

**HAPPINESS AND HEALTHY EATING: THE EFFECT OF SAMPLING  
EVERYDAY AND EXTRAORDINARY TASTING FRUIT ON PERSUADING  
PEOPLE LOW AND HIGH IN SAVORING**

AN ABSTRACT

SUBMITTED ON THE SEVENTEENTH DAY OF MARCH 2012

TO THE DEPARTMENT OF MANAGEMENT

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

OF THE A.B. FREEMAN SCHOOL OF BUSINESS

OF TULANE UNIVERSITY

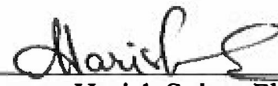
FOR THE DEGREE

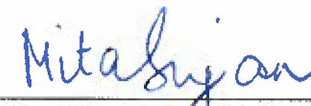
OF

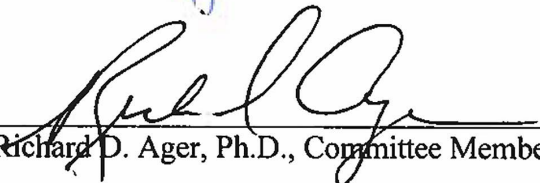
DOCTOR OF PHILOSOPHY

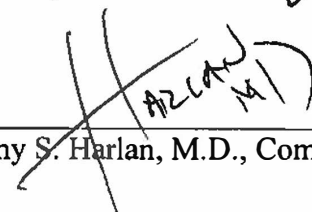
BY

  
GERMAN CASTELLANOS

APPROVED:   
Harish Sujan, Ph.D., Committee Chair

  
Mita Sujan, Ph.D., Committee Member

  
Richard D. Ager, Ph.D., Committee Member

  
Timothy S. Harlan, M.D., Committee Member

## **ABSTRACT**

In service of the goal to bring more of the US population within a healthy weight range, governmental agencies and health care professionals advocate the eating of more fruit for those who consume three or less cup equivalents per day. In this thesis, I first evaluate the effect of sampling fruit while reading a message advocating this change. I argue that sampling makes the message more effective, because it initiates the advocated behaviors. Then I classify people into high and low savorers of life, people who enhance or reduce the joy of positive experiences. I then suggest that sampling everyday tasting fruit matters more for those who tend not to savor the good moments of their life, while sampling extraordinary tasting fruit, matters more for those high in savoring.

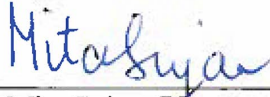
I manipulate the mindsets people hold on being happy; whether it returns to a set point or grows. I suggest that the match between sampling and savoring occurs with the mindset that happiness returns to a set point.

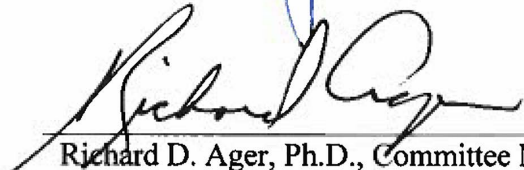
**HAPPINESS AND HEALTHY EATING: THE EFFECT OF SAMPLING  
EVERYDAY AND EXTRAORDINARY TASTING FRUIT ON PERSUADING  
PEOPLE LOW AND HIGH IN SAVORING**

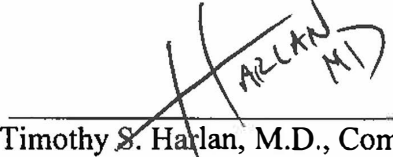
A DISSERTATION  
SUBMITTED ON THE SEVENTEENTH DAY OF MARCH 2012  
TO THE DEPARTMENT OF MANAGEMENT  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
OF THE A.B. FREEMAN SCHOOL OF BUSINESS  
OF TULANE UNIVERSITY  
FOR THE DEGREE  
OF  
DOCTOR OF PHILOSOPHY  
BY

  
GERMAN CASTELLANOS

APPROVED:   
Harish Sujjan, Ph.D., Committee Chair

  
Mita Sujjan, Ph.D., Committee Member

  
Richard D. Ager, Ph.D., Committee Member

  
Timothy S. Harlan, M.D., Committee Member

## **ACKNOWLEDGMENTS**

In the first place, I want to thank Dr. Harish Sujana for his guidance, support, and creative ways that lightened up this endeavor. I also want to acknowledge the feedback and comments received from my Dissertation Committee members.

Many other people contributed to this work, family, professors and colleagues in the doctoral program, and colleagues at Universidad Icesi who in different ways helped me in pulling together a myriad of ideas incorporated in this dissertation.

Last, I want to thank my “Gefsi” buddies. The time we spent together, our group discussions, and friendship were an important part of the journey.

## TABLE OF CONTENTS

ABSTRACT .....	ii
ACKNOWLEDGMENTS .....	ii
TABLE OF CONTENTS .....	iii
LIST OF FIGURES .....	v
INTRODUCTION AND HYPOTHESES DEVELOPMENT .....	1
PRE-STUDY 1 .....	6
Method .....	6
Measures .....	7
Results and Discussion .....	7
STUDY 1 .....	9
Method .....	9
Measures .....	10
Results and Discussion .....	11
PRE-STUDY 2 .....	15
Method .....	15
Measures .....	16
Results and Discussion .....	16
STUDY 2 .....	17
Method .....	17
Measures .....	18
Results and Discussion .....	19
GENERAL DISCUSSION .....	23
Summary of Findings .....	23
Theoretical and Practical Contributions .....	24
Future Research .....	24
REFERENCES .....	27

APPENDIX 1. EXAMPLES OF A CUP OF FRUIT .....31  
APPENDIX 2. SAVORING THE MOMENT BELIEFS INVENTORY .....32  
APPENDIX 3. KILL-JOY THINKING .....33  
APPENDIX 4. LIFE-ORIENTATION TEST OF DISPOSITIONAL OPTIMISM .....34  
APPENDIX 5. STATIC MIND SET .....35  
APPENDIX 6. FRUIT AND VEGETABLES BENEFITS.....36  
APPENDIX 7. MAGAZINE ARTICLE: EAT YOUR FRUIT AND VEGETABLES.....37  
APPENDIX 8. MAGAZINE ARTICLE: HAPPINESS IS CHANGEABLE .....39  
APPENDIX 9. MAGAZINE ARTICLE: HAPPINESS IS UNCHANGEABLE .....42

## LIST OF FIGURES

Figure 1. Study 1 – Effect of fruit sampled (extraordinary, everyday, and no fruit) x savoring the moment on the number of cups of fruit consumed on average during day one, and day two as reported.....	13
Figure 2. Study 2 – Effect of fruit sampled (extraordinary, and everyday tasting) x savoring the moment for happiness is changeable on the number of cups of fruit consumed on average during day one, day two, and day three. ....	20
Figure 3. Study 2 – Effect of fruit sampled (extraordinary, and everyday tasting) x savoring the moment for happiness is unchangeable on the number of cups of fruit consumed on average during day one, day two, and day three. ....	21

## INTRODUCTION AND HYPOTHESES DEVELOPMENT

The overweight population in the US is increasing yearly. This not only negatively affects the well-being of the population but also increases health care costs. Obesity is associated with serious health problems, including heart disease, hypertension, hyperglycemia, ischemic stroke hypercholesterolemia, and type 2 diabetes mellitus (Manson, Skerrett, Greenland, & VanItallie, 2004). Consumer researchers have acknowledged that questions relating to consumer well-being, notably questions that relate to how to counter addictions that result from consumption, are an important part of their agenda (Mick, 2006).

Persuading people to eat healthier is a difficult task. Physicians report about a 40-50% success rate when they prescribe life-style changes for those for whom it is necessary; e.g., people with hypertension and diabetes (Toussi, Fujioka, & Coleman, 2009). Finding ways to improve the effectiveness of messages aimed at diet change is consequently an important consumer research endeavor.

One important way by which to improve diet is through persuading people to eat more fruit. Americans on average eat about 0.68 cups of fruit a day (National Fruit & Vegetable Alliance, 2010). One cup of fruit or 100% fruit juice, or ½ cup of dried fruit can be considered as 1 cup from the fruit group. The chart in Appendix 1 shows examples of what counts as 1 cup or 1/2 cup of fruits and vegetables<sup>1</sup>. Health care professionals and government agencies recommend three or more cups of fruit a day (USDA, 2005). There

---

<sup>1</sup> <http://www.fruitsandveggiesmatter.gov/what/index.html>



is now good evidence that increasing fruit intake has associated health benefits (Finer & Benjamin, 1998; Joshipura et al., 2001; Maynard, Gunnell, Emmett, Frankel, & Smith, 2003). By consuming more fruit people can lose weight (Epstein et al., 2001; McCrory et al., 1999; Rolls, Roe, & Meengs, 2004). The rationale behind this approach is that as people eat more fruit and vegetables, the amount of less healthy foods consumed is reduced, and people will be able to improve their well being through healthier eating habits (Epstein, et al., 2001; McCrory, et al., 1999; Rolls, et al., 2004). Finding ways to persuade people to move their consumption of fruit to three or more cup equivalents a day is consequently an important goal of research aimed at improving consumer health and consequently welfare.

Arguments for why we should eat more fruit as well as information on how we can incorporate more fruit in our diet are strong and plentiful. How can these messages be made more effective? When asked to eat healthier people often anticipate that they will have to give up on taste (Irmak, Vallen, & Robinson, 2011; Provencher, Polivy, & Herman, 2009; Raghunathan, Naylor, & Hoyer, 2006). Research on affective forecasting suggests that anticipations of negative experiences tend to be worse than the experience itself (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). This research suggests that sampling fruit while reading about the benefits of eating it is likely to enhance persuasion, since exaggerated anticipations of poor taste are thwarted early. Consistent with this suggestion is the suggestion found in the embodied cognition literature that even small beginnings of behavioral change lead to greater persuasiveness of health messages (Cowart, 2005; Hung & Labroo, 2011; Sherman, Gangi, & White, 2010). Documented in the marketing literature is the finding that intentions are not the best indicators of purchasing; product trial help the consumer in making decisions to buy and in

implementing these decisions (Hamilton & Thompson, 2007; Hoch, 2002; Kempf, 1999; Smith & Swinyard, 1983). Also consistent is the finding in research on cognitive behavioral therapy that behavior more than words serve as stronger counter argument to resisting change (Butler, Chapman, Forman, & Beck, 2006; Cooper & Fairburn, 2011; Goldman, 2008; Herbert & Forman, 2011). All of this suggests that, as with Newton's laws of motion, initiating behavior through sampling causes inertia for continued change and not for status quo. As people read about the benefits to health from eating more fruit while simultaneously sampling fruit, they are more inclined to change than if they only read about the benefits.

