



Northwestern University Feinberg School of Medicine

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# Fitness Motivation vs. Financial Motivation:

Adaptive and Maladaptive Changes in Preference for Healthy and Unhealthy Behaviors during a Multiple Behavior Change Intervention

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# Self-Determination Theory



## Intrinsic Motivation



- characterized by interest and enjoyment, feeling free

- associated w/ superior long term maintenance

## Extrinsic Motivation

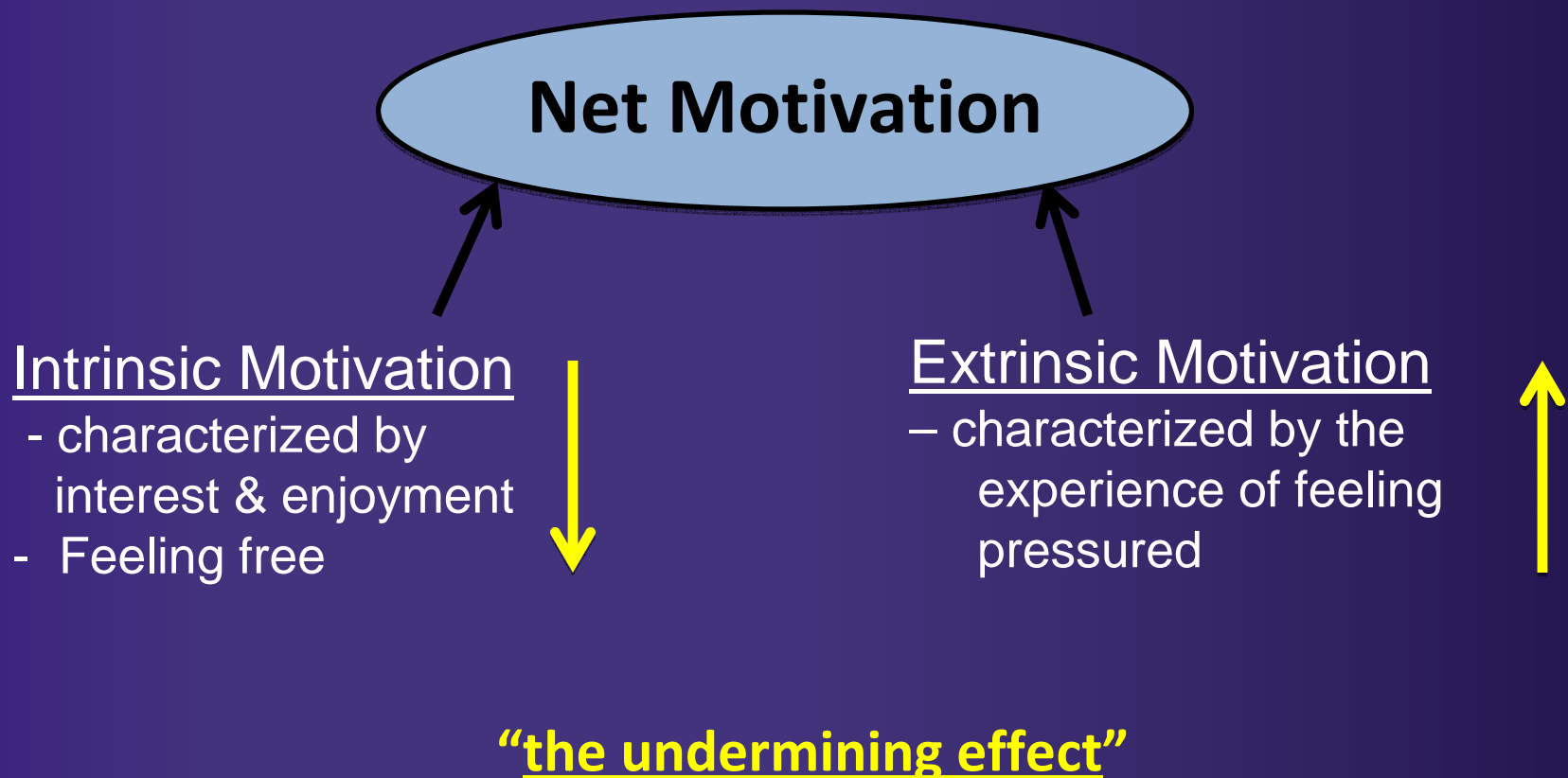


– characterized by anxiety, feeling pressured

- associated w/ burnout and poor long term maintenance



# Self-Determination Theory



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Deci, Koestner, & Ryan (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125, 627-668.



# Secondary Analysis of The Make Better Choices (MBC) Trial

An RCT testing 4 different technology-supported strategies for achieving multiple health behavior change



