

# Intermountain Clinical Nutrition

A Medically-Monitored Weight Management Treatment Program

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## September 2011



### GREETINGS FROM GROUP



#### ICN FALL SCHEDULE:

There will be **no clinic on September 20<sup>th</sup> and 27<sup>th</sup>**, but there will be Group. Collette will be available to take food orders. (I encourage you to call your orders in ahead of time: 801-408-2600.)

- On the 20<sup>th</sup>, Jody will facilitate Group. I have asked him to speak about his personal experiences: What it was like before; why he decided to lose weight; how he did it; and, what it is like now. Many of you know Jody and realize how lucky we are to have him available to share his experience and wisdom with us. I hope you will all consider coming on Tuesday, at 5:30 PM to listen and participate in the discussion.
- On the 27<sup>th</sup>, Mary Jo McMillen will be facilitating group. She has covered for me on many occasions and I always received very positive comments from those that attend. I have asked her to speak about the 'pause' during the day: When to use it and how to use it effectively. Mary Jo is always positive, motivating, and often inspirational. Again I encourage all to come and participate in the discussion.
- There will be **no Clinic or Group on October 4<sup>th</sup> instead it will be on Thursday October 6<sup>th</sup>**. Patients needing to see the doctor may schedule visits between 4 and 5:30 PM. I will be doing behavioral consults during the afternoon, and conducting group at 5:30 PM.
- Clinic and Group will be normal for the rest of the year.

The following article was in The New York Times Magazine. I found it to be very enlightening for those of us who are constantly fighting to find our willpower. We had a very interesting discussion about the concept of Decision Fatigue and I thought you might all enjoy reading the article in its entirety.

## Do You Suffer From Decision Fatigue?

By **JOHN TIERNEY** August 17, 2011 - [The New York Times](#)

Three men doing time in Israeli prisons recently appeared before a parole board consisting of a judge, a criminologist and a social worker. The three prisoners had completed at least two-thirds of their sentences, but the parole board granted freedom to only one of them. Guess which one:

Case 1 (heard at 8:50 a.m.): An Arab Israeli serving a 30-month sentence for fraud.

Case 2 (heard at 3:10 p.m.): A Jewish Israeli serving a 16-month sentence for assault.

Case 3 (heard at 4:25 p.m.): An Arab Israeli serving a 30-month sentence for fraud.

There was a pattern to the parole board's decisions, but it wasn't related to the men's ethnic backgrounds, crimes or sentences. It was all about timing, as researchers discovered by analyzing more than 1,100 decisions over the course of a year. Judges, who would hear the prisoners' appeals and then get advice from the other members of the board, approved parole in about a third of the cases, but the probability of being paroled fluctuated wildly throughout the day. Prisoners who appeared early in the morning received parole about 70 percent of the time, while those who appeared late in the day were paroled less than 10 percent of the time.

The odds favored the prisoner who appeared at 8:50 a.m. — and he did in fact receive parole. But even though the other Arab Israeli prisoner was serving the same sentence for the same crime — fraud — the odds were against him when he appeared (on a different day) at 4:25 in the afternoon. He was denied parole, as was the Jewish Israeli prisoner at 3:10 p.m., whose sentence was shorter than that of the man who was released. They were just asking for parole at the wrong time of day.

There was nothing malicious or even unusual about the judges' behavior, which was [reported earlier this year](#) by Jonathan Levav of Stanford and Shai Danziger of Ben-Gurion University. The judges' erratic judgment was due to the occupational hazard of being, as George W. Bush once put it, "the decider." The mental work of ruling on case after case, whatever the individual merits, wore them down. This sort of decision fatigue can make quarterbacks prone to dubious choices late in the game and C.F.O.'s prone to disastrous dalliances late in the evening. It routinely warps the judgment of everyone, executive and nonexecutive, rich and poor — in fact, it can take a special toll on the poor. Yet few people are even aware of it, and researchers are only beginning to understand why it happens and how to counteract it.

Decision fatigue helps explain why ordinarily sensible people get angry at colleagues and families, splurge on clothes, buy junk food at the supermarket and can't resist the dealer's offer to rustproof their new car. No matter how rational and high-minded you try to be, you can't make decision after decision without paying a biological price. It's different from ordinary physical fatigue — you're not consciously aware of being tired — but you're low on mental energy. The more choices you make throughout the day, the harder each one becomes for your brain, and eventually it looks for shortcuts, usually in either of two very different ways. One shortcut is to become reckless: to act impulsively instead of expending the energy to first think through the consequences. (Sure, tweet that photo! What could go wrong?) The other shortcut is the ultimate energy saver: do nothing. Instead of agonizing over decisions, avoid any choice. Ducking a decision often creates bigger problems in the long run, but for the moment, it eases the mental strain. You start to resist any change, any potentially risky move — like releasing a prisoner who might commit a crime. So the

fatigued judge on a parole board takes the easy way out, and the prisoner keeps doing time.

**Decision fatigue** is the newest discovery involving a phenomenon called ego depletion, a term coined by the [social psychologist Roy F. Baumeister](#) in homage to a Freudian hypothesis. Freud speculated that the self, or ego, depended on mental activities involving the transfer of energy. He was vague about the details, though, and quite wrong about some of them (like his idea that artists "sublimate" sexual energy into their work, which would imply that adultery should be especially rare at artists' colonies). Freud's energy model of the self was generally ignored until the end of the century, when Baumeister began studying mental discipline in a series of experiments, first at Case Western and then at Florida State University.

These experiments demonstrated that there is a finite store of mental energy for exerting self-control. When people fended off the temptation to scarf down M&M's or freshly baked chocolate-chip cookies, they were then less able to resist other temptations. When they forced themselves to remain stoic during a tearjerker movie, afterward they gave up more quickly on lab tasks requiring self-discipline, like working on a geometry puzzle or squeezing a hand-grip exerciser. Willpower turned out to be more than a folk concept or a metaphor. It really was a form of mental energy that could be exhausted. The experiments confirmed the 19th-century notion of willpower being like a muscle that was fatigued with use, a force that could be conserved by avoiding temptation. To study the process of ego depletion, researchers concentrated initially on acts involving self-control — the kind of self-discipline popularly associated with willpower, like resisting a bowl of ice cream. They weren't concerned with routine decision-making, like choosing between chocolate and vanilla, a mental process that they assumed was quite distinct and much less strenuous. Intuitively, the chocolate-vanilla choice didn't appear to require willpower.