*H<sub>1</sub>: People who sample fruit while reading a message on the health benefits of eating fruit (and vegetables) increase their fruit consumption more than those who just read the message.*

The effect of sampling, initiating behavior, may not be the same for everyone. Social psychology has taught us that interventions interact with personality in determining behavior (Shibutani, 1961). Previous research on improving healthy behaviors has tended to focus on the effectiveness of messages that identify the negative consequences of bad eating habits (Berger & Rand, 2008; Du, Sen, & Bhattacharya, 2008; O'Connor, Jones, Conner, McMillan, & Ferguson, 2008). A change towards better eating would be achieved by increased self-regulation: pursuing the goal of avoiding negative consequences while sacrificing current time hedonistic pleasure (Baumeister, 2002). This reasoning has led to the belief that better tasting healthy food increases the likelihood of healthy eating, because self-regulation becomes easier. Based on the interactionistic perspective of social psychology, I ask if better taste matters equally to everyone; and taking a positive

psychology approach to individual differences I differentiate between people on their tendency to savor the positive events in their lives.

Bryant & Veroff (2007) suggest that some people are particularly good at amplifying and prolonging their positive feelings in response to their positive experiences. People high in savoring have learned to enjoy life by increasing the hedonistic value of their everyday experiences. Closely related to savoring but distinct from it is the concept of obtaining. Obtaining refers to the seeking out of positive events.

Since savoring by definition is making more of everyday experiences, people low in savoring are likely to be more concerned about losing taste as a result of eating more fruit. That is, immune neglect should be more of an issue for people low in savoring. Consequently, sampling, a way to alleviate immune neglect should matter more for those low in savoring. Those high in savoring, able to mentally enhance ordinary experiences, may need sampling less, if at all, to be persuaded to add fruit to their diet. I hypothesize that:

*H<sub>2</sub>: Sampling everyday tasting fruit while reading a message on the health benefits of eating fruit (and vegetables) increases the fruit consumption of those low in savoring more than those high in savoring.*

The CDC (Centers for Disease Control and Prevention), among other advocates, suggests that as the availability of better tasting fruit increases, people would eat more of it and become healthier (Crawford, Jeffery, & French, 2000; Kahn & Isen, 1993; Kahn & Wansink, 2004; Ozanne, 2009). Is this suggestion equally valid for both those high and low in savoring? If people high in savoring are able to enhance the taste of everyday fruit to the peak level, then sampling extraordinary rather than everyday fruit will not add to

successfully persuading them. If enhancement is not enough to reach the peak level, sampling extraordinary rather than everyday fruit will boost the positive anticipations they associate with changing their diet to add more fruit; better long term health and better taste. Sampling extraordinary fruit will then increase the persuasiveness of the health message more than everyday fruit will.

What about people low in savoring? Bryant & Veroff (2007) suggest that people low in savoring have the tendency to be a kill-joy. Rather than responding to sampling extraordinary tasting fruit with the thought that it is possible to get the best of both worlds, taste and longer term health, they consider this impossible. If the taste is great the long-term health consequences could not be great too. If this is true about people low in savoring, then sampling extraordinary fruit decreases persuasion relative to sampling everyday fruit for them. I hypothesize that:

*H<sub>3</sub>: Sampling extraordinary rather than everyday tasting fruit while reading a message on the health benefits of eating fruit (and vegetables) increases the fruit consumption of those high in savoring more than those low in savoring.*

Together H<sub>2</sub> and H<sub>3</sub> suggest a cross-over interaction of the effect of taste and dispositional savoring on fruit consumption. Everyday fruit helps persuasion more with those low in savoring, and extraordinary fruit helps more with those high in savoring. Although previous research has suggested that the taste of fruit, and vegetables, influences future consumption, it has not suggested that the effect of better or worse taste depends on individual differences such as savoring (Larson et al., 2008; Wadhwa, Shiv, & Nowlis, 2008; Wiggins, 2004).

## **PRE-STUDY 1**

The aim of this study was to identify if savoring the moment relates with fruit consumption. I chose to focus on this aspect of dispositional savoring and not evaluate savoring the future or the past.

### **Method**

The study was conducted at a university in the southern part of the United States. Participants were 288 freshmen students who received 2 credit points towards their grade for participating both in a lab session and reporting their fruit consumption for six days after the lab session. The participants responded to several individual differences' questionnaires during a session in a behavioral lab. Subsequent to this lab session, starting the next day, and for 6 consecutive days, participants filled out a diary reporting how much fruit and vegetables they had eaten that day at breakfast, lunch, and dinner. Of the 288 participants who signed up and came to the lab, 244 filled out the 6 daily logs. Twenty three of these 244 participants reported eating 4 or more cups of fruit per day. These participants were left out to ensure that associations were not driven by those who are highly health conscious. This left 221 participants.

## Measures

The participants responded to measures of savoring the moment and kill-joy thinking (Bryant & Veroff, 2007), and optimism (Scheier, Carver, & Bridges, 1994). These scales are in Appendix 2, 3, and 4. Responses were on 7-point scales anchored at “strongly disagree” and “strongly agree”. These scales were filled out during a session in a behavioral lab.

The number of cups of fruit consumption was measured as a criterion. The average fruit consumption was calculated as the daily average of what participants reported in the diary. The diary told them how to convert fruit and vegetables consumed to cup equivalents.

## Results and Discussion

On average the 221 participants reported consuming 1.68 cup equivalents of fruit a day, well above the national average. I found a significant correlation between savoring the moment and average fruit consumption ( $r=.14$ ,  $p<.05$ ); and although optimism correlated strongly with savoring the moment ( $r=.56$ ,  $p<.0001$ ), it did not correlate with fruit consumption ( $r=.09$ , n.s). Kill-joy thinking correlated with savoring the moment and with fruit consumption ( $r=-.47$ ,  $p<.0001$ ;  $r=-.20$ ,  $p<.005$ , respectively). To evaluate if kill-joy thinking mediates the effect of savoring the moment on fruit consumption, I ran a regression in which fruit consumption was predicted by both these variables. Only kill-joy thinking remained significant ( $F_{(1,217)}=4.32$ ,  $p<.05$ ), and the effect of savoring the moment became non-significant ( $F_{(1,217)}=1.31$ , n.s.). To evaluate if introducing optimism as a

covariate changes this, I introduced optimism in the equation as a third predictor. The effect of kill-joy thinking remained significant ( $F_{(1,216)}=4.27, p<.05$ ). As a conclusion, the pre-study shows that people who savor the moment eat more fruit, and explaining this is the absence of kill-joy thinking.

## STUDY 1

The purpose of this study was to test hypotheses  $H_1$ ,  $H_2$ , and  $H_3$ ; specifically that sampling fruit while reading a persuasive message improves fruit consumption ( $H_1$ ), that people low in savoring respond more favorably to sampling everyday fruit ( $H_2$ ), and that people high in savoring respond more favorably to sampling extraordinary fruit ( $H_3$ ).

### Method

The study was conducted, again, at a university in the southern part of the United States. Participants again were freshmen students who received 2 credit points towards their grade for participating in a lab session followed by daily log sessions. There were two daily log sessions; the day after the lab session, and the next day. Of the 106 participants who signed up and came to the lab, 19 either did not report the fruit they ate or reported eating 4 or more cups of fruit per day, on average, over the last week. Although they were not asked to discontinue participation in the study, their data was excluded since there was little need for them to consume more fruit. Thus, 87 participants remained. The fruits sampled were strawberries. The strawberries were either Driscoll strawberries or strawberries bought from a Farmer's market for extraordinary tasting fruit and Louisiana strawberries for everyday fruit.

Upon arriving at the lab, participants completed the present moment savoring beliefs inventory measures, reported on their eating behavior over the last week, and then were



asked to visit this web link: <http://www.fruitsandveggiesmatter.gov/index.html>. At this web link, a Center for Disease Control site, they found an article advocating the eating of more fruits and vegetables. This article is in Appendix 6. While reading this article, they were either not given fruit, or either given a cup of everyday tasting fruit, or a cup of extraordinary tasting fruit. They were asked to eat the fruit *while* reading, and were told that they would be asked questions both on the fruit and the article they had read. When they had finished eating the fruit and reading the article they were asked, as manipulation checks, about the taste of the fruit they ate and then about the CDC article.

The daily log questionnaire, emailed at the end of the day, and the next day asked them to report on the cup equivalents of fruit they ate that day. These questionnaires told them how to convert their fruit consumption into cup equivalents.

## **Measures**

The design of this study was a continuous (savoring the moment) x 3 (extraordinary fruit, everyday fruit, no fruit) between-participants design. The participants responded to measures of savoring the moment (Bryant & Veroff, 2007). The scale is in Appendix 2. The alpha value for the savoring the moment scale was  $\alpha=.87$ ,  $n=60$ . Responses were on 7-point scales anchored at “strongly disagree” and “strongly agree”.

Past research has suggested that the measurement of a single act of behavior tends not to be representative of a stable pattern of behavior; that measurement should be of multiple acts of behavior (Epstein, 1979). Therefore, as the criterion, I used the average fruit consumption reported over the two days following the study. Twenty seven

participants failed to report their fruit consumption on one or more of the two days. This left an n of 60. The attrition rate from conducting a longitudinal study was 27/87 or 311%.

## **Results and Discussion**

### *Manipulation check*

To evaluate the effectiveness of the manipulation, participants were asked to evaluate the taste of the fruit sampled. They were asked: “How good did the fruit taste?” and responded using a 7-point scale anchored at “very bad” and “very good”. Comparing the taste means for participants who sampled the extraordinary fruit with those who sampled the everyday fruit, I found a significant difference between the two groups ( $t_{(38)}=2.08$ ,  $p<.05$ ; mean extraordinary=6.37, mean everyday=5.63).

