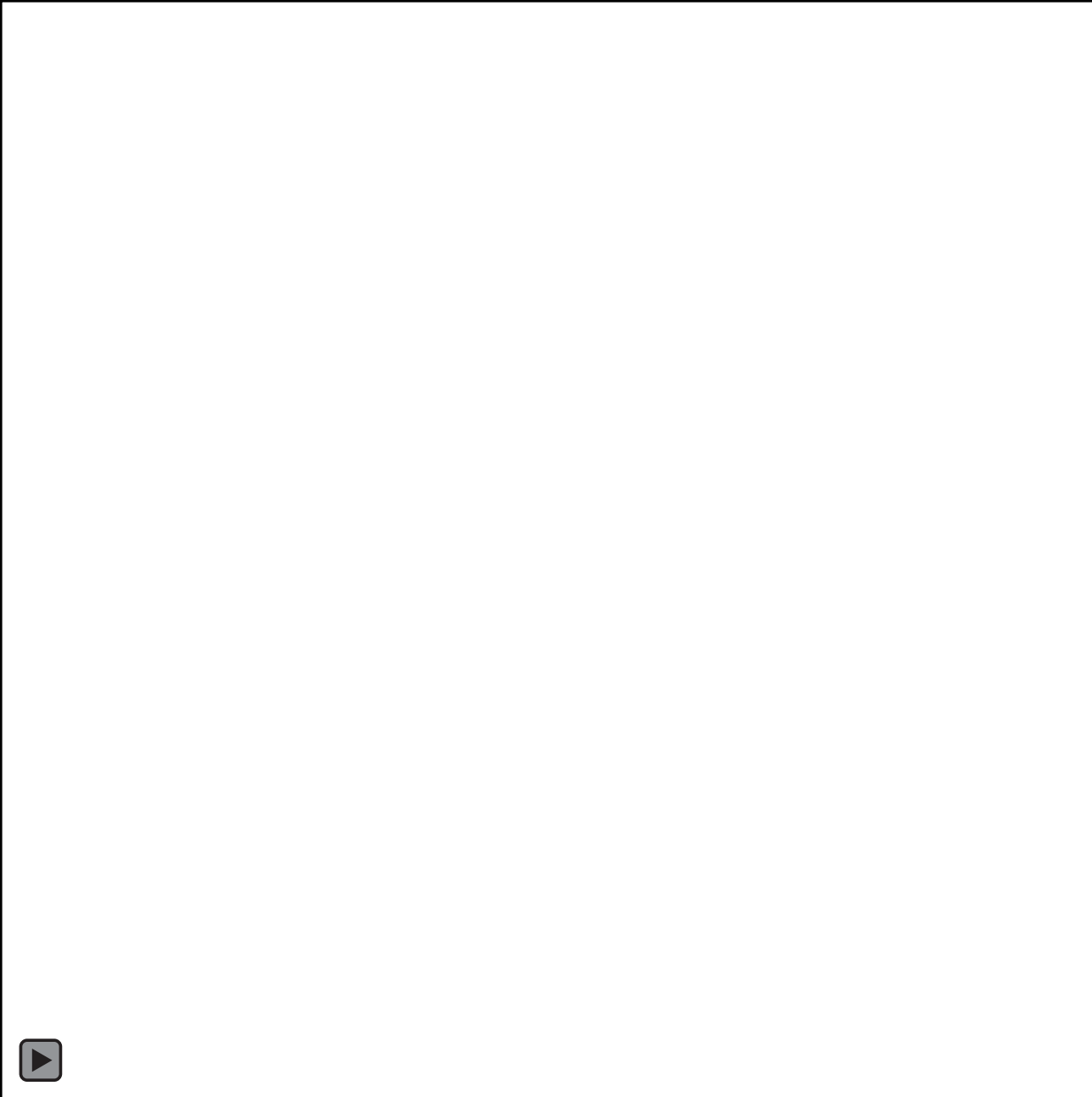


How the DMM-AAI predicts brain and behavioral responses of mothers and their infants

