

Niacin, Exercise, and Sauna—A Simple and Effective Detox Program That Can Significantly Improve Your Health

STORY AT-A-GLANCE

- › The average person is likely to have more than 500 – 1,000 times higher levels of toxic chemical in the fat compartment of their bodies, which includes all fatty adipose tissues, brain and lipids in blood, than what is revealed in their blood serum
- › A simple way to “detoxify” more correctly to mobilize and eliminate is to optimize your lean body mass, because most of the toxins are fat soluble and are released when the fat is burned for fuel or energy to maintain the body functions
- › Certain toxic chemicals, such as dichlorodiphenyldichloroethylene (DDE), which is a metabolite of dichlorodiphenyltrichloroethane (DDT), is consistently about 1,000 times higher in fat than the blood serum levels in the average person whether you have been directly exposed in or not
- › The commonly used term “detoxification” is the mobilization and elimination of toxic chemicals, either through your skin and/or GI tract, which are the two organs that have the largest surface areas compared to other organs
- › Other organs also assist in the elimination process, but they are slower. A safe and effective way to detox is to use a combination of niacin (vitamin B3), exercise, sauna therapy, and any instrument to generate heat and promote sweating
- › Substances such as activated charcoal and zeolite clay (and even oils) will also help bind toxic chemical that are then eliminated through your GI tract

By Dr. Mercola

If you're struggling with chronic health problems, chances are you'd greatly benefit from a detoxification program. But how does one go about it, safely and

effectively? In this interview, Dr. George Yu answers this important question. A graduate of Tufts University Medical School, he did his surgical training at Harvard and Johns Hopkins. For the last 35 years, he's been associated with George Washington University.

Dr. Yu has been, and still is, involved with some very exciting clinical trials to help detoxify people from the Gulf War at present for veterans under the principle investigator David Carpenter of University of Albany and the Department of Defense, and 9/11 rescue workers exposed to toxic debris and in the past Agent Orange.

Integrated medicine and detoxification may seem an odd specialty of a conventionally trained surgeon. His interest in this field began in 2002 when, as a urological oncologist doing surgeries for advanced diseases, he was asked to audit some cases in which caloric restriction was used to treat terminal cancer.

"One of the things that we noticed when we looked at the radiographs with Dr. Peter Choyke at the National Institutes of Health (NIH) was that when the tumor regressed, the fat – the visceral fat – also regressed at the same time, and we termed this Visceral Defatting Process," he says.

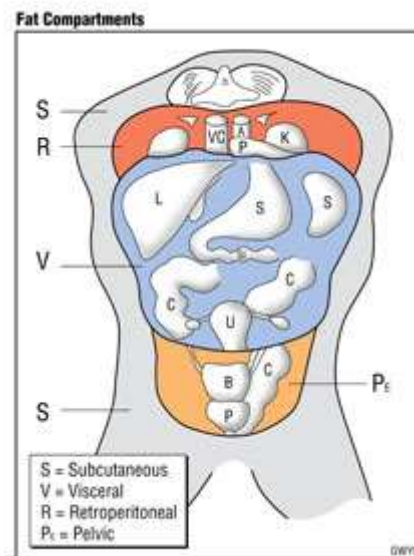
"Because I was so interested in fat and tumor regression simultaneously, Dr. David Root, who was involved with detoxification for the 9/11 firefighters, and I talked and he asked if residual toxic chemicals remain in fat and brain then what are the future consequences?"

As it turns out, many of the firefighters were heavy, and Dr. Root wanted to find out what happens when one removes toxic chemicals from body fat. How much is left in the visceral fat?

Dr. Yu postulated that some of the fatty tissues may be expelling the toxic chemicals when they undergo the niacin detoxification process of one month,

but if they lose weight later they have a chance to further remove these residual chemicals at the time that they lose the weight.

The classic study done by Roy Walford and John Laseter in the Biosphere 2 study¹ in the 1990s and published in 2002 show the same toxic chemical mobilization from fat to blood in the two year period while eating a high nutrition calorie-restricted diet of 1500 to 1800 calorie diet.



