JUST 10 LBS

CHALLENGE

read - write - discover

by Brad Lamm, CIP

JUST 10 LBS: CHALLENGE WORKBOOK

Copyright 2016 Brad Lamm, CIP

All rights reserved Printed in the USA

Books by Brad Lamm:

- Stop It: 4 Steps in 4 weeks to Quit Smoking [2015]
- JUST 10 LBS: Easy Steps to Weighing What You Want (Finally!) [2012]
- How to Help the One You Love: A New Way to Intervene [2011]
- How to Change Someone You Love: Four Steps to Help You Help Them [2009]

Visit us online here: www.BreatheLifeHealingCenters.com

Business Affairs Mailing Address: 8721 W. Sunset Blvd. #PH5 West Hollywood, CA 90069

JUST 10 LBS CHALLENGE

Welcome to your JUST 10 LBS Challenge! JUST 10 is not a miracle cleanse or quick-fix diet for the New Year. Instead, JUST 10 LBS is a best-practice approach to helping our Food + Weight clients change for good. We blend information with inspiration and it works in helping folks make life-affirming, body-loving change.

Losing JUST 10 LBS (ten pounds at a time...one meal at a time) is a doable goal, and helps you gain momentum on your path to weighing what you want. Before we start, I want to say how great it is that you have taken the first step to coming out of your food-fight closet to discovering WHY you overeat. The tools you find in JUST 10 LBS will help you succeed in getting lighter, then staying that way, if you commit with us to:

- a) Eat differently, and
- b) Clean house emotionally

As we work together, you'll discover how your unfolding Change Plan falls naturally into three phases. You'll move through theses three, back and forth in them, from one to another at different spots in your wellness journey.

These three phases:

- 1) MEND (detox physically and emotionally from the foods you put in you)
- 2) MOVE (get your mind, body & spirit moving in new directions)
- 3) MAINTAIN (stabilize the changes you begin as you replace old body-harming patterns with new life-affirming ones)

Food is a drug. It changes the way we feel. Pop sugar in, and it dissolves and fires off signals throughout your body (beginning even before you put it in your mouth) that change how you feel. Put something creamy, chewy, salty or savory into your mouth and experience how your mood changes. Food. Feelings. The dance of them together: self-soothing or energizing, rewarding or punishing depending on the moment and the mood...the feelings, and the food.

Feelings and foods are intertwined in such a way that weighing what you want isn't just about eating different foods, in different ways. Rather it's about changing your relationship with food and coming to a new understanding of the how and why of the so-often baffling need to feed.

In my book JUST 10 LBS, I set out to share my 10-step plan showing you exactly HOW to change, and please know that I support you whole-heartedly in taking on the JUST 10 LBS CHALLENGE (and pausing, writing and thinking in your workbook) to lose weight, just ten pounds at a time. But YOU must do the heavy lifting (how much depends on the day, the hour, the meal and the feelings) to make this CHALLENGE, lasting change.

Your workbook helps you go deeper, integrating teachings more completely, fleshing out facts and feelings surrounding your eating patterns. Let your workbook be a constant companion along with your book. Yes, it is a form of replacement – swapping one action for another, but the impact will not stay in the moment as a temporary one: It lives on and lays the foundation for lasting change.

Feel the need to reach for something to eat (to feed a feeling)? Reach for your workbook instead. "It came to pass" is true of cravings. Cravings and triggers come, and then they exit our heads and hearts. The come to pass.

You'll get to find a new way to name (and experience) your feelings, and stake a claim to your past, present and your future. You will also find answers to these fundamental questions:

- WHY DO I HURT MYSELF WHEN I KNOW BETTER?
- WHY DO I MAKE MY LIFE SMALLER WHEN I KNOW I'M CAPABLE OF MORE?
- WHAT AM I REALLY HUNGERY FOR IN MY LIFE?

Take the JUST 10 CHALLENGE, and be rigorously honest in your workbook. We don't just expect a miracle? We must work for it. The work won't break you – but may break you open to a new way of feeling and feeding yourself. That's my hope for you.

I'm guessing you've used that amazingly clever and adaptive brain of yours to hide truth to protect yourself in a variety of ways and situations. Turn that around and use all your smarts to dig in and get to your true blue essence.

Celebrate change and this process of going deeper, in order to self discover. That's what I'm talking about. Nothing short of loving change awaits you. JUST 10 LBS has helped more than a half -a-million people lose weight and change how they feed. You're in fine company as we do this together.

I can safely say that, with over 100,000 years of human history, and a current global population approaching 8 billion people, there is nothing you've done or felt that someone else on this planet hasn't too.

Fling aside blame, shame & guilt. Let it roll. Here we go, together!

Onward,

Brah

YOUR JUST 10 CHALLENGE PROMISE

THE CHALLENGE

"Who here is ready the start JUST 10?" I asked the roaring crowd. I was in Chicago with Dr. Oz where we set up tents for the DR OZ Chicago Health Fair to talk with a crowd of thousands about living better and lighter. Who here is ready to step up and begin to live better, lighter and longer? "ME!" the audience responded enthusiastically.

I want the same from you. Your body is the most amazing gift any person will ever receive and as sideways as food and weight issues can become, we are resilient, changeable, adaptable and full of the ability to change for good. I will show you how if you'll allow that.

The JUST 10 CHALLENGE is your commitment to begin JUST 10 LBS and follow an amazing 90-day plan of action. Commit to the wellness program you have begun. Read the book. Complete the workbook. Go deeper and discover how to live differently with food.

By completing this CHALLENGE you commit to this path, without negotiation or delay. It all starts with you JUST 10 Pledge. Are you ready? Will you take the JUST 10 Pledge right now? Let's do it together!

CHALLENGING, I WILL STICK WITH	I MY PLEDGE.
I AM WORTH THIS WORK.	
YOUR SIGNATURE	DATE

I TAKE THE JUST 10 CHALLENGE PLEDGE, AND BEGIN THIS

UNDERSTANDING THIS PROCESS IS LIKELY TO PROVE

PROCESS OF CHANGE AND WORK RIGHT NOW.

PART ONE: MEND

MEET THE REAL YOU

First things first, answer the questions below and remind yourself: Who is the incredible individual about to change their very life? You, that's who.

Remember this: You + Truth & Action = Change

I want you to get to know your numbers right off the bat. Be courageous. Step on the scale. Measure your middle. Get to the truth of where you are right now then commit to tracking your progress daily. People tracking their progress are more successful in sustaining change. If you have not had an annual medical check-up this year, now's the time to get a clear read on your cholesterol levels, resting sugar levels and blood pressure.

Go slow. Your workbook isn't a race, so be thoughtful as you read, write and consider. Use a pad of paper if you need more room to write. Good? Good. Here we go.

My name is			My JUST 10 sta	art date is
My Age:	My Waist:	My Weight:	Dream Weight:	JUST 10 Goal:
Write down wha	at you know to	be true about	your food + wei	ght issues:
Claim three phy	sical traits yo	u like about yo	urself:	
When I think ab	out changing	what I eat, the	se feelings pop	up:

Name your three most often experienced emotions:
Claim your three best interior qualities:
When I think about my eating patterns, these feelings pop up:
When I think about my dieting patterns, I feel:
Describe a situation where you faced an unexpected challenge and succeeded:
Describe character strengths you called upon in the situation described above:

Name the heroes of your everyday life:
Name the qualities each has that make them heroic in your life:
Claim three things (qualities, traits, quirks) you like best about your life right now:
Name three components of your life you desire to change:
What holds you back from beginning change in these three areas of your life?
What holds you back from beginning change in these three areas of your life?
What holds you back from beginning change in these three areas of your life?
What holds you back from beginning change in these three areas of your life?
What holds you back from beginning change in these three areas of your life? What feelings surround the lack of change in these areas?

Claim three positive things you know to be true about yourself:
Name the people in your life who believe in you the most:
Describe the mean things you say to yourself in your head:
Name three memories over which you hold shame:
Name how these shame-memories co-exist with your self-esteem:
Claim the names you call yourself in tough times:
Claim the names you call yourself in tough times:
Claim the names you call yourself in tough times:

Recount nice things you have said to yourself recently:
Name the gratitude you can gather together today:

STEP 1: THE LOVE-CENTERED DIET

JUST 10 begins with a focus on the first step you take towards a healthier lifestyle – eating differently. It's a simple fact of human life that we all must eat to survive, but not all foods are created equal.

Many foods today are engineered to prohibit a response of satiety and produce the thought: MORE. Many foods today are made to cause cravings. They are manufactured for your lower self. You deserve better than that, right? I know this to be true.

The Love-Centered Diet is a plant-heavy, low-carb, moderate protein effort to feed your body, mind and spirit. The Love-Centered Diet is by nature a way to honor your body with healthy and self-loving foods.

By eating differently you will immediately begin to see these vibrant changes unfold:

1. Significant drop in risk for heart attack, stroke and diabetes

2. Your clothes fit better

3. A revitalized relationship with yourself

4. Increased self-esteem and sex drive

5. A Better understanding of emotional triggers

Name the times of the day you ate yesterday:
Breakfast
Other
Lunch
Other
Dinner
Other

Guess your daily caloric intake:

Claim the times you will eat today:

Breakfast
Other
Lunch
Other
Dinner
Other

ID YOUR EATING STYLE

You've heard the expression, "You are what you eat." Well, it's not altogether true. You are also how you eat – and your Eating Style is also the key to restoring a healthy balance to your body and weight.

Identifying your Eating Style is another way to get your story straight...how to claim how you are with food in a way that enables sustainable change. In my book I developed a quiz to help you identify which type of eater you are. In your JUST 10 LBS book, take the self-tests, then consider and write on your Eating Style. If you skipped it, go back and do it now. What style are you? It matters to know, and identify in. In brief, the profiles are:

The Emotional Eater: You eat in response to your emotions, both positive and negative. Turning to food when you feel happy, depressed, bored, or angry is a very comfortable and common reaction. You can discover what to eat in response to your feelings –and how getting the right balance of nutrients will help calm your nerves. Some foods have effective mood-lifting powers, including lean meat, chicken, seafood, Brazil nuts, bananas, and whole grains.

The Energy Eater: Many people habitually eat in response to powerful cravings for sugar, salty foods, or high-fat foods. You can learn how to curb cravings naturally using healthy energy-filled foods (such as apples with honey or Agave syrup) and delicious combinations of foods to satisfy you. You eat on the go, always moving and working to stay up with your fast paced life.

The Pleasure Eater: For you, food is very sensual. You love the look, the smell and especially the taste of food. You enjoy reading food magazines and trying recipes the way some people get into music or art. Pleasure eaters can re-channel their passion for food into other areas - reading, crafts, music, or even relationships. And if they love to cook, they can indulge this passion by getting creative with low-fat recipes.

The External Eater: So many of us eat because we are triggered by external cues, including many restaurants' and cafeterias' super-sized serving portions, advertising for high-fat foods, certain kinds of people (food pushers), and social events (buffets at weddings or workplace lunches). One solution is to learn to practice mindful eating. This is a focused, meditative way to eat that helps you transcend constant cues to overeat. Also, external eaters are most successful when they learn to focus on human connection – and make this more satisfying than eating.

The Critical Eater: You're highly critical of yourself, and you can be compulsive in your behavior. You like structure but tend to think in all -or-nothing terms -- so, if you believe you've made an eating mistake; it will often turn into an all-out binge. You have to learn to be gentler on yourself and keep your life balanced. Your need for structure in life can be turned into a positive attribute so you don't get obsessive about eating.

What kind of eater do you think you are and why? Are you a combination of two or more styles'
Describe how your Eating Style has enabled weight gain:
Describe how your Eating Style dictates your eating schedule:
Perhaps you've always prided yourself on having good style, or perhaps its' never been important to you –either way, I do want you to have an impeccable "Eating Style". Your Eating Style also contributes to what kinds of trigger foods you struggle with.
Name the trigger foods you continue to keep around:

Think of the places you keep trigger foods. Where do they reside? A car, desk drawer, purse or bag? No matter where they live, get rid of them. Make them extinct, or replace them with a healthy alternative. No matter the "emergency" you'll grab an apple, or meal-replacement bar or shake and stay committed to never skip a meal.

The ability to take care of you, with body-and-life affirming foods, even in a pinch, is one key. More on dealing with excuses later, but understanding your Eating Style is an important tool to keep your food clean, and your plan on track.

The Love-Centered Diet begins with a detox of sorts. You cut out the junk and your body & mind will miss it. Stay the course. Change has begun and "detoxing" is a sign that your body is getting to know the new foods you're feeding it (while missing some of the junk it has come to depend on). You have planned the work, now work the plan.

Name three foods you believe show love for your body when eaten:
Name three foods you crave that are self-harming to your body when eaten:
Claim your feelings after eating self-harming foods:
Claim your feelings after eating love-centered foods:
Name the prep needed to follow the Love-Centered Diet:

JUST 10: SIMPLE SUBSTITUTIONS

OUT: Sugary soda	IN: Seltzer water w/ orange slice + mint sprig
OUT: Ice Cream	IN: Berries, citrus, pears or melon
OUT: Whole Eggs	IN: Double-up using egg whites only
OUT: Meat as main ingredient	IN: Triple veggies for main course
OUT: Margarine + Saturated oils	IN: Cooking spray (olive, sesame, sunflower & coconut)
Name how you can substitute or skip	p high-calorie foods that don't serve you:
Write down your strategies you will u	use today to substitute or skip:
For foods that create cravings in you	u, how does "moderation" work:

THE FACTS: GETTING YOUR STORY STRAIGHT

Realize your story is made of millions of moments. By taking the JUST 10 Pledge and delving into self-discovery, you are staking a claim to your story; one that reflects who you are, along with how you live. This is big news, so own this truth. So often our story gets caught up in emotions hidden truths, secrets and lies we tell ourselves that attempt to make the rough spots smoother and good spots even better than they were.

Getting your story straight is essential to moving into the very best life you can dream for yourself. Neither better nor worse than reality, it is your baseline of truth.

You will connect many dots as you plug along here in your workbook, and remember that none of us is alone. No matter how disconnected or isolated we feel at times, we have those who surround us, who want the best for us. I know I want the most amazing life possible for you to continue forming and coming together in part, from the work we're doing together with JUST 10.

You are a textured, rich, resilient human being. You have strengths and weaknesses; assets and shortcomings. You're a vibrant combination of all the past good, and bad; challenges, tragedies and triumphs. You have a story. Let's get connected to your truth and go deeper.

Name three people who support your effort to succeed in what you do:
Claim three positive character traits present in you today:
Name three people who you will share your JUST 10 Pledge with:

Good things and good people surround you in this moment, and now you are planning to add more of them! Positive change is contagious and research shows us that those that have friends and family involved in their self-improvement goals are more successful at being successful.

Refer back to this section as you continue your JUST 10 CHALLENGE.

Remember: change is contagious, good and bad, so fall into the good!

STEP 2: START MOVING (MEDITATION)

In the second chapter of JUST 10, we tackle taking exercise out of the realm of a forced, unpleasant activity, and moving it into a pleasurable, life-affirming act where you enjoy your body and marvel at what it can do, beginning where you are right now in this moment.

Learning how to go beyond the "sweat mentality" of exercise and experience physical activity in a whole new way: as a "moving meditation." This involves exercising mindfully, instead of thinking about reps, sets, pace, or steps—or what's for dinner.

A moving meditation can involve any form of activity, from yoga to swimming to a simple resistance training that I call a No-Weight Workout. A moving meditation teaches you to consider your inside self while restarting your outside self. Benefits range from reduced stress to communion with the divine.

When I started working with clients to tackle change involving all forms of dangerous behavior and addictions, I knew only a little. I knew what had helped me change in big and small ways – what got me back from the ledge of death and onto a vibrant path of living – but I didn't yet have the experiential knowledge of what worked to help others experience this kind of change. Over the years, my hunches became theories born out in thousands of radically changed people.

Your process of changing around food and feelings falls into three phases:

MEND - MOVE - MAINTAIN

You are in the MEND phase right now, leading into MOVE. The MAINTAIN comes when you've created a new baseline, a changed "normal" that is a healthier, lighter you.

Claim the ways you have MOVED since beginning JUST 10:
Name the most active periods of your life:

MEND: YOUR WEIGHT MAP

Create your own Weight Map now. Your Weight Map connects your levels of exercise/activity at particular ages, and notes the emotional temperature during those periods too. You will begin to see patterns. I filled out the first line with an example. Edit ages in left column if there were years that were more significant.

Age	Story	Activity Level	Events + Emotional Temperature
Example: 14	5'4" / 170lbs / Size 16 Didn't fit in clothes right Couldn't afford clothes that fit	(1 is lowest) 2 Very little exercise Got a bike but didn't ride it	Had my first crush, he ran track, I was mostly happy. Until mom was diagnosed with breast cancer in May. Ate out a lot. Mom died that summer, it was so quick. I ate a lot the rest of that year. I remember my feet swelling a lot then, and I had my first period that same summer.

Claim exercise likes and dislikes: What costs does your current weight extract from your life? What are you not doing because you don't feel your best? What effect has it had on the following areas of your life and body? Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance Con Life
What costs does your current weight extract from your life? What are you not doing because you don't feel your best? What effect has it had on the following areas of your life and body? Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Feet & Legs My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
What costs does your current weight extract from your life? What are you not doing because you don't feel your best? What effect has it had on the following areas of your life and body? Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Feet & Legs My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
What costs does your current weight extract from your life? What are you not doing because you don't feel your best? What effect has it had on the following areas of your life and body? Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
Item or Area Costs: Emotional & Physical Career Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
Career Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
Friendships My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
My Hair & Nails My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
My Skin My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
My Heart My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
My Feet & Legs My Brain Arms &Torso My Spirit Relationships Romance
My Brain Arms &Torso My Spirit Relationships Romance
Arms &Torso My Spirit Relationships Romance
My Spirit Relationships Romance
Relationships Romance
Romance
0. 176
Sex Life
Finances
What is holding you back from beginning to MOVE?