But then a postdoctoral fellow, Jean Twenge, started working at Baumeister's laboratory right after planning her wedding. As Twenge studied the results of the lab's ego-depletion experiments, she remembered how exhausted she felt the evening she and her fiancé went through the ritual of registering for gifts. Did they want plain white china or something with a pattern? Which brand of knives? How many towels? What kind of sheets? Precisely how many threads per square inch?

"By the end, you could have talked me into anything," Twenge told her new colleagues. The symptoms sounded familiar to them too, and gave them an idea. A nearby department store was holding a going-out-of-business sale, so researchers from the lab went off to fill their car trunks with simple products — not exactly wedding-quality gifts, but sufficiently appealing to interest college students. When they came to the lab, the students were told they would get to

keep one item at the end of the experiment, but first they had to make a series of choices. Would they prefer a pen or a candle? A vanilla-scented candle or an almond-scented one? A candle or a T-shirt? A black T-shirt or a red T-shirt? A control group, meanwhile — let's call them the nondeciders — spent an equally long period contemplating all these same products without having to make any choices. They were asked just to give their opinion of each product and report how often they had used such a product in the last six months.

Afterward, all the participants were given one of the classic tests of self-control: holding your hand in ice water for as long as you can. The impulse is to pull your hand out, so self-discipline is needed to keep the hand underwater. The deciders gave up much faster; they lasted 28 seconds, less than half the 67-second average of the nondeciders. Making all those choices had apparently sapped their willpower, and it wasn't an isolated effect. It was confirmed in other experiments testing students after they went through exercises like choosing courses from the college catalog.

For a real-world test of their theory, the lab's researchers went into that great modern arena of decision making: the suburban mall. They interviewed shoppers about their experiences in the stores that day and then asked them to solve some simple arithmetic problems. The researchers politely asked them to do as many as possible but said they could quit at any time. Sure enough, the shoppers who had already made the most decisions in the stores gave up the quickest on the math problems. When you shop till you drop, your willpower drops, too.

**Any decision**, whether it's what pants to buy or whether to start a war, can be broken down into what psychologists call the Rubicon model of action phases, in honor of the river that separated Italy from the Roman province of Gaul. When Caesar reached it in 49 B.C., on his way home after conquering the Gauls, he knew that a general returning to Rome was forbidden to take his legions across the river with him, lest it be considered an invasion of Rome. Waiting on the Gaul side of the river, he was in the "predecisional phase" as he contemplated the risks and benefits of starting a civil war. Then he stopped calculating and crossed the Rubicon, reaching the "postdecisional phase," which Caesar defined much more felicitously: "The die is cast."

The whole process could deplete anyone's willpower, but which phase of the decision-making process was most fatiguing? To find out, Kathleen Vohs, a former colleague of Baumeister's now at the University of Minnesota, performed an experiment using the self-service Web site of Dell Computers. One group in the experiment carefully studied the advantages and disadvantages of various features available for a computer — the type of screen, the size of the hard drive, etc. — without actually making a final decision on which ones to choose. A second group was given a list of predetermined specifications and told to configure a computer by going through the laborious, step-by-step process of locating the specified features among the arrays of options and then clicking on the right ones. The purpose of this was to duplicate everything that happens in the postdecisional phase, when the choice is implemented. The third group had to figure out for themselves which features they wanted on their computers and go through the process of choosing them; they didn't simply ponder options (like the first group) or implement others' choices (like the second group). They had to cast the die, and that turned out to be the most fatiguing task of all. When self-control was measured, they were the one who were most depleted, by far.

The experiment showed that crossing the Rubicon is more tiring than anything that happens on either bank — more mentally fatiguing than sitting on the Gaul side contemplating your options or marching on Rome once you've crossed. As a result, someone without Caesar's willpower is liable to stay put. To a fatigued judge, denying parole seems like the easier call not only because it preserves the status quo and eliminates the risk of a parolee going on a crime spree but also because it leaves more options open: the judge retains the option of paroling the prisoner at a future date without sacrificing the option of keeping him securely in prison right now. Part of the resistance against making decisions comes from our fear of giving up options. The word "decide" shares an etymological root with "homicide," the Latin word "caedere," meaning "to cut down" or "to kill," and that loss looms especially large when decision fatigue sets in.

Once you're mentally depleted, you become reluctant to make trade-offs, which involve a particularly advanced and taxing form of decision making. In the rest of the animal kingdom, there aren't a lot of protracted negotiations between predators and prey. To compromise is a complex human ability and therefore one of the first to decline when willpower is depleted. You become what researchers call a cognitive miser, hoarding your energy. If you're shopping, you're liable to look at only one dimension, like price: just give me the cheapest. Or you indulge yourself by looking at quality: I want the very best (an especially easy strategy if someone else is paying). Decision fatigue leaves you vulnerable to marketers who know how to time their sales, as Jonathan Levav, the Stanford professor, demonstrated in experiments involving tailored suits and new cars.

The idea for these experiments also happened to come in the preparations for a wedding, a ritual that seems to be the decision-fatigue equivalent of Hell Week. At his fiancée's suggestion, Levav visited a tailor to have a bespoke suit made and began going through the choices of fabric, type of lining and style of buttons, lapels, cuffs and so forth.

"By the time I got through the third pile of fabric swatches, I wanted to kill myself," Levav recalls. "I couldn't tell the choices apart anymore. After a while my only response to the tailor became 'What do you recommend?' I just couldn't take it."