Lane Strathearn, MBBS, PhD
University of Iowa, USA
lane-strathearn@uiowa.edu

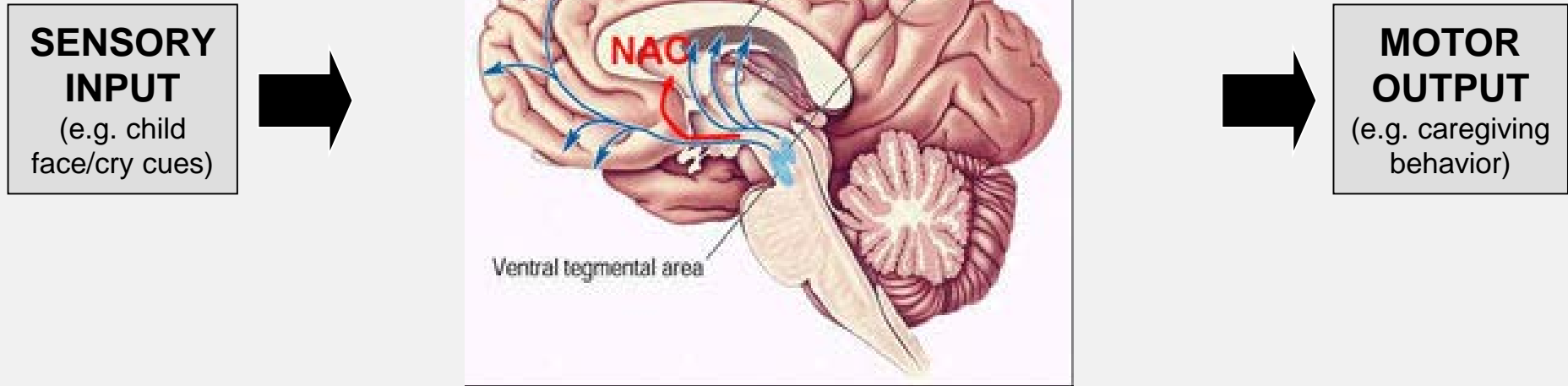




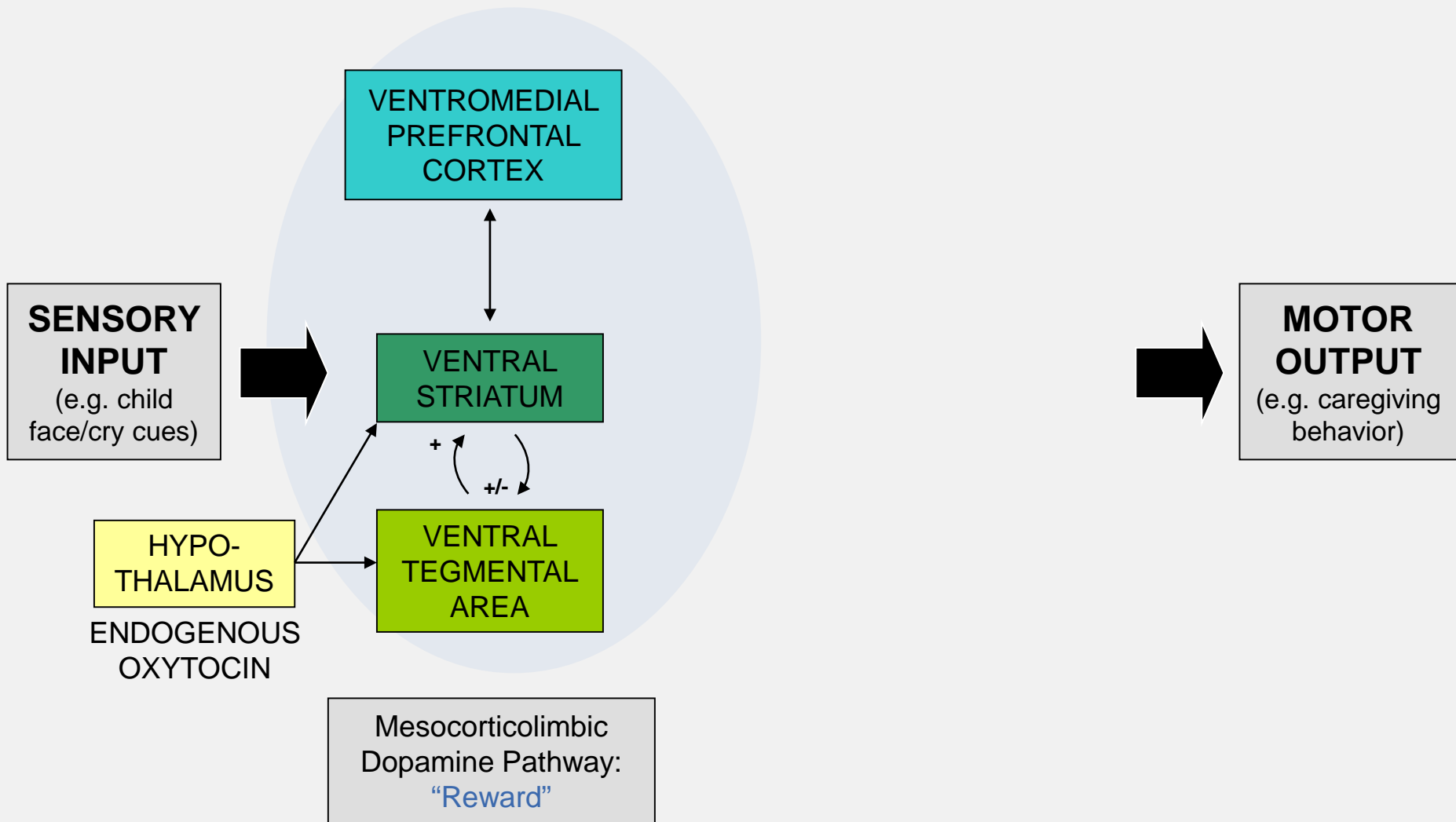
Neurobiology of maternal caregiving



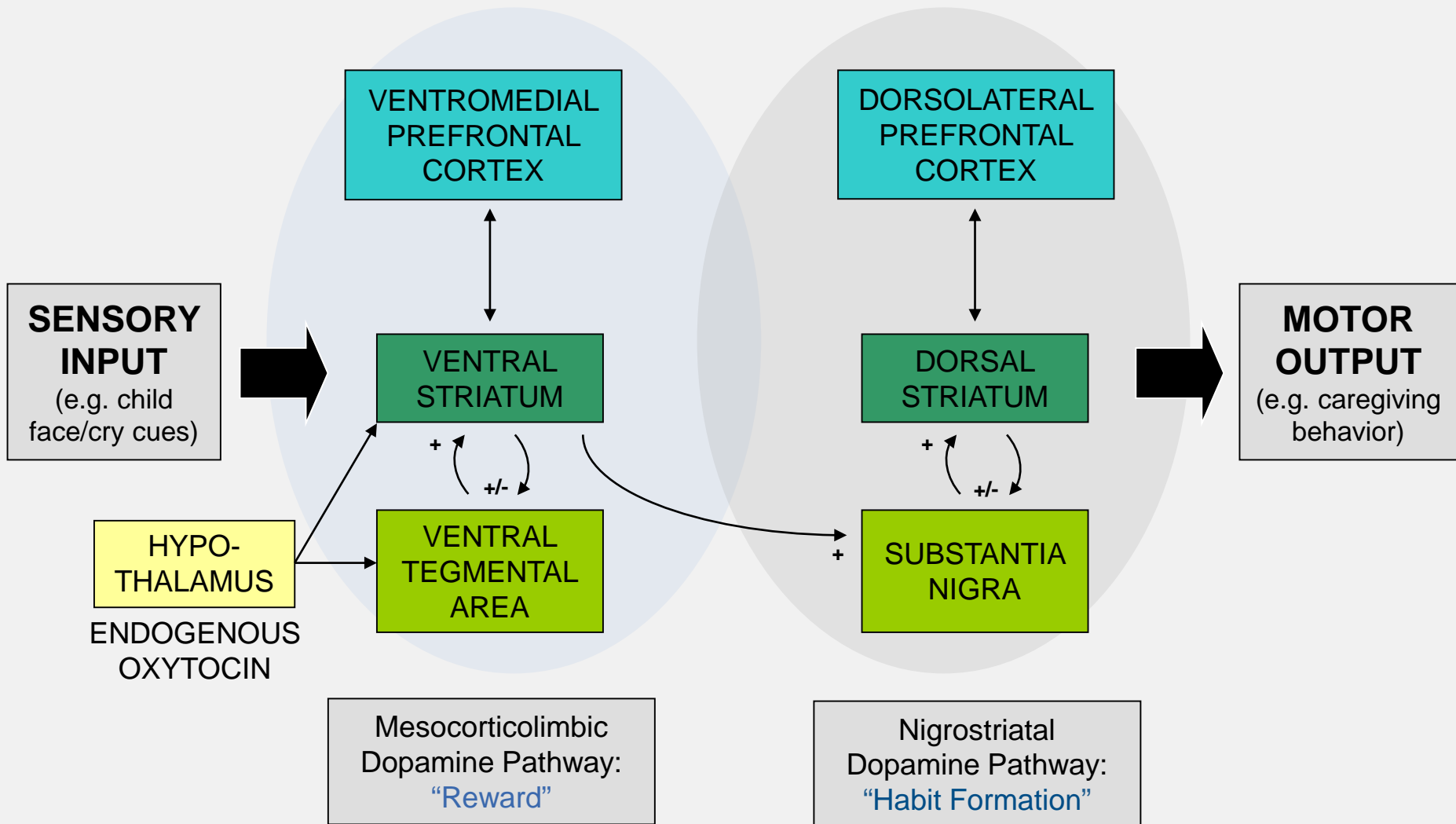
Neurobiology of maternal caregiving



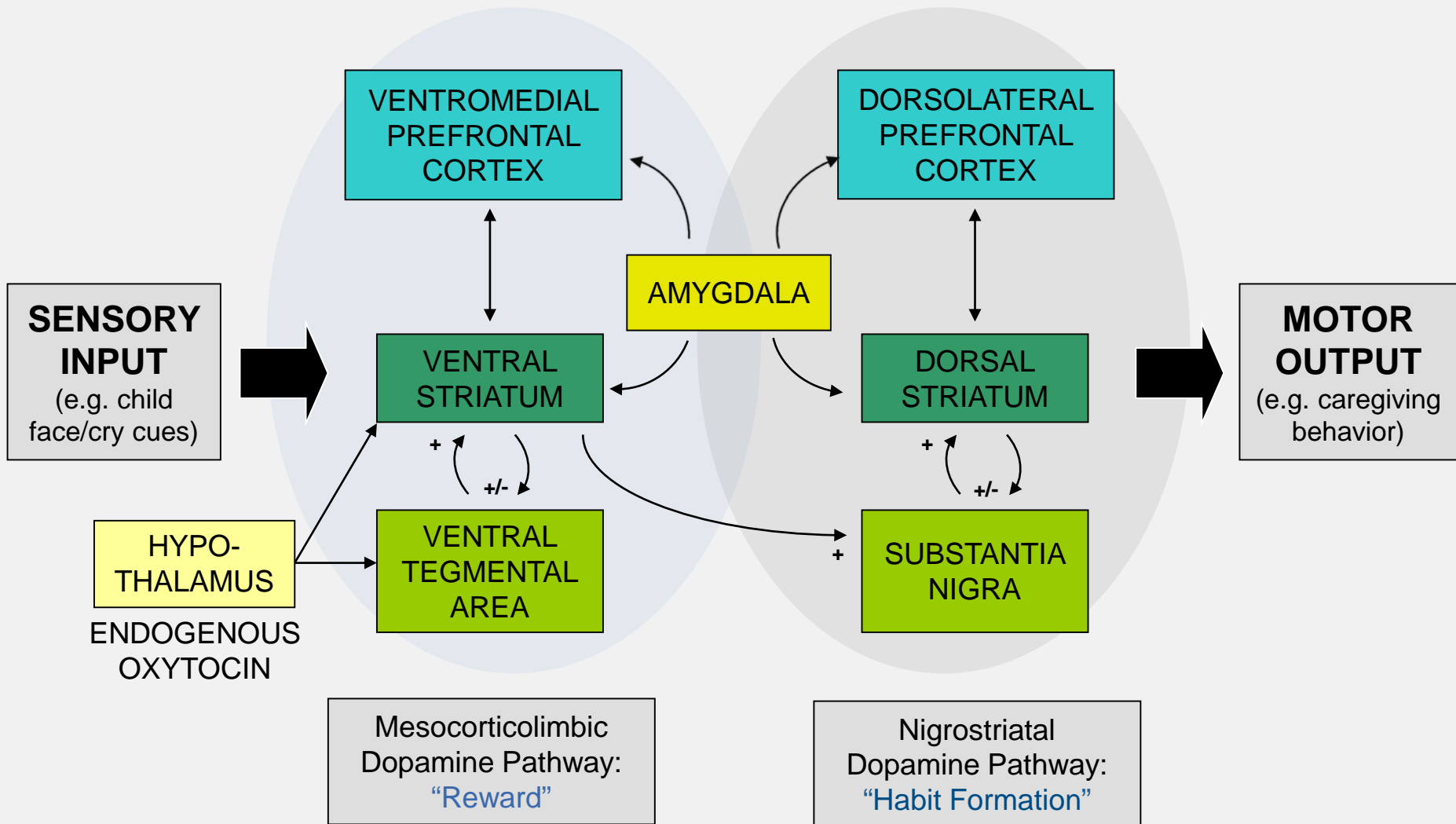