If you are active while you detox off junk food and get busy in using the Love-Centered Diet, you will see results sooner. Increase your positive momentum. Start slowly. MOVE!

STEP 3: DEVELOP A DAILY PRACTICE

As I introduce in JUST 10, it's key to wake and consider what it would take for you to feel less stressed and more in control of your food and well -being all day long? If you make just 10 minutes upon waking to establish what I call a "Daily Practice" it will alter your day.

Take this step, and it will be easier to claim calm. As you develop this pattern of setting the tone you intend for the day ahead instead of waiting for the world to impose it, you will feel different.

Describe your thoughts upon waking:
Name your current morning routine:
Name the people, thoughts and things that clamor for attention first thing:
Describe your primary reservation/s to crafting a Daily Practice for yourself:
Claim your morning routine beginning with a Daily Practice:

Draw a flower or doodle or something that makes you smile:
IMAGINE
Imagine yourself calm and still for just ten minutes upon waking.
Imagine setting your intention for the day ahead in this pause.
Imagine crafting your Daily Practice as a loving gift to yourself.
Claim how setting this intention makes you feel:

PART TWO: MOVE

YOU ARE WHAT YOU EAT

Now that you've begun the Love-Centered Diet, I want to go deeper into understanding your need to feed. I want to, together, peel back your emotional layers and, gain perspective on how you have built patterns to keep fed – both physically and emotionally. "Moving" isn't always the physical –the workout. Here we get to move, mentally and emotionally, into the claims we can stake in new patterns of behavior. The rituals around how we eat too can be important to health.

Claim tools + tricks that are enabling your feelings of "fullness" during the day:
Name the foods that fill you up without dulling your mind or causing cravings:
Shortcuts, substitutes and other ways to "quick fixes" to food issues are tempting, but they don't last. Some use bulimia, skipping meals, and fasting. Many use fad diets, cleanses, laxatives and even excessive exercise to try to slim down.
What shortcuts have you used in the past?
Name how past "quick fixes" or fad diets worked:
Name how past "quick fixes" or fad diets failed you:

JUST 10: SKIP IT

Artificial Sweeteners: Use the blue, pink and yellow packets in moderation, no more than 3 packets a day. I only use a couple pink packets a day – and sweeten three cups of coffee or tea with one packet. Let your sweet spot reset by cutting way down on the artificial sweet stuff.

Fried Food: French fries, fried chicken and fried sausage are full of unloving fats, so skip them. Braise, bake, steam, blanche and go raw with veggies too.

Soft Hi-Fat Milk Products: Cream cheese, bleu cheese, soft cheese, cream, ice cream & whipped Mochachinos are packed with calories that will clog your JUST 10 efforts. For now, skip these foods.

Alcohol: Beer, cider, whiskey, rum, brandy and other spirits oftentimes hold overlooked calories. Plus alcohol inhibits your ability to decide rightly what you'll put in you next - whether it be more alcohol or food. During your initial JUST 10 plan, skip it.

Don't Drink Your Calories: Soda, sugary (low fiber) juices and punch drinks are rotten for your teeth, mind and body. So skip it. It's one of my JUST 10 commandments, and it's an important step for you in getting clean with the way you feed your most amazing creations: YOU.

Reading this Skin It List, claim the sense of loss and restriction that nons un-

Thedaing this emp it flot, slaim the sense of loss and restriction that pops up.
What feelings surround your history of fighting with food and fat?
Claim what you are now dependent on, or have been even addicted to in the past:

What have been the most traumatic events of your life, past and present?
Name the ways you have practiced resilience, managed your way through or around these traumas:
Name the weight of these past traumas:
Describe the energy used to carry these past traumas:

Affected, Afflicted + Addicted

Let's dive right into these loaded terms. Your JUST 10 Triple A's.

In my own story for example, my mom's struggle with laxatives and yo-yo dieting AFFECTED my relationship with food from a young age. The emotions I feel (good, bad and ugly) result in AFFLICTED moments with food. After years of abuse I found myself ADDICTED to many self-harming patterns of behavior.

My clients ask over and over again: How do I stay clean with my food and move through the feeling ... or do I stuff myself, numb out, and eat my way through them?

I believe I have an ADDICTION to sugar. When I start eating it (or rather foods rich in it), I have a very difficult time stopping, and ferocious cravings occur. Relationships suffered when I would isolate to binge-eat, and in the secretive defeat I would claim a warped power and sense of control in an oftentimes confusing life.

Name how these words Affected, Afflicted + Addicted live in your own story?
Describe your self-harming food patterns:
"In my need to feed, I think I am Affected by"
"In my need to feed, I think I am Afflicted with"

"In my need to feed, I think I am Addicted to"
When at the verge of a setback on your food plan, what feelings pop-up:
With food, describe your struggle with impulse control (aka: willpower):
Describe how lack of impulse control leads to these feelings power or failure:

STEP 4: APPRECIATE YOUR BODY

Some great news people –you've made it to Step 4! This step shows you how to reverse those negative mind- sets for good - and reap the slimming benefits. What do I mean? Beating yourself up about how big your belly looks in that swimsuit or how much skinnier your sister is may seem like powerful motivation to lose weight. But in fact, negative body image thoughts like these can have the opposite effect, causing you to gain extra pounds.

The reason: Research suggests that learning to accept and, yes, even to love your body just the way it is can actually help you lose weight. Step 4 shows you how to reverse those negative mindsets for good.

those negative mindsets for good.
Even if you art wasn't your strongest subject, draw your best feature below:

Draw yourself from the neck up:
Name the feature/s you were teased about as a child:
Claim the feature/s you are most self-conscious of today:
Claim the feeling/s that pop up around this piece of you:

STEP 5: LOVE YOURSELF THIN

I hope you are enjoying your food changes. Tummies and tongues accept change slowly, surely just like the way we live with and love ourselves. So let's get on to the biggest change you have to make – increasing the love you have in your heart for yourself in all of your glorious imperfection.

Loving yourself is the most overlooked factor in food loss + weight change efforts.

Lack of self-love while simmering in fear leads to mindless, unhealthy eating—and can take the form of overweight and obesity. If you're stuck in a self-loathing mindset, or your eating is out of control, then it's very hard to do something good for yourself, or treat yourself well.

Inside Out

One minute I can look at myself in the mirror and think, "wow, what happened to you!? You got so old so fast..." and then later that same day I'll catch myself in the mirror and talkback with a "Hello handsome!" Still other times, it's easy to compare ourselves to the images we see on the big screen, in magazines or sexy ads.

Truth is that there are teams of experts and digital enhancers turning the models and actors into the person we see on the screen, stage and page. Faces, butts, boobs and whole bodies get smoothed over by good lighting and Hollywood magic. They are not the only people in the world who are loveable, delicious and beautiful.

Consider these truths:

- No one else can look exactly like you you are unique in the world
- No one else can do things exactly the way you do them
- No one else knows all the things that you know

In these ways and others, you are the most special you that's ever walked this good earth! Why not stop wishing you were someone else and make the most of being you?

Claim your most glowing quality, inside or out:

Claim the nicest thing someone else has ever said to you:

Claim a loving affirmation to yourself right now:	
Tips, tricks and tools oftentimes have as much to do with what we do as what we don't do. What we subtract from a plan. With food, what we add to a good, loving food can quickly become an unhealthy food because of our math.	
We add, so sad! You can do better - so consider these subtractions:	
1) Salt: use a pinch not a pour – and read the APPENDIX for some powerful salt facts	
2) Soft cheeses	
3) Bacon + pork sausage	
4) Mayonnaise & Miracle Whip-like dressings	
5) Excess oil: drizzle instead of guzzle	
"IN THE FOOD" vs. "CLEAN" When at a healthy spot with my food, I'm not IN THE FOOD, meaning the way I eat and the mental energy I put into the rituals of eating don't interfere with my best life. Think of it this way: When you're "in your food" you're not in your present best. You're out of the sunlight of the spirit, that sweet spot that nurtures and satisfies your soul - that nourishes your body.	
When you are "in your food" (and out of other areas of living as a result), there exists an absence of impulse control in other areas as well. This is the yin-yang. However, the balance that sustains lighter living, this clean spot I refer to as coming clean, aka: CLEAN.	
My friend Mo had yo-yo'd for years before she realized in a flash that the way she was eating and treating herself was costing her the life she wanted. We talked and she walked into a personal transformation that rocketed her into a new dimension!	
It's not rocket science – and there's a reason JUST 10 isn't 500 pages. Come clean. It's time.	
When your food is CLEAN, describe the feelings you experience:	

When IN THE FOOD, describe the costs to other key elements of your life:

Affected Areas	When I am IN THE FOOD these costs are extracted from my best life:
Example	I isolate and eat junk food rather than spending time with my children
Friendships	
Hobbies	
Sexual Health	
In Public	
In Private	
In the Car	
Exercise	
Spirit	
Feet & Legs	
Arms & Torso	
Family Life	
Other areas + co	osts:
Name the shame	e you feel when IN THE FOOD:
Is all shame crea	ated equally? Tell me what you know:
Name what you	feel when your food is CLEAN:

SPIRIT

Nothing can get a family arguing quicker than talk of a spiritual life. So often we think of our relationship with spirit as one imposed (or at least instilled) by the religious traditions we grew up with. I grew up in a Quaker home where the notion of God's connection, that was available anytime, anyplace, independent of a building or leader. So think for a bit on what your spirit is – if anything. Is it in you? Part of something bigger? Smaller? What and where is your spirit?

I don't know. I don't care. Those might be your answers. But try to go deeper...if only to explore how that part of you that isn't your body really IS.

We have traditions that bind us in all different ways – and one of them is spiritual, others are food, marriage, community or civic, geographic, ethnic while others are strictly religious.

Someone told me once that God is in the pauses, the stillness. That resonates with me in so many ways. A relationship with spirit is such a personal thing and I challenge you to consider what this means to you.

What is your spirit?
Where does it reside?
Where do you feel its presence and goodness?
Is it rigid or flexible?

Describe yo	ur relationship with God:
0 '-	and all and the last construction of Minds David Oct 15 Obtains a continuous flori
-	r relationship between your Mind+Body+Spirit. Claim your strengths:
My Mind	Strengths:
My Body	Strengths:
My Spirit	Strengths:
Consider your weight story. I	r relationship between Mind+Body+Spirit now as each relates to your food and Name the strengths and weaknesses present:
My Mind	Strengths:
My Body	Strengths:
My Spirit	Strengths:
Which area of	f Mind+Body+Spirit are you working on right now? One? Two? All three?
Describe the	evolution of your spiritual life:
2221.28	

STEP 6: MAINTAIN LOVING CONNECTIONS

People who lose weight—and keep it off—generally have help. Proof: In one recent study, the men and women who participated in a structured weight-loss program that included weekly group support lost more weight and did a better job of keeping it off for two years than did people who lacked group support.

I encourage you, in this moment, to prayerfully consider who would be an affirming JUST 10 buddy for you. Who would walk with you, encouraging and honor your effort?

Step 6 shows you how to build the type of support and accountability that will get you through the days when you don't want to keep at it. At the end of your rope is hope (and help).

Name who you will share your JUST 10 Challenge with:
Name who you have already shared your JUST 10 Challenge with:
Name who might become your JUST 10 buddy:

TALKBACK: CHANGING THE OLD TAPES

JUST 10 LBS includes daily affirmations for each kind of eater so now's the time to begin talking to yourself with affirmations before meals and whenever you feel cravings. Affirmations are positive messages spoken out loud (to yourself) encourage new behavior and set affirming intentions.

The way we speak to ourselves isn't a new digital message. For most of us, it's an old recording – more like a CD or cassette, an 8-track or even record depending on your age. As I detail in JUST 10, cravings have both a physiological root (you can literally be addicted to sugar, salt and other chemicals found in junk foods) and a psychological root. Our internal messaging and dialogue on who we are and how we are is critical to change in order to get free.

Physical addictions are broken if you abstain from certain foods for just 10 days, but the psychological need – part of what I call the "need to feed" is a bit more complex. The connection we feel to certain foods talk to the brain in many of the same ways as opiates do.

We're never disconnected with the old tapes and the talkback that's occurring between food and ourselves. "If a friend talked to me the way I talk to me, I'd get rid of that friend!" a client told me years ago. I can relate. I was able, by practicing gratitude and giving voice to affirmations, to alter my own talkback. That's my challenge for you in this moment.

My goal for you in integrating affirmations into your daily routine is in part to help focus on the positive, to set a powerful loving intention. I have a more detailed description of what I mean by affirmations in JUST 10 LBS that I hope you'll read and spend some time on. But for now, this is what I want you to focus on: instead of saying something that is negative and only keeps you in a cycle of low self-esteem, like "I hate my thighs", focus on the positive: "I have strong legs that have carried me through many tough days and places".

CLAIM FIVE AFFIRMATIONS FOR YOURSELF RIGHT NOW:	

Speak these affirmations aloud to yourself in your Daily Practice (each morning upon waking), before the rush of the day begins. At the end of your day, be sure to take a few minutes to prepare for your best sleep.

PART THREE: FAMILY

GENERATIONAL vs. SITUTATIONAL or...NATURE vs. NURTURE

As the saying goes, you can choose your friends, but you don't choose your family. All of us get to come to some peace with our family of origin –even if that peace is a détente! Regret, resentment, secrets and lies pile up until they inhibit the very task of gathering breath.

One sort of peace is release. This happens once we understand that no matter what messages and patterns we've learned from our families, as adults, we have a choice to learn and express new ones.

We can choose to surround ourselves with understanding people, who love and support us as were are and desire to be. So many of the feelings we have about ourselves and the practice of feeling ashamed or of repressing feelings, starts with our relationship and history with our families. Let's focus on the following to ID what you've perhaps learned and, what's inherited.

Name a physical features you have, that runs in your family:	
Claim your family addiction history of any kind including tobacco, drugs + sex:	
Name character qualities you that have run in your family:	
Just as physical features can be passed down like Grandma's good china through generations, attitudes about food are also part of your family legacy. Claim your family history around food and eating. Make note of other family members who struggle with food issues too:	

Considering what you've claimed about your family, name the family-learned patterns that have fueled your need to feed:
As you consider your history, are your food and feeding patterns generational or situational? Both? Describe in what ways:

STEP 7: ELIMINATE EXCUSES

We all tell ourselves stories that explain—or make excuses for—how we've come to be the way we are, or why we act the way we do.

Now is the time to create a new narrative, one that reflect your goals, and why, and how you can effect the change you're aiming for. In this step, I'll show you how to strategize around typical excuses like "I don't have time to exercise" or "I have a slow metabolism" or "It's in my genes!" – and get on track for good.

Claim your top excuses for not weighing what you want:
1.
2.
3.
4.
5.
Detail how these excuses are untrue:
One of the most popular excuses people have is that they don't have time to think about their food choices, exercise or taking time for self, so let's take a look at how you spend your time:

Claim a day (like today) then detail how time is spent from the hours:

6am – 10am	
10am – 2pm	
2pm – 6pm	
6pm – 10pm	
10 - bedtime	

You will see windows of opportunity where you may claim just 10 minutes in every one of these windows to take care of yourself better, physically and spiritually. And here's the truth about time – its' somewhat elastic. You can make time for anything you decide is an absolute priority, even if it means something else (like the 42-minutes I used last night to watch "The Good Wife") may be released.

Name time vacuums from your schedule that you may choose to reclaim:	
Claim the amount of time you can reclaim for yourself:	

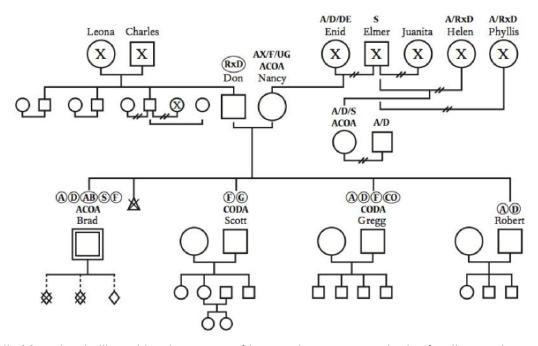
Excuses are the little lies we tell ourselves so that we don't have to change. So let's practice for a bit, telling more of the truth, together.

FAMILY MAPPING

Time now to create a helpful visual I call your Family Map, so you can visualize the patterns and behaviors from your family tree. You've likely not fallen far from it – no matter elm, oak or fir!

Below you'll find mine, with more info below to make it all make sense.

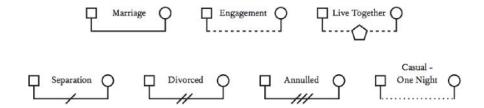
Brad Lamm Family Map



Family Mapping is like taking inventory of issues that reappear in the family –each member appears on the Family Map. Once everyone has a spot, starting at least with your grandparents (if you can go back to great-grandparents, even better), use codes to identify issues the reoccur in the family.

FAMILY MAPPING: SYMBOLS & SUCH

Family Relationship Legend



The letter codes illustrate behavioral items (and suggest in a sort of shorthand). For example, some simple codes that serve as descriptive are:

A = alcoholism
AB = anorexia/bulimia
ACOA = adult child of alcoholic
AX = anxiety
CO = compulsive overeating
CODA = codependent behavior
D = drug addiction

DE = depression
F = food
G = gambling
RX = prescription drugs addiction
S = smoking
SX = sex addiction
UG = Unresolved Guilt

Your Family Map will have codes under each person's name to identify the issues that person has struggled with. If the letter is circled, it means that person is in recovery from that particular behavior.

Family mapping is helpful in presenting just the facts and helping you come to understand them in a new way. When properly done, it provides your family history in a single image and patterns will leap out at you. It's not meant to be used at an excuse for bad behaviors "you can't help", but rather, to help you and your family better understand how patterns repeat through generations. If you need more help on how to draw your map, look online at http://vimeo.com/9185171 for a video tutorial.