Levav ended up not buying any kind of bespoke suit (the \$2,000 price made that decision easy enough), but he put the experience to use in a pair of experiments conducted with Mark Heitmann, then at Christian-Albrechts University in Germany; Andreas Herrmann, at the University of St. Gallen in Switzerland; and Sheena Iyengar, of Columbia. One involved asking M.B.A. students in Switzerland to choose a bespoke suit; the other was conducted at German car dealerships, where customers ordered options for their new sedans. The car buyers — and these were real customers spending their own money — had to choose, for instance, among 4 styles of gearshift knobs, 13 kinds of wheel rims, 25 configurations of the engine and gearbox and a palette of 56 colors for the interior.

As they started picking features, customers would carefully weigh the choices, but as decision fatigue set in, they would start settling for whatever the default option was. And the more tough choices they encountered early in the process — like going through those 56 colors to choose the precise shade of gray or brown — the quicker people became fatigued and settled for the path of least resistance by taking the default option. By manipulating the order of the car buyers' choices, the researchers found that the customers would end up settling for different kinds of options, and the average difference totaled more than 1,500 euros per car (about \$2,000 at the

time). Whether the customers paid a little extra for fancy wheel rims or a lot extra for a more powerful engine depended on when the choice was offered and how much willpower was left in the customer.

Similar results were found in the experiment with custom-made suits: once decision fatigue set in, people tended to settle for the recommended option. When they were confronted early on with the toughest decisions — the ones with the most options, like the 100 fabrics for the suit — they became fatigued more quickly and also reported enjoying the shopping experience less.

**Shopping can be** especially tiring for the poor, who have to struggle continually with trade-offs. Most of us in America won't spend a lot of time agonizing over whether we can afford to buy soap, but it can be a depleting choice in rural India. Dean Spears, an economist at Princeton, offered people in 20 villages in Rajasthan in northwestern India the chance to buy a couple of bars of brand-name soap for the equivalent of less than 20 cents. It was a steep discount off the regular price, yet even that sum was a strain for the people in the 10 poorest villages. Whether or not they bought the soap, the act of making the decision left them with less willpower, as measured afterward in a test of how long they could squeeze a hand grip. In the slightly more affluent villages, people's willpower wasn't affected significantly. Because they had more money, they didn't have to spend as much effort weighing the merits of the soap versus, say, food or medicine.

Spears and other researchers argue that this sort of decision fatigue is a major — and hitherto ignored — factor in trapping people in poverty. Because their financial situation forces them to make so many trade-offs, they have less willpower to devote to school, work and other activities that might get them into the middle class. It's hard to know exactly how important this factor is, but there's no doubt that willpower is a special problem for poor people. Study after study has shown that low self-control correlates with low income as well as with a host of other problems, including poor achievement in school, divorce, crime, alcoholism and poor health. Lapses in self-control have led to the notion of the "undeserving poor" — epitomized by the image of the welfare mom using food stamps to buy junk food — but Spears urges sympathy for someone who makes decisions all day on a tight budget. In one study, he found that when the poor and the rich go shopping, the poor are much more likely to eat during the shopping trip. This might seem like confirmation of their weak character — after all, they could presumably save money and improve their nutrition by eating meals at home instead of buying ready-to-eat snacks like Cinnabons, which contribute to the higher rate of obesity among the poor. But if a trip to the supermarket induces more decision fatigue in the poor than in the rich — because each purchase requires more mental trade-offs — by the time they reach the cash register, they'll have less willpower left to resist the Mars bars and Skittles. Not for nothing are these items called impulse purchases.

And this isn't the only reason that sweet snacks are featured prominently at the cash register, just when shoppers are depleted after all their decisions in the aisles. With their willpower reduced, they're more likely to yield to any kind of temptation, but they're especially vulnerable to candy and soda and anything else offering a quick hit of sugar. While supermarkets figured this out a long time ago, only recently did researchers discover why.

**The discovery was an accident** resulting from a failed experiment at Baumeister's lab. The researchers set out to test something called the Mardi Gras theory — the notion that you could build up willpower by first indulging yourself in pleasure, the way

Mardi Gras feasters do just before the rigors of Lent. In place of a Fat Tuesday breakfast, the chefs in the lab at Florida State whipped up lusciously thick milkshakes for a group of subjects who were resting in between two laboratory tasks requiring willpower. Sure enough, the delicious shakes seemed to strengthen willpower by helping people perform better than expected on the next task. So far, so good. But the experiment also included a control group of people who were fed a tasteless concoction of low-fat dairy glop. It provided them with no pleasure, yet it produced similar improvements in self-control. The Mardi Gras theory looked wrong. Besides tragically removing an excuse for romping down the streets of New Orleans, the result was embarrassing for the researchers. Matthew Gailliot, the graduate student who ran the study, stood looking down at his shoes as he told Baumeister about the fiasco.

Baumeister tried to be optimistic. Maybe the study wasn't a failure. Something had happened, after all. Even the tasteless glop had done the job, but how? If it wasn't the pleasure, could it be the calories? At first the idea seemed a bit daft. For decades, psychologists had been studying performance on mental tasks without worrying much about the results being affected by dairy-product consumption. They liked to envision the human mind as a computer, focusing on the way it processed information. In their eagerness to chart the human equivalent of the computer's chips and circuits, most psychologists neglected one mundane but essential part of the machine: the power supply. The brain, like the rest of the body, derived energy from glucose, the simple sugar manufactured from all kinds of foods. To establish cause and effect, researchers at Baumeister's lab tried refueling the brain in a series of experiments involving lemonade mixed either with sugar or with a diet sweetener. The sugary lemonade provided a burst of glucose, the effects of which could be observed right away in the lab; the sugarless variety tasted quite similar without providing the same burst of glucose. Again and again, the sugar restored willpower, but the artificial sweetener had no effect. The glucose would at least mitigate the ego depletion and sometimes completely reverse it. The restored willpower improved people's self-control as well as the quality of their decisions: they resisted irrational bias when making choices, and when asked to make financial decisions, they were more likely to choose the better long-term strategy instead of going for a quick payoff. The ego-depletion effect was even demonstrated with dogs in [two studies](#) by Holly Miller and Nathan DeWall at the University of Kentucky. After obeying sit and stay commands for 10 minutes, the dogs performed worse on self-control tests and were also more likely to make the dangerous decision to challenge another dog's turf. But a dose of glucose restored their willpower.