The niacin regimen simply happens to mobilize fat and toxins faster using these artificial approaches. In the schematic diagram lipolysis of fat and toxin below showing when lipolysis can occur, even sleep will lead to lipolysis and weight loss, and of course toxic release, along with the use of agents like Niacin and agents like [ephedra](#).

Your Body Stores Toxins in Fat and Other Fatty Organs such as the Brain

In 1990, Dr. David Root, an occupational specialist, had published a paper² in which he collected fat samples from Yugoslavian capacitor workers exposed to toxic chemicals. Their fat contained 140 to 150 times higher levels of toxins than their blood.

After the use of the detoxification program, the toxic chemicals decreased by 30 percent from the fat so there was residual toxic chemicals still in fat even though these workers felt better.

So that is the question he asked: What will happen to them next if they have residual chemical left even after aggressive treatment? Dr. Yu and Dr. John Laseter then looked at what the levels might be under normal conditions, in people who had not been exposed to highly toxic chemicals. His results were published online in 2011.³

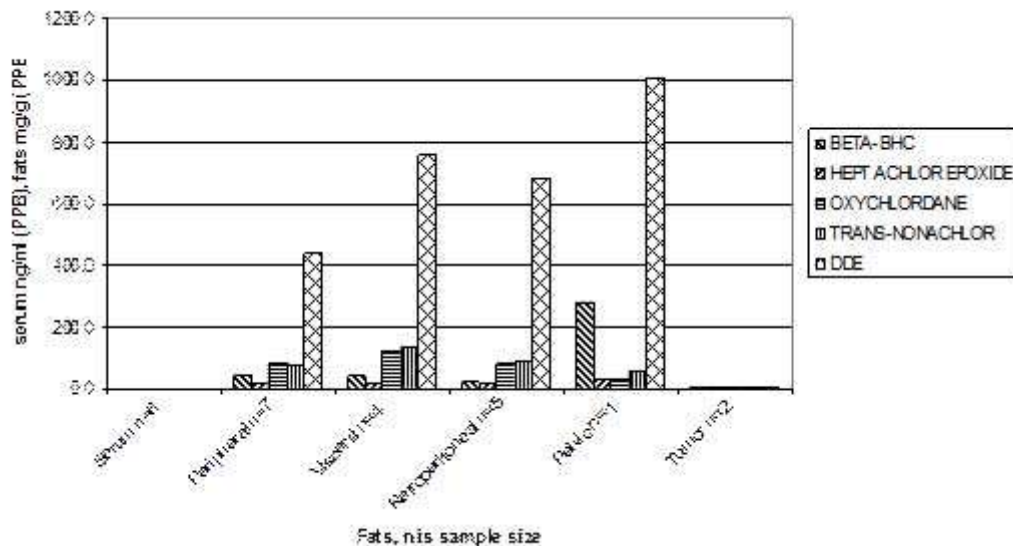
The study assessed the level of toxic chemicals in the visceral fat in the following four different compartments of patients undergoing elective surgery, some for cancers, others for benign conditions. This is a true In-Vivo study.

- The subcutaneous fat - under your skin
- The **visceral fat** - fat in the abdomen next to stomach, liver, and intestines
- The retroperitoneal fat - fat in the area behind the stomach and next to the pancreas, kidney, adrenal gland, and major blood vessels aorta and vena cava
- The pelvic fat - fat in the area of the bladder, prostate, and lower arteries

