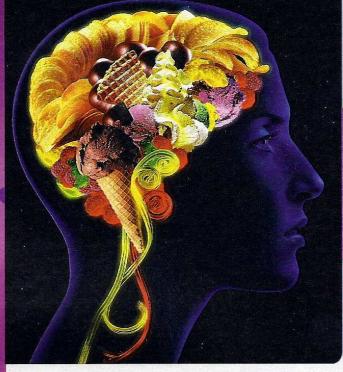


weight-loss discovery Discovery.



New evidence reveals a biochemical basis behind stubborn weight gain caused by carbs—and yields the solutions that let you lose three times the belly fat, boost energy and more



sed to be that many in the science community viewed "being addicted to carbs" as little more than a nice way of saying "greedy guts." But a flurry of new research into the whys and hows of carbohydrate addiction has made believers out of the skeptics. "People had been saying for years that they felt they were addicted to food-and there were even some clinical accounts of food addiction—but it really hadn't been studied in the lab," recalls investigator Nicole M. Avena, Ph.D., a former researcher at Princeton University and now an assistant professor of psychiatry at the University of Florida in Gainesville. "Because it seemed that a lot of these addictions were associated with carbohydrates and sugar, that's where we decided to start."

In a landmark study, Avena's Princeton team used a sucrose solution to model concentrated carb consumption. They found that rats who were offered the sweet treat for 12 hours each day not only engaged in binges that grew more extreme over time, they developed anxiety and other symptoms of withdrawal when the solution was withheld.

Even more telling was what happened to the animals' levels of dopamine, a neurotransmitter that drives pleasure-seeking behavior by activating reward pathways in the brain. "Normally dopamine is released as an initial response to a new food, but it's a novelty thing—

once animals get accustomed to the food, the response tapers off," Avena explains. "But we found that dopamine was being released each time the animals ate the sucrose—a pattern we see in response to amphetamines and other drugs of abuse."

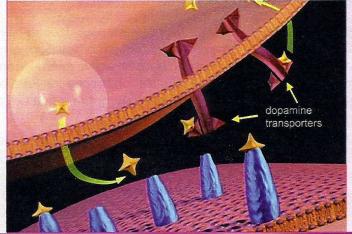
A second groundbreaking study released last year reveals just how powerful this carb/dopamine link can be: When scientists at the Scripps Research Institute in Jupiter, Florida, gave rats access to healthy fare and an assortment of junk food (including bacon, sausage, cheesecake, pound cake and frosting), sweet carbs proved to be the animals' favorites. One group of rats that had an hour to gorge consumed

two-thirds of their daily calories in that single 60-minute session.

More ominously, a second group of animals that had 24/7 junk-food access all but gave up their healthy chow, and ended up consuming twice as many daily calories as those in a control group. What's more, these rats' eating behavior became downright compulsive—they were even willing to risk an electric foot-shock to score their frosting fix. "That's what happens as animals become addicted," explains lead study author Paul Kenny, Ph.D. "They can't control their behavior, even when they know something bad will happen."

And when Kenny's team examined the animals' brain pathways, their reward circuits had literally crashed. "We found extremely marked disruptions, much like those that occur with repeated cocaine use," Kenny says. The researchers also detected a drop-off in

Carb bombardment changes neurochemistry activation



C-shaped dopamine receptors, which activate reward pathways in the brain, are triggered each time concentrated carbohydrates are ingested. Studies indicate that this constant bombardment can cause receptors to die off, resulting in compulsive eating behavior.

carb addiction

D2 receptors, which regulate dopamine activity in the brain—a key discovery since separate human studies have determined that D2 deficits are common to both drug addicts and overeaters. "We believe that many overweight individuals tend to have lower levels of this dopamine receptor because there's simply too much activity going on. If a person is doing too many drugs or eating too much cheesecake, the receptors get overstimulated and baseline activity goes down in response," Kenny says. "Although the body may be trying to protect itself, the brain is actually triggering an adaptation that contributes to more of the same behavior."

It's a cycle that Joan Ifland, Ph.D., an expert in addictive nutrition and founder of the Refined Food Addiction Research Foundation in Houston, Texas, knows all too well. In the case of concentrated carbs, the consequences she sees in her clients are much the same as those that drug addicts suffer from: "They need more and more to get the same effect, so they eat more and more just to feel 'normal."