Despite this series of findings, brain researchers still had some reservations about the glucose connection. Skeptics pointed out that the brain's overall use of energy remains about the same regardless of what a person is doing, which doesn't square easily with the notion of depleted energy affecting willpower. Among the skeptics was Todd Heatherton, who worked with Baumeister early in his career and eventually wound up at Dartmouth, where he became a pioneer of what is called social neuroscience: the study of links between brain processes and social behavior. He believed in ego depletion, but he didn't see how this neural process could be caused simply by variations in glucose levels. To observe the process — and to see if it could be reversed by glucose — he and his colleagues recruited 45 female dieters and recorded images of their brains as they reacted to pictures of food. Next the dieters watched a comedy video while forcing themselves to suppress their laughter — a standard if cruel

way to drain mental energy and induce ego depletion. Then they were again shown pictures of food, and the new round of brain scans revealed the effects of ego depletion: more activity in the nucleus accumbens, the brain's reward center, and a corresponding decrease in the amygdala, which ordinarily helps control impulses. The food's appeal registered more strongly while impulse control weakened — not a good combination for anyone on a diet. But suppose people in this ego-depleted state got a quick dose of glucose? What would a scan of their brains reveal?

The results of the experiment were announced in January, during Heatherton's speech accepting the leadership of the [Society for Personality and Social Psychology](#), the world's largest group of social psychologists. In his presidential address at the annual meeting in San Antonio, Heatherton reported that administering glucose completely reversed the brain changes wrought by depletion — a finding, he said, that thoroughly surprised him. Heatherton's results did much more than provide additional confirmation that glucose is a vital part of willpower; they helped solve the puzzle over how glucose could work without global changes in the brain's total energy use. Apparently ego depletion causes activity to rise in some parts of the brain and to decline in others. Your brain does not stop working when glucose is low. It stops doing some things and starts doing others. It responds more strongly to immediate rewards and pays less attention to long-term prospects.

The discoveries about glucose help explain **why dieting is a uniquely difficult test of self-control** — and why even people with phenomenally strong willpower in the rest of their lives can have such a hard time losing weight. They start out the day with virtuous intentions, resisting croissants at breakfast and dessert at lunch, but each act of resistance further lowers their willpower. As their willpower weakens late in the day, they need to replenish it. But to resupply that energy, they need to give the body glucose. They're trapped in a nutritional catch-22:

1. In order not to eat, a dieter needs willpower.
2. In order to have willpower, a dieter needs to eat.

As the body uses up glucose, it looks for a quick way to replenish the fuel, leading to a craving for sugar. After performing a lab task requiring self-control, people tend to eat more candy but not other kinds of snacks, like salty, fatty potato chips. The mere expectation of having to exert self-control makes people hunger for sweets. A similar effect helps explain why many women yearn for chocolate and other sugary treats just before menstruation: their bodies are seeking a quick replacement as glucose levels fluctuate. A sugar-filled snack or drink will provide a quick improvement in self-control (that's why it's convenient to use in experiments), but it's just a temporary solution. The problem is that what we identify as sugar doesn't help as much over the course of the day as the steadier supply of glucose we would get from eating proteins and other more nutritious foods.

The benefits of glucose were unmistakable in the study of the Israeli parole board. In midmorning, usually a little before 10:30, the parole board would take a break, and the judges would be served a sandwich and a piece of fruit. The prisoners who appeared just before the break had only about a 20 percent chance of getting parole, but the ones appearing right after had around a 65 percent chance. The odds dropped again as the morning wore on, and prisoners really didn't want to appear just before lunch: the chance of getting parole at that time was only 10 percent. After lunch it soared up to 60 percent, but only briefly. Remember that Jewish Israeli prisoner who appeared at 3:10 p.m. and was denied parole from his

sentence for assault? He had the misfortune of being the sixth case heard after lunch. But another Jewish Israeli prisoner serving the same sentence for the same crime was lucky enough to appear at 1:27 p.m., the first case after lunch, and he was rewarded with parole. It must have seemed to him like a fine example of the justice system at work, but it probably had more to do with the judge's glucose levels.

**It's simple enough** to imagine reforms for the parole board in Israel — like, say, restricting each judge's shift to half a day, preferably in the morning, interspersed with frequent breaks for food and rest. But it's not so obvious what to do with the decision fatigue affecting the rest of society. Even if we could all afford to work half-days, we would still end up depleting our willpower all day long, as Baumeister and his colleagues found when they went into the field in Würzburg in central Germany. The psychologists gave preprogrammed BlackBerrys to more than 200 people going about their daily routines for a week. The phones went off at random intervals, prompting the people to report whether they were currently experiencing some sort of desire or had recently felt a desire. The painstaking study, led by Wilhelm Hofmann, then at the University of Würzburg, collected more than 10,000 momentary reports from morning until midnight.

Desire turned out to be the norm, not the exception. Half the people were feeling some desire when their phones went off — to snack, to goof off, to express their true feelings to their bosses — and another quarter said they had felt a desire in the past half-hour. Many of these desires were ones that the men and women were trying to resist, and the more willpower people expended, the more likely they became to yield to the next temptation that came along. When faced with a new desire that produced some I-want-to-but-I-really-shouldn't sort of inner conflict, they gave in more readily if they had already fended off earlier temptations, particularly if the new temptation came soon after a previously reported one.