A first step to claiming your story from a myth that includes blame, shame and guilt is in identifying patterns, then gaining an understanding of how those patterns live in your daily life. Self-defeating patterns aren't a sign of personal weakness, but that there may be a generational piece to them suggests you may be in danger of passing them on as well if you don't do the work to change them.

Draw your Family Map here:		

Keep your Family Map for your reference, and share it with family members even! "Look what I made: A Family Map!" Refer back to it as needed. You're doing great.

Take some deep breaths now. You just did some heavy lifting, emotionally and spiritually.

Be very proud of yourself! Phew!

PART FOUR: FEELINGS

"HUNGRY" ISN'T A FEELING

JUST 10 LBS explores and presents a solution to food and weight issues that is internal, more than external. Feelings drive so much of what we do (and don't do) so in this fourth part of your JUST 10 Workbook, I challenge you to throw out your preconceived ideas about feelings and get willing to dive right into this critical section together.

Nearly all of my food + weight clients over the years have been able to identify how their out of balance relationship with food was intimately connected to feelings. "I'd confused being numb with having a feeling...and that's what it numbs," I wrote in a journal many years ago. I had also confused "hungry" for a feeling. It's not. It's a symptom of a physical or emotional need. It's a state of being, not a feeling.

I MENDED old hurts, resentments (both of self and toward others), moved my body and mind in a new way and once I had experienced significant change, MOVED into helping others explore what I call the MAINTAIN phase of change.

Claim your thoughts when considering the notion of MEND:
Claim your thoughts when considering the notion of MOVE:
Claim your thoughts when considering the notion of MAINTAIN:
When I get into my food, I often FEEL these feelings:

FEELINGS: We hit a feeling, and rather than experiencing the feeling, and moving through it, we bury it in a feeling of being stuffed with and distracted by food. So often, you don't even have a clear knowledge of what the underlying feeling is exactly. The feelings, the triggers and cravings are intimately connected to how we feel at a given time. Now let's go deeper.

Do you "feel" the feeling, or something else? Other options include: suppressing it, stuffing it, feeding it, disassociating from it, medicating it, numbing it and even hiding it. Get willing to stay open here as we dive into feelings in a really new way for most folks.

There are seven Core Feelings we bump up against that influence how we feel.

- 1. Anger (Rage)
- 2. Fear
- 3. Pain
- 4. Loneliness (Disconnectedness)
- 5. Shame
- 6. Guilt
- 7. Joy (Passion)

Unprocessed or mis-processed feelings manifest in self-harming ways.

These feelings so often go un-experienced, then leak out as behaviors like binge eating, alcohol abuse, uncontrolled rage and self-medicating with drugs of many varieties. At the root of so many harming behaviors? Feelings.

Read this sentence twice:	REVOLUTIONIZING HOW YOU	J HAVE FEELINGS IS KEY
i icaa iiiis scritciice twice.		3

Ν	Name the	Core	Feelings	you	experience	most	often	and	how	they	manifest

1		
l .		

Consider CORE FEELINGS and how they leak when not adequately experienced:

The Feeling	The Cost/s When Denied	The Asset When Embraced
ANGER	Rage, Outbursts, Stressed Out	Motivation, Power, Energy to Act
FEAR	Worry, Panic, Paranoia	Wisdom, Protection, Good Instincts
PAIN	Sullen, Hopeless, Depressed Healing, Discovery, Growth	
LONELINESS	Isolation, Helplessness Seeking a Hand, Giving a Hand	
SHAME	Worthlessness, Self Pity	Humility, Humanity
GUILT	Immobility, Numb	Amends, Correction, Values
JOY	Hysteria, Manic	Healing, Passion, Hope, Shift in Spirit

Describe how you feel angry or shameful when something goes wrong:
Describe how your parents expressed feelings, when you were growing up:
Name how you expressed feelings as a child:
Name how you expressed feelings as a teenager:
Name how you expressed feelings as a young adult:
Name how you expressed feelings as an adult:

Claim which CORE FEELINGS you experience most often:
This past week, when I was feeling good about my eating and my JUST 10 effort, the discomfort or hunger I felt turned out to be a CORE FEELINGS such as:
When IN MY FOOD, what feelings are often present, and stuffed with food:
Claim the situations or events around which you experience joy:

Now this might take some time and really thinking on to figure out, but what situations trigger each Core Feeling? Think on it. Write on it.

Think of it this way – you're on a fact-finding mission about yourself. Slip on your detective hat and observe yourself, your story and how you're feeling over the next few weeks and come back here to write down what you discover.

I want you to pause and fill out the CORE FEELINGS ASSESSEMENT over the next week, before you go to bed at nights.

Day	/ O	ne:

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

Day Two:

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

Day Three:

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

Day	/F	Οl	ır	

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

Day Five:

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

Day Six:

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

Day Seven:

The Feeling	When Experienced	Action Considered or Taken
ANGER		
FEAR		
PAIN		
LONELINESS		
SHAME		
GUILT		
JOY		

STEP 8: EXAMINE YOUR BATTLEGROUND BELIEFS

Many of us are sabotaged in life by self-fulfilling prophecies – things we feel are true or say to ourselves that create a reality.

What we all have to do, through affirmations and cleaning out our closets emotionally, is change those negative beliefs.

BELIEFS

One way of changing the way we feel about ourselves is to begin speaking to ourselves differently. If I believe I am a failure and cow, I will be more likely to be a moo'ing fellow with an overdraft statement. New behaviors enable new beliefs over time.

I'm talking about new scripts! New ways to talk to the most important person in your life: YOU.

New scripts include words – words that you may not have said before. With practice & care, the script has a chance to become your own. This is a chance to use words that nurture, and resonate in ways to help step out of fear and ego and into the present moment of self-love and freedom from behavior that hurts.

So here's a chance to practice this new script, affirmations that resonate goodness, health and wellness. You don't have to believe them to say them, nor must you identify with each word to receive the impact. A sunflower doesn't sit in the garden thinking to itself, "God, I wish I was a rose, or a thistle or a..."

It's a sunflower. It's got no ego, no fear. It is.

SPEAK OUT LOUD:

"Honesty is key to my progress. Secrets hold me back."

"Fat is a thing, not a feeling."

"Feeling hungry will not hurt me."

"My need to nourish myself is good, and freeing and right."

Add some of your own:

:

STEP 9: CONNECT WITH HIGHER SOURCE THINKING

Food is not the only thing your body needs to thrive. You also need to feed your mind and your soul. Spirituality is different for everyone.

You may believe in God, or you may believe in karma, or someplace deeply, personally, in-between. Whatever you believe, it's worth articulating. How we approach life & spirituality contributes to our overall well-being.

People who tap into their spiritual side have a positive self-image, a sense of purpose in life, and better health than those who don't, according to a growing body of research. Spirituality—and I use that term very broadly—reminds us that life may have greater meaning, so we don't dwell so much on the little things. Many of our clients ID this notion as "big G" God, while others find it in the idea of "LOVE" that breeds connectedness...the "everything is one thing" school of faith.

Step 9 shows you how to dial into the bigger picture with some simple practices that will help you meet your JUST 10 goals.

What are your spiritual beliefs and how do they nourish you?	
How do these beliefs give you courage and strength?	
How can your spiritual beliefs soothe and comfort you as you continue JUST 10?	

STEP 10: PAY IT FORWARD

Congratulations! You have finished the uphill climb of the emotional housekeeping involved in JUST 10. I hope it feels great – like a huge burden lifted that your body no longer needs to protect itself from or carry around in the form of excess pounds or padding. But you can only complete your JUST10 Plan if you pay it forward somehow.

This last step is also critical in helping you maintain the work you've done/are doing.

Everyone is looking for the miracle answer on how to keep weight off once you've lost it. In this 10th and final step I'll give you what I believe to be the ultimate answer: you've got to pay it forward.

This is the powerful "helping others" step and it starts with your own friends and family.

GIVE THE LOVE TO KEEP IT (FOR YOURSELF)

My change spread to my own family and we've now lost more than 200 lbs. collectively. I found that the best antidote to being drawn into a backslide is to identify someone who is in need with whom I can share my energy, love, and attention.

When you bring a little fresh air into someone's life, expect some of that refreshing breeze to blow back your way.

GIVE YOURSELF THE GIFT OF FORGIVENESS Please write down below here, all the people in your life who you are angry at and why:

Now, here is possibly the most radical thing I am going to ask you to do in this entire workbook – go through your list and in an act of grace I know you are capable of, speak these words after each person's name: "I forgive you". As I detail in the book, you are in no way giving them power over you by forgiving them, and you don't need to forget either. But you will take away the power they have over you if you can forgive them, put it down, let it go and, move on.

ACTING AS IF

When I want to be something or someone I'm not (in a good way!), I use a tool called AS IF. It means that I act AS IF I'm an honest man, a kind man, or a man with my eyes on helping others then that is what I become. When I want to feed my feelings I act AS IF I am a healthy, clear-headed person around food, in spite of any feelings to the contrary.

Write about who are going to be when you ACT AS IF:		

Now, make a list of who in your life might appreciate your support in taking control of their lives and possibly even taking on the JUST 10 CHALLENGE:
And lastly, because I want you to feel as good as you can, now that you have let yourself focus just on yourself in this JUST 10 Challenge, let's shift the focus to others who may need you.
I want you to make a list of organizations you might volunteer with in your community. There are some ideas outlined in the book, but maybe you can think of others? Write them down here:

Make it a point to do at least one full day of volunteering in whatever capacity you feel you can contribute on a regular basis. Many organizations are run by volunteers and can be disorganized – don't give up! As I detail in my book, this is the final step in feeling your very best.

Thank you for joining me on this critical journey and taking and completing the Just 10 Challenge. The tools you worked with are now yours forever. Use them well, live a full, loving, healthy and prosperous life!

Brah

SALTY FACTS / THE NEW YORK TIMES / DECEMBER 2011

DECEMBER 21, 2011, 7:00 AM

Taste for Salt Is Shaped Early in Life

By ANAHAD O'CONNOR

There is no question that Americans have an unhealthy appetite for salt, but one big reason may be overexposure to salty foods in infancy.

New research shows that infants who are exposed to foods with high amounts of sodium are more likely to develop an affinity for salt later on in life than infants who are not fed as much salt. In the study, which was published in the latest issue of the American Journal of Clinical Nutrition and financed by the National Institutes of Health, infants whose parents fed them starchy table foods like crackers and breakfast cereals, which typically contain added salt, were more likely to gravitate to salty foods by the time they reached preschool.

"Our data would suggest that if one wants to reduce salt in the population as a whole, then it's important to start early because infants and children are very vulnerable," said Dr. Gary Beauchamp, an author of the paper and behavioral biologist at the Monell Center in Philadelphia, a nonprofit institute that carries out research on taste and smell. "Exactly what constitutes too much salt is somewhat of a matter of controversy. But for kids over the age of 1 and 2, what they're consuming now is well beyond what is recommended by every major health organization in the world."

Reducing the amount of salt Americans consume has been a focus of health authorities for some time. Some experts say that many adults eat twice as much salt as the recommended daily allowance calls for, and some studies have found that cutting back on salt intake could save more than 100,000 lives in the United States every year from illnesses like heart attack and stroke.

Dr. Beauchamp said he wanted to look at salt intake among infants to get a better sense of how Americans develop such salty palates, which is something of a mystery. Infants are born with strong tastes for sugar: Babies, for example, show a preference for sweet foods virtually from Day 1. But they do not immediately take to salt, suggesting that a predilection for it develops over time.

In their study, Dr. Beauchamp and his colleagues followed 61 small children starting in early infancy, looking at what their parents fed them at home. The researchers focused specifically on the amount of table foods with added salt they were given –foods like crackers, bread and breakfast cereals –versus the amount of foods without added salt they consumed, like fruit.

When the infants were 2 months and 6 months of age, the researchers administered taste tests, in which the infants were given access to water and two different salt solutions. One was a 1-percent salt solution, about as salty as store-bought chicken noodle soup, and the other was a 2-percent solution, which would be characterized as very salty by most adults, the researchers said.

The infants who were exposed to the most salt at home preferred both salt solutions over plain water, and consumed about 55 percent more salt during the taste test. Meanwhile, the infants who had not been introduced to many salty foods by their parents were either indifferent to the saltwater or rejected it.

The researchers then followed up with their subjects when they reached preschool, and it was clear that their affinity for salt was just as robust. They were more likely to lick salt

from foods and eat plain salt than the children who were consistently fed less sodium by their parents.

"The main reason that we consume salt is because it makes food taste better," said Dr. Beauchamp, "and to some degree what this study shows is that that is in part determined by our experience, probably particular early experience with salt in food."

The findings, together with data from other research on people's preferences for salt, suggest that preferences developed early on may stick and carry on into later life, Dr. Beauchamp said. But that does not necessarily mean they would be permanent. "When people are put on a lower-sodium diet, they shift their preference downward and begin to like less salty things," Dr. Beauchamp said.

At the same time, he warned that while parents should be careful about how much sodium they feed to their children, they should not eliminate all salt from children's diets. The National Academy of Sciences recommends that infants 6 to 12 months old be given no more than about 375 milligrams of sodium per day.

Dr. Leslie J. Stein, a physiological psychologist at Monell and author of the study, said parents should monitor the amount of sodium their children eat, but "without going all out and withholding all salt from their infants' and children's diet."

"Sodium is such a critical nutrient," she said. "No sodium; no life. We have to have it in our diets. We need to have a little bit of everything."

Copyright 2011 The New York Times Company Privacy Policy NYTimes.com 620 Eighth Avenue New York, NY 10018

CHANGE IS CONTAGIOUS / THE NEW YORK TIMES / NOV 2011

NOVEMBER 15, 2011, 9:00 PM

For Weight Loss, a Recipe of Teamwork and Trust

By TINA ROSENBERG

On Friday I wrote about Saddleback Church, which is using its small groups as an infrastructure to help its members lose weight and live healthier lives. The mega-church has mega-plans for this idea — the church's pastor, the Rev. Rick Warren, hopes to expand it through the worldwide network of thousands of churches that are affiliated with Saddleback and the 150,000 pastors who subscribe to his newsletter.

Research has always shown that if you want to adopt and maintain new habits, it helps to not do it alone. Organized religion has always known this — hence Jesus's fellowship with his disciples and the Jewish law that at least 10 men are needed for public worship. When churches grew, they divided members into small groups that meet regularly to create support and accountability for spiritual growth. Churches' small groups help people adopt more spiritual habits, but they are also an ideal structure for other kinds of change.

Few other organizations, however, have that kind of built-in infrastructure. But that doesn't mean it can't be created. As several readers mentioned, one model is the 12-step self-help group Overeaters Anonymous, an Alcoholics Anonymous for compulsive eaters. O.A. has some 54,000 members in 75 countries. A 12-step group, with its surrender to a higher power, is not for everyone. It's also possible, of course, to do what Jean Nidetch did on the way to founding Weight Watchers: assemble a group of friends and meet weekly.

While small groups are better than individual efforts, some kinds of structures are more effective than others. A reader calling herself Good Maine Woman (9) reveals a common misconception: "It seems to me the problem is you need a small group of people you trust, and not everyone has that, or wants to," she wrote. What you really need is a group you sort of trust: a group that has a common goal, but is not made up of close friends. People who are too close to each other tend to fall into permission-giving. If a member of the group comes back from a vacation five pounds heavier, group members are sympathetic —It was vacation! Of course you gained weight —and the social norm of the group shifts. It becomes a force for weight gain, much worse than no group at all: even my weight loss group says it's O.K. Sympathetic understanding needs to be balanced by tough love.

So how do you create a social norm of tough love?

Weight Watchers does it through the weekly weigh-in—it's confidential, kept between you and the meeting receptionist who weighs you, but that receptionist will not be sympathetic when you have too many pancakes. More important is the role of the meeting leader. Weight Watchers has 15,000 of them; virtually all have done the program. Leaders make sure the group acts as a superego instead of an id. David Kirchhoff, chief executive of Weight Watchers International, found this in his own weight loss. He started to use Weight Watchers online. "But I was only able to lose weight by going to a meeting," he said. "The leader is not afraid to push and nudge people to take personal responsibility and stay focused and challenged in a positive way. You feel like you want this person's approval and the approval of the people in your group. I wanted my gold star every week."

The leader can change the group dynamic Ñ not an easy thing to do —because that's the job. The leader has social permission to violate the normal rules of a group. A leaderless small group can manage to give its members permission to administer tough love, but it

takes something strong enough to counteract a group of friends' natural tendency to commiserate and soothe.

There is something strong enough: the competitive instinct, boosted by money. "The Biggest Loser" TV show, which appalls doctors with its emphasis on crash diets, nevertheless turns out to be on to something. In many workplaces, people are starting their own Biggest Loser contests, assembling people into teams that compete against one another. Often these contests are sponsored by companies alarmed at the rising costs of their increasingly obese work force.

Individuals and corporations aren't always able to give these contests the structure they need for people to take them seriously. Enter HealthyWage. The company, which is less than three years old, started by paying people \$100 if they moved from obesity to a healthy weight. (It makes money through partnerships with companies and advertising to dieters.) Paying individuals didn't work very well—but team competitions did. So now in HealthyWage's most effective program, people form groups of five. Each person pays \$60 to enter the team in a three-month weight loss contest. Any loss greater than 1.5 percent of body weight per week isn't counted, to discourage rapid weight loss that is so often not sustained. Teams compete against others in their city or region for substantial prizes: \$10,000 for the team that loses the highest percentage of body weight. What's important is that the team wins as a group, so every member has a stake in other members' success.

Competition - especially when thousands of dollars are at stake. Neil Ylanan and Andy Davis, who work at LSG Sky Chefs in Irving, Tex., were on a team that won a \$10,000 prize in a competition for teams largely from Dallas and Los Angeles. Mr. Ylanan, Mr. Davis and their three teammates all lost the maximum weight: for most of them, around 50 pounds.