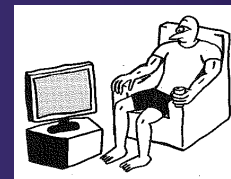
↑ Fruit /  
Veggies



↓ Saturated  
Fat



↑ Physical  
Activity



↓ Sedentary  
Screen

# The MBC trial

## Sample:

n = 204

48 males; 156 females

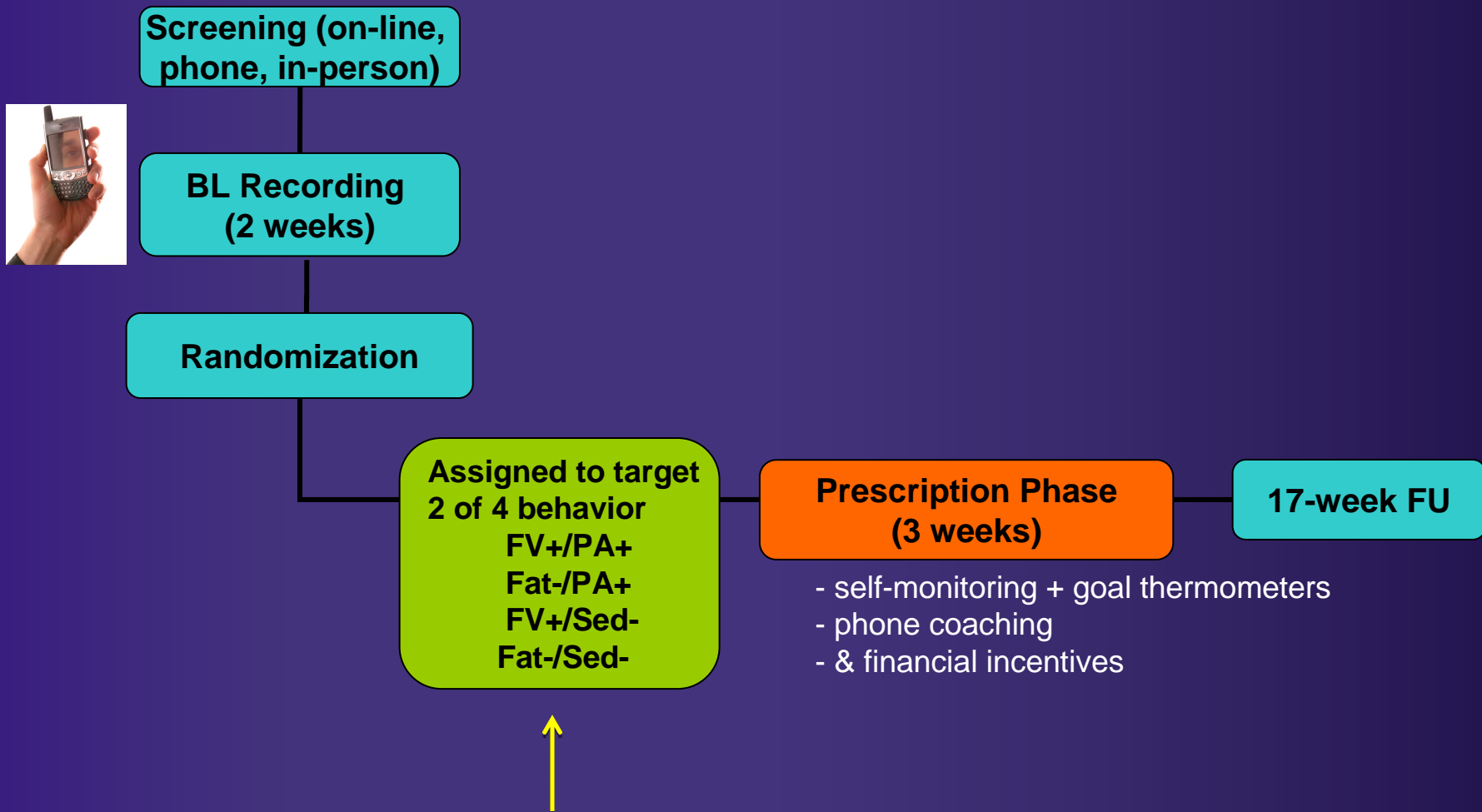
mean age: 33.3 years



Eligibility required  
having 4  
unhealthy  
behaviors  
simultaneously  
at baseline:

Unhealthy Behavior	Criteria
1. Low fruit/vegetable intake	< 5 fruits/vegetables
2. High sat fat intake	>8% of kcal from sat fat
3. Low physical activity	<60 min/day mod physical activity
4. High sedentary screen time	>90 min/day targeted sedentary leisure screen time

# MBC Trial Design



Spring et al. (2012). Multiple behavior changes in diet and activity: A randomized controlled trial using mobile technology, *Archives of Internal Medicine*, 172(10), 1-8.

# MBC Trial Design



Screening (on-line,  
phone, in-person)

BL Recording  
(2 weeks)

Randomization

Assigned to target  
2 of 4 behavior

Prescription Phase  
(3 weeks)

17-week FU

- self-monitoring + goal thermometers
- phone coaching
- & financial incentives

Participants could earn \$175 contingent  
upon meeting their goals





# MBC trial – Secondary analysis of motivation

## Predictors

At baseline, after describing the financial incentive system, participants were given the 32-item Motivation for Healthy Behavior Change scale:

E.g., “*I am participating in this study because...*”

5 Motives	items	Cronbach's alpha
1. Fitness	5	.83
2. Challenge	9	.82
3. Enjoyment	5	.75
4. Appearance	6	.87
new 5. Financial incentives	7	.97

Total Motivation, 32 items,  $\alpha = .90$

## Outcomes

Rated liking  
/enjoyment (40  
items\*)

- Fruits/veggies
- Sat fat
- Physical activity
- Sedentary screen

Rated at start of  
prescription (Lab 1)  
and end (Lab 2)

\*adapted from Rozin et al. 1991

# Results: Motivation(s) → Δ liking/enjoying targeted behaviors



Motives	-- Healthy --		-- Unhealthy --	
	Δ Liking F/V	Δ Liking PA	Δ Liking Fat	Δ Liking Sed
1. Fitness				
2. Challenge				
3. Enjoyment				
4. Appearance				
5. Financial incentives				

+ relation is adaptive;  
- maladaptive


- relation is adaptive;  
+ maladaptive

\*Partial correlations, controlling for Total Motivation


# Results: Motivation → Δ liking/enjoying targeted behaviors



Motives	-- Healthy --		-- Unhealthy --		
	Δ Liking F/V	Δ Liking PA	Δ Liking Fat	Δ Liking Sed	
1. Fitness	+.17*	+.12	-.15*	-.13 <sup>t</sup>	adaptive
2. Challenge	+.06	+.07	-.03	-.06	
3. Enjoyment	+.07	+.14 <sup>t</sup>	-.02	+.02	
4. Appearance	-.04	-.05	-.05	+.01	
5. Financial incentives	-.16*	-.18*	+.18*	+.12	maladaptive