Neurobiology of maternal caregiving



Neurobiology of maternal caregiving



Neurobiology of maternal caregiving

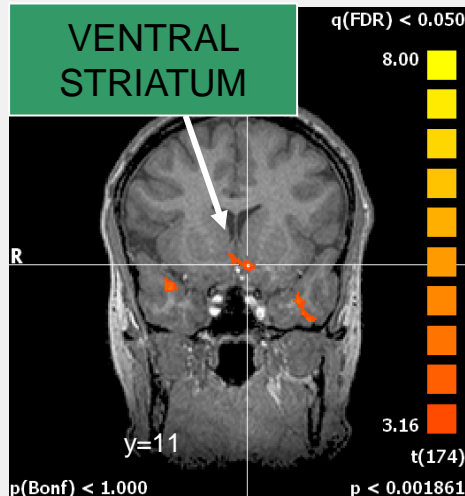


Own Happy Faces: Type B vs. Type A

Bilateral
Ventral
Striatum

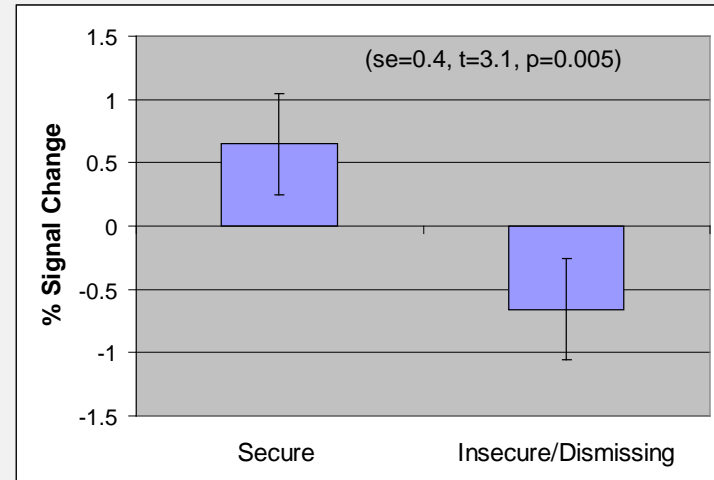
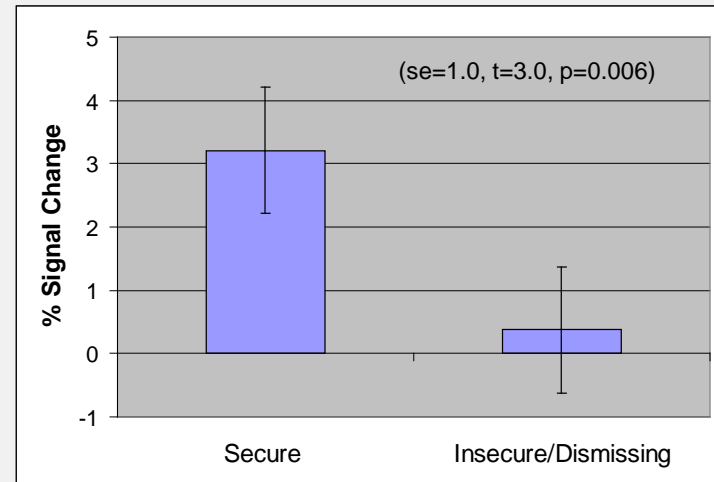