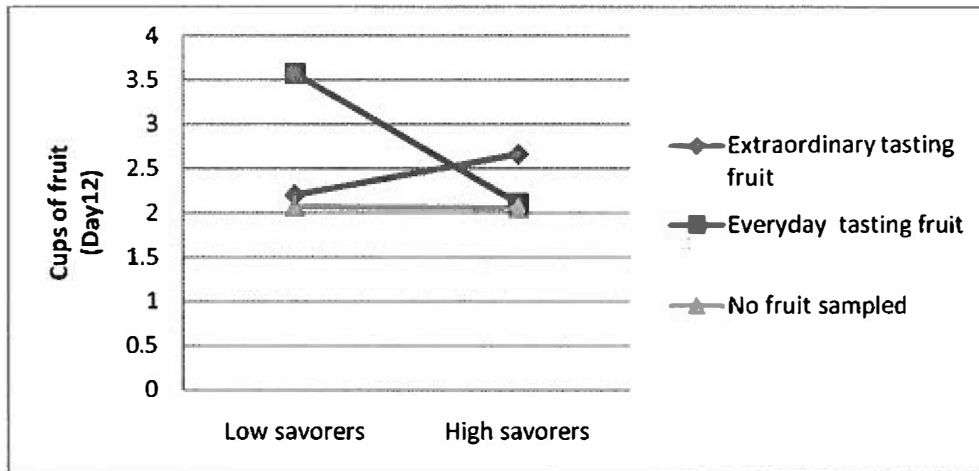
I found a marginally significant correlation between savoring the moment and average fruit consumption ( $r=.24$ ,  $p=0.06$ )

### *Hypothesis H<sub>1</sub>, H<sub>2</sub>, and H<sub>3</sub>*

To evaluate if sampling has an effect on fruit consumption H<sub>1</sub>, I co-varied out their self-report of cups of fruit eaten per day, on average, over the previous week while predicting the average of fruit consumed on day one, and day two. The analysis revealed a main effect of the three conditions ( $F_{(2,59)}=8.31$ ,  $p<.01$ ). Contrasting the average of the everyday and extraordinary conditions with the no fruit sampled condition, I found a significant difference ( $t_{(60)}=2.63$ ,  $p<.05$ ). The means indicated that more fruit was consumed in the sampled conditions than in the not sampled condition (mean for fruit sampled =2.63, mean for no fruit sampled =2.06). Because the fruit generally eaten,

sampled is everyday fruit, I contrasted the everyday mean with the no fruit sampled mean and found an even stronger difference ( $t_{(41)}=3.21$ ,  $p < .01$ ; mean everyday=2.81, mean no fruit sampled=2.05). Both contrasts supported  $H_1$ . Participants, who read about the benefits to health from eating more fruit while simultaneously sampling fruit, increased their fruit consumption over those participants who just read the article on the benefits of eating fruits. Sampling is important in initiating a behavioral change.

In addition to a main effect of condition, the above analysis revealed an interactive effect of condition and savoring the moment ( $F_{(2,59)}=3.50$ ,  $p < .05$ ). I additionally evaluated if the slopes of the two sampling conditions differed significantly and found that they did ( $t_{(38)}=2.54$ ,  $p < .05$ ). The nature of the slopes, diagrammed in Figure 1 below, indicate a cross-over interaction in the direction hypothesized in  $H_2$  and  $H_3$ . For further clarification, I contrasted the mean for everyday sampling and no sampling for low savorers (identified as -1.5 SD below the mean) and found the difference to be significant ( $t_{(38)}=3.29$ ,  $p < .05$ , mean everyday=3.57, mean no fruit sampled=2.07). Contrasting the means for extraordinary and no sampling for high savorers (identified as +1.5SD above the mean), I found an insignificant difference ( $t_{(38)}=1.25$ , n.s.; mean extraordinary=2.66, mean no fruit sampled=2.05). Hypotheses  $H_1$  and  $H_2$  received support. Evidence was found to suggest that people low in savoring are more persuaded through sampling everyday fruit while people high in savoring are more persuaded through sampling extraordinary fruit.



*Figure 1. Study 1 – Effect of fruit sampled (extraordinary, everyday, and no fruit) x savoring the moment on the number of cups of fruit consumed on average during day one, and day two as reported.*

Savoring relates to the idea that people differ in their ability to extract happiness from their experiences. Some people, high savorers, with consistency extract more happiness, while, in contrast, low savorers with consistency extract less happiness. Distinct from this idea is the suggestion that people have incremental or fixed mindsets about the things that matter—such as personal ability, close relationships and morality (Dweck, 2006). With an incremental mindset of happiness, people would believe that happiness grows. With a fixed mindset, they would believe that happiness returns to a set point. Researchers themselves have been divided in believing that happiness is a set point that it may grow or fall but it tends to return to the same point, or that happiness can be enhanced (Lyubomirsky, Sheldon, & Schkade, 2005). Those who favor the set point view argue that happiness is, for the most part, genetically programmed and that although we strive hard to be happier we are stuck on a “hedonistic treadmill”—we don’t get any further (Brickman, 1971; Costa Jr & McCrae, 1980; Lykken, 1999; Lykken & Tellegen, 1996). Those who favor the growth view argue that through giving, gratitude, achieving

and meaningful relationships we can grow happiness (Emmons & McCullough, 2003; Lyubomirsky, 2007; Seligman, 2002).

I chose to focus on the happiness is a set point mindset and evaluate if the cross over interaction between savoring and sampling is maintained under this mindset. People high in savoring under this mindset while considering eating more fruit would be motivated more if greater rather than lesser happiness can be extracted by the change. Greater happiness would be consistent with their status quo. So, sampling extraordinary fruit rather than everyday fruit would be more motivating. People low in savoring under the happiness is a set point mindset would consider the implicit suggestion that health and taste both can be improved through consuming more fruit discordant with their mindset, as it would suggest that happiness can grow. The suggestion that health would improve but taste would drop when consuming everyday fruit, would be concordant and would consequently be more motivating. I hypothesize that:

*H<sub>1</sub>: With happiness as a set point mindset, sampling extraordinary fruit increases the fruit consumption of people high in savoring more than sampling everyday fruit. With this mindset, sampling everyday fruit increases the fruit consumption of people low in savoring more than sampling extraordinary fruit.*

## PRE-STUDY 2

I chose to manipulate rather than measure the happiness is a set point mindset. To do this I created a magazine article that suggested this. To evaluate the effectiveness of this manipulation, I created another magazine article that suggested that happiness grows. To test the effectiveness of these manipulations, I compared the mindsets of two groups of people who read either the growth or set point articles.

### **Method**

The study was conducted, again, at a university in the southern part of the United States. Participants again were freshmen students who received 2 credit points towards their grade for participating in a lab session. Seventy-four participants signed up for this study. Participants first responded to the savoring the moment scale. They then read an article advocating the eating of more fruit and vegetables. The article is in Appendix 7. After they read this article, and answered questions relating to it, they were randomly given either the happiness is a set point or happiness grows article. The articles are in Appendix 8, and 9. They then answered questions relating to these articles and to their mindset. Three questions were used to assess their mindset, they are in Appendix 5. The participants were then thanked and debriefed.

## Measures

The design of this study was a continuous (savoring the moment) x 2 (happiness is unchangeable, and happiness is changeable) between-participants design. The participants responded to measures of savoring the moment (Bryant & Veroff, 2007). The scale is in Appendix 2. Responses were on 7-point scales anchored at “strongly disagree” and “strongly agree”. These scales were filled out during a session in a behavioral lab.

## Results and Discussion

Predicting the average of the three mindset items from the conditions created by reading the growth or set point articles and savoring the moment, I found only a main effect of the condition ( $F_{(1,70)}=33.56, p < .0001$ ). The effect of savoring and its interaction with the conditions were not significant ( $F_{(1,70)} < .52, n.s.$ ). The average evaluation of those who read the growth article was 2.38 and the average evaluation of those who read the set point article was 3.98. The set point article, this pretest suggests, effectively manipulates this mindset.

## STUDY 2

The purpose of this study was to evaluate hypothesis H<sub>4</sub>, which suggested that the cross over interaction between sampling and savoring observed in Study 1 would be found under a happiness is a set point mindset.

### Method

The study was conducted, once again at a private university in the southern part of the United States. Participants were 190 freshmen students who received 2 credit points towards their grade for participating in a lab session followed by three daily log sessions.

Of the 190 participants who signed up and came to the lab, 29 either reported eating 4 or more cups of fruit per day, on average, over the last week or did not report the fruit they ate. Although they were not asked to discontinue participation in the study, their data was excluded since there was little need for them to consume more fruit. Thus, 161 participants remained. The fruits sampled were strawberries, kiwi, melon and a mix of mangoes, bananas and apples. Driscoll strawberries or golden kiwi were used for the extraordinary tasting fruit condition; and melon or a combination of mangoes, bananas, and apples were used for the everyday tasting fruit condition.

Upon arriving at the lab, participants completed the present moment savoring beliefs inventory measures, reported on their eating behavior over the last week, and then were asked to read an article advocating the value of eating more fruit and vegetables. This



article is in Appendix 7. While reading this article, they were either given a cup of everyday tasting fruit to eat, or a cup of extraordinary tasting fruit to eat. They were asked to eat the fruit *while* reading, and were told that they would be asked questions both on the fruit and the article they had read. When they had finished eating the fruit and reading the article, they were asked, as manipulation checks, about the taste of the fruit they ate and then about the article. After this, they were split in two groups at random; the first group read an article that reported research that suggests that our level of happiness as humans may temporarily go up or down but it tends to return to the same set point, and the second group read an article that reported research that suggests that our level of happiness can grow. The articles are in Appendix 8, and 9. After they read this article, they were asked questions about it.

There were three daily log sessions; the day after the lab session, the subsequent day, and the day after this. Each evening, an email was sent to each participant with a short questionnaire for them to fill out and return the same evening or early the following morning. On this questionnaire the participants recorded the number of portions of fruit participants ate during the day. This questionnaire told them how to convert their fruit consumption into cup equivalents. At the end of the three days, participants were thanked and debriefed.

## **Measures**

The design of this study was a continuous (savoring the moment)  $\times$  2 (extraordinary tasting fruit, and everyday tasting fruit)  $\times$  2 (article on happiness is changeable, and article on happiness is unchangeable) between-participants design. The

participants responded to measures of savoring the moment (Bryant & Veroff, 2007). The scale is in Appendix 2. The alpha value for the savoring the moment scale was  $\alpha=.85$ ,  $n=160$ .

