

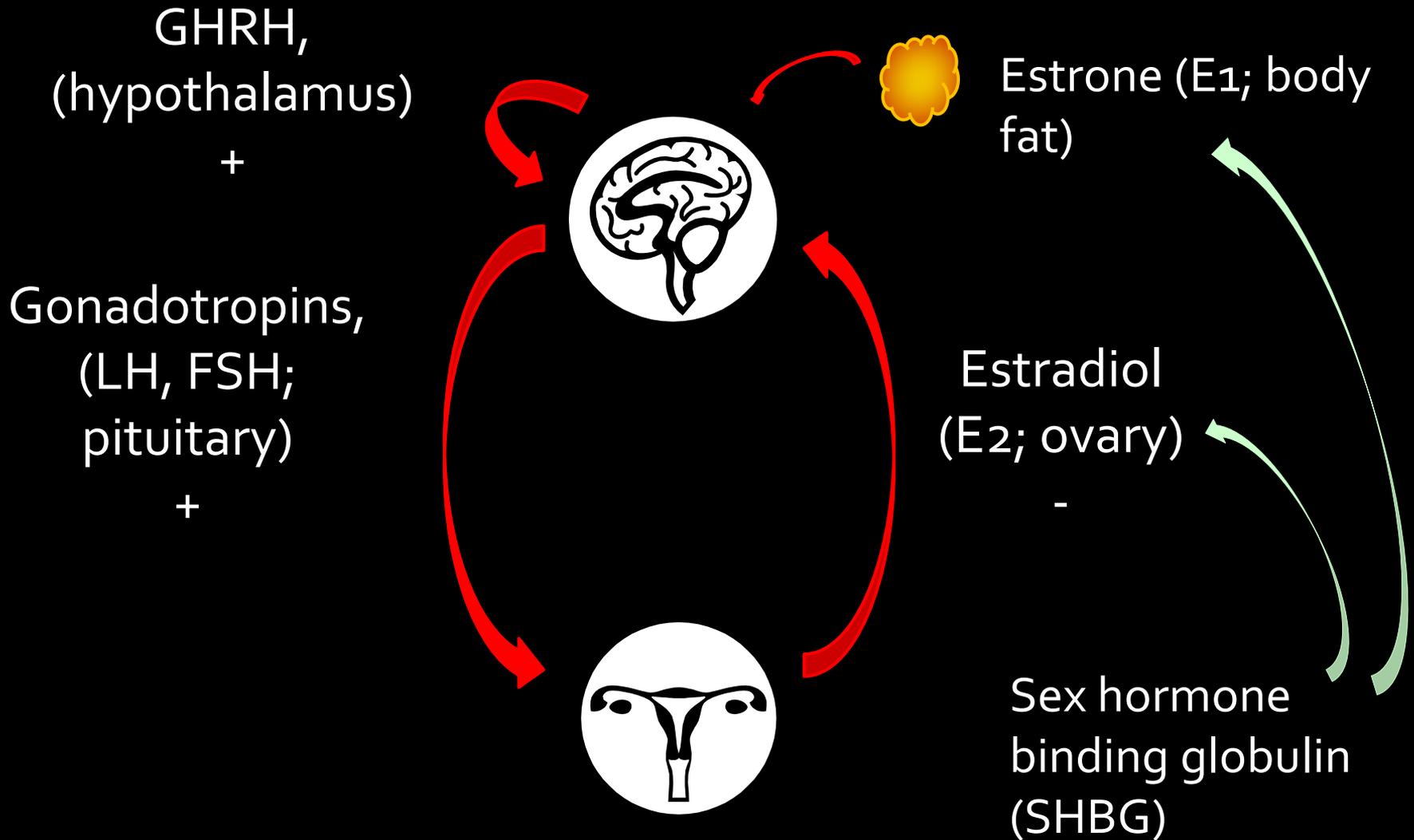
# Biomarkers of stress

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# Conceptual Roadblocks: Biomarkers