Right
Medial
PFC



MEDIAL
PREFRONTAL
CORTEX

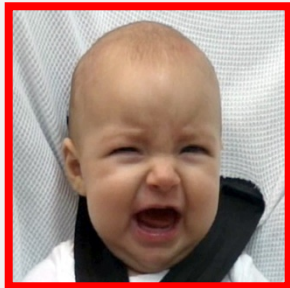
x=-6



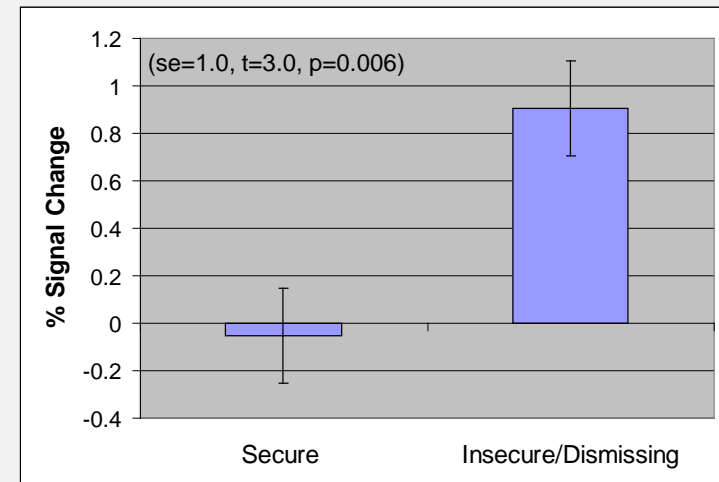
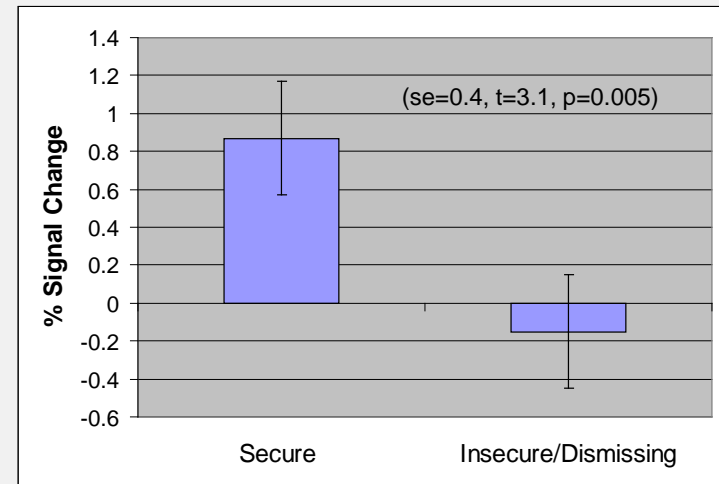
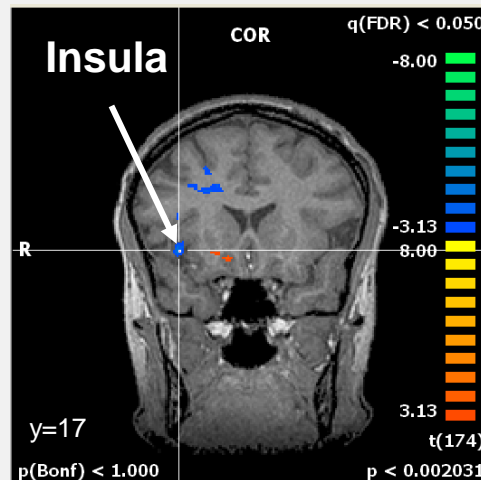
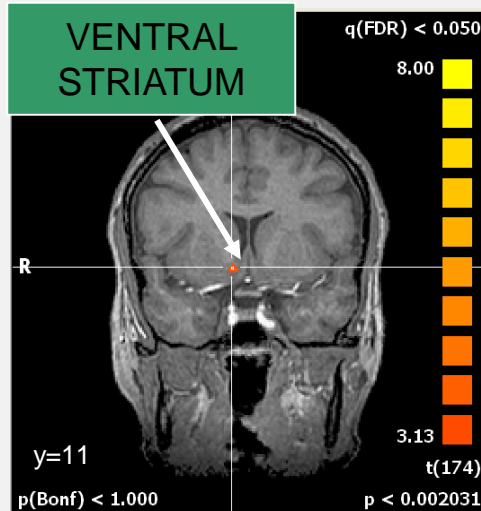
Strathearn *et al.* *Neuropsychopharmacology* (2009)