In Study 1, I measured fruit eating behavior by averaging consumption over the two days after the lab. In this study, I averaged consumption over the three days after the lab visit. Fifty nine of the 161 participants failed to report their fruit consumption on one or more of these days. Five additional participants reported their fruit consumption to be greater than 5 cups a day on one or more of these days; their data was eliminated because these participants were either highly health conscious or exaggerating their consumption. This left an  $n$  of 97. The attrition rate from conducting a longitudinal study was  $64/161$  or 39%.

## **Results and Discussion**

### *Manipulation Checks*

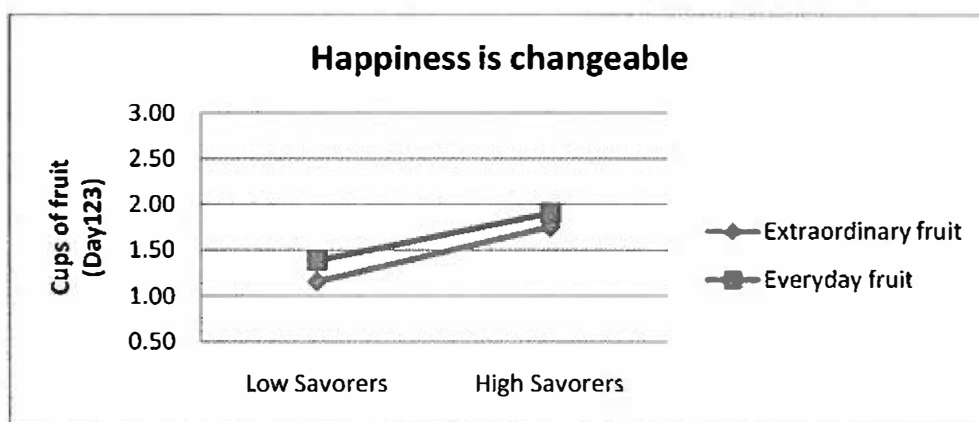
To evaluate the effectiveness of the taste manipulation, participants were asked to evaluate the taste of the fruit sampled. They were asked: “How good did the fruit taste?” and responded using a 7-point scale anchored at “very bad” and “very good”. Comparing the taste means for participants who sampled the extraordinary fruit with those who sampled the everyday fruit, I found a significant difference between the two groups ( $t_{(97)}=-3.06$ ,  $p<.05$ ; mean extraordinary=6.00, mean everyday=5.23).

Predicting the average of the three mindset items from the conditions created by reading the growth or set point articles, I found a main effect of the condition

( $F_{(1, 97)}=69.78, p < .05$ ). The average evaluation of those who read the growth article was 2.22 and the average evaluation of those who read the set point article was 4.08.

#### ***Hypothesis H4***

To evaluate if the cross over interaction between sampling and savoring observed in Study 1 occurs under the two conditions of happiness, I predicted cups of fruit consumed over three days by savoring (continuous), sampling (everyday or extraordinary fruit), and happiness (changeable or unchangeable) co-varying out cups of fruit eaten per day, on average, over the previous week. The interaction of savoring the moment and fruit sampled influenced consumption in the direction predicted ( $F_{(1,96)}=3.40, p=.06$ ), as well as, the interaction among savoring the moment, fruit sampled, and happiness article read influenced consumption in the direction predicted ( $F_{(1,96)}=2.96, p=.08$ ). The means for happiness is changeable are shown in Figure 2.



*Figure 2. Study 2 – Effect of fruit sampled (extraordinary, and everyday tasting) x savoring the moment for happiness is changeable on the number of cups of fruit consumed on average during day one, day two, and day three.*

There is no interaction between the two fruit condition when participants read the article on happiness is changeable. People high in savoring ate more fruit (extraordinary or everyday) compare with people low in savoring. At the same time, under a happiness growth scenario, the taste of fruit (extraordinary or everyday) is not relevant for either group of dispositional savoring (high or low).

Similar to the findings in Study 1, there is a significant interaction between savoring the moment and fruit condition when participants read the article on happiness is unchangeable ( $F_{(2,96)}=8.61, p<.01$ ); that is, happiness as a mind set point. I additionally evaluated if the slopes of the two sampling conditions differed significantly and found that they did ( $t_{(96)}=-2.54, p<.05$ ) as diagrammed in Figure 3 below.

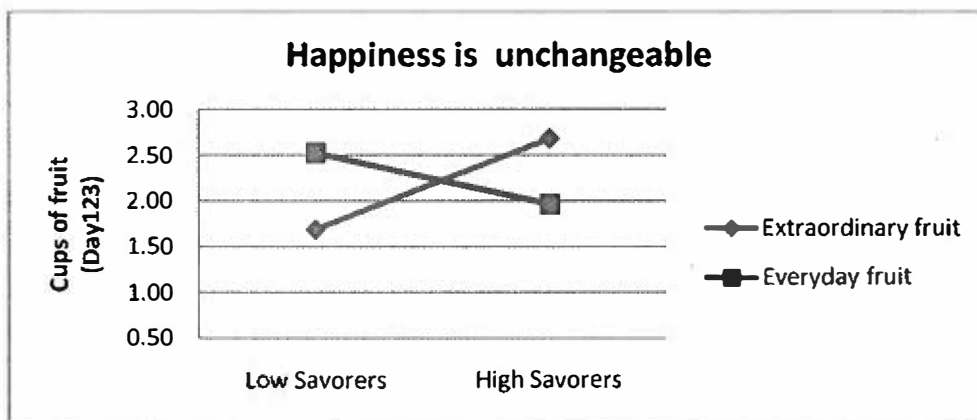


Figure 3. Study 2 – Effect of fruit sampled (extraordinary, and everyday tasting) x savoring the moment for happiness is unchangeable on the number of cups of fruit consumed on average during day one, day two, and day three.

For further clarification, I contrasted the mean for everyday sampling and extraordinary sampling for low savorers (identified as -1.5 SD below the mean) and found the difference to be significant ( $t_{(96)}=2.34, p<.05$ , mean everyday=2.52, mean

extraordinary=1.69). Contrasting the means for everyday sampling and extraordinary sampling for high savorers (identified as +1.5SD above the mean), I found a significant difference ( $t_{(96)}=1.93$ ,  $p<.05$ ); mean extraordinary=2.68, mean everyday=1.96). Evidence suggests that people low in savoring are more motivated to increase their fruit consumption by sampling everyday fruit, while people high in savoring are more motivated to increase their fruit consumption by sampling extraordinary fruit under a happiness fixed mind set.  $H_4$  received support.

My suggestion that the cross over interaction between savoring and sampling represents the motivation of both high and low savorers to maintain the status quo in their happiness appears to have validity.

## GENERAL DISCUSSION

The goal I had in this thesis was to identify if sampling fruit while reading a message advocating more fruit consumption leads to a greater persuasive impact of the message. And, if sampling does improve persuasion, whether there is a match between taste of fruit sampled and individual differences in savoring; high savorers are more persuaded by extraordinary tasting fruit and low savorers by everyday tasting fruit. To understand why this pattern may occur I interjected another aspect of happiness other than savoring; mindsets that relate with the belief happiness grow or return to a set point. I considered the possibility the matching between sampling and savoring I suggested is in service of keeping happiness at a set point goal, and investigated this by manipulating these two mindsets.

### **Summary of Findings**

Through a pre-study I identified that people who are high savoring, who gain more happiness from their experiences, eat more fruit. Through my first study I demonstrated that sampling fruit while reading about the benefits of consuming more fruit leads to a greater positive change. Qualifying this, I found that sampling everyday tasting fruit is of greater value for those low in savoring while sampling extraordinary tasting fruit is of greater value for those high in savoring. Through my first study, I showed that the mindset that happiness is fixed, at a set point, occasions the pattern where sampling and

individual differences in savoring match. Taken together, results from the two studies enable a better understanding of human happiness and its relationship with health. They offer a matched intervention that improves people's diets, consequently their health, and health care costs.

### **Theoretical and Practical Contributions**

From a practical perspective, my work provides insights on how to persuade consumers to initiate and maintain healthy eating practices more effectively, based on their dispositional savoring capacity, and their beliefs about well being. That is, dispositional savoring, high or low, could be a powerful and useful approach to segment markets and target public health campaigns and interventions. Obesity is associated with serious health problems (Manson, et al., 2004), and since Americans on average eat about 0.68 cups of fruit a day (National Fruit & Vegetable Alliance, 2010), any way to persuade people to eat more fruit promoting healthy eating behaviors has health and psychological benefits for the individuals and for the society as a whole. A minor but stable adoption of healthy eating practices by the adolescent population would have a long term impact in the overall health care cost of the society.

### **Future Research**

There are two avenues for theory development beyond this thesis that I feel are important. The first one is to contrast a happiness grows mindset with a learning mindset (Dweck, 2006). The mindset that one's abilities grow, one's close and meaningful

relationships grow, that one's morality grows—that one learns to be more successful with time—is an inward focused growth mindset. It combines greater giving, greater gratitude for receiving, better relationships (through being virtuous in one's dealing with others) and greater personal ability. Conceivably, focusing on a greater personal ability, inward focused, growth mindset enhances self-regulation, and contrasts an externally focused, and happiness grows mindset!

The second avenue is to evaluate diet changes over time. Although in my studies I evaluated diet changes that were more than immediate—two days in Study 1 and three days in Study 2—the effects may still have been short-lived. Revisiting participants a month later and evaluating if the effects continue would have added to the validity of the findings—and to their practical implications. An alternative to longitudinal assessment is to evaluate where in the process of change our participants are (Prochaska, DiClemente, & Norcross, 1992). Do they feel they have settled into a new pattern of behavior? Do they feel the change they have made is tentative?

Beyond these two avenues, I feel there is a need to dig deep into the process by which savoring affects human behavior. To what extent is the advantage high savorers have over low savorers a result of the absence of killjoy thinking? To what extent is the advantage low savorers have over high savorers a result of the presence of uncompromising hedonism? An understanding of these processes will not only better explain my findings but also assist in the development of interventions that lead to better eating.

Participants in these studies were students in a university. Teaching students to eat more fruit, particularly if the benefits are known to be long term, is an intervention with important beneficial consequences. I believe that universities can benefit from my



research by classifying students in high and low savorers at the beginning of their careers, and providing them with magazine articles that help them in increasing their happiness set point levels, for them to enjoy a healthier life by consuming fruits and vegetables. The benefit of changing behaviors during school time is that most probably these behavioral changes will remain from there on.

