Meditative Movement Reduces Allostatic Load in Breast Cancer Survivors: Reduced Pro-Inflammatory Response and Improved Brain Cell Growth with Improved Working Memory.

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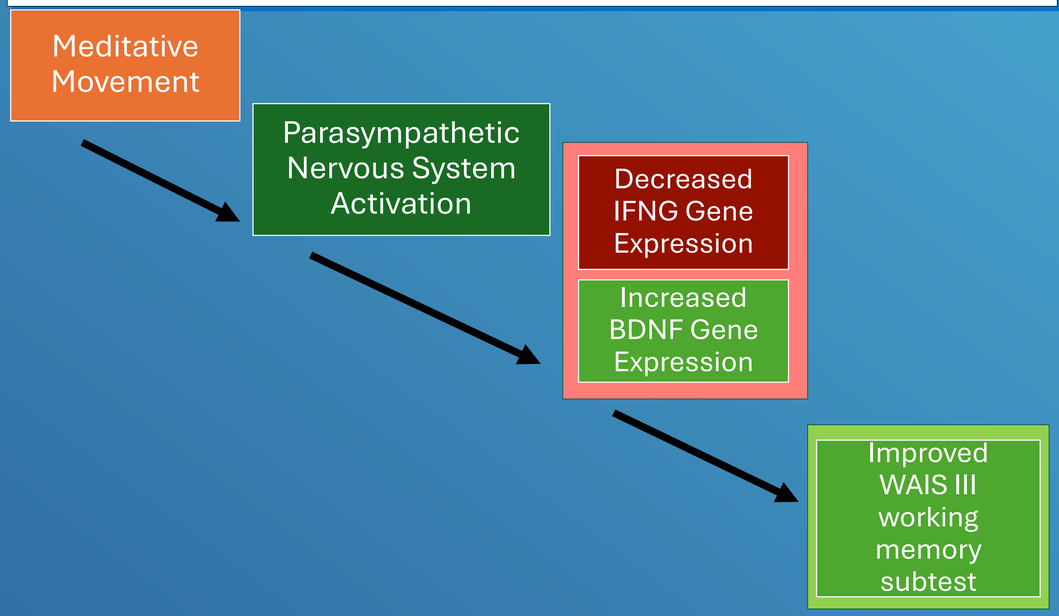
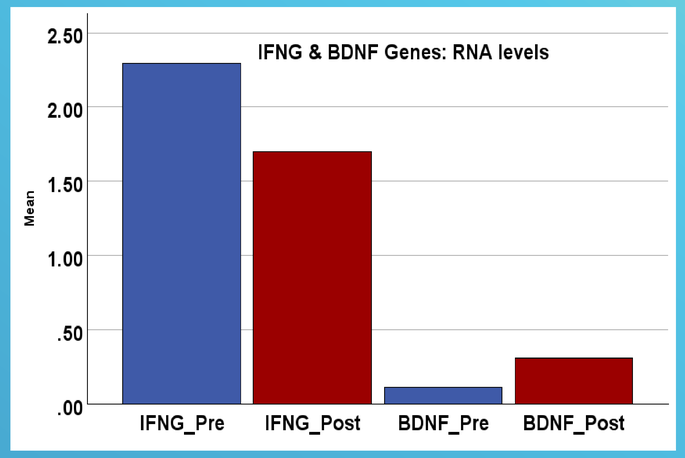
Introduction:

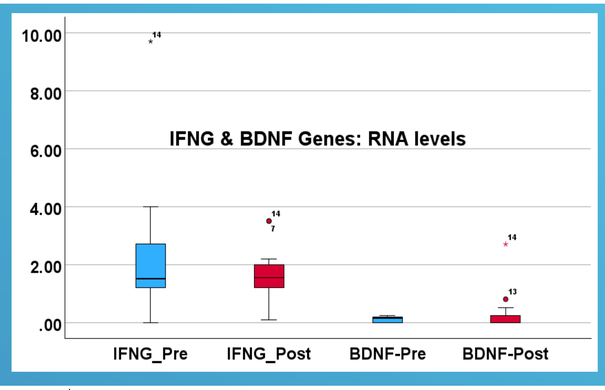
- **Allostatic Load**: Multi-systemic “wear and tear” on brain and body, associated with increased pro-inflammatory response and cognitive impairment.[1]
- **Interferon Gamma (IFNG) Genes**: Pro-inflammatory cytokine that plays an important role in an array of immune responses.[2]
- **Brain-Derived Neurotrophic Factor (BDNF) Genes**: Associated with cognitive functioning.[2]
- **Breast Cancer Survivors**: Report decrements in cognitive performance.[3]
- **Meditative Movement**: Qigong/Tai Chi Easy, combines meditation and exercise, engaging the parasympathetic nervous system to calm sympathetic nervous system activation associated with allostatic load.[4]

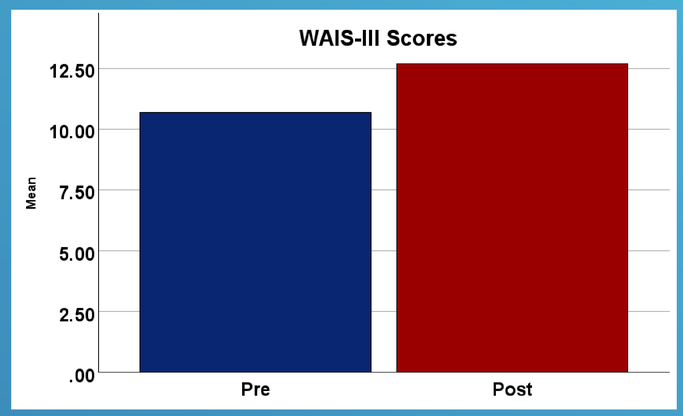


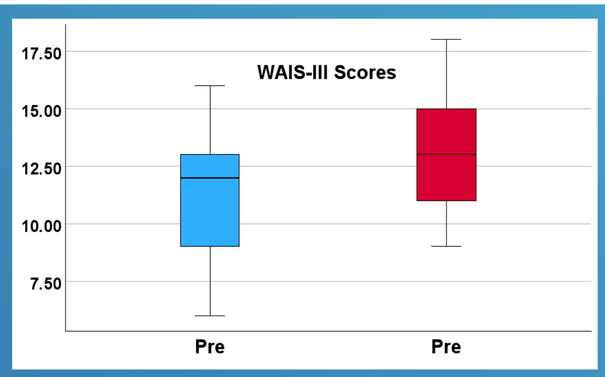
Method:

- Design: Single group, pre- to post-intervention assessment.
- Participants: 14 breast cancer survivors (mean age = 61), ≥45 years of age, female, Stage 0–III, 6 months to 5 years past primary treatment.
- Intervention: 8-week meditative movement program.
- Assessments:
  - Gene Expression: IFNG and BDNF via blood samples.
  - Cognitive Functioning: Wechsler Adult Intelligence Scale (WAIS-III) subtest on working memory (WLN).









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Results:

- **IFNG Gene Expression**: Pre/post decrease, r = 0.55, p = 0.04.
- **BDNF Gene Expression**: Pre/post increase, r = 0.62, p = 0.02.
- **BDNF and IFNG Gene expression Correlation**: r = -0.72, p < 0.01.
- **Cognitive Functioning (WAIS-III scores):** Pre/post increase r = 0.70, p < 0.01.
- **BDNF and WAIS-III Correlation**: r = 0.70, p < 0.01.
- **Regression Analysis**: IFNG change explained BDNF Gene Expression change, $F(1,12) = 13.10$, $p < 0.01$, $R^2 = 0.52$.

Conclusions:

MM may contribute to the alleviation of AL induced cognitive impairment and inflammation among BCSs, possibly through the mechanisms of gene expression changes. Limitations: Small sample size. Future direction: RCT with powered sample size

References:

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