Own Sad Faces: Type B vs. Type A

R Ventral Striatum



R Insula



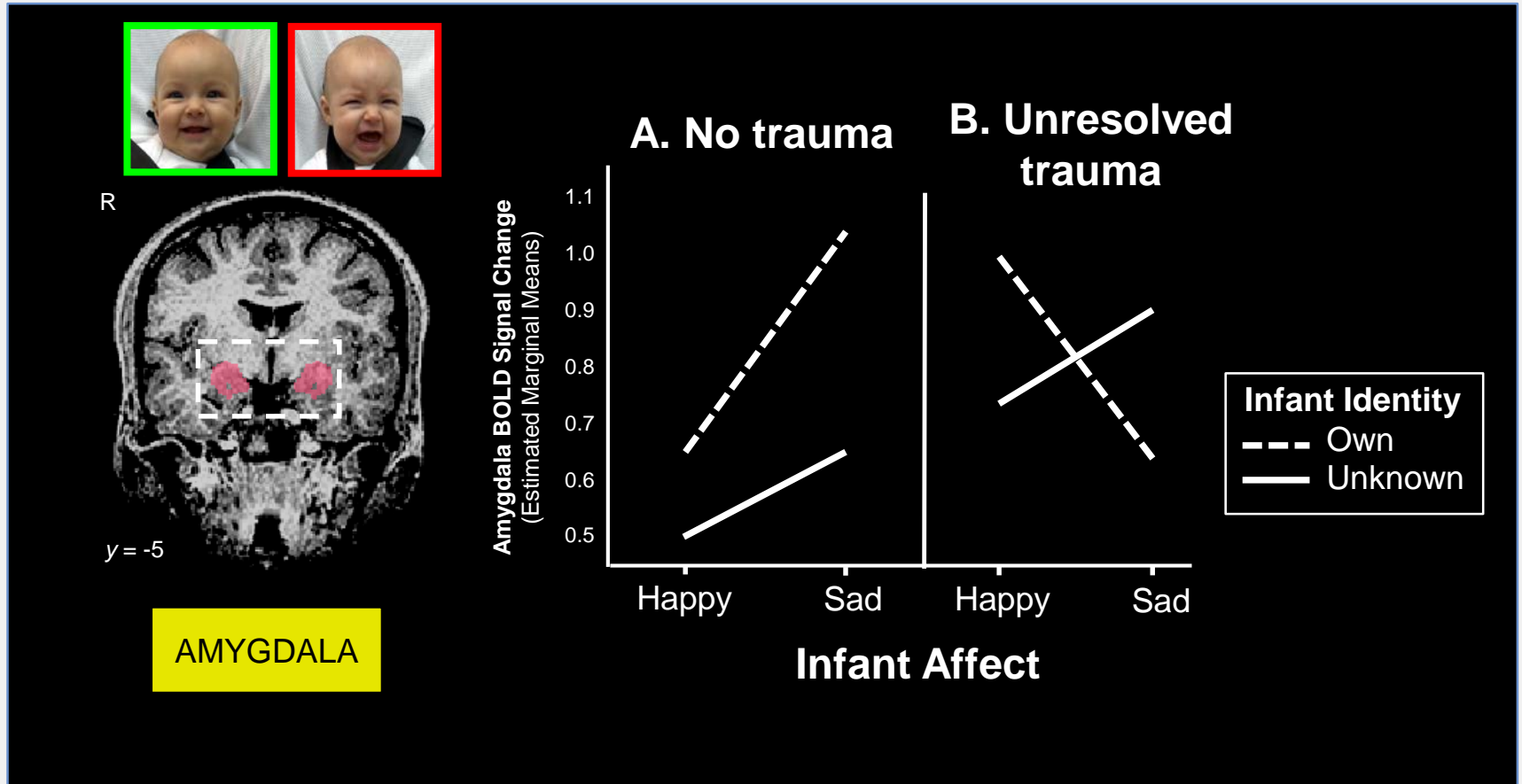
Strathearn *et al.* *Neuropsychopharmacology* (2009)

Unresolved trauma in mothers

- Includes occurrences of childhood abuse, neglect, or death of a parent
- Current discourse from Adult Attachment Interview indicates that the trauma has not been adequately processed, and continues to interfere with current functioning



Amygdala activation to infant distress in mothers with unresolved trauma



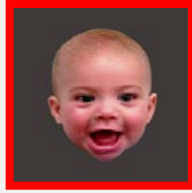
Kim et al. *Social Neuroscience* (2014)

Unresolved trauma in addicted mothers

- 98% of study mothers with addiction problems also had unresolved trauma (vs. 67% of control group; $p < 0.001$)