The results suggested that people spend between three and four hours a day resisting desire. Put another way, if you tapped four or five people at any random moment of the day, one of them would be using willpower to resist a desire. The most commonly resisted desires in the phone study were the urges to eat and sleep, followed by the urge for leisure, like taking a break from work by doing a puzzle or playing a game instead of writing a memo. Sexual urges were next on the list of most-resisted desires, a little ahead of urges for other kinds of interactions, like checking Facebook. To ward off temptation, people reported using various strategies. The most popular was to look for a distraction or to undertake a new activity, although sometimes they tried suppressing it directly or simply toughing their way through it. Their success was decidedly mixed. They were pretty good at avoiding sleep, sex and the urge to spend money, but not so good at resisting the lure of television or the Web or the general temptation to relax instead of work.

We have no way of knowing how much our ancestors exercised self-control in the days before BlackBerrys and social psychologists, but it seems likely that many of them were under less ego-depleting strain. When there were fewer decisions, there was less decision fatigue. Today we feel overwhelmed because there are so many choices. Your body may have dutifully reported to work on time, but your mind can escape at any instant. A typical computer user looks at more than three dozen Web sites a day and gets fatigued by the continual decision making — whether to keep working on a project, check out TMZ, follow a link to YouTube or buy something on

Amazon. You can do enough damage in a 10-minute online shopping spree to wreck your budget for the rest of the year.

The cumulative effect of these temptations and decisions isn't intuitively obvious. Virtually no one has a gut-level sense of just how tiring it is to decide. Big decisions, small decisions, they all add up. Choosing what to have for breakfast, where to go on vacation, whom to hire, how much to spend — these all deplete willpower, and there's no telltale symptom of when that willpower is low. It's not like getting winded or hitting the wall during a marathon. Ego depletion manifests itself not as one feeling but rather as a propensity to experience everything more intensely. When the brain's regulatory powers weaken, frustrations seem more irritating than usual. Impulses to eat, drink, spend and say stupid things feel more powerful (and alcohol causes self-control to decline further). Like those dogs in the experiment, ego-depleted humans become more likely to get into needless fights over turf. In making decisions, they take illogical shortcuts and tend to favor short-term gains and delayed costs. Like the depleted parole judges, they become inclined to take the safer, easier option even when that option hurts someone else.



## IN THE NEWS

August 27, 2011

### Ingredients of Shady Origins, Posing as Supplements

By NATASHA SINGER BOSTON

DR. PIETER COHEN is scanning the shelves inside a shop in Chinatown here when something familiar — and potentially dangerous — catches his eye.

"What's that yellow box, behind the other one?" Dr. Cohen asks the clerk.

It is Pai You Guo, a supposedly natural weight-loss supplement from China that, [according to federal authorities](#), has tested positive in the past for containing two hazardous drugs, including a suspected carcinogen. The product was recalled in 2009. One of Dr. Cohen's patients in the Boston area ended up in the hospital last year with a range of ailments after taking Pai You Guo, a brand-name that, loosely translated from Chinese, means "the fruit that eliminates fat."

But he has seen worse: [kidney failure](#), heart problems, depression, addiction — all, he says, caused by tainted products sold openly as [dietary supplements](#) in shops across the nation and on the Internet.

"My patients are being harmed by this," says [Dr. Cohen](#), an internist at the nearby [Cambridge Health Alliance](#) and an assistant professor of medicine at Harvard Medical School.

Marketing drugs in the guise of supplements is illegal in the United States. Tainted Pai You Guo is just one small part of that global business. Federal authorities are struggling to identify and intercept these black-market goods, which, they warn, pose grave health risks.

The makers of legal dietary supplements — the kind found at GNC, for example — acknowledge they are reluctant to raise too many alarms. Even though there is little evidence that many dietary supplements provide real health benefits, legal supplements, from

"Good decision making is not a trait of the person, in the sense that it's always there," Baumeister says. "It's a state that fluctuates." His studies show [that people with the best self-control are the ones who structure their lives so as to conserve willpower](#). They don't schedule endless back-to-back meetings. They avoid temptations like all-you-can-eat buffets, and they establish habits that [eliminate the mental effort of making choices](#). Instead of deciding every morning whether or not to force themselves to exercise, they set up regular appointments to work out with a friend. Instead of counting on willpower to remain robust all day, they conserve it so that it's available for emergencies and important decisions.

"Even the wisest people won't make good choices when they're not rested and their glucose is low," Baumeister points out. That's why the truly wise don't restructure the company at 4 p.m. They don't make major commitments during the cocktail hour. [And if a decision must be made late in the day, they know not to do it on an empty stomach](#). "The best decision makers," Baumeister says, "are the ones who know when *not* to trust themselves."

multivitamins to ginkgo biloba, are a big and growing business. Americans spent \$28.1 billion on them last year, up from \$21.3 billion five years ago, according to estimates from Nutrition Business Journal, a market research firm.

Many millions more are also being spent annually on black-market products, particularly those marketed for [weight loss](#), [bodybuilding](#) and [sexual enhancement](#). Some of these products, according to the F.D.A., contain [amphetamines](#), synthetic [steroids](#), laxatives and compounds like the active drug in Viagra. Officials say such products can cause heart attacks and strokes, and can damage the kidneys and liver. A few people in the United States, they say, have died after taking them.

Industry representatives say a vast majority of supplements are safe, and they fault regulators for failing to stop the influx of illegal products from places like China. But few seem willing to tackle the problem openly. Unlike, say, the fashion industry, which has [lobbied for increased regulation](#) to combat knock-off products and has vociferously publicized [the issue](#), the supplement industry is at best waging a whisper campaign.

"We walk a fine line," says Steve Mister, president of the [Council for Responsible Nutrition](#), a trade group in Washington that represents supplement manufacturers and ingredient suppliers. "We want to protect consumers, but we also don't want to alarm consumers so they stay away from the whole marketplace."

Mr. Mister says legitimate manufacturers ensure product safety. Under federal law, supplements are defined as products that contain only supplemental dietary ingredients, like [vitamins](#) and minerals. People who knowingly make or distribute products spiked with drugs, he says, are outliers. His group recommends that people buy nationally recognized brands — like Centrum, One A Day and Nature Made — from its [members](#) and avoid those that make miracle claims.