They did it with the expected strategies: they went to the gym together or played racquetball at lunch hour. But they also used unorthodox methods. They set up a BlackBerry Messenger group and sent one another photos of their meals. There were lots of pictures of grilled chicken salads, but the photo exchange was also a way for members to police one another. "If you were walking by the lunchroom and saw a teammate sneaking a cookie, it made a nice opportunity to take a picture," said Mr. Ylanan. He took the candy bowls off everyone's desk — whether they were in the competition or not. He once picked up the box from a frozen meal Mr. Davis was eating to check the ingredients.

"We set up a Google Docs spreadsheet online," said Mr. Davis. "Anywhere anyone was traveling in the world they could look on the Web page and see everyone's weight goals for the week. It was interesting to see the numbers and get in tune with what happens every day."

Men often feel a little weird about doing something like checking the ingredients in a colleague's lunch. That's not normally socially acceptable, especially for a man. But the competition gave the team members guy permission. "We were keeping stats online —we knew who was in the lead, who had the most points," said Mr. Ylanan. "We ran it like fantasy football."

Would they have had that permission if there had been no money involved? Mr. Ylanan thinks they would have, but maybe not as much. Money obviously helps, especially with men, who might not otherwise think such intrusiveness acceptable. But people compete all the time when there's no money in it. Recognition and bragging rights also matter.

If Saddleback's Daniel Plan doesn't do well, my guess is that the reason will be that the person each small group designates as health champion wasn't able to create an ethic of tough love. The solution is specific training in this skill, and perhaps an explicit agreement among members requiring the health champion to emphasize personal accountability.

As for those without a Daniel Plan, so far the evidence says the best scheme is to form teams and compete for a prize big enough that people will set aside the normal rules of polite behavior. Small groups are the key to behavior change — but they need something to step up the peer pressure and make it work in the right direction. We can't serve God and Man, the Bible tells us, but both can help us lose weight and live healthier lives.

Tina Rosenberg won a Pulitzer Prize for her book "The Haunted Land: Facing Europe's Ghosts After Communism." She is a former editorial writer for The Times and now a contributing writer for the paper's Sunday magazine. Her new book is "Join the Club: How Peer Pressure Can Transform the World."

THE FAT TRAP / THE NEW YORK TIMES / DEC 2011

December 28, 2011

The Fat Trap

By TARA PARKER-POPE

For 15 years, Joseph Proietto has been helping people lose weight. When these obese patients arrive at his weight-loss clinic in Australia, they are determined to slim down. And most of the time, he says, they do just that, sticking to the clinic's program and dropping excess pounds. But then, almost without exception, the weight begins to creep back. In a matter of months or years, the entire effort has come undone, and the patient is fat again. "It has always seemed strange to me," says Proietto, who is a physician at the University of Melbourne. "These are people who are very motivated to lose weight, who achieve weight loss most of the time without too much trouble and yet, inevitably, gradually, they regain the weight." Anyone who has ever dieted knows that lost pounds often return, and most of us assume the reason is a lack of discipline or a failure of willpower. But Proietto suspected that there was more to it, and he decided to take a closer look at the biological state of the body after weight loss.

Beginning in 2009, he and his team recruited 50 obese men and women. The men weighed an average of 233 pounds; the women weighed about 200 pounds. Although some people dropped out of the study, most of the patients stuck with the extreme low-calorie diet, which consisted of special shakes called Optifast and two cups of low-starch vegetables, totaling just 500 to 550 calories a day for eight weeks. Ten weeks in, the dieters lost an average of 30 pounds.

At that point, the 34 patients who remained stopped dieting and began working to maintain the new lower weight. Nutritionists counseled them in person and by phone, promoting regular exercise and urging them to eat more vegetables and less fat. But despite the effort, they slowly began to put on weight. After a year, the patients already had regained an average of 11 of the pounds they struggled so hard to lose. They also reported feeling far more hungry and preoccupied with food than before they lost the weight.

While researchers have known for decades that the body undergoes various metabolic and hormonal changes while it's losing weight, the Australian team detected something new. A full year after significant weight loss, these men and women remained in what could be described as a biologically altered state. Their still-plump bodies were acting as if they were starving and were working overtime to regain the pounds they lost. For instance, a gastric hormone called ghrelin, often dubbed the "hunger hormone," was about 20 percent higher than at the start of the study. Another hormone associated with suppressing hunger, peptide YY, was also abnormally low. Levels of leptin, a hormone that suppresses hunger and increases metabolism, also remained lower than expected. A cocktail of other hormones associated with hunger and metabolism all remained significantly changed compared to pre-dieting levels. It was almost as if weight loss had put their bodies into a unique metabolic state, a sort of post-dieting syndrome that set them apart from people who hadn't tried to lose weight in the first place.

"What we see here is a coordinated defense mechanism with multiple components all directed toward making us put on weight," Proietto says. "This, I think, explains the high failure rate in obesity treatment." While the findings from Proietto and colleagues, published this fall in The New England Journal of Medicine, are not conclusive — the study was small and the findings need to be replicated — the research has nonetheless caused a stir in the weight-loss community, adding to a

growing body of evidence that challenges conventional thinking about obesity, weight loss and willpower. For years, the advice to the overweight and obese has been that we simply need to eat less and exercise more. While there is truth to this guidance, it fails to take into account that the human body continues to fight against weight loss long after dieting has stopped. This translates into a sobering reality: once we become fat, most of us, despite our best efforts, will probably stay fat.

I have always felt perplexed about my inability to keep weight off. I know the medical benefits of weight loss, and I don't drink sugary sodas or eat fast food. I exercise regularly — a few years ago, I even completed a marathon. Yet during the 23 years since graduating from college, I've lost 10 or 20 pounds at a time, maintained it for a little while and then gained it all back and more, to the point where I am now easily 60 pounds overweight.

I wasn't overweight as a child, but I can't remember a time when my mother, whose weight probably fluctuated between 150 and 250 pounds, wasn't either on a diet or, in her words, cheating on her diet. Sometimes we ate healthful, balanced meals; on other days dinner consisted of a bucket of Kentucky Fried Chicken. As a high-school cross-country runner, I never worried about weight, but in college, when my regular training runs were squeezed out by studying and socializing, the numbers on the scale slowly began to move up. As adults, my three sisters and I all struggle with weight, as do many members of my extended family. My mother died of esophageal cancer six years ago. It was her great regret that in the days before she died, the closest medical school turned down her offer to donate her body because she was obese.

It's possible that the biological cards were stacked against me from the start. Researchers know that obesity tends to run in families, and recent science suggests that even the desire to eat higher calorie foods may be influenced by heredity. But untangling how much is genetic and how much is learned through family eating habits is difficult. What is clear is that some people appear to be prone to accumulating extra fat while others seem to be protected against it.

In a seminal series of experiments published in the 1990s, the Canadian researchers Claude Bouchard and Angelo Tremblay studied 31 pairs of male twins ranging in age from 17 to 29, who were sometimes overfed and sometimes put on diets. (None of the twin pairs were at risk for obesity based on their body mass or their family history.) In one study, 12 sets of the twins were put under 24-hour supervision in a college dormitory. Six days a week they ate 1,000 extra calories a day, and one day they were allowed to eat normally. They could read, play video games, play cards and watch television, but exercise was limited to one 30-minute daily walk. Over the course of the 120-day study, the twins consumed 84,000 extra calories beyond their basic needs.

That experimental binge should have translated into a weight gain of roughly 24 pounds (based on 3,500 calories to a pound). But some gained less than 10 pounds, while others gained as much as 29 pounds. The amount of weight gained and how the fat was distributed around the body closely matched among brothers, but varied considerably among the different sets of twins. Some brothers gained three times as much fat around their abdomens as others, for instance. When the researchers conducted similar exercise studies with the twins, they saw the patterns in reverse, with some twin sets losing more pounds than others on the same exercise regimen. The findings, the researchers wrote, suggest a form of "biological determinism" that can make a person susceptible to weight gain or loss.

But while there is widespread agreement that at least some risk for obesity is

inherited, identifying a specific genetic cause has been a challenge. In October 2010, the journal Nature Genetics reported that researchers have so far confirmed 32 distinct genetic variations associated with obesity or body-mass index. One of the most common of these variations was identified in April 2007 by a British team studying the genetics of Type 2 diabetes. According to Timothy Frayling at the Institute of Biomedical and Clinical Science at the University of Exeter, people who carried a variant known as FTO faced a much higher risk of obesity — 30 percent higher if they had one copy of the variant; 60 percent if they had two.

This FTO variant is surprisingly common; about 65 percent of people of European or African descent and an estimated 27 to 44 percent of Asians are believed to carry at least one copy of it. Scientists don't understand how the FTO variation influences weight gain, but studies in children suggest the trait plays a role in eating habits. In one 2008 study led by Colin Palmer of the University of Dundee in Scotland, Scottish schoolchildren were given snacks of orange drinks and muffins and then allowed to graze on a buffet of grapes, celery, potato chips and chocolate buttons. All the food was carefully monitored so the researchers knew exactly what was consumed. Although all the children ate about the same amount of food, as weighed in grams, children with the FTO variant were more likely to eat foods with higher fat and calorie content. They weren't gorging themselves, but they consumed, on average, about 100 calories more than children who didn't carry the gene. Those who had the gene variant had about four pounds more body fat than non-carriers. I have been tempted to send in my own saliva sample for a DNA test to find out if my family carries a genetic predisposition for obesity. But even if the test came back negative, it would only mean that my family doesn't carry a known, testable genetic risk for obesity. Recently the British television show "Embarrassing Fat Bodies" asked Frayling's lab to test for fat-promoting genes, and the results showed one very overweight family had a lower-than-average risk for obesity.

A positive result, telling people they are genetically inclined to stay fat, might be self-fulfilling. In February, The New England Journal of Medicine published a report on how genetic testing for a variety of diseases affected a person's mood and health habits. Over all, the researchers found no effect from disease-risk testing, but there was a suggestion, though it didn't reach statistical significance, that after testing positive for fat-promoting genes, some people were more likely to eat fatty foods, presumably because they thought being fat was their genetic destiny and saw no sense in fighting it.

While knowing my genetic risk might satisfy my curiosity, I also know that heredity, at best, would explain only part of why I became overweight. I'm much more interested in figuring out what I can do about it now.

The National Weight Control Registry tracks 10,000 people who have lost weight and have kept it off. "We set it up in response to comments that nobody ever succeeds at weight loss," says Rena Wing, a professor of psychiatry and human behavior at Brown University's Alpert Medical School, who helped create the registry with James O. Hill, director of the Center for Human Nutrition at the University of Colorado at Denver. "We had two goals: to prove there were people who did, and to try to learn from them about what they do to achieve this long-term weight loss." Anyone who has lost 30 pounds and kept it off for at least a year is eligible to join the study, though the average member has lost 70 pounds and remained at that weight for six years.

Wing says that she agrees that physiological changes probably do occur that make permanent weight loss difficult, but she says the larger problem is environmental, and that people struggle to keep weight off because they are surrounded by food, inundated with food messages and constantly presented with

opportunities to eat. "We live in an environment with food cues all the time," Wing says. "We've taught ourselves over the years that one of the ways to reward yourself is with food. It's hard to change the environment and the behavior."

There is no consistent pattern to how people in the registry lost weight — some did it on Weight Watchers, others with Jenny Craig, some by cutting carbs on the Atkins diet and a very small number lost weight through surgery. But their eating and exercise habits appear to reflect what researchers find in the lab: to lose weight and keep it off, a person must eat fewer calories and exercise far more than a person who maintains the same weight naturally. Registry members exercise about an hour or more each day — the average weight-loser puts in the equivalent of a four mile daily walk, seven days a week. They get on a scale every day in order to keep their weight within a narrow range. They eat breakfast regularly. Most watch less than half as much television as the overall population. They eat the same foods and in the same patterns consistently each day and don't "cheat" on weekends or holidays. They also appear to eat less than most people, with estimates ranging from 50 to 300 fewer daily calories.

Kelly Brownell, director of the Rudd Center for Food Policy and Obesity at Yale University, says that while the 10,000 people tracked in the registry are a useful resource, they also represent a tiny percentage of the tens of millions of people who have tried unsuccessfully to lose weight. "All it means is that there are rare individuals who do manage to keep it off," Brownell says. "You find these people are incredibly vigilant about maintaining their weight. Years later they are paying attention to every calorie, spending an hour a day on exercise. They never don't think about their weight."

Janice Bridge, a registry member who has successfully maintained a 135-pound weight loss for about five years, is a perfect example. "It's one of the hardest things there is," she says. "It's something that has to be focused on every minute. I'm not always thinking about food, but I am always aware of food."

Bridge, who is 66 and lives in Davis, Calif., was overweight as a child and remembers going on her first diet of 1,400 calories a day at 14. At the time, her slow pace of weight loss prompted her doctor to accuse her of cheating. Friends told her she must not be paying attention to what she was eating. "No one would believe me that I was doing everything I was told," she says. "You can imagine how tremendously depressing it was and what a feeling of rebellion and anger was building up." After peaking at 330 pounds in 2004, she tried again to lose weight. She managed to drop 30 pounds, but then her weight loss stalled. In 2006, at age 60, she joined a medically supervised weight-loss program with her husband, Adam, who weighed 310 pounds. After nine months on an 800-calorie diet, she slimmed down to 165 pounds. Adam lost about 110 pounds and now weighs about 200.

During the first years after her weight loss, Bridge tried to test the limits of how much she could eat. She used exercise to justify eating more. The death of her mother in 2009 consumed her attention; she lost focus and slowly regained 30 pounds. She has decided to try to maintain this higher weight of 195, which is still 35 pounds fewer than her heaviest weight.

"It doesn't take a lot of variance from my current maintenance for me to pop on another two or three pounds," she says. "It's been a real struggle to stay at this weight, but it's worth it, it's good for me, it makes me feel better. But my body would put on weight almost instantaneously if I ever let up." So she never lets up. Since October 2006 she has weighed herself every morning and recorded the result in a weight diary. She even carries a scale with her when she travels. In the past six years, she made only one exception to this routine: a two-week, no-weigh

vacation in Hawaii.

She also weighs everything in the kitchen. She knows that lettuce is about 5 calories a cup, while flour is about 400. If she goes out to dinner, she conducts a Web search first to look at the menu and calculate calories to help her decide what to order. She avoids anything with sugar or white flour, which she calls her "gateway drugs" for cravings and overeating. She has also found that drinking copious amounts of water seems to help; she carries a 20-ounce water bottle and fills it five times a day. She writes down everything she eats. At night, she transfers all the information to an electronic record. Adam also keeps track but prefers to keep his record with pencil and paper.

"That transfer process is really important; it's my accountability," she says. "It comes up with the total number of calories I've eaten today and the amount of protein. I do a little bit of self-analysis every night."

Bridge and her husband each sought the help of therapists, and in her sessions, Janice learned that she had a tendency to eat when she was bored or stressed. "We are very much aware of how our culture taught us to use food for all kinds of reasons that aren't related to its nutritive value," Bridge says.

Bridge supports her careful diet with an equally rigorous regimen of physical activity. She exercises from 100 to 120 minutes a day, six or seven days a week, often by riding her bicycle to the gym, where she takes a water-aerobics class. She also works out on an elliptical trainer at home and uses a recumbent bike to "walk" the dog, who loves to run alongside the low, three-wheeled machine. She enjoys gardening as a hobby but allows herself to count it as exercise on only those occasions when she needs to "garden vigorously." Adam is also a committed exerciser, riding his bike at least two hours a day, five days a week.

Janice Bridge has used years of her exercise and diet data to calculate her own personal fuel efficiency. She knows that her body burns about three calories a minute during gardening, about four calories a minute on the recumbent bike and during water aerobics and about five a minute when she zips around town on her regular bike.

"Practically anyone will tell you someone biking is going to burn 11 calories a minute," she says. "That's not my body. I know it because of the statistics I've kept."

Based on metabolism data she collected from the weight-loss clinic and her own calculations, she has discovered that to keep her current weight of 195 pounds, she can eat 2,000 calories a day as long as she burns 500 calories in exercise. She avoids junk food, bread and pasta and many dairy products and tries to make sure nearly a third of her calories come from protein. The Bridges will occasionally share a dessert, or eat an individual portion of Ben and Jerry's ice cream, so they know exactly how many calories they are ingesting. Because she knows errors can creep in, either because a rainy day cuts exercise short or a mis-measured snack portion adds hidden calories, she allows herself only 1,800 daily calories of food. (The average estimate for a similarly active woman of her age and size is about 2,300 calories.)

Just talking to Bridge about the effort required to maintain her weight is exhausting. I find her story inspiring, but it also makes me wonder whether I have what it takes to be thin. I have tried on several occasions (and as recently as a couple weeks ago) to keep a daily diary of my eating and exercise habits, but it's easy to let it slide. I can't quite imagine how I would ever make time to weigh and measure food when some days it's all I can do to get dinner on the table between

finishing my work and carting my daughter to dance class or volleyball practice. And while I enjoy exercising for 30- or 40-minute stretches, I also learned from six months of marathon training that devoting one to two hours a day to exercise takes an impossible toll on my family life.

Bridge concedes that having grown children and being retired make it easier to focus on her weight. "I don't know if I could have done this when I had three kids living at home," she says. "We know how unusual we are. It's pretty easy to get angry with the amount of work and dedication it takes to keep this weight off. But the alternative is to not keep the weight off."

"I think many people who are anxious to lose weight don't fully understand what the consequences are going to be, nor does the medical community fully explain this to people," Rudolph Leibel, an obesity researcher at Columbia University in New York, says. "We don't want to make them feel hopeless, but we do want to make them understand that they are trying to buck a biological system that is going to try to make it hard for them."

Leibel and his colleague Michael Rosenbaum have pioneered much of what we know about the body's response to weight loss. For 25 years, they have meticulously tracked about 130 individuals for six months or longer at a stretch. The subjects reside at their research clinic where every aspect of their bodies is measured. Body fat is determined by bone-scan machines. A special hood monitors oxygen consumption and carbon-dioxide output to precisely measure metabolism. Calories burned during digestion are tracked. Exercise tests measure maximum heart rate, while blood tests measure hormones and brain chemicals. Muscle biopsies are taken to analyze their metabolic efficiency. (Early in the research, even stool samples were collected and tested to make sure no calories went unaccounted for.) For their trouble, participants are paid \$5,000 to \$8,000.