In conclusion, the research I have developed has an important public service goal. It suggests ways to improve the health of students while in college and then later in life, it suggests ways to improve the health of the general population. It equates consumption with better welfare. The theoretical foundations of the research are rooted in theories of human happiness and public health perspectives of providing a health promoting environment. It is my hope that the research serves as a spring board for further investigations that lead to health promoting investigations and to the study of happiness in different consumer research paradigms.

## REFERENCES

- Baumeister, R. F. (2002). Yielding to Temptation: Self-Control Failure, Impulsive Purchasing, and Consumer Behavior. *Journal of Consumer Research*, 28(4), 670-676.
- Berger, J., & Rand, L. (2008). Shifting Signals to Help Health: Using Identity Signaling to Reduce Risky Health Behaviors. *Journal of Consumer Research*, 35(3), 509-518.
- Brickman, P., & Campbell, D. T. (1971) New York: Academic Press. (1971). Hedonic relativism and planning the good society *In M. H. Appley (Ed.), Adaptation level theory: A symposium* (Vol. New York: Academic Press, pp. 287-302).
- Bryant, F. B. (2003). Savoring Beliefs Inventory (SBI): A scale for measuring beliefs about savouring. *Journal of Mental Health*, 12(2), 175.
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.
- Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: A review of meta-analyses. *Clinical Psychology Review*, 26(1), 17-31.
- Cooper, Z., & Fairburn, C. G. (2011). The Evolution of "Enhanced" Cognitive Behavior Therapy for Eating Disorders: Learning from Treatment Nonresponse. *Cognitive and Behavioral Practice*, 18(3), 394-402.
- Costa Jr, P. T., & McCrae, R. R. (1980). Influence of Extraversion and Neuroticism on Subjective Well-Being: Happy and Unhappy People. [Article]. *Journal of Personality & Social Psychology*, 38(4), 668-678.
- Cowart, M. (Ed.) (2005) Internet Encyclopedia of Philosophy (IEP).
- Crawford, D., Jeffery, R. W., & French, S. A. (2000). Can anyone successfully control their weight? Findings of a three year community-based study of men and women. *International journal of obesity and related metabolic disorders : journal of the International Association for the Study of Obesity*, 24(9), 1107-1110.
- Du, S., Sen, S., & Bhattacharya, C. B. (2008). Exploring the Social and Business Returns of a Corporate Oral Health Initiative Aimed at Disadvantaged Hispanic Families. *Journal of Consumer Research*, 35(3), 483-494.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY US: Random House.
- Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, 84(2), 377-389.
- Epstein. (1979). The stability of behavior: I. On predicting most of the people much of the time, *Personality and Social Psychology* (Vol. 37, pp. 1097-1126).
- Epstein, Gordy, C. C., Raynor, H. A., Beddome, M., Kilanowski, C. K., & Paluch, R. (2001). Increasing fruit and vegetable intake and decreasing fat and sugar intake in families at risk for childhood obesity. *Obesity Research*, 9(3), 171-178.

- Finer, N., & Benjamin, C. (1998). Weight Management Approaches *Encyclopedia of Human Nutrition* (pp. 407-413). Oxford: Elsevier.
- Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (1998). Immune neglect: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, 75(3), 617-638.
- Goldman, R. (2008). Review of 'Essential research findings in counselling and psychotherapy: The facts are friendly'. *Person-Centered and Experiential Psychotherapies*, 9(3), 257-259.
- Hamilton, R. W., & Thompson, D. V. (2007). Is there a substitute for direct experience? Comparing consumers' preferences after direct and indirect product experiences. *Journal of Consumer Research*, 34, 546-555.
- Herbert, J. D., & Forman, E. M. (2011). The evolution of cognitive behavior therapy: The rise of psychological acceptance and mindfulness *Acceptance and mindfulness in cognitive behavior therapy: Understanding and applying the new therapies*. (pp. 3-25). Hoboken, NJ US: John Wiley & Sons Inc.
- Hoch, S. J. (2002). Product experience is seductive. *Journal of Consumer Research*, 29(3), 448-454.
- Hung, I. W., & Labroo, A. A. (2011). From Firm Muscles to Firm Willpower: Understanding the Role of Embodied Cognition in Self-Regulation. *The Journal of Consumer Research*, 37(6), 1046-1064.
- Irmak, C., Vallen, B., & Robinson, S. R. (2011). The Impact of Product Name on Dieters and Nondieters Food Evaluations and Consumption. *Journal of Consumer Research*, 38(2), 390-405.
- Joshiyura, K. J., Hu, F. B., Manson, J. E., Stampfer, M. J., Rimm, E. B., Speizer, F. E., et al. (2001). The effect of fruit and vegetable intake on risk for coronary heart disease. *Annals of Internal Medicine*, 134(12), 1106-1114.
- Kahn, B. E., & Isen, A. M. (1993). The Influence of Positive Affect on Variety Seeking Among Safe, Enjoyable Products. *The Journal of Consumer Research*, 20(2), 257-270.
- Kahn, B. E., & Wansink, B. (2004). The Influence of Assortment Structure on Perceived Variety and Consumption Quantities. *Journal of Consumer Research*, 30(4), 519-533.
- Kempf, D. S. (1999). Attitude formation from product trial, Distinct roles of cognition and affect for hedonic and functional products. *Psychology and Marketing*, 16(1), 35-50.
- Larson, N. I., Neumark-Sztainer, D. R., Harnack, L. J., Wall, M. M., Story, M. T., & Eisenberg, M. E. (2008). Fruit and vegetable intake correlates during the transition to young adulthood. *American Journal of Preventive Medicine*, 35(1), 33-37.
- Lykken, D. (1999). *Happiness: What studies on twins show us about nature, nurture, and the happiness set-point*. New York, NY US: Golden Books.
- Lykken, D., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science (Wiley-Blackwell)*, 7(3), 186-189.
- Lyubomirsky, S. (2007). *The how of happiness: A scientific approach to getting the life you want*. New York, NY US: Penguin Press.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing Happiness: The Architecture of Sustainable Change. *Review of General Psychology*, 9(2), 111-131.

- Manson, J. E., Skerrett, P. J., Greenland, P., & VanItallie, T. B. (2004). The escalating pandemics of obesity and sedentary lifestyle. A call to action for clinicians. *Archives Of Internal Medicine*, *164*(3), 249-258.
- Maynard, M., Gunnell, D., Emmett, P., Frankel, S., & Smith, G. D. (2003). Fruit, vegetables, and antioxidants in childhood and risk of adult cancer: The Boyd Orr cohort. *Journal of Epidemiology & Community Health*, *57*(3), 218-225.
- McCrary, M. A., Vinken, A. G., Hays, N. P., Roberts, S. B., Fuss, P. J., McCallum, J. E., et al. (1999). Dietary variety within food groups: association with energy intake and body fatness in men and women. *American Journal of Clinical Nutrition*, *69*(3), 440-447.
- Mick, D. G. (2006). Meaning and Mattering Through Transformative Consumer Research. *Advances in Consumer Research*, *33*(1), 1-4.
- National Fruit & Vegetable Alliance, N. (2010). *National Action Plan to promote health through increased fruit and vegetable consumption*.
- O'Connor, D. B., Jones, F., Conner, M., McMillan, B., & Ferguson, E. (2008). Effects of daily hassles and eating style on eating behavior. *Health Psychology*, *27*(1), S20-S31.
- Ozanne, J. L. (2009). Taking It to the Streets: Methodological Challenges of Doing Transformative Consumer Research on Health. *Advances in Consumer Research - North American Conference Proceedings*, *36*, 143-145.
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change. Applications to addictive behaviors. *The American Psychologist*, *47*(9), 1102-1114.
- Provencher, V., Polivy, J., & Herman, C. P. (2009). Perceived healthiness of food. If it's healthy, you can eat more! *Appetite*, *52*(2), 340-344.
- Raghunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The Unhealthy = Tasty Intuition and Its Effects on Taste Inferences, Enjoyment, and Choice of Food Products. *Journal of Marketing*, *70*(4), 170-184.
- Rolls, B. J., Roe, L. S., & Meengs, J. S. (2004). Salad and satiety: energy density and portion size of a first-course salad affect energy intake at lunch. *Journal of the American Dietetic Association*, *104*(10), 1570-1576.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing Optimism From Neuroticism (and Trait Anxiety, Self-Mastery, and Self-Esteem): A Reevaluation of the Life Orientation Test Michael F. Scheier, Charles S. Carver, and Michael W. Bridges. *Journal of Personality and Social Psychology*, *67*(6), 1063-1078.
- Seligman, M. E. P. (2002). *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment* (Vol. ). New York: Free Press, A Division of Simon & Schuster, Inc. .
- Sherman, D. K., Gangi, C., & White, M. L. (2010). Embodied cognition and health persuasion: Facilitating intentional behavior consistency via motor manipulations. *Journal of Experimental Social Psychology*, *46*(2), 461-464.
- Shibutani, T. (1961). *Society and personality: An interactionist approach to social psychology*. Piscataway, NJ, US: Transaction Publishers.
- Smith, R. E., & Swinyard, W. R. (1983). Attitude-Behavior Consistency: The Impact of Product Trial Versus Advertising. *Journal of Marketing Research (JMR)*, *20*(3), 257-267.

- Toussi, R., Fujioka, K., & Coleman, K. J. (2009). Pre- and postsurgery behavioral compliance, patient health, and postbariatric surgical weight loss. *Obesity (Silver Spring)*, *17*(5), 996-1002.
- USDA. (2005). Dietary Guidelines for Americans 2005. *US. Department of Health and Human Sciences*.
- Wadhwa, M., Shiv, B., & Nowlis, S. M. (2008). A Bite to Whet the Reward Appetite: The Influence of Sampling on Reward-Seeking Behaviors. *Journal of Marketing Research (JMR)*, *45*(4), 403-413.
- Wiggins, S. (2004). Talking about taste: using a discursive psychological approach to examine challenges to food evaluations. *Appetite*, *43*(1), 29-38.