+ relation is adaptive;  
- maladaptive



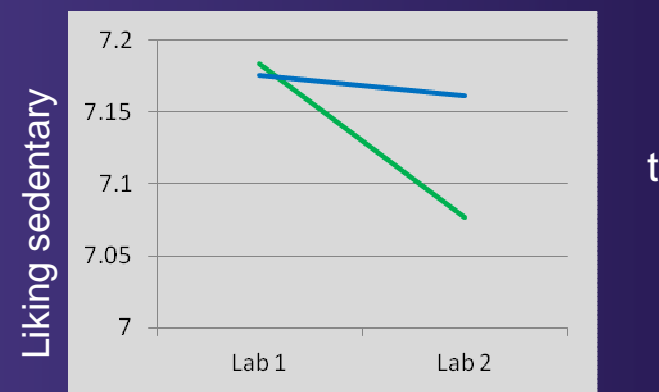
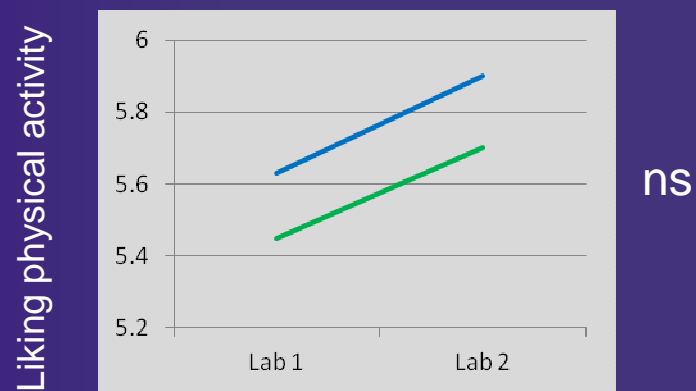
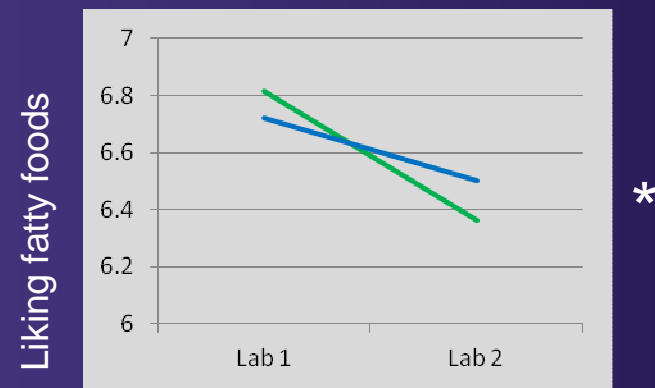
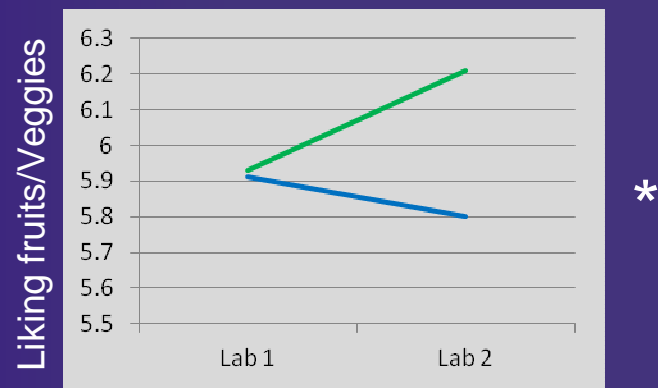
- relation is adaptive;  
+ maladaptive