Eventually, the Columbia subjects are placed on liquid diets of 800 calories a day until they lose 10 percent of their body weight. Once they reach the goal, they are subjected to another round of intensive testing as they try to maintain the new weight. The data generated by these experiments suggest that once a person loses about 10 percent of body weight, he or she is metabolically different than a similar-size person who is naturally the same weight.

The research shows that the changes that occur after weight loss translate to a huge caloric disadvantage of about 250 to 400 calories. For instance, one woman who entered the Columbia studies at 230 pounds was eating about 3,000 calories to maintain that weight. Once she dropped to 190 pounds, losing 17 percent of her body weight, metabolic studies determined that she needed about 2,300 daily calories to maintain the new lower weight. That may sound like plenty, but the typical 30-year-old 190-pound woman can consume about 2,600 calories to maintain her weight — 300 more calories than the woman who dieted to get there.

Scientists are still learning why a weight-reduced body behaves so differently from a similar-size body that has not dieted. Muscle biopsies taken before, during and after weight loss show that once a person drops weight, their muscle fibers undergo a transformation, making them more like highly efficient "slow twitch" muscle fibers. A result is that after losing weight, your muscles burn 20 to 25 percent fewer calories during everyday activity and moderate aerobic exercise than those of a person who is naturally at the same weight. That means a dieter who thinks she is burning 200 calories during a brisk half-hour walk is probably using closer to 150 to 160 calories.

Another way that the body seems to fight weight loss is by altering the way the brain responds to food. Rosenbaum and his colleague Joy Hirsch, a neuroscientist

also at Columbia, used functional magnetic resonance imaging to track the brain patterns of people before and after weight loss while they looked at objects like grapes, Gummi Bears, chocolate, broccoli, cellphones and yo-yos. After weight loss, when the dieter looked at food, the scans showed a bigger response in the parts of the brain associated with reward and a lower response in the areas associated with control. This suggests that the body, in order to get back to its pre-diet weight, induces cravings by making the person feel more excited about food and giving him or her less willpower to resist a high-calorie treat.

"After you've lost weight, your brain has a greater emotional response to food," Rosenbaum says. "You want it more, but the areas of the brain involved in restraint are less active." Combine that with a body that is now burning fewer calories than expected, he says, "and you've created the perfect storm for weight regain." How long this state lasts isn't known, but preliminary research at Columbia suggests that for as many as six years after weight loss, the body continues to defend the old, higher weight by burning off far fewer calories than would be expected. The problem could persist indefinitely. (The same phenomenon occurs when a thin person tries to drop about 10 percent of his or her body weight — the body defends the higher weight.) This doesn't mean it's impossible to lose weight and keep it off; it just means it's really, really difficult.

Lynn Haraldson, a 48-year-old woman who lives in Pittsburgh, reached 300 pounds in 2000. She joined Weight Watchers and managed to take her 5-foot-5 body down to 125 pounds for a brief time. Today, she's a member of the National Weight Control Registry and maintains about 140 pounds by devoting her life to weight maintenance. She became a vegetarian, writes down what she eats every day, exercises at least five days a week and blogs about the challenges of weight maintenance. A former journalist and antiques dealer, she returned to school for a two-year program on nutrition and health; she plans to become a dietary counselor. She has also come to accept that she can never stop being "hyper vigilant" about what she eats. "Everything has to change," she says. "I've been up and down the scale so many times, always thinking I can go back to 'normal,' but I had to establish a new normal. People don't like hearing that it's not easy."

What's not clear from the research is whether there is a window during which we can gain weight and then lose it without creating biological backlash. Many people experience transient weight gain, putting on a few extra pounds during the holidays or gaining 10 or 20 pounds during the first years of college that they lose again. The actor Robert De Niro lost weight after bulking up for his performance in "Raging Bull." The filmmaker Morgan Spurlock also lost the weight he gained during the making of "Super Size Me." Leibel says that whether these temporary pounds became permanent probably depends on a person's genetic risk for obesity and, perhaps, the length of time a person carried the extra weight before trying to lose it. But researchers don't know how long it takes for the body to reset itself permanently to a higher weight. The good news is that it doesn't seem to happen overnight.

"For a mouse, I know the time period is somewhere around eight months," Leibel says. "Before that time, a fat mouse can come back to being a skinny mouse again without too much adjustment. For a human we don't know, but I'm pretty sure it's not measured in months, but in years."

Nobody wants to be fat. In most modern cultures, even if you are healthy — in my case, my cholesterol and blood pressure are low and I have an extraordinarily healthy heart — to be fat is to be perceived as weak-willed and lazy. It's also just embarrassing. Once, at a party, I met a well-respected writer who knew my work as a health writer. "You're not at all what I expected," she said, eyes widening. The man I was dating, perhaps trying to help, finished the thought. "You thought she'd

be thinner, right?" he said. I wanted to disappear, but the woman was gracious. "No," she said, casting a glare at the man and reaching to warmly shake my hand. "I thought you'd be older."

If anything, the emerging science of weight loss teaches us that perhaps we should rethink our biases about people who are overweight. It is true that people who are overweight, including myself, get that way because they eat too many calories relative to what their bodies need. But a number of biological and genetic factors can play a role in determining exactly how much food is too much for any given individual. Clearly, weight loss is an intense struggle, one in which we are not fighting simply hunger or cravings for sweets, but our own bodies.

While the public discussion about weight loss tends to come down to which diet works best (Atkins? Jenny Craig? Plant-based? Mediterranean?), those who have tried and failed at all of these diets know there is no simple answer. Fat, sugar and carbohydrates in processed foods may very well be culprits in the nation's obesity problem. But there is tremendous variation in an individual's response.

The view of obesity as primarily a biological, rather than psychological, disease could also lead to changes in the way we approach its treatment. Scientists at Columbia have conducted several small studies looking at whether injecting people with leptin, the hormone made by body fat, can override the body's resistance to weight loss and help maintain a lower weight. In a few small studies, leptin injections appear to trick the body into thinking it's still fat. After leptin replacement, study subjects burned more calories during activity. And in brain-scan studies, leptin injections appeared to change how the brain responded to food, making it seem less enticing. But such treatments are still years away from commercial development. For now, those of us who want to lose weight and keep it off are on our own.

One question many researchers think about is whether losing weight more slowly would make it more sustainable than the fast weight loss often used in scientific studies. Leibel says the pace of weight loss is unlikely to make a difference, because the body's warning system is based solely on how much fat a person loses, not how quickly he or she loses it. Even so, Proietto is now conducting a study using a slower weight-loss method and following dieters for three years instead of one.

Given how hard it is to lose weight, it's clear, from a public-health standpoint, that resources would best be focused on preventing weight gain. The research underscores the urgency of national efforts to get children to exercise and eat healthful foods.

But with a third of the U.S. adult population classified as obese, nobody is saying people who already are very overweight should give up on weight loss. Instead, the solution may be to preach a more realistic goal. Studies suggest that even a 5 percent weight loss can lower a person's risk for diabetes, heart disease and other health problems associated with obesity. There is also speculation that the body is more willing to accept small amounts of weight loss.

But an obese person who loses just 5 percent of her body weight will still very likely be obese. For a 250-pound woman, a 5 percent weight loss of about 12 pounds probably won't even change her clothing size. Losing a few pounds may be good for the body, but it does very little for the spirit and is unlikely to change how fat people feel about themselves or how others perceive them.

So where does that leave a person who wants to lose a sizable amount of weight? Weight-loss scientists say they believe that once more people understand the

genetic and biological challenges of keeping weight off, doctors and patients will approach weight loss more realistically and more compassionately. At the very least, the science may compel people who are already overweight to work harder to make sure they don't put on additional pounds. Some people, upon learning how hard permanent weight loss can be, may give up entirely and return to overeating. Others may decide to accept themselves at their current weight and try to boost their fitness and overall health rather than changing the number on the scale.

For me, understanding the science of weight loss has helped make sense of my own struggles to lose weight, as well as my mother's endless cycle of dieting, weight gain and despair. I wish she were still here so I could persuade her to finally forgive herself for her dieting failures. While I do, ultimately, blame myself for allowing my weight to get out of control, it has been somewhat liberating to learn that there are factors other than my character at work when it comes to gaining and losing weight. And even though all the evidence suggests that it's going to be very, very difficult for me to reduce my weight permanently, I'm surprisingly optimistic. I may not be ready to fight this battle this month or even this year. But at least I know what I'm up against.

Tara Parker-Pope is the editor of the Well blog at The Times. Editor: Ilena Silverman

GENERATION WIRED / NEW YORK TIMES / JAN 2010

January 20, 2010

If Your Kids Are Awake, They're Probably Online

By TAMAR LEWIN

The average young American now spends practically every waking minute - except for the time in school - using a smart phone, computer, television or other electronic device, according to a new study from the Kaiser Family Foundation.

Those ages 8 to 18 spend more than seven and a half hours a day with such devices, compared with less than six and a half hours five years ago, when the study was last conducted. And that does not count the hour and a half that youths spend texting, or the half-hour they talk on their cellphones.

And because so many of them are multitasking - say, surfing the Internet while listening to music – they pack on average nearly 11 hours of media content into that seven and a half hours.

"I feel like my days would be boring without it," said Francisco Sepulveda, a 14-year-old Bronx eighth grader who uses his smart phone to surf the Web, watch videos, listen to music - and send or receive about 500 texts a day.

The study's findings shocked its authors, who had concluded in 2005 that use could not possibly grow further, and confirmed the fears of many parents whose children are constantly tethered to media devices. It found, moreover, that heavy media use is associated with several negatives, including behavior problems and lower grades.

The third in a series, the study found that young people's media consumption grew far more in the last five years than from 1999 to 2004, as sophisticated mobile technology like iPods and smart phones brought media access into teenagers' pockets and beds.

Dr. Michael Rich, a pediatrician at Children's Hospital Boston who directs the Center on Media and Child Health, said that with media use so ubiquitous, it was time to stop arguing over whether it was good or bad and accept it as part of children's environment, "like the air they breathe, the water they drink and the food they eat."

Contrary to popular wisdom, the heaviest media users reported spending a similar amount of time exercising as the light media users. Nonetheless, other studies have established a link between screen time and obesity.

While most of the young people in the study got good grades, 47 percent of the heaviest media users – those who consumed at least 16 hours a day - had mostly C's or lower, compared with 23 percent of those who typically consumed media three hours a day or less. The heaviest media users were also more likely than the lightest users to report that they were bored or sad, or that they got into trouble, did not get along well with their parents and were not happy at school.

The study could not say whether the media use causes problems, or, rather, whether troubled youths turn to heavy media use.

"This is a stunner," said Donald F. Roberts, a Stanford communications professor emeritus who is one of the authors of the study. "In the second report, I remember

writing a paragraph saying we've hit a ceiling on media use, since there just aren't enough hours in the day to increase the time children spend on media. But now it's up an hour."

The report is based on a survey of more than 2,000 students in grades 3 to 12 that was conducted from October 2008 to May 2009.

On average, young people spend about two hours a day consuming media on a mobile device, the study found. They spend almost another hour on "old" content like television or music delivered through newer pathways like the Web site Hulu or iTunes. Youths now spend more time listening to or watching media on their cellphones, or playing games, than talking on them.

"I use it as my alarm clock, because it has an annoying ringtone that doesn't stop until you turn it off," Francisco Sepulveda said of his phone. "At night, I can text or watch something on YouTube until I fall asleep. It lets me talk on the phone and watch a video at the same time, or listen to music while I send text messages."

Francisco's mother, Janet Sepulveda, bought his phone, a Sidekick LX, a year ago when the computer was not working, to ensure that he had Internet access for school. But schoolwork has not been the issue.

"I'd say he uses it about 2 percent for homework and 98 percent for other stuff," she said. "At the beginning, I would take the phone at 10 p.m. and tell him he couldn't use it anymore. Now he knows that if he's not complying with what I want, I can suspend his service for a week or two. That's happened."

The Kaiser study found that more than 7 in 10 youths have a TV in their bedroom, and about a third have a computer with Internet access in their bedroom.

"Parents never knew as much as they thought they did about what their kids are doing," Mr. Roberts said, "but now we've created a world where they're removed from us that much more."

The study found that young people used less media in homes with rules like no television during meals or in the bedroom, or with limits on media time.

Victoria Rideout, a Kaiser vice president who is lead author of the study, said that although it has become harder for parents to control what their children do, they can still have an effect.

"I don't think parents should feel totally disempowered," she said. "They can still make rules, and it still makes a difference."

In Kensington, Md., Kim Calinan let her baby son, Trey, watch Baby Einstein videos, and soon moved him on to "Dora the Explorer."

"By the time he was 4, he had all these math and science DVDs, and he was clicking through by himself, and he learned to read and do math early," she said. "So if we'd had the conversation then, I would have said they were great educational tools."

But now that Trey is 9 and wild about video games, Ms. Calinan feels differently.

Last year, she sensed that video games were displacing other interests and narrowing his social interactions. After realizing that Trey did not want to sign up for any after-school activities that might cut into his game time, Ms. Calinan limited his screen time to an hour and half a day on weekends only.

So last Wednesday, Trey came home and read a book — but said he was looking forward to the weekend, when he could play his favorite video game.

Many experts believe that media use is changing youthful attitudes.

"It's changed young people's assumptions about how to get an answer to a question," Mr. Roberts said. "People can put out a problem, whether it's 'Where's a good bar?' or 'What if I'm pregnant?' and information pours in from all kinds of sources."

The heaviest media users, the study found, are black and Hispanic youths and "tweens," or those ages 11 to 14. Even during the survey, media use was changing.

"One of the hot topics today is Twitter, but when we first went into the field and began interviewing, Twitter didn't exist," Ms. Rideout said.

Tamar Lewin is a national reporter for The New York Times covering education.

BREEDING NUTRITION / THE NEW YORK TIMES / MAY 2013

May 25, 2013

Breeding the Nutrition Out of Our Food

By JO ROBINSON

We like the idea that food can be the answer to our ills, that if we eat nutritious foods we won't need medicine or supplements. We have valued this notion for a long, long time. The Greek physician Hippocrates proclaimed nearly 2,500 years ago: "Let food be thy medicine and medicine be thy food." Today, medical experts concur. If we heap our plates with fresh fruits and vegetables, they tell us, we will come closer to optimum health.

This health directive needs to be revised. If we want to get maximum health benefits from fruits and vegetables, we must choose the right varieties. Studies published within the past 15 years show that much of our produce is relatively low in phytonutrients, which are the compounds with the potential to reduce the risk of four of our modern scourges: cancer, cardiovascular disease, diabetes and dementia. The loss of these beneficial nutrients did not begin 50 or 100 years ago, as many assume. Unwittingly, we have been stripping phytonutrients from our diet since we stopped foraging for wild plants some 10,000 years ago and became farmers.

These insights have been made possible by new technology that has allowed researchers to compare the phytonutrient content of wild plants with the produce in our supermarkets. The results are startling.

Wild dandelions, once a springtime treat for Native Americans, have seven times more phytonutrients than spinach, which we consider a "superfood." A purple potato native to Peru has 28 times more cancer-fighting anthocyanins than common russet potatoes. One species of apple has a staggering 100 times more phytonutrients than the Golden Delicious displayed in our supermarkets.

Were the people who foraged for these wild foods healthier than we are today? They did not live nearly as long as we do, but growing evidence suggests that they were much less likely to die from degenerative diseases, even the minority who lived 70 years and more. The primary cause of death for most adults, according to anthropologists, was injury and infections.

Each fruit and vegetable in our stores has a unique history of nutrient loss, I've discovered, but there are two common themes. Throughout the ages, our farming ancestors have chosen the least bitter plants to grow in their gardens. It is now known that many of the most beneficial phytonutrients have a bitter, sour or astringent taste. Second, early farmers favored plants that were relatively low in fiber and high in sugar, starch and oil. These energy-dense plants were pleasurable to eat and provided the calories needed to fuel a strenuous lifestyle. The more palatable our fruits and vegetables became, however, the less advantageous they were for our health.

The sweet corn that we serve at summer dinners illustrates both of these trends. The wild ancestor of our present-day corn is a grassy plant called teosinte. It is hard to see the family resemblance. Teosinte is a bushy plant with short spikes of grain instead of ears, and each spike has only 5 to 12 kernels. The kernels are encased in shells so dense you'd need a hammer to crack them open. Once you extract the kernels, you wonder why you bothered. The dry tidbit of food is a lot of starch and little sugar. Teosinte has 10 times more protein than the corn we eat

today, but it was not soft or sweet enough to tempt our ancestors.

Over several thousand years, teosinte underwent several spontaneous mutations. Nature's rewriting of the genome freed the kernels of their cases and turned a spike of grain into a cob with kernels of many colors. Our ancestors decided that this transformed corn was tasty enough to plant in their gardens. By the 1400s, corn was central to the diet of people living throughout Mexico and the Americas.

When European colonists first arrived in North America, they came upon what they called "Indian corn." John Winthrop Jr., governor of the colony of Connecticut in the mid-1600s, observed that American Indians grew "corne with great variety of colours," citing "red, yellow, blew, olive colour, and greenish, and some very black and some of intermediate degrees." A few centuries later, we would learn that black, red and blue corn is rich in anthocyanins. Anthocyanins have the potential to fight cancer, calm inflammation, lower cholesterol and blood pressure, protect the aging brain, and reduce the risk of obesity, diabetes and cardiovascular disease.

European settlers were content with this colorful corn until the summer of 1779 when they found something more delectable — a yellow variety with sweeter and more tender kernels. This unusual variety came to light that year after George Washington ordered a scorched-earth campaign against Iroquois tribes. While the militia was destroying the food caches of the Iroquois and burning their crops, soldiers came across a field of extra-sweet yellow corn. According to one account, a lieutenant named Richard Bagnal took home some seeds to share with others. Our old fashioned sweet corn is a direct descendant of these spoils of war.

