Reductions in Reward-driven Eating Mediate Effects of a Mindfulness-Based Weight Loss Program on Weight Loss in Obesity: Data from an RCT

Ashley E. Mason, PhD (PSY 26991)
Elissa Epel., PhD; Kirstin Aschbacher, PhD; Patricia Moran, PhD; Michael Acree, PhD; Rick Hecht, MD; & Jennifer Daubenmier, PhD
Thank You!

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Weight Loss Interventions Are (Not Very) Successful in the Long Term

Franz et al., 2007, Journal of the American Dietetic Association
Stress Pathways To Weight Gain

Block et al., 2009; Dallman, 2010; Kivimaki et al., 2006; Kouvenon et al., 2005; Sinha & Jastebroff, 2013
Reward-related Pathways To Weight Gain
Mindfulness for Coping with Stress & Healthful Eating
Hypothesis

Mindfulness Training

Reward-based Eating Drive (RED)

Perceived Stress Scale (PSS)

Weight
**Trial Design**

- NIH NCCIH P01 Randomized Controlled Trial
  - BMI ≥ 30; non-diabetic
  - 5.5 months, 16 in-person sessions (2-2.5 hrs) + one retreat day
  - Data from assessments at 0, 6, 12 & 18 months

### Mindfulness Group
- Nutrition & Exercise
- Mindfulness Training
- Mindfulness-based Eating Awareness Training (MB-EAT)
- Mindfulness-based Stress Reduction (MBSR) components

### Active Control Group
- Nutrition & Exercise
- Time-matched Intervention Components
- Non-active Nutrition/Exercise Information
- Moderate Stress Management
  - Cognitive-Behavioral Therapy (CBT) tools
  - Progressive Muscle Relaxation (PMR)

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Effects of a Mindfulness-Based Weight Loss Intervention in Adults with Obesity: A Randomized Clinical Trial

Jennifer Daubenmier¹ ² ³, Patricia J. Moran¹, Jean Kristeller⁴, Michael Acree¹, Peter Bacchetti⁵, Margaret E. Kemeny⁶, Mary Dallman² ⁷, Robert H. Lustig² ⁸, Carl Grunfeld² ³ ⁹, Douglas F. Nixon¹⁰ ¹¹, Jeffrey M. Milush³, Veronica Goldman¹, Barbara Laraia² ¹², Kevin D. Laugero¹³, Leslie Woodhouse¹³, Elissa S. Epet² ⁷,* and Frederick M. Hecht¹ ² ³,*

Reduced reward-driven eating accounts for the impact of a mindfulness-based diet and exercise intervention on weight loss: Data from the SHINE randomized controlled trial

Ashley E. Mason a,*, Elissa S. Epel a, c, Kirstin Aschbacher b, c, Robert H. Lustig d, Michael Acree a, Jean Kristeller e, Michael Cohn a, Mary Dallman c, Patricia J. Moran a, Peter Bacchetti f, Barbara Laraia g, Frederick M. Hecht a, 1, Jennifer Daubenmier a, **, 1

a UCSF Osher Center for Integrative Medicine, Department of Medicine, USA
b The Institute for Integrative Health, USA
c UCSF Center for Health and Community, Department of Psychiatry, USA
d UCSF Department of Pediatrics, USA
e Indiana State University, Department of Psychology, USA
f UCSF Department of Epidemiology and Biostatistics, USA
g UC Berkeley School of Public Health, USA

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Measurement

- **Perceived Stress Scale (PSS; Cohen et al., 1983)**

- **Reward-based Eating Drive (RED; Epel et al., 2014)**
  - Feeling a lack of control over eating
  - Eating without feeling satisfaction of satiation
  - Preoccupied with thoughts about food
Reward-based Eating Drive (RED) Scale

- Free!
- Short!
- Easy scoring!

Analytic Methods

- M Plus
- Maximum Likelihood (ML) estimation
- 1000 bootstrapped samples
- Accounted for mediators (Ms) and weight (Y) at baseline
RED and PSS as Mediators of Weight at 12 Months

β = -0.36 *

β = -0.21#

β = 0.18 *

β = -0.03

β_{Total} = -0.13\# / β_{Direct} = -0.08^

Intervention Arm Coding:
- Mindfulness Group = 1
- Active Control = 0

Covariates: Weight, RED, & PSS at baseline

# p = .096
^ p = .077
* p < .05
Conclusions

• Reduced reward-driven eating, not psychological stress, as a path to weight loss
• Stress in this sample below national average
• Different types of stress, different associations with weight gain
Future Directions

• How to best target reward-driven eating
  • Mindfulness interventions
  • Environmental interventions

• How to better measure reward-driven eating:
  • In-the-moment craving-related eating

• Intervention leaning: Honing interventions to include components that impact the behavioral targets that effect clinical change

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& Ashley Mason (ashley.mason@ucsf.edu)
Thank You!

Contact: Ashley.Mason@UCSF.edu