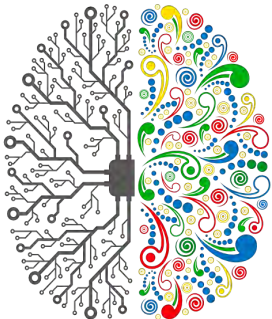




ROSEBUd Project:

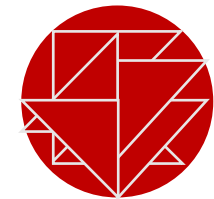
Regulation of Stress and Early-Life Brain Development



laboratoire
EMOTION
MEMOIRE

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About Me

Senior at Rutgers University

- Cognitive Science major
- Business and Psychology minors
- Hobbies: Traveling, reading, baking
- Future plans: Work, grad school- potentially clinical psychology



Do early life experiences define who we are?

- A caregiver's presence is critical to early-life stress regulation during specific periods of childhood

(Gabard-Durnam et al., 2016; Tottenham et al., 2019)



1. How to better cope with stress as you get older
2. Parent-child relationship and its effects on child's resilience

Planned Experiments

Describe the mechanisms of Stress and Stress Regulation with and without the presence of a caregiver in children 6-10 years old

Objective: Experiment	Stage	Hypotheses about early-life stress regulation	Measures
O1: Experiment 1	Prerequisites	Caregiver-child synchrony	Physiological & neuroendocrine
O2: Experiment 2	Mechanism	Modulation in stress-related brain connectivity	Functional connectivity (MEG)
		Developmental, individual differences in structural brain connectivity	Structural brain connectivity (DTI-MRI)
		Impact of individual differences in structural brain connectivity on the degree of modulation of functional connectivity by stress	Modelling of functional and structural connectivity
O3: Experiment 3	Effects	Modulation in memory formation	Behavioural, neuroendocrine and functional brain connectivity

- 1) Physiological and endocrine child-caregiver synchrony
- 2) Brain structure and functional connectivity during stress & stress regulation in kids
- 3) Stress/regulation effects on emotional memory formation

Objective 1

Question 1: Is being with a parent less stressful?

Do the amylase and cortisol levels show less stress?

Do the physiological measures show less stress?

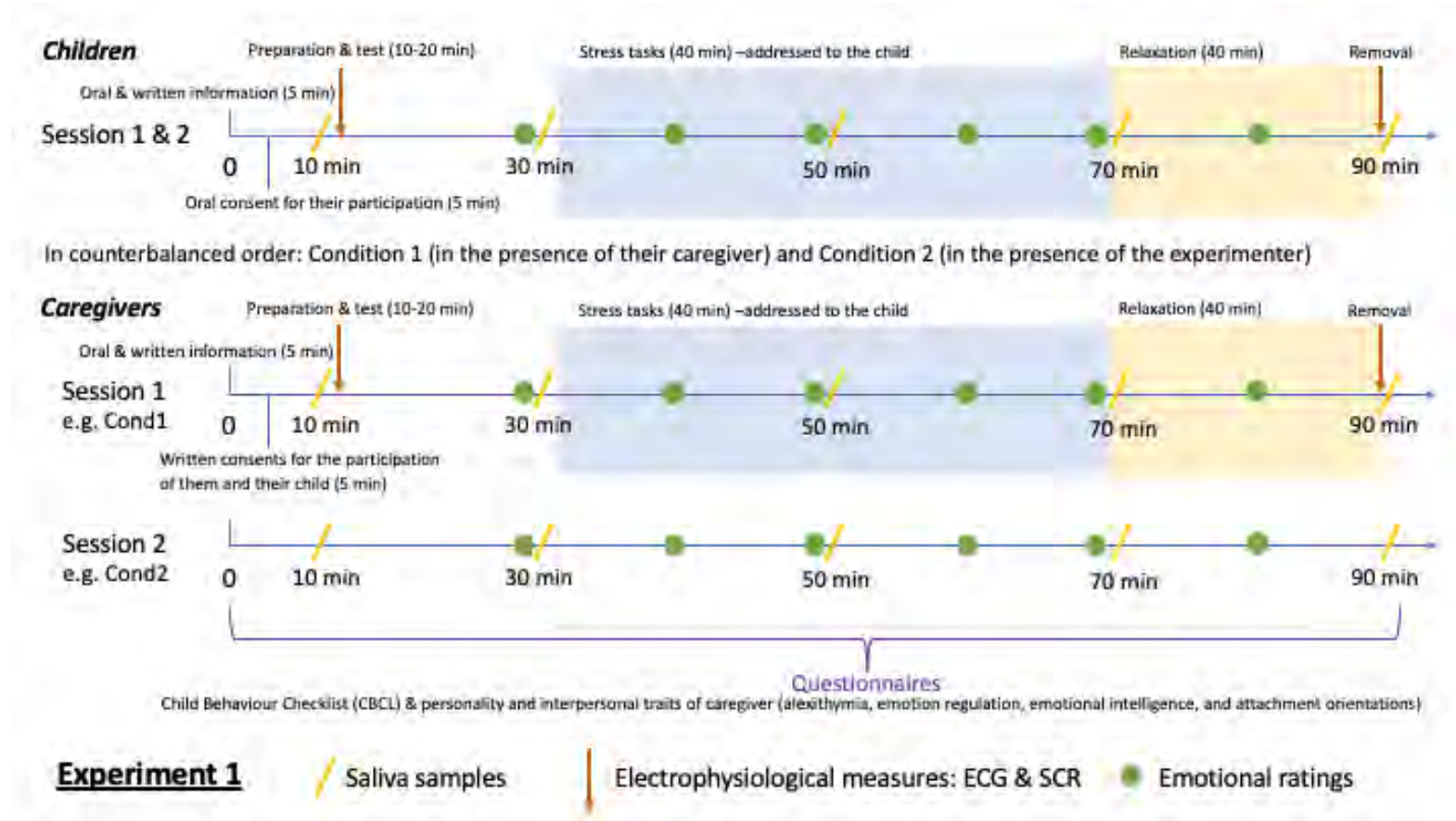
Do the emotional ratings show less stress?

Question 2: Synchrony between parent and kid can predict the stress effect on the kid

Does physiological synchrony between parent and kid define the stress regulation effect on the kid?

Additional Variables: Parent-child relationship, age of kid, attachment style, questionnaire

Experiment 1



Experiment 1: Children

Stress task options

1. Answer math questions
2. Watch a stressful video
3. Social stress task

Task period: 40 minutes



Expected Results

Question 1: Is being with a parent less stressful?

- If there are lower physiological measures, endocrine levels, positive emotional rating, there would be lower stress experienced in the presence of the parent
- If there is no significant difference in the results, then there is no difference in stress levels in the presence of a parent vs. experimenter
- If there are higher measures of physiology, endocrine levels, negative emotional rating, there would be higher stress experienced in presence of the parent

Limitations and Future Directions

- No natural interactions
- Face-to-face synchrony
- Cooperative game/task
- Tasks that increase in difficulty

Thank you!