Own-Happy

Unknown-Happy



>

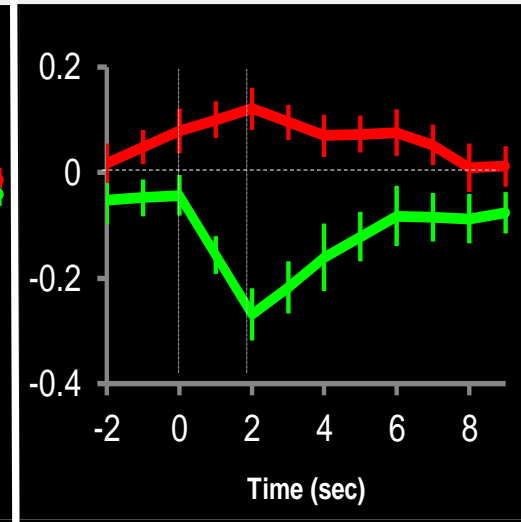
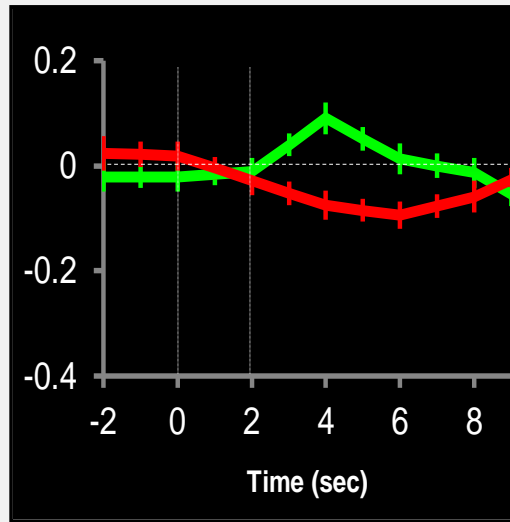
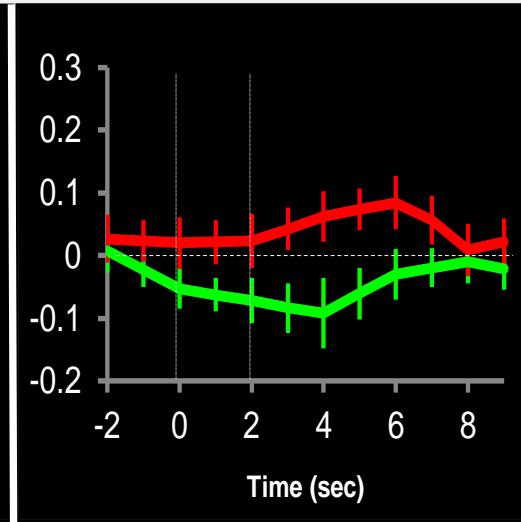
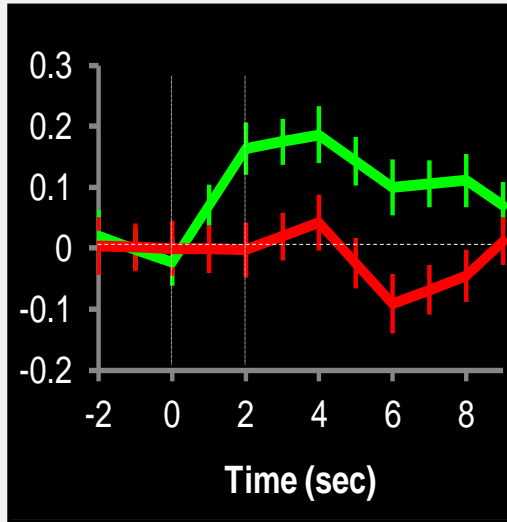
VENTRO-MEDIAL PFC



VENTRAL STRIATUM

Normative Mothers
(n=36)

Addicted Mothers
(n=39)



Kim, S., Iyengar, U., Mayes, L. C., Potenza, M. N., Rutherford, H. J. V., & Strathearn, L. (2017). *Human Brain Mapping*, 38(11), 5421-5439.

Own-Happy

Unknown-Happy



>

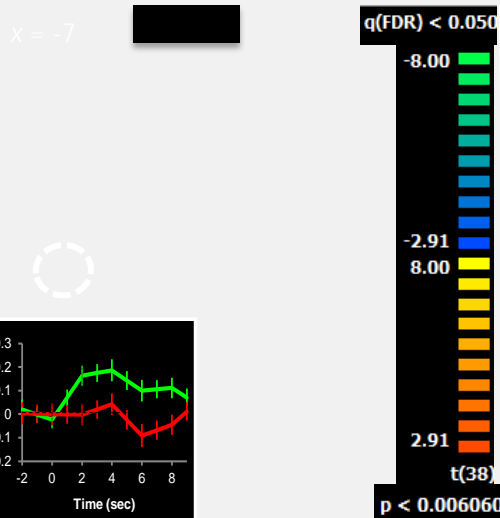


VENTRO-MEDIAL PFC

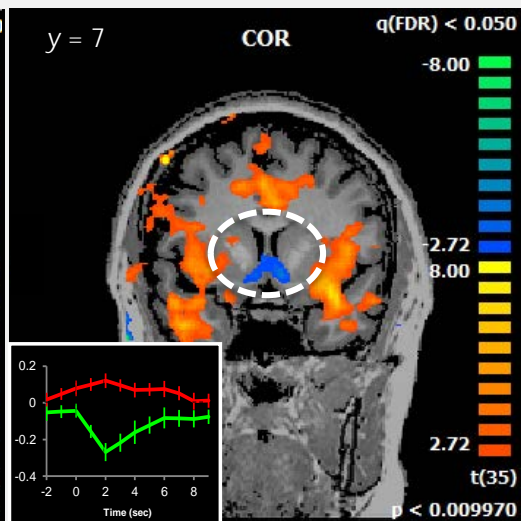
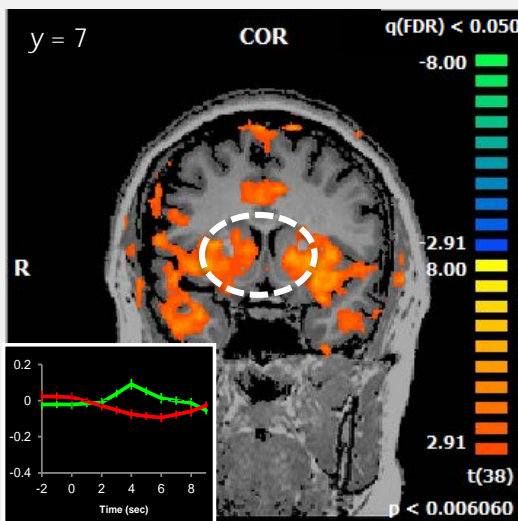
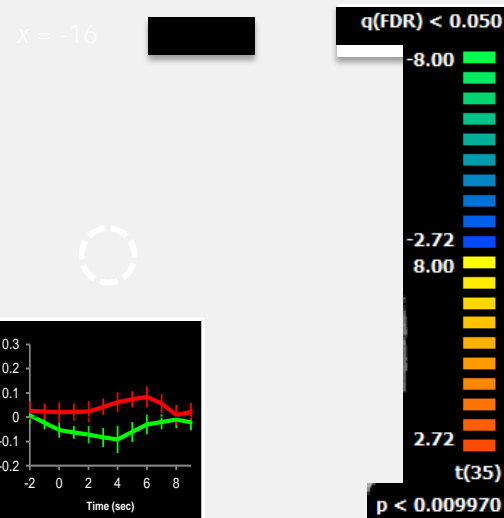