But tainted products are not merely a fringe problem. Major chains like GNC and the Vitamin Shoppe, for example, withdrew a weight-loss brand called [StarCaps](#) from their stores three years ago after reports surfaced that the product, marketed as a papaya-based supplement, contained a powerful diuretic drug.

Meanwhile, many companies promote genuine dietary supplements with enthusiastic claims that resemble those of adulterated products, regulators say, making it hard for consumers to distinguish between the legal and the illegal, the harmless and the potentially dangerous.

Exhibit A: A [tip sheet](#) from the Council for Responsible Nutrition. Of sexual enhancement supplements for men, it says: “Regular use of a supplement might provide subtle, incremental improvement, but don’t expect to pop a supplement and be able to immediately ‘get busy.’”

Exhibit B: RockHard Weekend, [a supplement offered for sale recently on Amazon.com](#). “Works in 30 minutes or less!” the pitch went. “One pill lasts the average man up to 72 hours with full control!”

Exhibit C: RockHard Laboratories, of Alpharetta, Ga., which recalled some lots of that very product in 2009, after [the F.D.A. said the pills contained](#) an analogue of the drug used in Viagra. Last year, [the company recalled even more](#) after independent tests found that some pills still contained the drug. A company news release said it planned to avoid another recall by using higher-quality ingredients and better testing. The company did not return two calls or an e-mail seeking comment.

Amazon did not respond to telephone calls and an e-mail seeking comment.

MAN UP NOW. [Passion Coffee](#). [Slim Waistline](#). [Stiff Nights](#). [7 Day Herbal Slim](#).

In the last three years, the F.D.A. has issued warnings about these and about 300 other supplements that it says have been adulterated. The agency has pressed distributors to recall tainted lots and has seized more than \$1 million worth of products. Regulators have also introduced new surveillance techniques, investigated major traffickers and increased public notices in the form of [alerts](#), an [open letter to the industry](#) and a [database](#) — all to little avail.

“It’s a remarkable tidal wave of products,” Michael Levy, acting director of the F.D.A.’s office of drug security, integrity and recalls, says while sitting at a table laden with contraband in Silver Spring, Md. “We are removing only a fraction.”

The problem, he says, is that the F.D.A. lacks the resources to stem the influx of illegal raw ingredients and finished products — mainly from Asia — to the United States. Moreover, he says, the agency cannot easily prevent adulterated products disguised as supplements from reaching the market.

That is because supplement makers in the United States can introduce new products much more easily than pharmaceutical companies. Drug makers are required to prove that their products are safe and effective, and they must obtain federal approval before going to market. But dietary supplements, by definition, contain only dietary ingredients; the federal law on supplements does not require

premarket approval. That can make it easy for purveyors of spiked products to use the cover of supplements to ply their wares.

Trying to get tainted products off the market is expensive and time-consuming. Before federal officials can take action, Mr. Levy says, they must first buy suspect items or catch them at the border, and then test them in an agency lab.

Agency experts, for example, found that many weight-loss products contained [sibutramine](#), the appetite suppressant in Meridia, a popular medicine [whose manufacturer voluntarily removed it](#) from the American market last year after a research study reported that it could increase the risk of [heart attack](#) and [stroke](#).

Pills marketed as male sexual enhancement supplements often contain sildenafil citrate, the active ingredient in Viagra, or its analogues. But these adulterated pills sometimes contain up to seven times the recommended dose, Mr. Levy says. Another danger: some of the analogues may have never been tested for safety in humans.

“These products may work,” he says, but “if you take them, they could kill you.”

Mr. Mister of the Council for Responsible Nutrition says that tainted goods are a limited problem — and one that the F.D.A. is not doing enough to curb. The agency, he says, should seize more spiked products instead of sending out warning letters and waiting for companies to take action.

Safety measures in the legitimate industry are increasing, he says. New federal guidelines, put into place in the last three years, require supplement makers to test and certify each ingredient, he says, a fail-safe against inadvertent adulteration. Supplement makers are also required to test finished goods to ensure that they match the ingredients on the label. At least one major company has gone even further. This month, the EAS Sports Nutrition brand, made by Abbott, [said it had hired outside labs](#) to independently test its products and certify them to be free of certain drugs banned by professional sports associations.

AT the mail facility at Kennedy Airport, United States [Customs and Border Protection](#) officials [X-ray](#) incoming shipments and set aside suspect items — ivory tusks, exotic seeds, trash bags full of pills. They also intercept suspicious products packaged like dietary supplements, passing them to the F.D.A. for testing.

One morning in July, a cart at the Kennedy facility is stacked high with boxes of products labeled as herbal weight-loss and [impotence](#) treatments.

All of this took almost no time to pile up.

“It’s an hour’s worth,” says Ralph Fasano, a Customs and Border Protection inspector. But, he adds, “this could have come off the conveyor in five minutes.”

Inspectors, he says, are [allowed to seize items](#) that contain controlled substances, like narcotics. But if the products’ contents include drugs approved for use in the United States, F.D.A. personnel must ship them back where they came from. Often, the products are just mailed back to the United States again, with the F.D.A.’s big red rejection sticker still on them.

“It’s a revolving door,” says Joseph Tomao, an F.D.A. compliance officer.

Mr. Fasano of Customs says: “If they can get one out of every five or six shipments through, it’s a home run for them.”

Kennedy is trying out a new hand-held device called a portable trace detector that can sniff out [pharmaceuticals](#). Seeing it work is like watching an episode of “C.S.I.”

In an office off the main hall, Samantha McCormick, an F.D.A. investigator, prepares to test samples of JaDera, weight-loss capsules from China whose maroon labels in English say it is “100 percent natural” and contains bitter orange and mulberry leaf.

“It could,” she says, pulling on a pair of purple rubber gloves. “It could not.”

She pours the contents of a capsule into a centrifuge tube, adds isopropyl alcohol and shakes it. She filters the solution, dilutes the mixture with alcohol again and, using a syringe, squeezes a few droplets onto a test strip. She slides the strip into a slot in the detector.