"Nobody wakes up in the morning thinking, I'm going to eat a two-pound box of cookies today," notes Ifland. "In fact, if they're overweight, they wake up thinking the opposite." But when those thoughts are overridden by cravings, the sufferer reaches for just a few cookies and inadvertently triggers a cycle of unintended consumption that's yet another addiction hallmark.

"I hear clients say, 'I'm losing my mind,' and actually, that's what's happening—constant activation of reward pathways overwhelms the reasoning part of the brain," Ifland asserts. "Once women realize what's happening, they're better prepared to take steps to get the problem under control." Read on for the personalized program that will help you identify and outsmart your need for carbs.

What kind of carb cycle are you locked into?

While proof of modern-day carb addiction absolves women who can't lose weight from years of selfblame, it doesn't help melt away stubborn pounds. What does: customized carb-cutting plans, courtesy of Jacob Teitelbaum, M.D., author of Beat Sugar Addiction Now! (Fair Winds Press, 2010). These food formulas are specially formatted to treat the specific cause of each woman's carb cycle, so weight loss and vibrant health can be achieved without struggle. Take the guiz below to determine your type, then flip the page for your targeted plan.

1. My worst cravings are for:

- a Caffeine and sweets. I need both to get through the day.
- b Sometimes sweets, sometimes salty snacks. If I try to ignore my cravings, I get very irritable.
- ^c Bread and pastries.
- d Chocolate and other creamy, fatty sweets (especially around my period).

2. I feel most tired:

- a All the time—I rarely feel energized.
- b When I'm stressed (though sometimes I feel a rush from the stress before I crash).
- c When faced with a mentally demanding task—tough projects wipe me out.
- d In the week before my period (or since entering menopause).

3. When I take a sick day it's often because I:

- a Have a raging headache and can barely get out of bed.
- b Have a sore throat and swollen glands...again.

- Have sinusitis, or my stomach is a mess (gas, bloat, diarrhea and/or constipation).
- d Am suffering from severe PMS or life-disrupting symptoms of perimenopause or menopause.

4. When it comes to work and home I:

- a Won't rest until things are perfect, even though I'm exhausted.
- b Feel the overwhelming need to help everyone solve their problems, which causes me a great deal of stress.
- c Feel foggy and find myself having trouble completing tasks that used to be easy for me.
- d Often cancel social plans or miss work deadlines because mood dips sap my motivation.

5. When I feel pain it tends to manifest:

- a In my head and neck, though achiness can affect my whole body.
- b In my back, especially when I'm stressed.
- In my digestive system or sinuses.
- d As headaches the week before my period, or vaginal dryness that makes sex uncomfortable.

Results:

If you answered mostly **As**, you're **Type 1: The Always Tired**

If you answered mostly **Bs**, you're Type 2: The Overstressed

If you answered mostly **Cs**, you're **Type 3: The Brain-Drained**

If you answered mostly **Ds**, you're **Type 4**: **The Low-Spirited**

weight-loss discovery

Type 1: The Always Tired

If you fall into this category, you are likely a type A personality. You always strive for perfection but you end up exhausting yourself and wearing down your body in the process. And since rest and relaxation don't fit into your busy schedule, you fuel up with caffeine and sugary carbs.

That seems like a smart move since carbs supply the glucose that serves as the body's primary fuel. Unfortunately, relying on carbohydrates as an energy fix intensifies carb addiction. The reason: Consuming concentrated carbs generates a surge of glucose that sends blood sugar soaring, and in response the body releases insulin to bring blood sugar back down. But insulin can depress blood sugar below baseline levels—and since low blood sugar is a study-backed cause of fatigue and more carb cravings, the cycle renews. Complicating matters, insulin surges are proven to foster fat storage, notes Jacob Teitelbaum, M.D. "Even worse, high insulin levels suppress two key weight-trimming hormones: glucagon, which helps burn fat, and growth hormone, which increases muscle development to optimize metabolism."

How to break the cycle

Your healing food formula:

Each day you can enjoy unlimited meat, eggs and seafood; 2 servings of raw whole fruit; 3 to 5 servings of veggies; 2 to 4 servings of beans and legumes; and up to 4 servings of dairy.