VENTRAL STRIATUM

Normative Mothers (n=36)



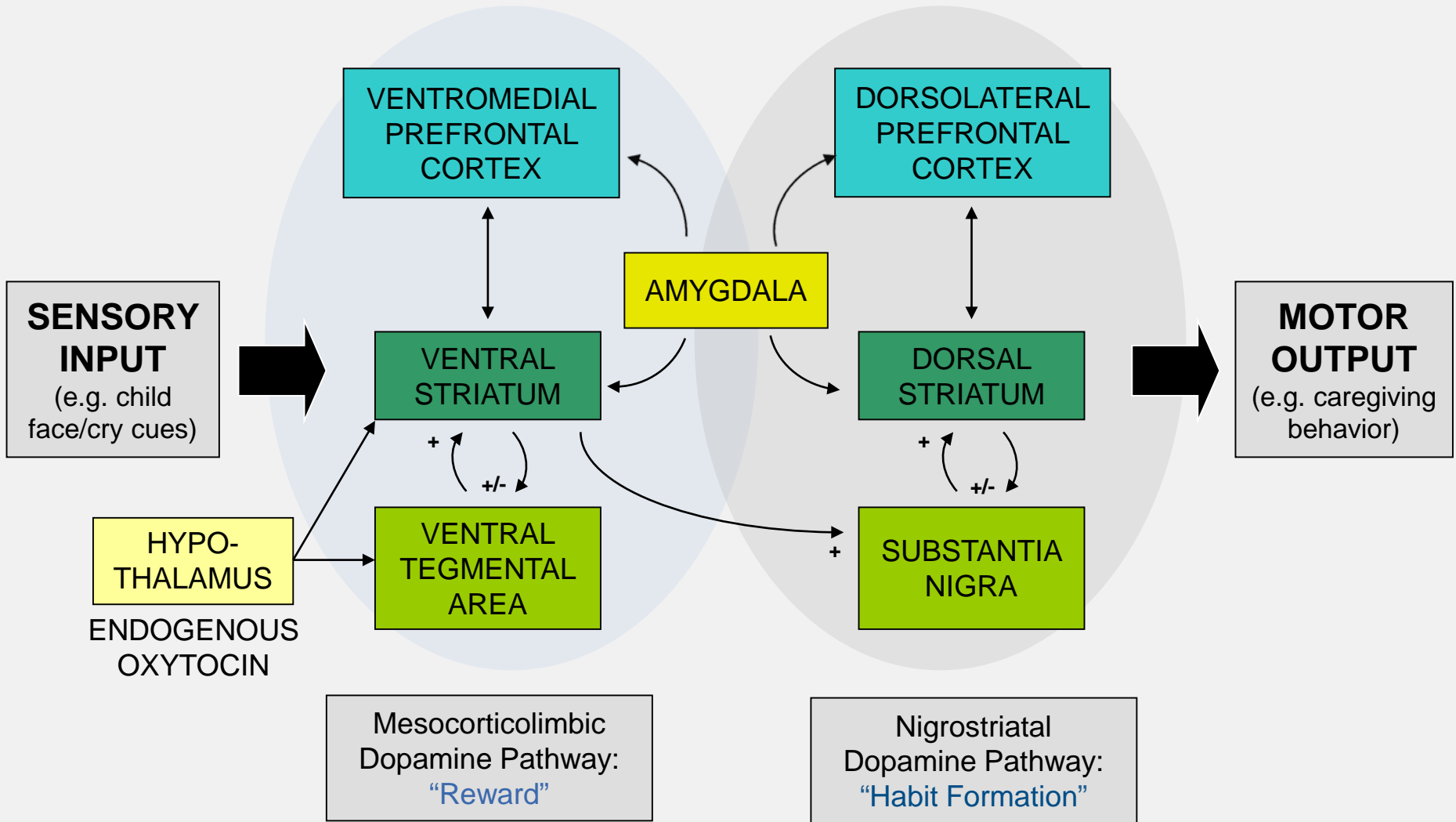
Addicted Mothers (n=39)