## APPENDIX 1. EXAMPLES OF A CUP OF FRUIT<sup>2</sup>

### EXAMPLES OF 1 CUP



1 small apple



1 large banana



1 medium grapefruit



1 large orange



1 medium pear



1 small wedge watermelon



2 large or 3 medium plums



8 large strawberries



1 large bell pepper

### EXAMPLES OF 1/2 CUP



1 snack container of  
applesauce (4oz)



16 grapes



1 medium cantaloupe wedge



1/2 medium grapefruit



4 large strawberries



5 broccoli florets

<sup>2</sup> <http://www.fruitsandveggiesmatter.gov/benefits/index.html>

## APPENDIX 2. SAVORING THE MOMENT BELIEFS INVENTORY<sup>3</sup>

*Instructions:* For each statement listed below, please circle the one number that best indicates how true the particular statement is for you. There are no right or wrong answers. Please be as honest as you can.

	strongly disagree					strongly agree	
1. It's hard for me to hang onto a good feeling for very long.	1	2	3	4	5	6	7
2. I know how to make the most of a good time.	1	2	3	4	5	6	7
3. When it comes to enjoying myself, I'm my own "worst enemy:"	1	2	3	4	5	6	7
4. When something good happens, I can make my enjoyment of it last longer by thinking or doing certain things.	1	2	3	4	5	6	7
5. I can't seem to capture the joy of happy moments.	1	2	3	4	5	6	7
6. I feel fully able to appreciate good things that happen to me.	1	2	3	4	5	6	7
7. I don't enjoy things as much as I should.	1	2	3	4	5	6	7
8. It's easy for me to enjoy myself when I want to.	1	2	3	4	5	6	7

---

<sup>3</sup> (Bryant, 2003)

### APPENDIX 3. KILL-JOY THINKING<sup>4</sup>

*Instructions:* For each statement listed below, please circle the one number that best indicates how true the particular statement is for you. There are no right or wrong answers. Please be as honest as you can.

				definitely doesn't apply				definitely applies
1. I told myself why I didn't deserve this good thing.	1	2	3	4	5	6	7	
2. I thought about ways in which it could have been better.	1	2	3	4	5	6	7	
3. I withdrew and inhibited my feelings (stiffened up).	1	2	3	4	5	6	7	
4. I told myself how it wasn't as good as I'd hoped for.	1	2	3	4	5	6	7	
5. I reminded myself of other places I should be or of other things I should be doing instead.	1	2	3	4	5	6	7	
6. I thought about other things that were hanging over me, problems and worries that I still had to face. happen to me.	1	2	3	4	5	6	7	
7. I thought about things that made me feel guilty.	1	2	3	4	5	6	7	

---

<sup>4</sup> (Bryant & Veroff, 2007)



**APPENDIX 4. LIFE-ORIENTATION TEST OF DISPOSITIONAL OPTIMISM<sup>5</sup>**

*Instructions:* Respondents indicate the extent of their agreement with each item using a 7-point Likert scale ranging from “strongly disagree” to “strongly agree”.

1. In uncertain times I usually expect the best.
2. If something can go wrong for me, it will.
3. I'm always optimistic about my future.
4. I hardly ever expect things to go my way.
5. I rarely count on good things happening to me.
6. Overall, I expect more good things to happen to me than bad.

---

<sup>5</sup> Items of the Life Orientation Test LOT-R from Scheier, Carver, & Bridges (1994)

**APPENDIX 5. STATIC MIND SET <sup>6</sup>**

*Instructions:* read each sentence below and then circle the one number that shows how much you agree with it. There are no right or wrong answers.

1. People can't really change what kind of personality they have. Some people have a good personality and some don't and they can't change much.
2. Someone's personality is a part of them that they can't change very much.
3. A person can do things to get people to like them, but they can't change their real personality.

---

<sup>6</sup> Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY US: Random House.

## APPENDIX 6. FRUIT AND VEGETABLES BENEFITS<sup>7</sup>

### Almost Everyone Needs to Eat More Fruits and Vegetables

A growing body of research shows that fruits and vegetables are critical to promoting good health. To get the amount that's recommended, most people need to increase the amount of fruits and vegetables they currently eat every day. [How Many Fruits and Vegetables Do You Need?](#)

### Fruits and Vegetables Can Protect Your Health



Fruits and vegetables contain essential vitamins, minerals, and fiber that may help protect you from chronic diseases. Compared with people who consume a diet with only small amounts of fruits and vegetables, those who eat more generous amounts as

part of a healthful diet are likely to have reduced risk of chronic diseases, including stroke and perhaps other cardiovascular diseases, and certain cancers.



### Whole Foods or Supplements?

Nutrients should come primarily from foods. Foods such as fruits and vegetables contain not only the vitamins and minerals that are often found in supplements, but also other naturally occurring substances that may help protect you from chronic diseases.

For some people, fortified foods or supplements can be helpful in getting the nutrients their bodies need. A fortified food contains a nutrient in an amount greater than what is typically found in that food.



### Fruits and Vegetables and Weight Management

Substituting fruits and vegetables for higher-calorie foods can be part of a weight loss strategy. Read more on CDC's

page [How to Use Fruits and Vegetables to Help Manage Your Weight.](#)

### Fruits and Vegetables on the Go!

Busy lives can benefit from food that's nutritious, yet easy to eat on-the-go, like fresh fruits and vegetables. Fruits and vegetables are a natural source of energy and give the body many nutrients you need to keep going.



### The Colors of Health

Fruits and vegetables come in terrific colors and flavors, but their real beauty lies in what's inside. Fruits and vegetables are great sources of many vitamins, minerals and other natural substances that may help protect you from chronic diseases.

To get a healthy variety, think color. Eating fruits and vegetables of different colors gives your body a wide range of valuable nutrients, like fiber, folate, potassium, and vitamins A and C. Some examples include green spinach, orange sweet potatoes, black beans, yellow corn, purple plums, red watermelon, and white onions. For more variety, try new fruits and vegetables regularly.

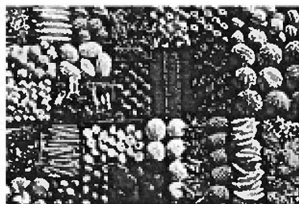
[View a chart](#) that lists specific nutrients and tells you how these nutrients contribute to good health. You can also find out which fruits and vegetables are good and excellent sources of these nutrients.



<sup>7</sup> <http://www.fruitsandvegetablesmatter.gov/benefits/index.html>

## APPENDIX 7. MAGAZINE ARTICLE: EAT YOUR FRUIT AND VEGETABLES<sup>8</sup>

### “Eat Your Fruits and Vegetables!”



How many times have we heard someone say those words? More importantly, did we listen? According to the CDC, less than 30% of Americans consume the minimum recommended daily amount of fruits and vegetables. The CDC recommends eating at least 4-5 cups of vegetables and 2-3 cups of fruit per day. What counts as a cup? For most fresh or cooked household fruits and vegetables, 1 cup is what fits in a standard measuring cup.

The main exceptions are the following: ½ a cup of dried fruit is equal to 1 serving and 2 cups of raw leafy greens (such as lettuce and spinach) equal 1 serving.

**Less than 25% of Louisianans consume the recommended daily value of fruits and vegetables.**

#### Stay Energized!

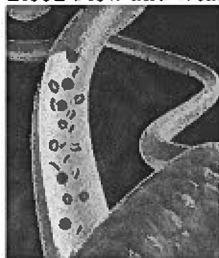


Do you often find yourself nodding off in the afternoon,

taking trips to the coffee pot to try to maintain some semblance of alertness? Most of the time this happens after you eat. So, the first thing you need to realize is that what you're eating is probably making you feel this way.

Adding fruits and veggies can lead to more energy throughout the day; they help stabilize your blood sugar levels, the culprits for those afternoon “crashes.”

#### Blood Flow and Healing



Consuming these foods can also improve microcirculation, which is very important in healing and fighting disease. Diets high in fruits and veggies increase the availability and delivery of many vitamins and minerals necessary for our cells to function efficiently. This, in turn, keeps our skin looking more radiant, improves recovery time after an illness or injury, and ensures that our bodies are running at a high efficiency level.

#### Look Great!

A diet replacing sugary, high fat desserts with fruits and vegetables promotes weight loss, weight maintenance, and can help break the rising

obesity trend in America.

Moreover, consumption has been linked to a lowered risk for diabetes. Therefore, this food tradeoff will leave you feeling better, looking better, and healthier overall!

#### Heart Health and Cancer

Fruits and veggies have been found to prevent cancer-causing agents from harming our bodies. Moreover, they have a strong, protective effect on our hearts. Several large scale studies in the

**Eating 4 or more cups of fruit/veggies each day significantly reduces the risk of a stroke and heart attack.**

United States and Europe have shown that those who eat 4 or more cups of fruits and veggies per day have a 20-30% reduced risk for heart attack and stroke when compared to individuals who eat less than 1.5 cups per day.

#### Blood Pressure

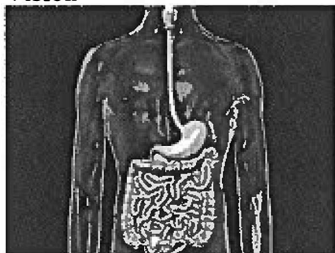


High blood pressure is a risk factor for heart disease and stroke. Chronic high blood pressure can even damage our kidneys, eyes and blood vessels. Studies have shown that diets rich in fruits and vegetables can lower your blood pressure as effectively as common medications, maybe even more so!

*A reprint from the Journal of Human Nutrition and Dietetics*

<sup>8</sup> The text on this made-up magazine article was only used within the experiment and was not made available to the general public.

### Gastrointestinal Health and Vision



The high amounts of dietary fibers in fruits and vegetables are extremely beneficial to our digestive system, and not simply in the short run. The fiber prevents the development of diverticulitis and hemorrhoids, two extremely painful conditions of the colon and anus respectively.

Also, eating plenty of fruits and vegetables keeps our eyes in good shape. Vitamin A, found in carrots, promotes better vision at night. Colorful fruits and veggies, such as spinach, kiwi, squash, grapes, and corn, contain compounds that can work as antioxidants, neutralizing dangerous free radicals that cause diseases. This neutralizing factor, along with improvements in blood flow, prevents the formation of cataracts and macular degeneration (damage to the part of the eye that allows us to see). Luckily, both conditions are preventable through the increased consumption of fruits and vegetables.

#### Recommendations

Vegetables and fruits are clearly an important part of a healthy diet, and most

Americans would benefit from eating more of them. While many of the benefits are a reduction in the onset of chronic diseases, there are some that you will notice very quickly. The effects of increased fiber are usually seen within the first few days. Replacing high sugar and high fat foods with fruits and vegetables switches our bodies from a store-energy mode to use-energy mode, where we have more lasting energy throughout the day (and less need for caffeine).