Bingo. The screen lights up. It has detected sibutramine, the weight-loss drug recently taken off of the American market. Since this facility began using the device this year, it has detected the drug in 35 out of 36 packages of weight-loss products.

Next, the products are shipped in sealed bags to an F.D.A. lab in Philadelphia.

There, on an upper floor of the historic United States Customs House, one hall of lab tables and special machinery is used to test dozens of samples of each suspect product. Luella Rossi, the lab director, and her staff empty the capsules, dilute the material and then feed it into a gas chromatography-mass spectrometer detector, a device that can identify a specific substance in a sample.

One day last month, four different products from Kennedy tested positive for sibutramine. The JaDera capsules contained the highest concentration, more than 30 milligrams per unit — or roughly six times more than the starting dose of the legal medicine when it was on the market.

While the F.D.A. was still processing the test results ahead of issuing an official public alert, maroon bottles of JaDera remained widely available on the Web earlier in August, on sites like [eBay](#) and Amazon. JaDera is made in China and sold here in multiple packages, making it hard to determine which bottles might be adulterated.

A spokeswoman for eBay said earlier this month that [the site's drug policy](#) specifically prohibited the sale of weight-loss products that have been the subject of F.D.A. warnings.

Two businesses in China that export JaDera to North America did not respond to e-mails seeking comment.

It all started with a package from China that was intercepted in 2009 by United States Customs inspectors at the mail facility at San Francisco International Airport. The shipment contained two purportedly natural weight-loss products, Super-Slim and Meizitang, and was intended for an American citizen who distributed the products here. Around the same time, [the F.D.A. issued public warnings](#) that the brands had tested positive for sibutramine.

“The intended recipient was a small target in a big investigation,” says a special agent in the F.D.A.'s Office of Criminal Investigations, who asked for anonymity to protect continuing investigations. “Our goal was to trace the shipment back to the ultimate source of the product.”

The American distributor, referred to in court documents as “J. K.,” agreed to cooperate with investigators. That enabled the special agent, posing at first as J. K., to contact the source of the adulterated products in China.

His name was Shengyang Zhou, of Kunming, in the southwestern province of Yunnan. In dealings with undercover agents, he went by just “Tom.” Mr. Zhou told federal agents that he had manufactured the weight-loss products — in fact, he could

produce “100,000 boxes a month,” according to the government's criminal complaint.

“We knew we had a significant target at this point,” the special agent recalls. “He was dealing in commercial-sized quantities of numerous weight-loss products, and he was willing to sell them only in large amounts.”

The special agent, now using the alias Rus Henderson, placed a series of orders. The first shipment, 500 boxes of Super-Slim, arrived in November 2009. Others followed.

Soon, the agent was in regular contact with the dealer by e-mail and telephone. Mr. Zhou had a Web site displaying a variety of weight-loss products and suggested that the agent buy Alli, an over-the-counter drug containing orlistat, officially made by GlaxoSmithKline.

It turned out that, in addition to selling products labeled as natural weight-loss supplements, Mr. Zhou was also selling counterfeit Alli. The counterfeit had been packaged to mimic the genuine medicine, but the fake version contained sibutramine, not orlistat — posing a serious health hazard to consumers.

In January 2010, agents received more parcels from Mr. Zhou that contained adulterated weight-loss products, along with counterfeit Alli. The dealer had a few American distributors for the fraudulent Alli, the agent says, and “countless distributors” for the adulterated weight-loss products.

“Every day, he was routinely sending in commercial-sized orders in to the United States,” the agent says. “He had distributors in almost every state.”

The investigators concocted a plan to lure Mr. Zhou to the United States, explaining that they wanted him to work with a customs broker here so they could increase their orders. Mr. Zhou was eventually arrested in March 2010 in Hawaii. He pleaded guilty in January to charges of trafficking in counterfeit goods.

In June, [a United States District Court in Denver sentenced Mr. Zhou](#) to more than seven years in prison. He was also ordered to pay more than \$500,000 to people who had been hurt by his products, including an emergency room doctor who suffered a mild stroke.

In the course of the investigation, the agents received 24,856 capsules of spiked weight-loss products and 6,000 capsules of counterfeit Alli.

How many “Toms” are still out there is unknown.

IN a cafe in Everett, Mass., Naara Ramos, a native of Brazil and former nurse, recounts her nightmare with tainted supplements.

Ms. Ramos, a patient of Dr. Cohen, used Brazilian weight-loss products for years. But when they stopped working last year, she turned to Pai You Guo. First she tried the tea version, then the capsules.

“You never feel tired. You never sleep. You never feel hungry. It feels so good,” Ms. Ramos, 46, says in Portuguese, with Dr. Cohen translating. “But, just like a drug, when you stop, you crash.”

While taking the stuff, she says, she developed [heart palpitations](#) and other symptoms of addiction; she ended up in the hospital for a week with a breakdown.

Two businesses in China that export the product to North America did not respond to e-mails seeking comment.

F.D.A. warnings about Pai You Guo seem to have had little effect on its availability.

According to a new research study by Dr. Cohen of more than 500 Brazilian women in the Boston area, one in five have used the product, and more of them took it after the recall than before. Last month, the F.D.A. lab in Philadelphia tested a new shipment of the

brand, intercepted at Kennedy, and found that it contained sibutramine.

"In the current regulatory framework, is it possible to ensure the safety of what we purchase?" Dr. Cohen asks. "To me, the answer is no."

The supplement industry argues that existing regulations work perfectly well. It blames the F.D.A. as failing to institute mandatory recalls and seize tainted goods. Reputable manufacturers and distributors are focused on their own vigilance, rather than on warning consumers about other businesses' potentially troubled products, says Mr. Mister of the Council for Responsible Nutrition.

"We are concerned that if we alert consumers, we may unnecessarily drive them away from the marketplace," he says. "We could make them afraid to take legitimate dietary supplements."

But the industry may be miscalculating, says Daniel Fabricant, the director of the F.D.A.'s division of dietary supplement programs. The growing availability of tainted products represents a serious public health problem, he says — one that could taint the dietary supplement industry as a whole.