Up until this time, nature had been the primary change agent in remaking corn. Farmers began to play a more active role in the 19th century. In 1836, Noyes Darling, a onetime mayor of New Haven, and a gentleman farmer, was the first to use scientific methods to breed a new variety of corn. His goal was to create a sweet, all-white variety that was "fit for boiling" by mid-July.

He succeeded, noting with pride that he had rid sweet corn of "the disadvantage of being yellow."

The disadvantage of being yellow, we now know, had been an advantage to human health. Corn with deep yellow kernels, including the yellow corn available in our grocery stores, has nearly 60 times more beta-carotene than white corn, valuable because it turns to Vitamin A in the body, which helps vision and the immune system.

Super sweet corn, which now outsells all other kinds of corn, was born in a cloud of radiation. Beginning in the 1920s, geneticists exposed corn seeds to radiation to learn more about the normal arrangement of plant genes. They mutated the seeds by exposing them to X-rays, toxic compounds, cobalt radiation and then, in the 1940s, to blasts of atomic radiation. All the kernels were stored in a seed bank and made available for research.

In 1959, a geneticist named John Laughnan was studying a handful of mutant kernels and popped a few into his mouth. (The corn was no longer radioactive.) He was startled by their intense sweetness. Lab tests showed that they were up to 10 times sweeter than ordinary sweet corn. A blast of radiation had turned the corn into a sugar factory!

Mr. Laughnan was not a plant breeder, but he realized at once that this mutant corn would revolutionize the sweet corn industry. He became an entrepreneur overnight and spent years developing commercial varieties of super sweet corn.

His first hybrids began to be sold in 1961. This appears to be the first genetically modified food to enter the United States food supply, an event that has received scant attention. Within one generation, the new extra sugary varieties eclipsed old-fashioned sweet corn in the marketplace. Build a sweeter fruit or vegetable — by any means — and we will come. Today, most of the fresh corn in our supermarkets is extra-sweet, and all of it can be traced back to the radiation experiments. The kernels are either white, pale yellow, or a combination of the two. The sweetest varieties approach 40 percent sugar, bringing new meaning to the words "candy corn." Only a handful of farmers in the United States specialize in multicolored Indian corn, and it is generally sold for seasonal decorations, not food.

We've reduced the nutrients and increased the sugar and starch content of hundreds of other fruits and vegetables. How can we begin to recoup the losses? Here are some suggestions to get you started. Select corn with deep yellow kernels. To recapture the lost anthocyanins and beta-carotene, cook with blue, red or purple cornmeal, which is available in some supermarkets and on the Internet. Make a stack of blue cornmeal pancakes for Sunday breakfast and top with maple syrup.

In the lettuce section, look for arugula. Arugula, also called salad rocket, is very similar to its wild ancestor. Some varieties were domesticated as recently as the 1970s, thousands of years after most fruits and vegetables had come under our sway. The greens are rich in cancer-fighting compounds called glucosinolates and higher in antioxidant activity than many green lettuces.

Scallions, or green onions, are jewels of nutrition hiding in plain sight. They resemble wild onions and are just as good for you. Remarkably, they have more than five times more phytonutrients than many common onions do. The green portions of scallions are more nutritious than the white bulbs, so use the entire plant. Herbs are wild plants incognito. We've long valued them for their intense flavors and aroma, which is why they've not been given a flavor makeover. Because we've left them well enough alone, their phytonutrient content has remained intact.

Experiment with using large quantities of mild-tasting fresh herbs. Add one cup of mixed chopped Italian parsley and basil to a pound of ground grass-fed beef or poultry to make "herb-burgers." Herbs bring back missing phytonutrients and a touch of wild flavor as well.

The United States Department of Agriculture exerts far more effort developing disease-resistant fruits and vegetables than creating new varieties to enhance the disease resistance of consumers. In fact, I've interviewed U.S.D.A. plant breeders who have spent a decade or more developing a new variety of pear or carrot without once measuring its nutritional content.

We can't increase the health benefits of our produce if we don't know which nutrients it contains. Ultimately, we need more than an admonition to eat a greater quantity of fruits and vegetables: we need more fruits and vegetables that have the nutrients we require for optimum health.

Jo Robinson is the author of the forthcoming book "Eating on the Wild Side: The Missing Link to Optimum Health."

February 20, 2013

The Extraordinary Science of Addictive Junk Food

By MICHAEL MOSS

On the evening of April 8, 1999, a long line of Town Cars and taxis pulled up to the Minneapolis headquarters of Pillsbury and discharged 11 men who controlled America's largest food companies. Nestlé was in attendance, as were Kraft and Nabisco, General Mills and Procter & Gamble, Coca-Cola and Mars. Rivals any other day, the C.E.O.'s and company presidents had come together for a rare, private meeting. On the agenda was one item: the emerging obesity epidemic and how to deal with it. While the atmosphere was cordial, the men assembled were hardly friends. Their stature was defined by their skill in fighting one another for what they called "stomach share" — the amount of digestive space that any one company's brand can grab from the competition.

James Behnke, a 55-year-old executive at Pillsbury, greeted the men as they arrived. He was anxious but also hopeful about the plan that he and a few other food-company executives had devised to engage the C.E.O.'s on America's growing weight problem. "We were very concerned, and rightfully so, that obesity was becoming a major issue," Behnke recalled. "People were starting to talk about sugar taxes, and there was a lot of pressure on food companies." Getting the company chiefs in the same room to talk about anything, much less a sensitive issue like this, was a tricky business, so Behnke and his fellow organizers had scripted the meeting carefully, honing the message to its barest essentials. "C.E.O.'s in the food industry are typically not technical guys, and they're uncomfortable going to meetings where technical people talk in technical terms about technical things," Behnke said. "They don't want to be embarrassed. They don't want to make commitments. They want to maintain their aloofness and autonomy."

A chemist by training with a doctoral degree in food science, Behnke became Pillsbury's chief technical officer in 1979 and was instrumental in creating a long line of hit products, including microwaveable popcorn. He deeply admired Pillsbury but in recent years had grown troubled by pictures of obese children suffering from diabetes and the earliest signs of hypertension and heart disease. In the months leading up to the C.E.O. meeting, he was engaged in conversation with a group of food-science experts who were painting an increasingly grim picture of the public's ability to cope with the industry's formulations — from the body's fragile controls on overeating to the hidden power of some processed foods to make people feel hungrier still. It was time, he and a handful of others felt, to warn the C.E.O.'s that their companies may have gone too far in creating and marketing products that posed the greatest health concerns.

The discussion took place in Pillsbury's auditorium. The first speaker was a vice president of Kraft named Michael Mudd. "I very much appreciate this opportunity to talk to you about childhood obesity and the growing challenge it presents for us all," Mudd began. "Let me say right at the start, this is not an easy subject. There are no easy answers — for what the public health community must do to bring this problem under control or for what the industry should do as others seek to hold it accountable for what has happened. But this much is clear: For those of us who've looked hard at this issue, whether they're public health professionals or staff specialists in your own companies, we feel sure that the one thing we shouldn't do is nothing."

As he spoke, Mudd clicked through a deck of slides — 114 in all — projected on a large screen behind him. The figures were staggering. More than half of American adults were now considered overweight, with nearly one-quarter of the adult population — 40 million people — clinically defined as obese. Among children, the rates had more than doubled since 1980, and the number of kids considered obese had shot past 12 million. (This was still only 1999; the nation's obesity rates would climb much higher.) Food manufacturers were now being blamed for the problem from all sides — academia, the Centers for Disease Control and Prevention, the American Heart Association and the American Cancer Society. The secretary of agriculture, over whom the industry had long held sway, had recently called obesity a "national epidemic."

Mudd then did the unthinkable. He drew a connection to the last thing in the world the C.E.O.'s wanted linked to their products: cigarettes. First came a quote from a Yale University professor of psychology and public health, Kelly Brownell, who was an especially vocal proponent of the view that the processed-food industry should be seen as a public health menace: "As a culture, we've become upset by the tobacco companies advertising to children, but we sit idly by while the food companies do the very same thing. And we could make a claim that the toll taken on the public health by a poor diet rivals that taken by tobacco."

"If anyone in the food industry ever doubted there was a slippery slope out there," Mudd said, "I imagine they are beginning to experience a distinct sliding sensation right about now."

Mudd then presented the plan he and others had devised to address the obesity problem. Merely getting the executives to acknowledge some culpability was an important first step, he knew, so his plan would start off with a small but crucial move: the industry should use the expertise of scientists — its own and others — to gain a deeper understanding of what was driving Americans to overeat. Once this was achieved, the effort could unfold on several fronts. To be sure, there would be no getting around the role that packaged foods and drinks play in overconsumption. They would have to pull back on their use of salt, sugar and fat, perhaps by imposing industry wide limits. But it wasn't just a matter of these three ingredients; the schemes they used to advertise and market their products were critical, too. Mudd proposed creating a "code to guide the nutritional aspects of food marketing, especially to children."

"We are saying that the industry should make a sincere effort to be part of the solution," Mudd concluded. "And that by doing so, we can help to defuse the criticism that's building against us."

What happened next was not written down. But according to three participants, when Mudd stopped talking, the one C.E.O. whose recent exploits in the grocery store had awed the rest of the industry stood up to speak. His name was Stephen Sanger, and he was also the person — as head of General Mills — who had the most to lose when it came to dealing with obesity. Under his leadership, General Mills had overtaken not just the cereal aisle but other sections of the grocery store. The company's Yoplait brand had transformed traditional unsweetened breakfast yogurt into a veritable dessert. It now had twice as much sugar per serving as General Mills' marshmallow cereal Lucky Charms. And yet, because of yogurt's well-tended image as a wholesome snack, sales of Yoplait were soaring, with annual revenue topping \$500 million. Emboldened by the success, the company's development wing pushed even harder, inventing a Yoplait variation that came in a squeezable tube — perfect for kids. They called it Go-Gurt and rolled it out nationally in the weeks before the C.E.O. meeting. (By year's end, it would hit \$100 million in sales.)

According to the sources I spoke with, Sanger began by reminding the group that consumers were "fickle." (Sanger declined to be interviewed.) Sometimes they worried about sugar, other times fat. General Mills, he said, acted responsibly to both the public and shareholders by offering products to satisfy dieters and other concerned shoppers, from low sugar to added whole grains. But most often, he said, people bought what they liked, and they liked what tasted good. "Don't talk to me about nutrition," he reportedly said, taking on the voice of the typical consumer. "Talk to me about taste, and if this stuff tastes better, don't run around trying to sell stuff that doesn't taste good."

To react to the critics, Sanger said, would jeopardize the sanctity of the recipes that had made his products so successful. General Mills would not pull back. He would push his people onward, and he urged his peers to do the same. Sanger's response effectively ended the meeting.

"What can I say?" James Behnke told me years later. "It didn't work. These guys weren't as receptive as we thought they would be." Behnke chose his words deliberately. He wanted to be fair. "Sanger was trying to say, 'Look, we're not going to screw around with the company jewels here and change the formulations because a bunch of guys in white coats are worried about obesity.'

The meeting was remarkable, first, for the insider admissions of guilt. But I was also struck by how prescient the organizers of the sit-down had been. Today, one in three adults is considered clinically obese, along with one in five kids, and 24 million Americans are afflicted by type 2 diabetes, often caused by poor diet, with another 79 million people having pre-diabetes. Even gout, a painful form of arthritis once known as "the rich man's disease" for its associations with gluttony, now afflicts eight million Americans.

The public and the food companies have known for decades now — or at the very least since this meeting — that sugary, salty, fatty foods are not good for us in the quantities that we consume them. So why are the diabetes and obesity and hypertension numbers still spiraling out of control? It's not just a matter of poor willpower on the part of the consumer and a give-the-people-what-they-want attitude on the part of the food manufacturers. What I found, over four years of research and reporting, was a conscious effort — taking place in labs and marketing meetings and grocery-store aisles — to get people hooked on foods that are convenient and inexpensive. I talked to more than 300 people in or formerly employed by the processed-food industry, from scientists to marketers to C.E.O.'s. Some were willing whistle-blowers, while others spoke reluctantly when presented with some of the thousands of pages of secret memos that I obtained from inside the food industry's operations. What follows is a series of small case studies of a handful of characters whose work then, and perspective now, sheds light on how the foods are created and sold to people who, while not powerless, are extremely vulnerable to the intensity of these companies' industrial formulations and selling campaigns.

I. 'In This Field, I'm a Game Changer.'

John Lennon couldn't find it in England, so he had cases of it shipped from New York to fuel the "Imagine" sessions. The Beach Boys, ZZ Top and Cher all stipulated in their contract riders that it be put in their dressing rooms when they toured. Hillary Clinton asked for it when she traveled as first lady, and ever after her hotel suites were dutifully stocked.

What they all wanted was Dr Pepper, which until 2001 occupied a comfortable third-place spot in the soda aisle behind Coca-Cola and Pepsi. But then a flood of spinoffs from the two soda giants showed up on the shelves — lemons and limes,

vanillas and coffees, raspberries and oranges, whites and blues and clears — what in food-industry lingo are known as "line extensions," and Dr Pepper started to lose its market share.

Responding to this pressure, Cadbury Schweppes created its first spinoff, other than a diet version, in the soda's 115-year history, a bright red soda with a very un-Dr Pepper name: Red Fusion. "If we are to re-establish Dr Pepper back to its historic growth rates, we have to add more excitement," the company's president, Jack Kilduff, said. One particularly promising market, Kilduff pointed out, was the "rapidly growing Hispanic and African-American communities."

But consumers hated Red Fusion. "Dr Pepper is my all-time favorite drink, so I was curious about the Red Fusion," a California mother of three wrote on a blog to warn other Peppers away. "It's disgusting. Gagging. Never again."

Stung by the rejection, Cadbury Schweppes in 2004 turned to a food-industry legend named Howard Moskowitz. Moskowitz, who studied mathematics and holds a Ph.D. in experimental psychology from Harvard, runs a consulting firm in White Plains, where for more than three decades he has "optimized" a variety of products for Campbell Soup, General Foods, Kraft and PepsiCo. "I've optimized soups," Moskowitz told me. "I've optimized pizzas. I've optimized salad dressings and pickles. In this field, I'm a game changer."

In the process of product optimization, food engineers alter a litany of variables with the sole intent of finding the most perfect version (or versions) of a product. Ordinary consumers are paid to spend hours sitting in rooms where they touch, feel, sip, smell, swirl and taste whatever product is in question. Their opinions are dumped into a computer, and the data are sifted and sorted through a statistical method called conjoint analysis, which determines what features will be most attractive to consumers. Moskowitz likes to imagine that his computer is divided into silos, in which each of the attributes is stacked. But it's not simply a matter of comparing Color 23 with Color 24. In the most complicated projects, Color 23 must be combined with Syrup 11 and Packaging 6, and on and on, in seemingly infinite combinations. Even for jobs in which the only concern is taste and the variables are limited to the ingredients, endless charts and graphs will come spewing out of Moskowitz's computer. "The mathematical model maps out the ingredients to the sensory perceptions these ingredients create," he told me, "so I can just dial a new product. This is the engineering approach."

Moskowitz's work on Prego spaghetti sauce was memorialized in a 2004 presentation by the author Malcolm Gladwell at the TED conference in Monterey, Calif.: "After . . . months and months, he had a mountain of data about how the American people feel about spaghetti sauce. . . . And sure enough, if you sit down and you analyze all this data on spaghetti sauce, you realize that all Americans fall into one of three groups. There are people who like their spaghetti sauce plain. There are people who like their spaghetti sauce spicy. And there are people who like it extra-chunky. And of those three facts, the third one was the most significant, because at the time, in the early 1980s, if you went to a supermarket, you would not find extra-chunky spaghetti sauce. And Prego turned to Howard, and they said, 'Are you telling me that one-third of Americans crave extra-chunky spaghetti sauce, and yet no one is servicing their needs?' And he said, 'Yes.' And Prego then went back and completely reformulated their spaghetti sauce and came out with a line of extra-chunky that immediately and completely took over the spaghetti-sauce business in this country. . . . That is Howard's gift to the American people. . . . He fundamentally changed the way the food industry thinks about making you happy."

Well, yes and no. One thing Gladwell didn't mention is that the food industry

already knew some things about making people happy — and it started with sugar. Many of the Prego sauces — whether cheesy, chunky or light — have one feature in common: The largest ingredient, after tomatoes, is sugar. A mere half-cup of Prego Traditional, for instance, has the equivalent of more than two teaspoons of sugar, as much as two-plus Oreo cookies. It also delivers one-third of the sodium recommended for a majority of American adults for an entire day. In making these sauces, Campbell supplied the ingredients, including the salt, sugar and, for some versions, fat, while Moskowitz supplied the optimization. "More is not necessarily better," Moskowitz wrote in his own account of the Prego project. "As the sensory intensity (say, of sweetness) increases, consumers first say that they like the product more, but eventually, with a middle level of sweetness, consumers like the product the most (this is their optimum, or 'bliss,' point)."

I first met Moskowitz on a crisp day in the spring of 2010 at the Harvard Club in Midtown Manhattan. As we talked, he made clear that while he has worked on numerous projects aimed at creating more healthful foods and insists the industry could be doing far more to curb obesity, he had no qualms about his own pioneering work on discovering what industry insiders now regularly refer to as "the bliss point" or any of the other systems that helped food companies create the greatest amount of crave. "There's no moral issue for me," he said. "I did the best science I could. I was struggling to survive and didn't have the luxury of being a moral creature. As a researcher, I was ahead of my time."