---

**Replacing sugary snacks with fruits and veggies cues our metabolism and tells our body to use energy instead of store it.**

---

The key is to remember that fruits and veggies are not a compromise in taste. It is important to find your favorite few and to occasionally try something new. A healthier diet can reverse this upward trend of obesity, diabetes, heart disease, and stroke.

- Keep fruit where you can see it. This will motivate and remind you to eat it.
- Include some every meal, every day.
- Explore local produce and try something new—even if it is a different recipe with your favorite fruit or vegetables.
- Avoid white starches. Whole grains and colorful vegetables provide more taste and nutrition.

- Make it a meal. Try to make dishes with vegetables at center stage.
- Be mindful of what you eat, and eat with the purpose of satisfying hunger.

---

**Eating more fruits and veggies is good for you both in the short as well as in the long term.**

**They can keep you energetic through the day and help you avoid the 2 o'clock crashes. They can make your skin look more radiant. They can enable you to recover quicker from the flu or from injury.**

**In the longer run, they can help keep you at a good weight, keep your eyes healthy, prevent hypertension, diabetes, diverticulitis, hemorrhoids and heart disease.**

---

## APPENDIX 8. MAGAZINE ARTICLE: HAPPINESS IS CHANGEABLE<sup>9</sup>

### Can We Become Happier with Time? Definitely, Yes!

By Susan Sason

---

#### LOS ANGELES

---

Janine, a single mother of three, lived in the lower 9<sup>th</sup> ward of New Orleans. Her life had been full of trying circumstances. She commuted to work in an incredibly unreliable car, risking a 10-mile journey of possible breakdowns each way. The little money she made put food on the table and her children through school. Unfortunately, the food she could afford was cheap and unhealthy; the school was of poor quality. There was little left over for anything else. A threat of violence hung constantly in the air. An unusually high crime rate skyrocketed the chance of her son's becoming the next teenage victim of gang violence. Moreover, it was possible, even probable, that when her two daughters became teenagers, they could become pregnant and be forced to choose between an abortion and the difficult task of looking after a child at a young age. So Janine spent \$5 every week on lottery tickets, keeping alive a glimmer of hope for a better life.

Her dream came true when her children were 10, 8 and 7: she won a lottery prize. Not just \$100 or \$1000, but \$2.7 million dollars. She and her family could now afford almost anything. They moved to a much nicer neighborhood. She quit her monotonous, secretarial job. She bought a new car. Her children were enrolled in a private school. She shopped regularly at

Whole Foods and Nordstrom. Thanks to the lottery, she and her children ate well and lived well.

Having made her and her family's life better, Janine began thinking about helping the community she had lived in for so long. She paid for, designed, and helped build a playground that her own children would have loved to use while they were living there. It was a true delight for her to drive by the newly renovated park and see the happy faces of the children playing.

A year after the lottery, problems arose that had never been a factor before, such as her children's sensitivity to social class at school, their increasing academic and material demands, the exploitation of former friends and relatives, and Janine's own limited satisfaction from expensive clothes, a nice house, and a new car.

Then, she began to mismanage her money. Janine became poorer and poorer; she had to move her children to a public school, scale down her car, and, worst of all, downsize her house.

Losing her newly claimed fortune should have made her very unhappy. It did, but she knew how to overcome the lowest points: each time she emotionally felt down, Janine drove past the playground she funded and knew that she had made positive changes for the

community. No one could take that away from her.

With material circumstances better than what they once were but worse than they had been, Janine could have returned to the same level of happiness (or unhappiness) she had originally maintained. However, she had much to be thankful for. She had brought her family out of the dangers of the 9<sup>th</sup> ward and into a better neighborhood. No longer did she feel afraid each time her children walked out the door. Also, the mere thought of good she had done for her old neighborhood and the gratitude she felt for her good fortune had not only elevated her level of happiness, but also helped Janine continued to look for ways to keep her joy growing despite trials and tribulations.

#### Positive Psychology

"It's clear that we can change our happiness levels widely — up or down," researcher David Lykken has concluded from his work. His current thinking coincides with the view of the positive-psychology movement, which focuses on enhancing the positive events and feelings of one's life, rather than countering the negative.

In 2003, Kennon Sheldon and his colleagues suggested that happiness derives from about 50% genetics, 10% life circumstances, and 40%

---

*Personal Psychology, a Publication of the Society for Human Well-Being, October 2011*

<sup>9</sup> The text on this made-up magazine article was only used within the experiment and was not made available to the general public.

activities under our own voluntary control. Life circumstances, such as marital status, employment status, and income, are relatively difficult to change. But doing good to others, feeling grateful for the good things that have happened to us, connecting meaningfully with family and friends, and developing the ability to master challenges (all happiness enhancing activities) are under our own volitional control.

---

**"About 40% of the variance in achieving a higher level of happiness is under our own control."**

---

Personality traits have also been found to influence our level of happiness. Specifically, extroversion is generally linked to a higher level of subjective well being (reported happiness) than introversion. Extroverts tend to experience many positive events and even magnify their impact, extracting greater satisfaction and savoring them more. Considerable research now shows that important personality traits are changeable. In a recent article published in the *Journal of Personality Research*, Dr. Lawrence Rescorla reported the findings of their extensive case study research: "Personality characteristics seem to be malleable and can be developed over time. He argued, "At almost any time in a person's life, his or her personality characteristics can be shaped." Other researchers in the field echoed similar conclusions. For example, Dr. Russell Kelley has found that "we all know people who display such rigid and enduring characteristics where change seems impossible. But,

in fact, this is not true. On the contrary, research findings show that with enough motivation and some external help, such as counseling, these people can develop well beyond their current patterns." Therefore, a higher level of happiness is attainable even through seemingly unchangeable factors, such as personality traits.

### Ways to Boost Happiness

At the University of California at Riverside, psychologist Sonja Lyubomirsky dedicates her research to finding different kinds of happiness boosters. One successful method is the gratitude journal—a diary that documents things for which people are thankful. She has found that taking the time to conscientiously count one's blessings once a week significantly increases people's overall satisfaction with life over a period of six weeks. Those that do not keep such a journal, controlling for all other variables, do not show this gain.

At the University of California at Davis, psychologist Robert Emmons has found that gratitude exercises improve physical health and raise energy levels. Other benefits included more efficient physical functioning, reduced bodily complaints, increased sleep duration and efficiency, more controlled stress levels, and lowered systolic blood pressure. "The ones who benefited most tended to elaborate more and have a wider span of things they're grateful for," Emmons notes about the journaling exercise. The simplicity of gratefulness can indeed improve our

physical well being, thereby increasing our happiness level.

Another happiness booster, say positive psychologists, is performing acts of altruism or kindness—visiting a nursing home, helping a friend's child with homework, mowing a neighbor's lawn, or writing a letter to a grandparent. "Doing five acts of kindness each week gives a measurable boost to happiness," says positive psychologist Sonja Lyubomirsky. "Do them all in one day and the enhancement is incredible!"

Martin Seligman, a key founder of the positive psychology movement, has tested similar interventions in controlled trials at the University of Pennsylvania. The most effective way to turbocharge your joy, he says, is to make a "gratitude visit." The experience entails writing a testimonial thanking a teacher, pastor or grandparent—anyone to whom you owe a debt of gratitude—and then visiting that person to read him or her the letter of appreciation. "The remarkable thing," says Seligman "is that people who do this just once are measurably happier and less depressed a month later." Less powerful but more lasting, he says, is an exercise he calls three blessings—taking time each day to write down a trio of things that went well and why. "People are less depressed and happier even six months later."

---

**"Taking time each day to write down 3 things that went well makes people less depressed and happier even 6 months later."**

---

Seligman's biggest recommendation for lasting happiness is to figure out, courtesy of his website: [www.reflectivehappiness.com](http://www.reflectivehappiness.com), your strengths and find new ways to deploy them. Increasingly, his work, done in collaboration with Christopher Peterson at the University of Michigan, has focused on defining such human strengths and virtues as generosity, humor, gratitude, and zest, and studying how they relate to happiness. "As a professor, I don't like this," Seligman says, "but the cerebral virtues—curiosity, love of learning—are less strongly tied to happiness than interpersonal virtues like kindness, gratitude and capacity for love." The connection between social virtues and happiness stems from our need to belong, which according to psychologist Roy F. Baumeister is a fundamental human need. Enhancing our social support from our close relationships, he says, will ultimately make us happier.

Giving, more than taking, has been found to be an effective way to increase our level of happiness and satisfaction from social experiences. Social psychologist Elizabeth Dunn of the University of British Columbia (UBC) in Vancouver, Canada, wanted to find out what kind of spending really does make people happy. Despite her participants' saying that they'd be happier when spending on themselves, she found that they were happier when spending

on others. When given a \$5 bill or a \$20 bill and told how to spend it, those who shelled out on others (donating to charity or giving a gift) were happier at the end of the day than those who blew it on themselves (to pay a bill or indulge in a treat).

Changing one's concern from proving goals (how happy I am now) to learning goals (how happy I can be in the future) has also been found to be a successful happiness booster.

By focusing personal resources on worrying about our problems, we lose the ability to savor that moment. By clearing our mind, through thinking about our potential for happiness, through meditation or through setting a time limit for worrying, our attention becomes available to focus on effective ways to increase the level of happiness. If we set aside time to evaluate each life experience and limit multitasking, savoring can fully occur. One can truly dwell in the experience without worrying about the future or fretting about the past. By "living in the moment," happiness levels can increase from a focus on our blessings at that particular instant. A bad mood, from a reprimand at work or a poor test score, short lived or longer lasting, can be more than countered by remembering with gratitude the quality of one's personal relationships.

#### CONCLUSION

Multiple researchers have discovered that a considerable portion of happiness is under volitional control (about 40% according to one estimate). By giving more, feeling and

expressing gratitude more, connecting meaningfully with family and friends, and fulfilling the urge to learn about and use our knowledge, we become happier. These activities have long been recognized as virtues. Positive psychology reemphasizes that a virtuous life is a good life!

"Almost every person feels happier when they're with other people," observes Mihaly Csikszentmihalyi, the author of "Flow: The Psychology of Optimal Experience." "It's paradoxical because many of us think we can hardly wait to get home and be alone with nothing to do, but that's a worst-case scenario. If you're alone with nothing to do, the quality of your experience really plummets."