"To my mind," he says, "it's the biggest issue we face."



## HOME EXERCISE

Calories burn long after intense workout.

Studies highlights 'the power of exercise

By Nancy Hellmich

People who exercise vigorously get a bonus for their hard work: They continue to burn extra calories long after they're finished working out, a new study shows.

Researchers found that men who biked intensely on a stationary bike for 45 minutes burned an extra 190 calories over the 12 hours after their workout. This is in addition to the calories they used while exercising.

"This is the best evidence we have that a lot of calories are burned after intense exercise," says the study's lead author David Nieman, an exercise researcher with Appalachian State University in Kannapolis, N.C. The findings may also apply to other high-intensity, sweat-producing activities such as running, jogging, and playing intense games of basketball and soccer, he says.

"To get the extra calorie-burning benefits, the workout needs to be intense enough that you're sweating, your body temperature is up and your heart beats fast," Nieman says. Other researchers have looked at moderate-intensity activities, such as walking and found no post-activity impact on calories. You might be able to turn walking into this kind of calorie-burning workout but it would probably mean hiking uphill with a backpack, stair climbing or race walking, he says.

Norman and his colleagues at Appalachian State and researchers at University of North Carolina-Chapel Hill studied the caloric expenditures of 10 men, ages 22-23, using a scientific device called a metabolic chamber. It's a silicone-sealed room that looks like a small hotel room with a bed, laptop, toilet and sink. Researchers are able to measure the participant's oxygen consumption and carbon dioxide production in the room and determine the calorie expenditure of that person.

For this study, each participant had to a rest day in the room, doing very little activity for 24 hours except for sitting and sleeping. Each participant spent a second day in the room, following a similar routine except he cycled vigorously for 45 minutes beginning at 11 AM.

Findings reported in September's *Medicine & Science Sports*.

- The men burned an average of 190 more calories during the 14.2 hours after exercising, compared with their rest day in the chamber:
- They burned an average of 519 calories during the biking. Hence, they used about 709 more calories on workout days than rest days.

"That means a person would lose one pound after five intense exercise bouts if they resisted the temptation to eat more," Nieman says. "This shows that intense exercise can have a meaningful impact on your body fat stores if you don't counter it with an extra piece of cake. I hope this will motivate people to get out there to do sweat-producing activities. You get so much bang for your buck."

Although the study involved men, Nieman says, "there's every reason to believe that the findings apply to women, too."

Tim Church at the Pennington Biomedical Research Center in Baton Rouge says, "The results of this study are a great incentive to incorporate exercise in your daily routine. It's one more example of the power of exercise."



## Greeting from the Dietitian

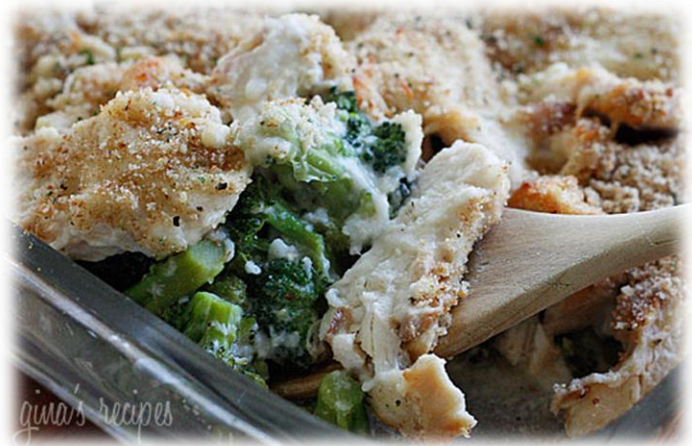
*I made this recipe for dinner last night and it was delicious! (even the 16 month old ate it!)*

*I substituted leftover turkey I had for the chicken, left out the wine, used a regular onion, and used mozzarella instead of Swiss b/c I didn't have Swiss (and I don't really like it). I am sure it would be good as is – we will definitely make it again. ~ Kim*

### Chicken Divan, Lightened Up

[Gina's Weight Watcher Recipes](#)

1 ½ lbs broccoli (3 large heads) chopped  
24 oz boneless skinless chicken breasts (or 18 oz cooked)  
Salt and fresh ground pepper  
1 tbsp butter  
2 tsp extra virgin olive oil  
2 cloves garlic, crushed  
2 tbsp shallots, minced (onions would work too)  
4 tbsp flour  
1 cup fat free chicken broth  
1 cup fat free milk  
2 oz dry sherry (white wine would work)  
6 oz shredded reduced-fat Swiss  
¼ cup grated parmesan cheese  
¼ cup seasoned whole wheat breadcrumbs cooking spray



1. Bring a large pot of water to a boil. Add the broccoli and blanch 3 minutes. Rinse with cold water to stop the cooking. Drain well and set aside.
2. Preheat oven to 350°. Grease a 9 x 13 inch baking dish with cooking spray.
3. Season the chicken with salt and pepper. Using a grill pan or Forman grill, sauté' chicken on medium-low heat on both sides until browned, and just about cooked through, about 5 minutes on each side. Remove from heat and transfer chicken to a cutting board. When cooled, slice chicken into bite sized pieces.
4. Heat a medium skillet on medium heat. Add the butter and oil until melted and then add garlic and shallots. Sprinkle the flour and whisk until smooth. Stir in broth, milk and sherry and bring to a boil. Remove from heat and stir in half of the Swiss cheese. Season to taste with salt and pepper.
5. Arrange the broccoli in a casserole dish and pour half of the sauce over the broccoli. Arrange the chicken on top and cover with remaining sauce. Sprinkle the remaining Swiss cheese, grated parmesan and top with breadcrumbs. Spray a little oil on top.
6. Bake 30 minutes, serve hot.

Servings: 6

Calories: 335.7 • Fat: 12.3 g • Protein: 34.5 g • Carb: 19.8 g • Fiber: 4.1 g