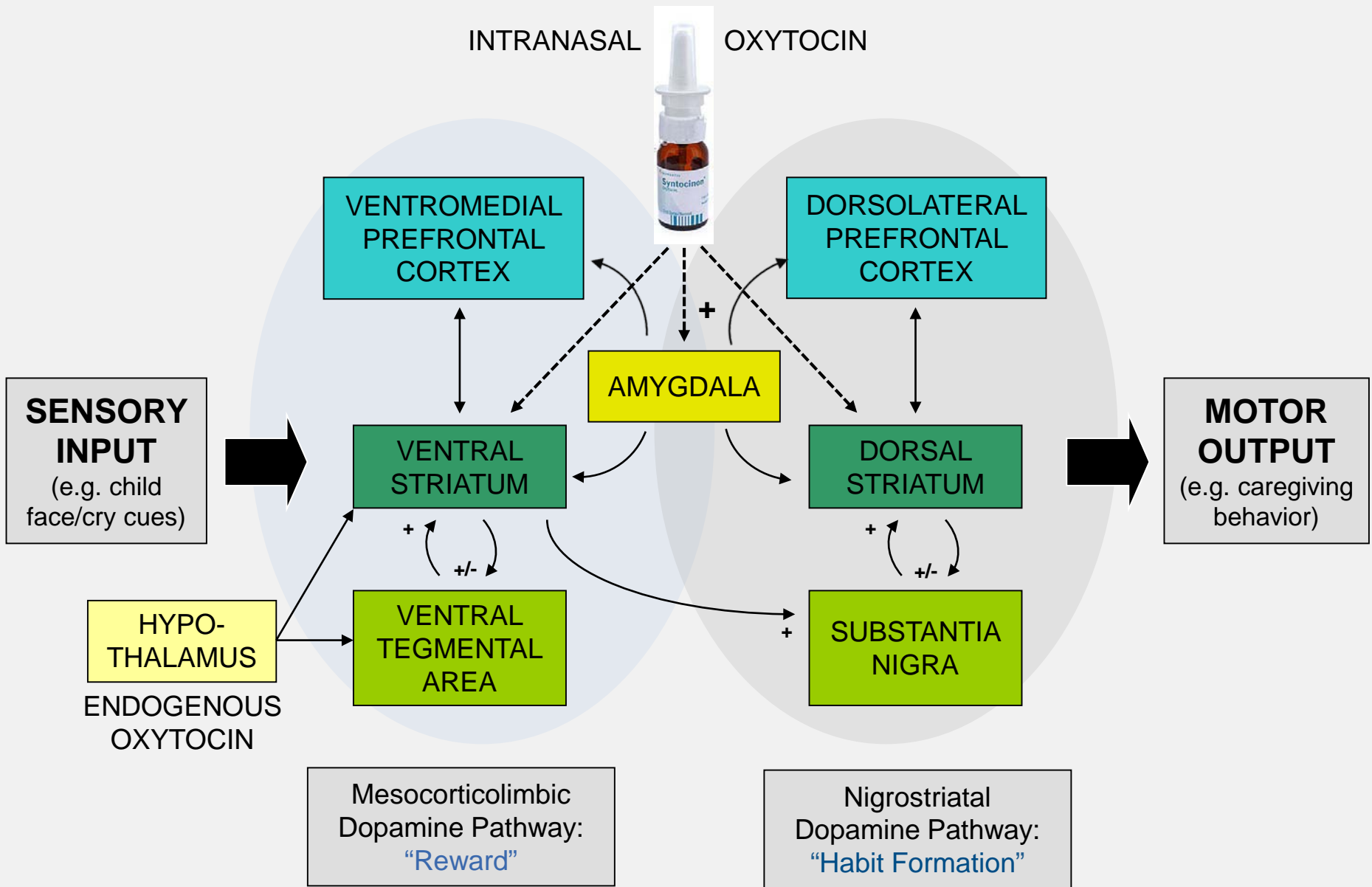


Kim, S., Iyengar, U., Mayes, L. C., Potenza, M. N., Rutherford, H. J. V., & Strathearn, L. (2017). *Human Brain Mapping*, 38(11), 5421-5439.

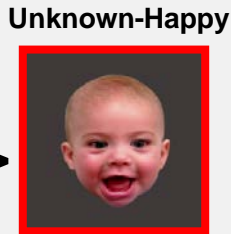
Where to from here?

- Randomized controlled trials of intranasal oxytocin
 - Mothers with addiction
 - Post-natal depression
 - Mothers with insecure attachment



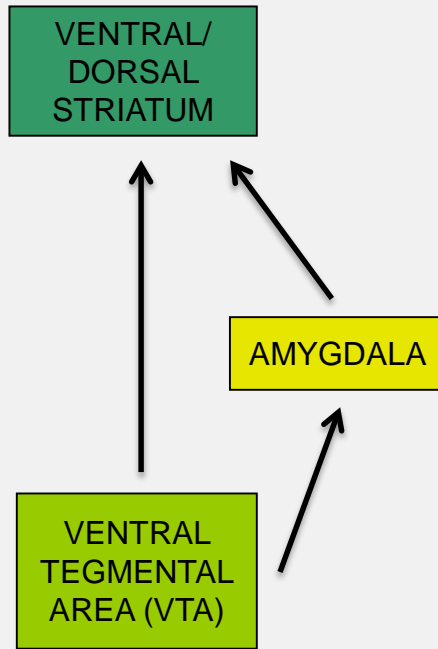


Oxytocin increases reward and amygdala response to infant faces

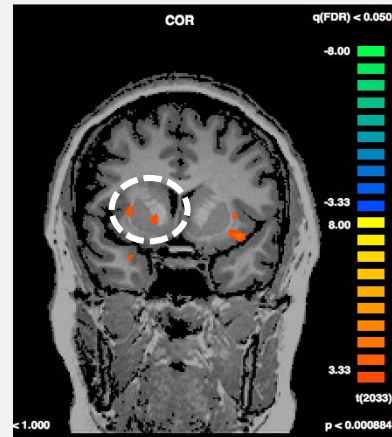


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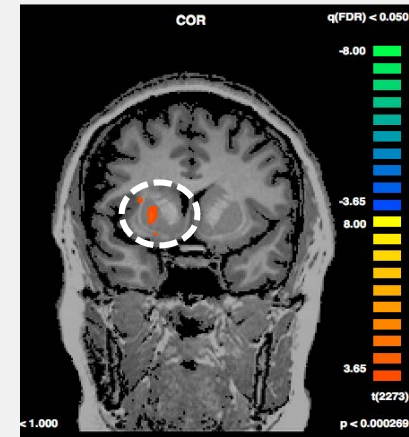
Normative Mothers
(n=10)



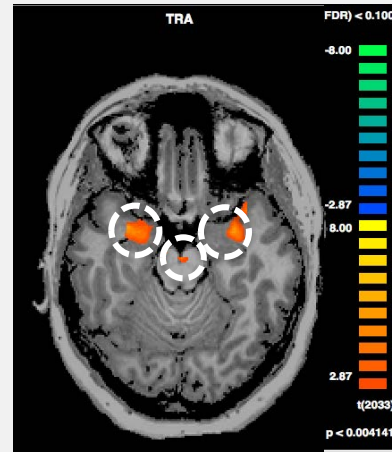
Oxytocin



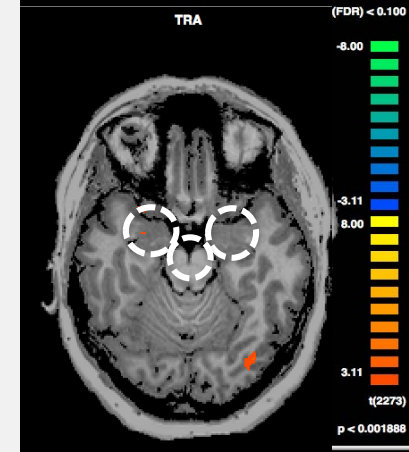
Placebo



TRA



TRA





Bertinoro, 2008



Cambridge, 2010

To download program materials, click here
<https://www.iasa-dmm.org/iasa-conference/>



Frankfurt, 2012



Miami, 2015