# Article information:

Pubertal stress recalibration reverses the effects of early life stress in postinstitutionalized children | PNAS
<https://www.pnas.org/doi/full/10.1073/pnas.1909699116>

# Article summary:

1. Institutional care during infancy impairs the responsiveness of the HPA axis to psychosocial stressors, and even after being placed in supportive homes, the defensive system maintains its original calibration.

2. Puberty may open a window of opportunity for the HPA axis to recalibrate based on significant improvements in the supportiveness of the environment relative to that in infancy.

3. The peripubertal period may be an important time in development where the caregiving environment has a substantial impact on the HPA axis and other stress-mediating systems, suggesting that intervention efforts should focus on this period to maximize their impact on recalibrating systems like the HPA axis.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article "Pubertal stress recalibration reverses the effects of early life stress in postinstitutionalized children" published in PNAS presents a longitudinal study that examines whether puberty opens a window of opportunity to recalibrate the HPA axis toward more typical reactivity when children shift from harsh deprived conditions in infancy into supportive conditions in childhood and adolescence. The study found that within-individual increases in pubertal stage were associated with increases in cortisol stress reactivity for postinstitutionalized youth but not nonadopted comparison youth, indicating that pubertal development reopens a window of opportunity for the HPA axis to recalibrate based on significant improvements in the supportiveness of the environment relative to that in infancy.

The article provides empirical support for an adolescent window of plasticity during which the brain resamples the environment and alters HPA functioning if the current caregiving environment is sufficiently different from the early caregiving environment in which the system was originally organized. However, it is important to note that this study only examined one aspect of stress response (cortisol reactivity) and did not examine other potential outcomes such as physical or psychological health.

One potential bias in this study is its focus on postinstitutionalized children, which may limit its generalizability to other populations who have experienced early life adversity. Additionally, while the study controlled for sex and between-individual differences in pubertal stage, it did not control for other potential confounding variables such as socioeconomic status or parental education level.

The article does not present any unexplored counterarguments or missing evidence for its claims. However, it is important to note that while this study suggests that intervention efforts should focus on prepubertal and peripubertal periods to maximize their impact on recalibrating systems like the HPA axis, further research is needed to examine the mechanisms of recalibration and whether HPA recalibration impacts physical and psychological health.

Overall, this article provides valuable insights into how puberty may open a window of opportunity for recalibrating stress response systems like the HPA axis. However, it is important to consider potential biases and limitations of this study when interpreting its findings.

# Topics for further research:

* Mechanisms of HPA axis recalibration during puberty
* Long-term effects of early life stress on physical and psychological health
* Impact of socioeconomic status on stress response systems
* Role of parental education in stress response development
* Recalibration of other stress response systems during puberty
* Intervention strategies for improving stress response in postinstitutionalized children

# Report location:

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