You can also have whole grains and cereals, but limit intake to 7 servings per week. (Each serving should have less than 14 grams of sugar.) This formula is rich in energizing protein, plus it's designed to ward off tiredness-causing blood sugar fluctuations. A sample slimming dinner: chicken. Parmesan with a side salad and whole-grain or sourdough bread.

Your key to a healthy energy boost: Consider supplementing with D-ribose, a basic sugar that is used by the body to make adenosine triphopshate (ATP), a substance that cells use as energy fuel. In research conducted by Dr. Teitelbaum, daily intake of D-ribose lifted subjects' energy levels by up to 61 percent. The study-backed dose: 5,000 mg (5 grams) three times daily for three weeks;

after that you can drop down to twice a day. One to try: Corvalen D-Ribose (\$31 for 280 grams, at amazon.com), a

slightly sweet powder you can stir into beverages or sprinkle on top of cereal.

CORVALEN

Feel-great bonus: Drink green tea. "It's rich in theanine, an amino acid shown to boost alertness without producing energy crashes afterward,"

says Dr. Teitelbaum, who advises limiting yourself to one cup of coffee in the morning, then drinking green tea for the rest of the day. To make the switch without

triggering withdrawal headaches, he suggests cutting the amount of caffeinated drinks you consume in half each week until you get down to one cup of coffee a day.



It worked for me

"These days I'm like the Energizer Bunny!"

Wishing she could crawl into a hole and hide at her daughter's violin concert, Lisa Powell thought, All the other moms are healthy and fit. Why do I have to be the fat mom?

Extra pounds stopped Lisa from being on her A-game as a parent. "I'd skip activities because walking would leave me half dead," she admits. Even drinking five cans of soda a day and snacking on brownies couldn't power her through.

As her 40th birthday approached, Lisa hoped to find a way to live the second half of her life healthier than the first. She took her doctor's advice to cut calories but didn't see results until she cut back on carbs and caffeine—changes made possible by the support she received from dieters on SparkPeople.com.

Now a whopping 94 pounds slimmer, Lisa is at the top of her game. "I'm like the Energizer Bunny," she raves. "My daughter is 17 and I feel like I'm her age. Most of the time I wear her out!"

Misty Humphrey, 46, Forestville, CA Height: 5'4" NOW: 130 lbs

It worked for me

Misty lost

85 lbs!

Type 2: The Overstressed

If you are a type 2 carb addict, you probably find yourself constantly reacting to stressful situations. People come to you with their problems, and as the people pleaser you are, you put their needs above your own, which leaves you more stressed and overburdened.

The toll this takes on your body: During times of physical, mental and/or emotional stress, the hypothalamus in

the brain signals the adrenal gland to release cortisol, a stress hormone that mobilizes glucose from tissues to fuel the "fight or flight" response. Repeated cortisol spikes set off a stress/weight-gain cycle: In a study at the University of California at San Francisco, women who reported greater life stress had more pronounced cortisol responses than their

less-stressed counterparts.

THEN: 215 lbs

Unfortunately, one of cortisol's functions is to refuel the body for future fights or flights, so those cortisol spikes drive carb cravings. In one Italian study, researchers found that women with high cortisol levels ate up to 22 percent more calories daily than women with lower levels of the stress hormone. "What's more, calories consumed in response to cortisol are readily stored as deep belly fat," says Shawn Talbott, Ph.D., author of The Cortisol Connection Diet (Hunter House), "But because we don't literally run from stressors anymore, that fuel doesn't get burned—it just keeps increasing with subsequent stress." Indeed, Swedish researchers found that women with the highest cortisol levels harbored up to 45 percent more belly fat than those with lower levels of the hormone.

How to break the cycle

Your healing food formula:

Protein protects against blood sugar dips and swings that can worsen cortisol surges. So for all-day stress protection, graze frequently on highprotein, low-sugar meals and snacks. Make protein (like meat, fish, eggs, beans and nuts) the center of all meals, adding vegetables and legumes for balance. Enjoy snacks (such as mixed nuts, cheeses and hard-boiled eggs) two to three hours after meals. Also consume 1 to 2 pieces of fresh whole fruit per day (favor low-GI fruit like apples, pears, peaches and strawberries). Limit dairy to 2 servings daily, avoid white refined carbs and limit whole grains as much as possible. A sample slimming dinner: steak with mixed greens and spinach.