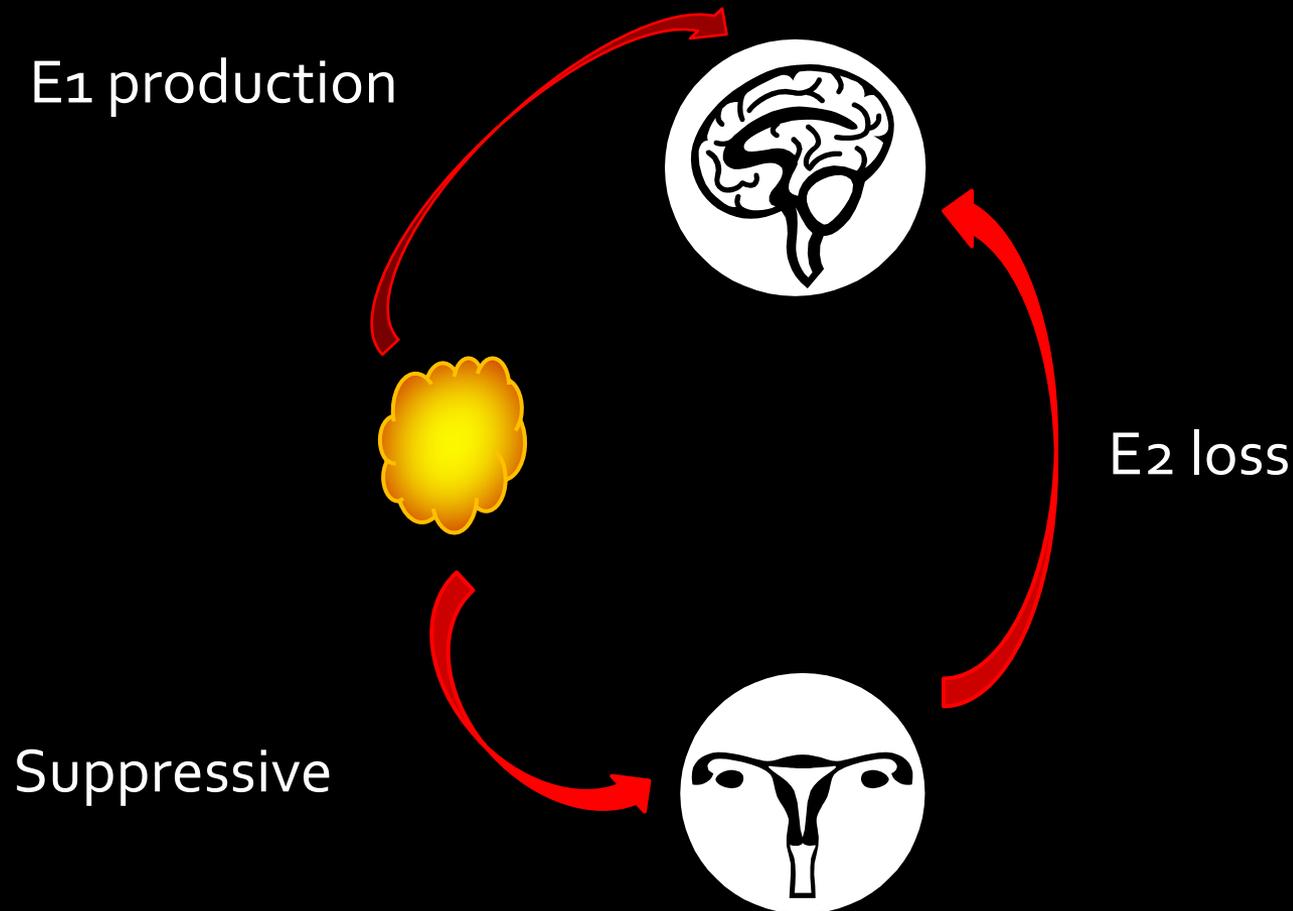
- Much can be said
- I use many: ambulatory ECG, BP, actigraphy, blood, urine, salivary markers, imaging
- Barrier: modeling complexity of systems
  - Feedback loops (e.g., HPG axis)
  - Pulsatility (e.g., LH)
  - What we can measure = what we study
  - Change over time/aging/development
  - Chaos/derangement in system

# Reproductive Endocrinology



# Endocrinology of fat and HPG axis

Yoldng



# Conceptual Roadblocks: Biomarkers

- Issues even more acute in population-based work
  - Important to addressing large population-relevant questions
  - Single visit annually, demand for low burden
  - Cross-system indices?
  - Exposures and outcomes over years and decades: How well capturing?
  - SWAN Daily Hormone Study (N=900)

# Other Conceptual Roadblocks

- Interdisciplinary/ Transdisciplinary Science
  - Complex health problems require inter/trans-disciplinary approach
  - Challenges:
    - Bridge languages and methods
    - What constitutes “good science” can vary
    - Willingness to adopt “beginners mind”
    - Appeal to disciplinary reviewers and funders