Moskowitz's path to mastering the bliss point began in earnest not at Harvard but a few months after graduation, 16 miles from Cambridge, in the town of Natick, where the U.S. Army hired him to work in its research labs. The military has long been in a peculiar bind when it comes to food: how to get soldiers to eat more rations when they are in the field. They know that over time, soldiers would gradually find their meals-ready-to-eat so boring that they would toss them away, half-eaten, and not get all the calories they needed. But what was causing this M.R.E.-fatigue was a mystery. "So I started asking soldiers how frequently they would like to eat this or that, trying to figure out which products they would find boring," Moskowitz said. The answers he got were inconsistent. "They liked flavorful foods like turkey tetrazzini, but only at first; they quickly grew tired of them. On the other hand, mundane foods like white bread would never get them too excited, but they could eat lots and lots of it without feeling they'd had enough."

This contradiction is known as "sensory-specific satiety." In lay terms, it is the tendency for big, distinct flavors to overwhelm the brain, which responds by depressing your desire to have more. Sensory-specific satiety also became a guiding principle for the processed-food industry. The biggest hits — be they Coca-Cola or Doritos — owe their success to complex formulas that pique the taste buds enough to be alluring but don't have a distinct, overriding single flavor that tells the brain to stop eating.

Thirty-two years after he began experimenting with the bliss point, Moskowitz got the call from Cadbury Schweppes asking him to create a good line extension for Dr Pepper. I spent an afternoon in his White Plains offices as he and his vice president for research, Michele Reisner, walked me through the Dr Pepper campaign. Cadbury wanted its new flavor to have cherry and vanilla on top of the basic Dr Pepper taste. Thus, there were three main components to play with. A sweet cherry flavoring, a sweet vanilla flavoring and a sweet syrup known as "Dr Pepper flavoring."

Finding the bliss point required the preparation of 61 subtly distinct formulas — 31 for the regular version and 30 for diet. The formulas were then subjected to 3,904 tastings organized in Los Angeles, Dallas, Chicago and Philadelphia. The Dr Pepper tasters began working through their samples, resting five minutes between

each sip to restore their taste buds. After each sample, they gave numerically ranked answers to a set of questions: How much did they like it overall? How strong is the taste? How do they feel about the taste? How would they describe the quality of this product? How likely would they be to purchase this product?

Moskowitz's data — compiled in a 135-page report for the soda maker — is tremendously fine-grained, showing how different people and groups of people feel about a strong vanilla taste versus weak, various aspects of aroma and the powerful sensory force that food scientists call "mouth feel." This is the way a product interacts with the mouth, as defined more specifically by a host of related sensations, from dryness to gumminess to moisture release. These are terms more familiar to sommeliers, but the mouth feel of soda and many other food items, especially those high in fat, is second only to the bliss point in its ability to predict how much craving a product will induce.

In addition to taste, the consumers were also tested on their response to color, which proved to be highly sensitive. "When we increased the level of the Dr Pepper flavoring, it gets darker and liking goes off," Reisner said. These preferences can also be cross-referenced by age, sex and race.

On Page 83 of the report, a thin blue line represents the amount of Dr Pepper flavoring needed to generate maximum appeal. The line is shaped like an upside-down U, just like the bliss-point curve that Moskowitz studied 30 years earlier in his Army lab. And at the top of the arc, there is not a single sweet spot but instead a sweet range, within which "bliss" was achievable. This meant that Cadbury could edge back on its key ingredient, the sugary Dr Pepper syrup, without falling out of the range and losing the bliss. Instead of using 2 milliliters of the flavoring, for instance, they could use 1.69 milliliters and achieve the same effect. The potential savings is merely a few percentage points, and it won't mean much to individual consumers who are counting calories or grams of sugar. But for Dr Pepper, it adds up to colossal savings. "That looks like nothing," Reisner said. "But it's a lot of money. A lot of money. Millions."

The soda that emerged from all of Moskowitz's variations became known as Cherry Vanilla Dr Pepper, and it proved successful beyond anything Cadbury imagined. In 2008, Cadbury split off its soft-drinks business, which included Snapple and 7-Up. The Dr Pepper Snapple Group has since been valued in excess of \$11 billion.

II. 'Lunchtime Is All Yours'

Sometimes innovations within the food industry happen in the lab, with scientists dialing in specific ingredients to achieve the greatest allure. And sometimes, as in the case of Oscar Mayer's bologna crisis, the innovation involves putting old products in new packages.

The 1980s were tough times for Oscar Mayer. Red-meat consumption fell more than 10 percent as fat became synonymous with cholesterol, clogged arteries, heart attacks and strokes. Anxiety set in at the company's headquarters in Madison, Wis., where executives worried about their future and the pressure they faced from their new bosses at Philip Morris.

Bob Drane was the company's vice president for new business strategy and development when Oscar Mayer tapped him to try to find some way to reposition bologna and other troubled meats that were declining in popularity and sales. I met Drane at his home in Madison and went through the records he had kept on the birth of what would become much more than his solution to the company's meat problem. In 1985, when Drane began working on the project, his orders were to "figure out how to contemporize what we've got."

Drane's first move was to try to zero in not on what Americans felt about processed meat but on what Americans felt about lunch. He organized focus-group sessions with the people most responsible for buying bologna — mothers — and as they talked, he realized the most pressing issue for them was time. Working moms strove to provide healthful food, of course, but they spoke with real passion and at length about the morning crush, that nightmarish dash to get breakfast on the table and lunch packed and kids out the door. He summed up their remarks for me like this: "It's awful. I am scrambling around. My kids are asking me for stuff. I'm trying to get myself ready to go to the office. I go to pack these lunches, and I don't know what I've got." What the moms revealed to him, Drane said, was "a gold mine of disappointments and problems."

He assembled a team of about 15 people with varied skills, from design to food science to advertising, to create something completely new — a convenient prepackaged lunch that would have as its main building block the company's sliced bologna and ham. They wanted to add bread, naturally, because who ate bologna without it? But this presented a problem: There was no way bread could stay fresh for the two months their product needed to sit in warehouses or in grocery coolers. Crackers, however, could — so they added a handful of cracker rounds to the package. Using cheese was the next obvious move, given its increased presence in processed foods. But what kind of cheese would work? Natural Cheddar, which they started off with, crumbled and didn't slice very well, so they moved on to processed varieties, which could bend and be sliced and would last forever, or they could knock another two cents off per unit by using an even lesser product called "cheese food," which had lower scores than processed cheese in taste tests. The cost dilemma was solved when Oscar Mayer merged with Kraft in 1989 and the company didn't have to shop for cheese anymore; it got all the processed cheese it wanted from its new sister company, and at cost.

Drane's team moved into a nearby hotel, where they set out to find the right mix of components and container. They gathered around tables where bagfuls of meat, cheese, crackers and all sorts of wrapping material had been dumped, and they let their imaginations run. After snipping and taping their way through a host of failures, the model they fell back on was the American TV dinner — and after some brainstorming about names (Lunch Kits? Go-Packs? Fun Mealz?), Lunchables were born.

The trays flew off the grocery-store shelves. Sales hit a phenomenal \$218 million in the first 12 months, more than anyone was prepared for. This only brought Drane his next crisis. The production costs were so high that they were losing money with each tray they produced. So Drane flew to New York, where he met with Philip Morris officials who promised to give him the money he needed to keep it going. "The hard thing is to figure out something that will sell," he was told. "You'll figure out how to get the cost right." Projected to lose \$6 million in 1991, the trays instead broke even; the next year, they earned \$8 million.

With production costs trimmed and profits coming in, the next question was how to expand the franchise, which they did by turning to one of the cardinal rules in processed food: When in doubt, add sugar. "Lunchables With Dessert is a logical extension," an Oscar Mayer official reported to Philip Morris executives in early 1991. The "target" remained the same as it was for regular Lunchables — "busy mothers" and "working women," ages 25 to 49 — and the "enhanced taste" would attract shoppers who had grown bored with the current trays. A year later, the dessert Lunchable morphed into the Fun Pack, which would come with a Snickers bar, a package of M&M's or a Reese's Peanut Butter Cup, as well as a sugary drink. The Lunchables team started by using Kool-Aid and cola and then Capri Sun after Philip Morris added that drink to its stable of brands.

Eventually, a line of the trays, appropriately called Maxed Out, was released that had as many as nine grams of saturated fat, or nearly an entire day's recommended maximum for kids, with up to two-thirds of the max for sodium and 13 teaspoons of sugar.

When I asked Geoffrey Bible, former C.E.O. of Philip Morris, about this shift toward more salt, sugar and fat in meals for kids, he smiled and noted that even in its earliest incarnation, Lunchables was held up for criticism. "One article said something like, 'If you take Lunchables apart, the most healthy item in it is the napkin.' "

Well, they did have a good bit of fat, I offered. "You bet," he said. "Plus cookies."

The prevailing attitude among the company's food managers — through the 1990s, at least, before obesity became a more pressing concern — was one of supply and demand. "People could point to these things and say, 'They've got too much sugar, they've got too much salt,' "Bible said. "Well, that's what the consumer wants, and we're not putting a gun to their head to eat it. That's what they want. If we give them less, they'll buy less, and the competitor will get our market. So you're sort of trapped." (Bible would later press Kraft to reconsider its reliance on salt, sugar and fat.)

When it came to Lunchables, they did try to add more healthful ingredients. Back at the start, Drane experimented with fresh carrots but quickly gave up on that, since fresh components didn't work within the constraints of the processed-food system, which typically required weeks or months of transport and storage before the food arrived at the grocery store. Later, a low-fat version of the trays was developed, using meats and cheese and crackers that were formulated with less fat, but it tasted inferior, sold poorly and was quickly scrapped.

When I met with Kraft officials in 2011 to discuss their products and policies on nutrition, they had dropped the Maxed Out line and were trying to improve the nutritional profile of Lunchables through smaller, incremental changes that were less noticeable to consumers. Across the Lunchables line, they said they had reduced the salt, sugar and fat by about 10 percent, and new versions, featuring mandarin-orange and pineapple slices, were in development. These would be promoted as more healthful versions, with "fresh fruit," but their list of ingredients — containing upward of 70 items, with sucrose, corn syrup, high-fructose corn syrup and fruit concentrate all in the same tray — have been met with intense criticism from outside the industry.

One of the company's responses to criticism is that kids don't eat the Lunchables every day — on top of which, when it came to trying to feed them more healthful foods, kids themselves were unreliable. When their parents packed fresh carrots, apples and water, they couldn't be trusted to eat them. Once in school, they often trashed the healthful stuff in their brown bags to get right to the sweets.

This idea — that kids are in control — would become a key concept in the evolving marketing campaigns for the trays. In what would prove to be their greatest achievement of all, the Lunchables team would delve into adolescent psychology to discover that it wasn't the food in the trays that excited the kids; it was the feeling of power it brought to their lives. As Bob Eckert, then the C.E.O. of Kraft, put it in 1999: "Lunchables aren't about lunch. It's about kids being able to put together what they want to eat, anytime, anywhere."

Kraft's early Lunchables campaign targeted mothers. They might be too distracted by work to make a lunch, but they loved their kids enough to offer them this

prepackaged gift. But as the focus swung toward kids, Saturday-morning cartoons started carrying an ad that offered a different message: "All day, you gotta do what they say," the ads said. "But lunchtime is all yours."

With this marketing strategy in place and pizza Lunchables — the crust in one compartment, the cheese, pepperoni and sauce in others — proving to be a runaway success, the entire world of fast food suddenly opened up for Kraft to pursue. They came out with a Mexican-themed Lunchables called Beef Taco Wraps; a Mini Burgers Lunchables; a Mini Hot Dog Lunchable, which also happened to provide a way for Oscar Mayer to sell its wieners. By 1999, pancakes — which included syrup, icing, Lifesavers candy and Tang, for a whopping 76 grams of sugar — and waffles were, for a time, part of the Lunchables franchise as well.

Annual sales kept climbing, past \$500 million, past \$800 million; at last count, including sales in Britain, they were approaching the \$1 billion mark. Lunchables was more than a hit; it was now its own category. Eventually, more than 60 varieties of Lunchables and other brands of trays would show up in the grocery stores. In 2007, Kraft even tried a Lunchables Jr. for 3- to 5-year-olds.

In the trove of records that document the rise of the Lunchables and the sweeping change it brought to lunchtime habits, I came across a photograph of Bob Drane's daughter, which he had slipped into the Lunchables presentation he showed to food developers. The picture was taken on Monica Drane's wedding day in 1989, and she was standing outside the family's home in Madison, a beautiful bride in a white wedding dress, holding one of the brand-new yellow trays.

During the course of reporting, I finally had a chance to ask her about it. Was she really that much of a fan? "There must have been some in the fridge," she told me. "I probably just took one out before we went to the church. My mom had joked that it was really like their fourth child, my dad invested so much time and energy on it."

Monica Drane had three of her own children by the time we spoke, ages 10, 14 and 17. "I don't think my kids have ever eaten a Lunchable," she told me. "They know they exist and that Grandpa Bob invented them. But we eat very healthfully."

Drane himself paused only briefly when I asked him if, looking back, he was proud of creating the trays. "Lots of things are trade-offs," he said. "And I do believe it's easy to rationalize anything. In the end, I wish that the nutritional profile of the thing could have been better, but I don't view the entire project as anything but a positive contribution to people's lives."

Today Bob Drane is still talking to kids about what they like to eat, but his approach has changed. He volunteers with a nonprofit organization that seeks to build better communications between school kids and their parents, and right in the mix of their problems, alongside the academic struggles, is childhood obesity. Drane has also prepared a précis on the food industry that he used with medical students at the University of Wisconsin. And while he does not name his Lunchables in this document, and cites numerous causes for the obesity epidemic, he holds the entire industry accountable. "What do University of Wisconsin M.B.A.'s learn about how to succeed in marketing?" his presentation to the med students asks. "Discover what consumers want to buy and give it to them with both barrels. Sell more, keep your job! How do marketers often translate these 'rules' into action on food? Our limbic brains love sugar, fat, salt. . . . So formulate products to deliver these. Perhaps add low-cost ingredients to boost profit margins. Then 'supersize' to sell more. . . . And advertise/promote to lock in 'heavy users.' Plenty of guilt to go around here!"

III. 'It's Called Vanishing Caloric Density.'

At a symposium for nutrition scientists in Los Angeles on Feb. 15, 1985, a professor of pharmacology from Helsinki named Heikki Karppanen told the remarkable story of Finland's effort to address its salt habit. In the late 1970s, the Finns were consuming huge amounts of sodium, eating on average more than two teaspoons of salt a day. As a result, the country had developed significant issues with high blood pressure, and men in the eastern part of Finland had the highest rate of fatal cardiovascular disease in the world. Research showed that this plague was not just a quirk of genetics or a result of a sedentary lifestyle — it was also owing to processed foods. So when Finnish authorities moved to address the problem, they went right after the manufacturers. (The Finnish response worked. Every grocery item that was heavy in salt would come to be marked prominently with the warning "High Salt Content." By 2007, Finland's per capita consumption of salt had dropped by a third, and this shift — along with improved medical care — was accompanied by a 75 percent to 80 percent decline in the number of deaths from strokes and heart disease.)

Karppanen's presentation was met with applause, but one man in the crowd seemed particularly intrigued by the presentation, and as Karppanen left the stage, the man intercepted him and asked if they could talk more over dinner. Their conversation later that night was not at all what Karppanen was expecting. His host did indeed have an interest in salt, but from quite a different vantage point: the man's name was Robert I-San Lin, and from 1974 to 1982, he worked as the chief scientist for Frito-Lay, the nearly \$3-billion-a-year manufacturer of Lay's, Doritos, Cheetos and Fritos.

Lin's time at Frito-Lay coincided with the first attacks by nutrition advocates on salty foods and the first calls for federal regulators to reclassify salt as a "risky" food additive, which could have subjected it to severe controls. No company took this threat more seriously — or more personally — than Frito-Lay, Lin explained to Karppanen over their dinner. Three years after he left Frito-Lay, he was still anguished over his inability to effectively change the company's recipes and practices.

By chance, I ran across a letter that Lin sent to Karppanen three weeks after that dinner, buried in some files to which I had gained access. Attached to the letter was a memo written when Lin was at Frito-Lay, which detailed some of the company's efforts in defending salt. I tracked Lin down in Irvine, Calif., where we spent several days going through the internal company memos, strategy papers and handwritten notes he had kept. The documents were evidence of the concern that Lin had for consumers and of the company's intent on using science not to address the health concerns but to thwart them. While at Frito-Lay, Lin and other company scientists spoke openly about the country's excessive consumption of sodium and the fact that, as Lin said to me on more than one occasion, "people get addicted to salt."

Not much had changed by 1986, except Frito-Lay found itself on a rare cold streak. The company had introduced a series of high-profile products that failed miserably. Toppels, a cracker with cheese topping; Stuffers, a shell with a variety of fillings; Rumbles, a bite-size granola snack — they all came and went in a blink, and the company took a \$52 million hit. Around that time, the marketing team was joined by Dwight Riskey, an expert on cravings who had been a fellow at the Monell Chemical Senses Center in Philadelphia, where he was part of a team of scientists that found that people could beat their salt habits simply by refraining from salty foods long enough for their taste buds to return to a normal level of sensitivity. He had also done work on the bliss point, showing how a product's allure is contextual, shaped partly by the other foods a person is eating, and that it changes as people age. This seemed to help explain why Frito-Lay was having so

much trouble selling new snacks. The largest single block of customers, the baby boomers, had begun hitting middle age. According to the research, this suggested that their liking for salty snacks — both in the concentration of salt and how much they ate — would be tapering off. Along with the rest of the snack-food industry, Frito-Lay anticipated lower sales because of an aging population, and marketing plans were adjusted to focus even more intently on younger consumers.