But can a loner really become more gregarious through acts-of-kindness exercises? Can a dyed-in-the-wool pessimist learn to see the glass as half full? Can gratitude journals work their magic over the long haul? And how many of us can keep filling them with fresh thankful thoughts year after year? Sonja Lyubomirsky believes all this is possible: "I'll quote Oprah here, which I don't normally do. She was asked how she runs five miles a day, and she said, 'I recommit to it every day of my life.' I think happiness is like that. Every day you have to renew your commitment. Hopefully, some of the strategies will become habitual over time and not a huge effort."



APPENDIX 9. MAGAZINE ARTICLE: HAPPINESS IS UNCHANGEABLE<sup>10</sup>

## CAN WE BECOME HAPPIER WITH TIME? SADLY, NO!

BY SUSAN SASOFF

## LOS ANGELES

Janine, a single mother of three, lived in the lower 9<sup>th</sup> ward of New Orleans. Her life had been full of trying circumstances. She commuted to work in an incredibly unreliable car, risking a 10-mile journey of possible breakdowns each way. The little money she made put food on the table and her children through school. Unfortunately, the food she could afford was cheap and unhealthy; the school was of poor quality. There was little left over for anything else. A threat of violence hung constantly in the air. An unusually high crime rate skyrocketed the chance of her son's becoming the next teenage victim of gang violence. Moreover, it was possible, even probable, that when her two daughters became teenagers, they could become pregnant and be forced to choose between an abortion and the difficult task of looking after a child at a young age. So Janine spent \$5 every week on lottery tickets, keeping alive a glimmer of hope for a better life.

Her dream came true when her children were 10, 8 and 7: she won a lottery prize. Not just \$100 or \$1000, but \$2.7 million dollars. She and her family could now afford almost anything. They moved to a much nicer neighborhood. She quit her monotonous, secretarial job. She bought a new car. Her children were enrolled in a private school. She shopped regularly at

Whole Foods and Nordstrom. Thanks to the lottery, she and her children ate well and lived well.

Should not this positive change in her life circumstances have altered her attitude forever? Should it not have kept her significantly happier than she was before? Not so! A year later Janine's mood drifted back to where it was before she won the lottery. Different problems arose that had never been a factor before, such as her children's sensitivity to social class at school, the increasing academic and material demands on her children, the exploitation of former friends and relatives, and Janine's own limited satisfaction from good clothes, a nice house, and a new car.

Then, she began to mismanage her money. Janine became poorer and poorer: she had to move her children to a public school, scale down her car, and, worst of all, downsize her house.

Losing her newly claimed fortune should have made her very unhappy. It did, but only for a short while. Somehow, her mood rebounded back to the original state.

With material circumstances better than what they once were but worse than they had been, Janine continued her life at the same level of happiness (or unhappiness) she had originally maintained. Similar to running on a treadmill, she

had covered considerable distance but had gotten nowhere!

**Hedonic Adaptation**

Researchers have found that humans have a surprising ability to adapt to the good fortunes of life and take them for granted. Initially, material possessions, like a new, better car, or accomplishments, such as being placed on the Dean's list, bring considerable happiness—even euphoria. But as time goes by, we get used to these things and adapt to them. The adaptation brings us back to the same level of happiness that we had experienced before. We strive for more material things and greater accomplishments in an attempt to achieve that same level of joy, only to discover that our happiness remains unchanged. Like being on a treadmill, we work hard and get nowhere.

These effects are not limited to a small number of people: it happens to nearly everyone! In prosperous nations, such as the U.S., Canada, and Germany, an increase in wealth over time has not brought a corresponding increase in happiness. Americans, on average, live in larger homes, drive better cars, vacation more, use more technology, and communicate faster than they ever have—all of which should amount to greater life satisfaction. However, survey after survey shows it does not change happiness.

<sup>10</sup> The text on this made-up magazine article was only used within the experiment and was not made available to the general public.

---

**Research suggests that money and achievement, across the globe and across time, seem to lack the ability to make us happier in the long run.**

---

### Why?

Typically, humans fail to use life's favorable circumstances to increase their happiness and are good at taking the sting off the adverse conditions that come their way. These findings suggest that we lack the ability to enhance how happy we tend to feel. University of Minnesota researcher David Lykken published a paper in 1996 in which he argued that 80% of life's satisfaction comes from genetic programming. Genes, he suggested, influence traits such as cheerfulness, stress management, anxiety and depression. In contrast, Lykken reported, circumstantial factors such as income, marital status, religion, and education contribute only about 10% to life satisfaction. Lykken's research found that we are unable to change our level of happiness.

This led Lykken and others to suggest that each of us has a happiness set point. No matter what happens in our life—good, bad, spectacular, horrific, with few exceptions—we tend to return in short order to our set point.

Some post-earthquake images last year of smiling Japanese children returning to school one month after the disaster underscored this amazing capacity to right ourselves. And a substantial body of research documents our tendency to return to the norm. A study of lottery winners done in 1978, for instance, found that they did not wind up significantly happier

than a control group. Even people who lose the use of their limbs as a result of a devastating accident tend to “bounce back,” though perhaps not all the way to their base line. One study, conducted by the psychologist Edward Diener, found that a week after an accident, the injured were severely angry and anxious, but after eight weeks “happiness was their strongest emotion.” Psychologists call this adjustment to new circumstances adaptation. “Everyone is surprised by how happy paraplegics can be,” says Noble prize winning psychologist Daniel Kahneman. “The reason is that they are not paraplegic full time. They do other things. They enjoy their meals, their friends. They read the news. It has to do with the allocation of attention.” In his extensive work on adaptation, Edward Diener has found only two life events that seem to knock people lastingly below their happiness set point: loss of a spouse and loss of a job. It takes five to eight years for a widow to regain her previous sense of well-being. Similarly, the effects of a job loss linger long after the blow—even after individual has returned to the work force.

Evidence in support of a significant role of genetics in our happiness comes from the study of MZ and DZ twins. MZ twins are those who are derived from the same ovum, resulting in two individuals of identical genetic make up. DZ twins occur when two separate eggs are fertilized together, leading to individuals of unique genetic make up. In studying MZ twins who were reared separately, the similarities are quite eerie. They have similar IQ, interests, and scores on personality and happiness

tests; and in some cases even the jobs and spouses they choose are similar. The same connection is not seen with DZ twins, suggesting that there is something outside of nurture determining our ability to be happy.

### Does personality change?

Consistent with the argument that our happiness levels are genetically programmed is the argument that important personality traits, such as neuroticism and extraversion, remain unchanged during our lifespan. Happiness is driven by personality traits.

Researchers at the Personality and Development Unit at Stanford University (PDU) are interested in the origins of personality characteristics and how they develop over an individual's life. To collect cases for the data bank, these researchers launched a large scale longitudinal (that is, long-term) study. For more than twenty- five years, the PDU has been following over eight hundred individuals. The researchers identified them at birth and have been collecting elaborate data on them since, including birth records, school records, extensive observations at home and in the laboratory, and in-depth interviews with the individuals, their family members, and close friends.

In a recent article published in the *Journal of Personality Research*, Dr. Lawrence Rescorla, the director of PDU, reported the findings of their extensive case study research.

As was observed repeatedly, Dr. Rescoria concluded that "personality characteristics seem to be rather fixed and to develop consistently along the same path over time."

Dr. Paul Medin, a psychologist at the National Institute on Mental Health, drew similar conclusions. In his speech at the American Psychological Association's annual convention held in Washington, D.C. in August, Dr. Medin argued that: "in most of us, by the age of ten, our character has set like plaster and will never soften again." He reported numerous large longitudinal studies that show that people "age and develop, but they do so on the foundations of enduring dispositions."

These conclusions that Dr. Medin has drawn about personality are based on six longitudinal studies published between 1978 and 1992, including two of his own. All six had considerably different samples and rationales, but "were nearly unanimous in their conclusions on the stability of personality," he said.

He also reported research findings showing that basic tendencies usually stabilize at a very young age, somewhere between 5 and 10 years old.

Dr. Jennifer Mathew, a researcher at the University of Texas at Austin who examines changes within business organizations, has drawn similar conclusions. In the *Journal of Personnel Management* she reports that the character of many young managers stays pretty much the same despite experience.

Through a longitudinal study that observed the personality of managers as they progressed from junior to senior management, she found that managers who started with a competitive outlook tended to stay that way while managers who started with a cooperative outlook also tended to stay that way. This study, together with many others, has made clear the fact that people's personality consolidates early and is relatively stable thereafter.

McCrae and Costa, two personality psychologists, have shown that relative to others, we tend to stay the same in our levels of worry, rumination, guilt, social engagement, enthusiasm and self-confidence. These personality traits have a strong impact on our happiness. If the traits are stable across time, our happiness, too, will be stable across time.

Research has shown that gratitude and giving can lead to greater happiness and people may be aware of this. Do people change the extent to which they feel grateful and give to others? Unfortunately, the evidence is that they do not. These too seem to be aspects of our personalities that are more or less ingrained in us over time. It is possible that we may make short term changes in our attitudes, increasing our gratitude and giving, however, in time the principle of adaption will take control and likely return us to their original position.

Lucas, another psychologist, has studied personality and emotion across cultures and found that extroverts tend to experience more positive feelings, as though they are prone to this by

biology. Some days these feelings may be higher, some days lower, but on average they are more positive than those felt by introverts.

In sum, psychologists believe that because of our genetic programming, our personality and, consequently, our happiness level is out of our volitional control. Even if we were to deny genetic programming, there is considerable evidence in psychology to suggest that the first few years of our life molds us into an unchangeable form. An example of this research, often cited, is the work on attachment styles (which tracks back to the British psychologist John Bowlby) that suggests that how secure we feel as adults is determined in the first four years of life. Additionally, our tendency towards the negative emotions of anger, fear, depression and resentfulness are acquired early, and although they may from time to time wax and wane remain stably with us. Whether the cause is our genes or our early childhood environment, our emotional proclivity returns us to our original set points of happiness.

## CONCLUSION

In summary, although we strive to be happier every day, the reality is that we cannot. Life comes with ups and downs that generate positive and negative emotions. Although we might be happier or sadder for a period of time, we recover or "set back" to our original level. Unfortunately, that's the way life is.