Your key to healthy stress

relief: Each day, sip 1 to 2 cups of licorice tea (like Traditional Medicinals Organic Licorice Root, \$6 for 16 tea bags, at **TraditionalMedicinals.com** and large supermarkets). According to Jacob Teitelbaum, M.D., the compound *glycyrrhizin* in the brew optimizes adrenal function to enhance stress-coping ability.

Caution: If you are pregnant or have high blood pressure, do not consume licorice products.

Feel-great bonus: Enjoy a salty snack. The adrenals ensure healthy blood pressure by keeping salt and water in balance, so a shortage of either substance can overwork the glands, explains Dr. Teitelbaum. "But since salt is like a sponge that keeps water in the body, eating snacks such as salted nuts, olives and pickles once or twice daily provides adrenal support."

"Now I'm calm, not nervous or tense!"

Glancing over her shoulder to make sure no customers were coming, Misty Humphrey sank into one of the store mattresses she was trying to sell. The only way to get through the day is to rest every chance I get, she reasoned.

Misty relied on carbs to fight her stress and fatigue, but she knew there had to be a better way. Her turning point: "The day I saw eight candy-bar wrappers on my bedside table," she reveals. "That's when I knew I was addicted."

To make a clean break, Misty adopted a modified Atkins plan. Within two weeks her chronic cravings disappeared. As she shed 85 pounds, she uncovered a confidence she'd never known. "I can't even begin to explain how much better I feel," says Misty, who is now a nutrition educator and founder of Free-Healthy-Diet-Plans.com. "I have a sense of control, calmness and patience that I've never felt in my life."

weight-loss discovery

Type 3: The Brain-Drained

Every woman experiences the occasional brain blip. But if you're a type 3 carb addict, daily bouts of foggy thinking make even simple mental tasks (such as remembering where you put your keys) a major challenge. And when mental fatigue sets in, the brain sends out sweet-seeking signals. The reason: The brain is dependent on glucose for cell-to-cell communication. But while caving to the carb call yields a fleeting mental boost, the blood sugar dips that occur within hours of ingesting refined carbs and sweets prime women for future mental crashes and more intense carb cravings.

Part of the problem is that refined carbs stimulate intestinal yeast overgrowth, a condition that produces persistent mental fuzziness, says weight-loss expert Ann Louise Gittleman, author of The Fat Flush Plan (McGraw-Hill). "Candida albicans yeast feeds on sugar and concentrated carbs in the intestines, producing acetaldehyde, a neurotoxin that's poisonous to brain cells," she notes. Candida overgrowth is bad for bellies, too, since it crowds out healthy intestinal bacteria. According to studies at the Washington University in St. Louis School of Medicine, deficits in friendly gut flora are linked to increases in weight and a doubling of body fat.

How to break the cycle Your healing food formula:

Focus on consuming high-protein foods, whole grains and low-glycemic



fruit and vegetables, which won't trigger blood sugar spikes and crashes. (This includes most vegetables, plus fruit like grapefruit, apples, pears, plums, peaches, oranges, grapes, kiwi, bananas, blueberries and strawberries.) Eliminate sweets, except for dark chocolate in moderation. And since

lactose can fuel yeast, limit dairy products to 1 to 2 servings per day, and make one of those servings a cup of sugarfree yogurt that contains live and active cultures. A sample slimming dinner: halibut with green beans and brown rice.

Your key to a healthy focus boost: Take an

acidophilus supplement in "pearl" form (such as Enzymatic Therapy Acidophilus Pearls, \$17 for 90 capsules, at VitaminShoppe.com) twice daily for five months, then switch to once a day thereafter, recommends Jacob Teitelbaum, M.D. The reason: Probiotic bacteria crowd candida yeast out of the gut, and in a Swedish study, probiotics improved subjects'

MCLE

cognitive function within four weeks. Dr. Teitelbaum adds that the pearl form is best because the coating

helps the pill pass through the stomach intact, so yeast-fighting bacteria are released in the intestines where they are needed most.

Feel-great bonus:

Flavor dishes with garlic and oregano. These tasty herbs have proven antifungal properties that help to reduce the growth of candida yeast.



It worked for me

"Now I never feel foggy!"

Chris Patterson was shocked when her grandpa—a man who never spoke unless he had something important to say-put his arm around her and said, "Chrissy, you could stand to lose a few pounds."