Except that snack sales didn't decline as everyone had projected, Frito-Lay's doomed product launches notwithstanding. Poring over data one day in his home office, trying to understand just who was consuming all the snack food, Riskey realized that he and his colleagues had been misreading things all along. They had been measuring the snacking habits of different age groups and were seeing what they expected to see, that older consumers ate less than those in their 20s. But what they weren't measuring, Riskey realized, is how those snacking habits of the boomers compared to themselves when they were in their 20s. When he called up a new set of sales data and performed what's called a cohort study, following a single group over time, a far more encouraging picture — for Frito-Lay, anyway emerged. The baby boomers were not eating fewer salty snacks as they aged. "In fact, as those people aged, their consumption of all those segments — the cookies, the crackers, the candy, the chips — was going up," Riskey said. "They were not only eating what they ate when they were younger, they were eating more of it." In fact, everyone in the country, on average, was eating more salty snacks than they used to. The rate of consumption was edging up about one-third of a pound every year, with the average intake of snacks like chips and cheese crackers pushing past 12 pounds a year.

Riskey had a theory about what caused this surge: Eating real meals had become a thing of the past. Baby boomers, especially, seemed to have greatly cut down on regular meals. They were skipping breakfast when they had early-morning meetings. They skipped lunch when they then needed to catch up on work because of those meetings. They skipped dinner when their kids stayed out late or grew up and moved out of the house. And when they skipped these meals, they replaced them with snacks. "We looked at this behavior, and said, 'Oh, my gosh, people were skipping meals right and left,' "Riskey told me. "It was amazing." This led to the next realization, that baby boomers did not represent "a category that is mature, with no growth. This is a category that has huge growth potential."

The food technicians stopped worrying about inventing new products and instead embraced the industry's most reliable method for getting consumers to buy more: the line extension. The classic Lay's potato chips were joined by Salt & Vinegar, Salt & Pepper and Cheddar & Sour Cream. They put out Chili-Cheese-flavored Fritos, and Cheetos were transformed into 21 varieties. Frito-Lay had a formidable research complex near Dallas, where nearly 500 chemists, psychologists and technicians conducted research that cost up to \$30 million a year, and the science corps focused intense amounts of resources on questions of crunch, mouth feel and aroma for each of these items. Their tools included a \$40,000 device that simulated a chewing mouth to test and perfect the chips, discovering things like the perfect break point: people like a chip that snaps with about four pounds of pressure per square inch.

To get a better feel for their work, I called on Steven Witherly, a food scientist who wrote a fascinating guide for industry insiders titled, "Why Humans Like Junk Food." I brought him two shopping bags filled with a variety of chips to taste. He zeroed right in on the Cheetos. "This," Witherly said, "is one of the most marvelously constructed foods on the planet, in terms of pure pleasure." He ticked off a dozen attributes of the Cheetos that make the brain say more. But the one he focused on most was the puff's uncanny ability to melt in the mouth. "It's called vanishing caloric density," Witherly said. "If something melts down quickly, your

brain thinks that there's no calories in it . . . you can just keep eating it forever."

As for their marketing troubles, in a March 2010 meeting, Frito-Lay executives hastened to tell their Wall Street investors that the 1.4 billion boomers worldwide weren't being neglected; they were redoubling their efforts to understand exactly what it was that boomers most wanted in a snack chip. Which was basically everything: great taste, maximum bliss but minimal guilt about health and more maturity than puffs. "They snack a lot," Frito-Lay's chief marketing officer, Ann Mukherjee, told the investors. "But what they're looking for is very different. They're looking for new experiences, real food experiences." Frito-Lay acquired Stacy's Pita Chip Company, which was started by a Massachusetts couple who made food-cart sandwiches and started serving pita chips to their customers in the mid-1990s. In Frito-Lay's hands, the pita chips averaged 270 milligrams of sodium — nearly one-fifth a whole day's recommended maximum for most American adults — and were a huge hit among boomers.

The Frito-Lay executives also spoke of the company's ongoing pursuit of a "designer sodium," which they hoped, in the near future, would take their sodium loads down by 40 percent. No need to worry about lost sales there, the company's C.E.O., Al Carey, assured their investors. The boomers would see less salt as the green light to snack like never before.

There's a paradox at work here. On the one hand, reduction of sodium in snack foods is commendable. On the other, these changes may well result in consumers eating more. "The big thing that will happen here is removing the barriers for boomers and giving them permission to snack," Carey said. The prospects for lower-salt snacks were so amazing, he added, that the company had set its sights on using the designer salt to conquer the toughest market of all for snacks: schools. He cited, for example, the school-food initiative championed by Bill Clinton and the American Heart Association, which is seeking to improve the nutrition of school food by limiting its load of salt, sugar and fat. "Imagine this," Carey said. "A potato chip that tastes great and qualifies for the Clinton-A.H.A. alliance for schools . . . We think we have ways to do all of this on a potato chip, and imagine getting that product into schools, where children can have this product and grow up with it and feel good about eating it."

Carey's quote reminded me of something I read in the early stages of my reporting, a 24-page report prepared for Frito-Lay in 1957 by a psychologist named Ernest Dichter. The company's chips, he wrote, were not selling as well as they could for one simple reason: "While people like and enjoy potato chips, they feel guilty about liking them. . . . Unconsciously, people expect to be punished for 'letting themselves go' and enjoying them." Dichter listed seven "fears and resistances" to the chips: "You can't stop eating them; they're fattening; they're not good for you; they're greasy and messy to eat; they're too expensive; it's hard to store the leftovers; and they're bad for children." He spent the rest of his memo laying out his prescriptions, which in time would become widely used not just by Frito-Lay but also by the entire industry. Dichter suggested that Frito-Lay avoid using the word "fried" in referring to its chips and adopt instead the more healthful-sounding term "toasted." To counteract the "fear of letting oneself go," he suggested repacking the chips into smaller bags. "The more-anxious consumers, the ones who have the deepest fears about their capacity to control their appetite, will tend to sense the function of the new pack and select it," he said.

Dichter advised Frito-Lay to move its chips out of the realm of between-meals snacking and turn them into an ever-present item in the American diet. "The increased use of potato chips and other Lay's products as a part of the regular fare served by restaurants and sandwich bars should be encouraged in a concentrated way," Dichter said, citing a string of examples: "potato chips with

soup, with fruit or vegetable juice appetizers; potato chips served as a vegetable on the main dish; potato chips with salad; potato chips with egg dishes for breakfast; potato chips with sandwich orders."

In 2011, The New England Journal of Medicine published a study that shed new light on America's weight gain. The subjects — 120,877 women and men — were all professionals in the health field, and were likely to be more conscious about nutrition, so the findings might well understate the overall trend. Using data back to 1986, the researchers monitored everything the participants ate, as well as their physical activity and smoking. They found that every four years, the participants exercised less, watched TV more and gained an average of 3.35 pounds. The researchers parsed the data by the caloric content of the foods being eaten, and found the top contributors to weight gain included red meat and processed meats, sugar-sweetened beverages and potatoes, including mashed and French fries. But the largest weight-inducing food was the potato chip. The coating of salt, the fat content that rewards the brain with instant feelings of pleasure, the sugar that exists not as an additive but in the starch of the potato itself — all of this combines to make it the perfect addictive food. "The starch is readily absorbed," Eric Rimm, an associate professor of epidemiology and nutrition at the Harvard School of Public Health and one of the study's authors, told me. "More quickly even than a similar amount of sugar. The starch, in turn, causes the glucose levels in the blood to spike" — which can result in a craving for more.

If Americans snacked only occasionally, and in small amounts, this would not present the enormous problem that it does. But because so much money and effort has been invested over decades in engineering and then relentlessly selling these products, the effects are seemingly impossible to unwind. More than 30 years have passed since Robert Lin first tangled with Frito-Lay on the imperative of the company to deal with the formulation of its snacks, but as we sat at his diningroom table, sifting through his records, the feelings of regret still played on his face. In his view, three decades had been lost, time that he and a lot of other smart scientists could have spent searching for ways to ease the addiction to salt, sugar and fat. "I couldn't do much about it," he told me. "I feel so sorry for the public."

IV. 'These People Need a Lot of Things, but They Don't Need a Coke.' The growing attention Americans are paying to what they put into their mouths has touched off a new scramble by the processed-food companies to address health concerns. Pressed by the Obama administration and consumers, Kraft, Nestlé, Pepsi, Campbell and General Mills, among others, have begun to trim the loads of salt, sugar and fat in many products. And with consumer advocates pushing for more government intervention, Coca-Cola made headlines in January by releasing ads that promoted its bottled water and low-calorie drinks as a way to counter obesity. Predictably, the ads drew a new volley of scorn from critics who pointed to the company's continuing drive to sell sugary Coke.

One of the other executives I spoke with at length was Jeffrey Dunn, who, in 2001, at age 44, was directing more than half of Coca-Cola's \$20 billion in annual sales as president and chief operating officer in both North and South America. In an effort to control as much market share as possible, Coke extended its aggressive marketing to especially poor or vulnerable areas of the U.S., like New Orleans — where people were drinking twice as much Coke as the national average — or Rome, Ga., where the per capita intake was nearly three Cokes a day. In Coke's headquarters in Atlanta, the biggest consumers were referred to as "heavy users." "The other model we use was called 'drinks and drinkers,' " Dunn said. "How many drinkers do I have? And how many drinks do they drink? If you lost one of those heavy users, if somebody just decided to stop drinking Coke, how many drinkers would you have to get, at low velocity, to make up for that heavy user? The answer is a lot. It's more efficient to get my existing users to drink more."

One of Dunn's lieutenants, Todd Putman, who worked at Coca-Cola from 1997 to 2001, said the goal became much larger than merely beating the rival brands; Coca-Cola strove to outsell every other thing people drank, including milk and water. The marketing division's efforts boiled down to one question, Putman said: "How can we drive more ounces into more bodies more often?" (In response to Putman's remarks, Coke said its goals have changed and that it now focuses on providing consumers with more low- or no-calorie products.)

In his capacity, Dunn was making frequent trips to Brazil, where the company had recently begun a push to increase consumption of Coke among the many Brazilians living in favelas. The company's strategy was to repackage Coke into smaller, more affordable 6.7-ounce bottles, just 20 cents each. Coke was not alone in seeing Brazil as a potential boon; Nestlé began deploying battalions of women to travel poor neighborhoods, hawking American-style processed foods door to door. But Coke was Dunn's concern, and on one trip, as he walked through one of the impoverished areas, he had an epiphany. "A voice in my head says, 'These people need a lot of things, but they don't need a Coke.' I almost threw up."

Dunn returned to Atlanta, determined to make some changes. He didn't want to abandon the soda business, but he did want to try to steer the company into a more healthful mode, and one of the things he pushed for was to stop marketing Coke in public schools. The independent companies that bottled Coke viewed his plans as reactionary. A director of one bottler wrote a letter to Coke's chief executive and board asking for Dunn's head. "He said what I had done was the worst thing he had seen in 50 years in the business," Dunn said. "Just to placate these crazy leftist school districts who were trying to keep people from having their Coke. He said I was an embarrassment to the company, and I should be fired." In February 2004, he was.

Dunn told me that talking about Coke's business today was by no means easy and, because he continues to work in the food business, not without risk. "You really don't want them mad at you," he said. "And I don't mean that, like, I'm going to end up at the bottom of the bay. But they don't have a sense of humor when it comes to this stuff. They're a very, very aggressive company."

When I met with Dunn, he told me not just about his years at Coke but also about his new marketing venture. In April 2010, he met with three executives from Madison Dearborn Partners, a private-equity firm based is Chicago with a wideranging portfolio of investments. They recently hired Dunn to run one of their newest acquisitions — a food producer in the San Joaquin Valley. As they sat in the hotel's meeting room, the men listened to Dunn's marketing pitch. He talked about giving the product a personality that was bold and irreverent, conveying the idea that this was the ultimate snack food. He went into detail on how he would target a special segment of the 146 million Americans who are regular snackers — mothers, children, young professionals — people, he said, who "keep their snacking ritual fresh by trying a new food product when it catches their attention."

He explained how he would deploy strategic storytelling in the ad campaign for this snack, using a key phrase that had been developed with much calculation: "Eat 'Em Like Junk Food."

After 45 minutes, Dunn clicked off the last slide and thanked the men for coming. Madison's portfolio contained the largest Burger King franchise in the world, the Ruth's Chris Steak House chain and a processed-food maker called AdvancePierre whose lineup includes the Jamwich, a peanut-butter-and-jelly contrivance that comes frozen, crustless and embedded with four kinds of sugars.

The snack that Dunn was proposing to sell: carrots. Plain, fresh carrots. No added

sugar. No creamy sauce or dips. No salt. Just baby carrots, washed, bagged, then sold into the deadly dull produce aisle.

"We act like a snack, not a vegetable," he told the investors. "We exploit the rules of junk food to fuel the baby-carrot conversation. We are pro-junk-food behavior but anti-junk-food establishment."

The investors were thinking only about sales. They had already bought one of the two biggest farm producers of baby carrots in the country, and they'd hired Dunn to run the whole operation. Now, after his pitch, they were relieved. Dunn had figured out that using the industry's own marketing ploys would work better than anything else. He drew from the bag of tricks that he mastered in his 20 years at Coca-Cola, where he learned one of the most critical rules in processed food: The selling of food matters as much as the food itself.

Later, describing his new line of work, Dunn told me he was doing penance for his Coca-Cola years. "I'm paying my karmic debt," he said.

This article is adapted from "Salt Sugar Fat: How the Food Giants Hooked Us," which will be published by Random House this month.

Michael Moss is an investigative reporter for The Times. He won a Pulitzer Prize in 2010 for his reporting on the meat industry. Editor: Joel Lovell

May 9, 2008

Taming That Overwhelming Urge to Smoke

By MARTIN DOWNS

If you smoke, no one needs to tell you how bad it is. So why haven't you quit? Why hasn't everyone?

Because smoking feels good. It stimulates and focuses the mind at the same time that it soothes and satisfies. The concentrated dose of nicotine in a drag off a cigarette triggers an immediate flood of dopamine and other neurochemicals that wash over the brain's pleasure centers. Inhaling tobacco smoke is the quickest, most efficient way to get nicotine to the brain.

"I completely understand why you wouldn't want to give it up," said Dr. David Abrams, an addiction researcher at the National Institutes of Health. "It's more difficult to get off nicotine than heroin or cocaine."

Smoking "hijacks" the reward systems in the brain that drive you to seek food, water and sex, Dr. Abrams explained, driving you to seek nicotine with the same urgency. "Your brain thinks that this has to do with survival of the species," he said.

Nicotine isn't equally addictive for everyone. A lot of people do not smoke because they never liked it to begin with. Then there are "chippers," who smoke occasionally but never seem to get hooked. But most people who smoke will eventually do it all day, every day.

New discoveries in genetics may explain why certain people take to smoking with such gusto and end up so addicted. Some people, for instance, produce a geneencoded enzyme that clears nicotine from their bloodstreams rapidly, so they tend to smoke more and develop stronger addictions. Others possess special receptors in the brain that bond extra tightly with nicotine, giving them an especially intense high that makes it harder to quit.

Drug makers are exploiting the science of addiction to create novel treatments to help smokers quit. The newest stop-smoking medication, the first to be approved in 10 years, is called Chantix. Available by prescription, Chantix masquerades as nicotine well enough to occupy the brain's nicotine receptors, where it may lessen cravings. Real nicotine, when it comes along, cannot find enough free receptors to do its thing.

Chantix seems to have a higher success rate than Zyban, an antidepressant that helps to balance dopamine levels. And recently released federal guidelines to doctors for helping smokers quit reported that the drug, combined with the nicotine replacement patch and use of nicotine nasal spray or gum as needed, produced higher long-term abstinence than the patch alone.

Doctors have written millions of prescriptions for Chantix, though enthusiasm for the drug was tempered by reports of suicide and bizarre behaviors in people taking it. The reports prompted the Food and Drug Administration to issue a safety warning about Chantix early in 2008.

"That's something that needs to be taken very seriously, but it needs to be put in

the context of what happens if you don't quit smoking," said Dr. Michael Fiore, a smoking cessation specialist at the University of Wisconsin and chairman of the government panel that issued the new guidelines. Dr. Fiore used to consult for Pfizer, the maker of Chantix, but said he cut those ties in 2005. He still prescribes the drug but now takes care to discuss the safety warning with patients.

Dr. Nancy Rigotti was involved in Chantix studies conducted at Massachusetts General Hospital in Boston, where she directs the Tobacco Research and Treatment Unit. "Those trials mostly enrolled people who were pretty healthy," she said. "They did not include people with depression or much of a history of depression."

Dr. Rigotti said it was possible that varenicline, the generic name for Chantix, "might have more psychiatric side effects in certain groups of people."

Continued research should help to resolve lingering concerns about the safety of Chantix. Meanwhile, experts continue to recommend the old standbys: nicotine replacement gums, patches, nasal sprays, inhalers and lozenges, which have been proved to be safe.

Nicotine by itself does not cause cancer, heart disease or other major health problems linked to smoking; other chemicals in tobacco smoke are to blame. Nicotine replacement can be used alone or with prescription medications or, for best results, combined with counseling. Recent evidence suggests that using two forms simultaneously, like the patch and gum together, works better than either alone.

Although nicotine replacement products do not require a prescription, the F.D.A. limits where and how they are sold. They are also expensive.

"It's so much easier to go down to the corner store and get a pack of cigarettes than it is to get access to evidence-based treatment," Dr. Fiore said.

This year, the New York State health commission petitioned the F.D.A. to revise its rules so that nicotine gum, patches and lozenges could be sold anyplace that sells cigarettes, and at prices comparable to a cigarette pack. The agency is currently reviewing the petition.

Still, no treatment works for everyone. And even with the most successful treatments, only about 30 percent of attempts to quit last more than six months. Compared with willpower alone, however, that's a huge improvement. Fewer than one in 10 smokers who go it alone manages to go six months without a cigarette. Most do not make it past a week.

When longtime smokers finally do quit, they soon realize that not smoking doesn't necessarily make them nonsmokers. That's what counseling is for — learning to function without nicotine and to cope with the cues that trigger smoking urges.

Most important, former smokers have to rediscover that it is possible to enjoy life without cigarettes, although the yearning may never die completely.

"I'm an ex-smoker," Dr. Abrams said, "and I still miss it."