\*Partial correlations, controlling for Total Motivation



# Results: Fitness motivation → adaptive changes in liking/enjoying

High fitness motivation —————  
Low fitness motivation —————



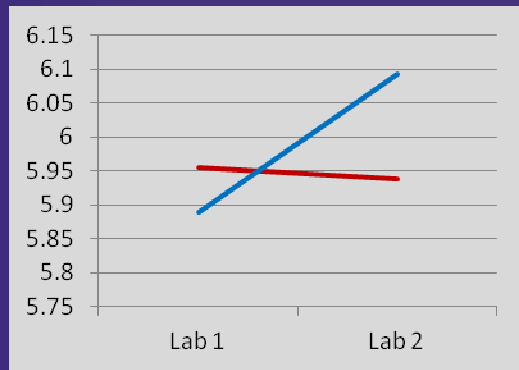
\*All ratings of “Liking/enjoying” were on a 9-point scale, 9 = liking very much



# Results: Financial motivation → maladaptive changes in liking/enjoying

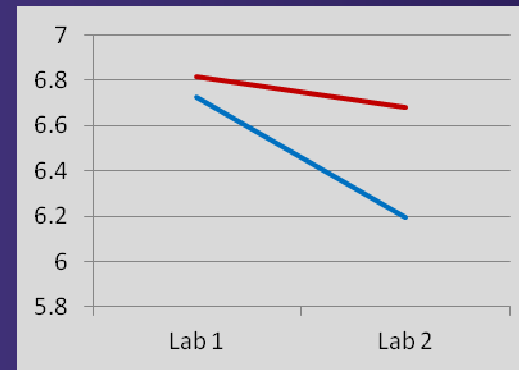
High financial motivation ————  
Low financial motivation ————

Liking fruits/Veggies



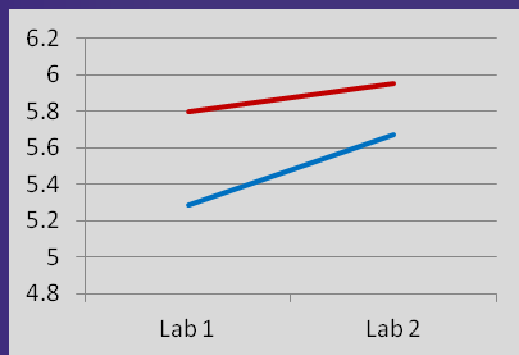
\*

Liking fatty foods



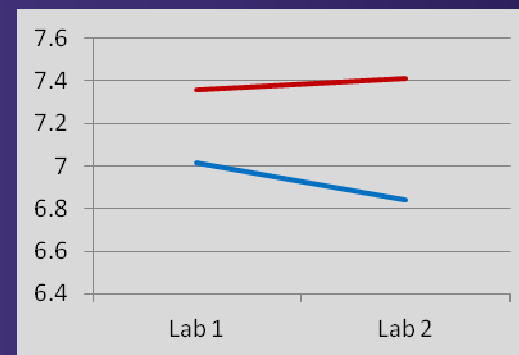
\*

Liking physical activity



\*

Liking sedentary



ns

\*All ratings of "Liking/enjoying" were on a 9-point scale, 9 = liking very much

# Practical significance & implications



Within an intensive diet-activity intervention that used financial incentives, financial motivation was associated with maladaptive changes in liking/enjoying healthy diet and activity behaviors.

Should we thus abandon using financial incentives as a tool in healthy lifestyle interventions?

## **Not necessarily**

Self-determination theory holds that incentives are only harmful to the degree that they are experienced as controlling / manipulative.



# Practical significance & implications



Furthermore, a growing body of literature has demonstrated that financial incentives can be a potent tool for:

- initiating weight loss & behavior change<sup>1, 2</sup>
- improving reach to underserved populations<sup>3</sup>



Keys to success may be framing financial incentives in ways that make them feel less controlling<sup>4</sup> &

Promoting intrinsic motives, i.e., Fitness Motivation



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<sup>1</sup>Jeffery et al., 1978; <sup>2</sup>Volpp et al., 2008; <sup>3</sup>Mutrie et al., 2010; <sup>4</sup>Moller et al., 2012



# Thank you for your attention

To my collaborators:

Gene McFadden,



Don Hedeker,



& Bonnie Spring



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