"I could no longer be in denial," recalls Chris, who was battling stubborn pounds and brain fog. Then she found Ann Louise Gittleman's The Fat Flush Plan and learned that her health issues could be linked to yeast overgrowth.

Chris gave up bread and began eating yogurt. (Go to FatFlush.com to find the meal plan she adopted). She also took Uni Key Y-C Cleanse (\$35 for a 24-day supply, at UniKey Health.com), designed to remedy candida overgrowth. "The weight loss became effortless," says Chris, who trimmed 4 inches off her belly that month.

Today Chris is proud of her success. "I've never been a thin girl, and now I am," she says. She has also become a master multitasker. "I can keep a million little fires burning at all times-it's amazing!"



When your hormones get out of whack—around your period or times of life change like perimenopause you feel it. Fatigue, mood swings,

don't feel in control or truly invested in your life. And there's a biochemical reason: "Estrogen helps maintain brain levels of feel-good serotonin, so hor-

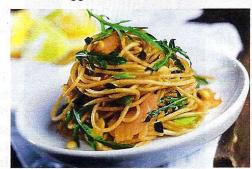
> monal drop-offs and 'downer' moods go hand-in-hand," explains Jacob Teitelbaum, M.D. An appetite for sweets and other concentrated carbs is a natural response to those blue moods since eating them triggers short-term improvements. But when blood sugar levels dip post-carbs, blue moods resume, which pulls women into a "self medication" cycle that has been shown to

increase carbohydrate consumption by as much as 62 percent.

That's especially troubling given recent Japanese findings in which women with the largest carb intakes suffered from more depressed moods. And in research conducted at the VU University Medical Center in The Netherlands, subjects with depressive symptoms were over twice as likely to gain fat in the belly region, compared with their less-depressed counterparts.

How to break the cycle Your healing food formula:

Combine protein with complex carbs such as veggies and fruit at breakfast,



and nosh on more complex carbs as the day goes on. (Their glucose combats serotonin dips that can occur as the day goes on, but since that glucose is released slowly, it doesn't cause blood sugar swings.) Aim to include three servings of fish (like salmon, tuna and herring) a week for mood-boosting omega-3 fatty acids. Don't eat a food if any form of sugar (sucrose, glucose, fructose or corn syrup) is one of the top three ingredients. The tasty exception: dark chocolate. And while you don't need to eliminate white flour entirely, limit it as much as possible. A sample slimming dinner: whole-wheat pasta with salmon and arugula.

Your key to a healthy mood **boost:** Get your fill of B vitamins. The brain uses B₁, B₆ and B₁₂ to conduct cell signals and keep mood-regulating chemicals (including serotonin) in bal-

ance. Eating foods high in these Bs (like pumpkin seeds, peanuts, fish, eggs and cheese) is a savvy first step, but for optimal benefits, take a B-complex supplement daily. Dr. Teitelbaum suggests Enzymatic

Therapy Daily Energy B Complex (\$8 for 30 capsules, at VitaminShoppe. com), which he helped formulate to meet the ideal B intakes.

Feel-great bonus: Soybeans contain natural estrogen-like compounds that can help offset serotonin-sapping hormonal swings. Dr. Teitelbaum advises eating a handful of edamame daily for several days prior to peri-

from blue moods during PMS. If you are perimenopausal, enjoy edamame daily.

ods if you suffer

"These days I feel so much more upbeat!"

The craving was overpowering her.... Jan Coffinger Baxter knew she had to have a chocolate-andvanilla-twist ice-cream cone or she'd feel terrible. But after finishing the treat, she wondered, Why don't I feel any better?

"I felt depressed and lifeless," Jan recalls of that period around perimenopause when cravings seemed to rule her life.

It wasn't until her son moved out that Jan started focusing on her own needs. She limited her carb intake and boosted her protein consumption with the help of Vtrim's online weight-loss program. (Visit uvm.edu/Vtrim for details). She lost six pounds in the first week!

Jan went on to drop 110 pounds, and her mood lifted, as well. "The other day I slid into pants that I wore back in 1981, and they fit great," says Jan, who blogs about her success at HealthyLoserGal. blogspot.com. "I did a happy dance in my bedroom!"

Faligued to Fautastic!

Daily

ENERGY

B Complex