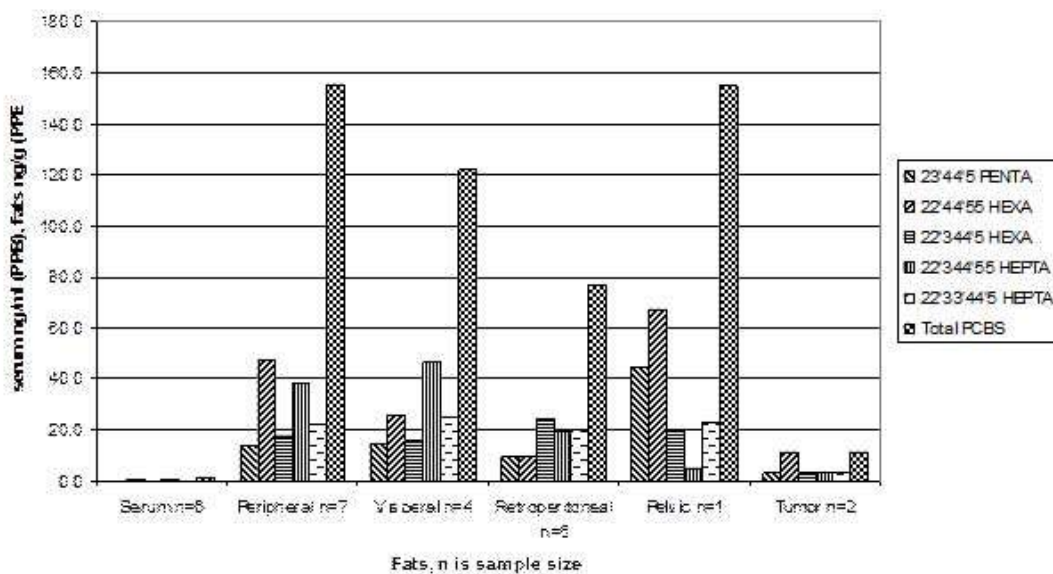
He discovered that certain substances, such as dichlorodiphenyldichloroethylene (DDE), which is a metabolite of dichlorodiphenyltrichloroethane (DDT), was consistently about 1,000 times higher in fat than the blood serum levels in the average person.

The average person is likely to have more than 500 times higher levels of toxins in their bodies than what is revealed in their blood serum. Interestingly, certain internal organs, such as kidneys and prostate, did not show the presence of toxic chemicals at all. Below are a couple of examples of the average levels of toxins (chlorinated pesticides, and PCBs) found in blood versus body fat.

Average levels of elevated Chlorinated Pesticides found in serum and fat can be 1000x higher in fat compared to blood serum



Average levels of PCB found in serum and fats



The question then became, how does one get these toxins out? Dr. David Root has the most experience detoxifying the veterans with Agent Orange exposure in Vietnam. He used niacin (vitamin B3) as a way to mobilize fat and free up toxic chemicals locked in all lipophilic fatty tissues, i.e. the fat and in your brain. Dr. Yu's program is also based on the use of niacin to mobilize toxic substances from your fat cells.

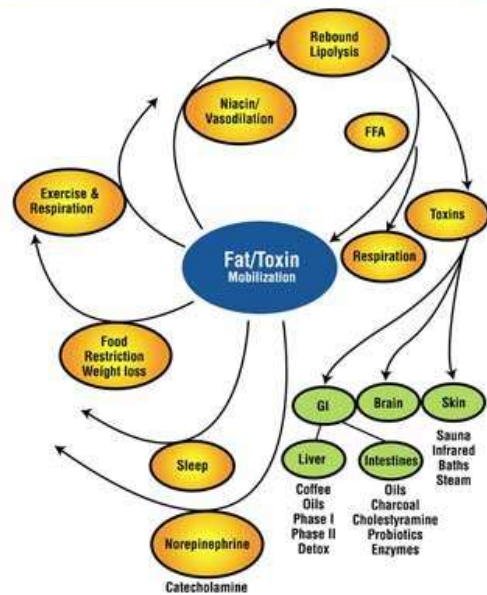
"Of course, a lot of substances come out from your body. But the two biggest surface areas are the skin and the GI tract. In our clinic, we

started thinking that we have to mobilize it not only from the skin by sweating after we use the niacin, but also using the GI tract to pull it out," Dr. Yu explains.

"One of the things that I want to clarify is that people think detoxification is the process. I think it's actually mobilization of the toxic chemicals, and then having a way to eliminate it and to excrete it out.

'Detoxification' by medical terms is only in the liver. That's very important. But to mobilize things quickly, you have to use this kind of [mobilization and elimination] system."

Lipolysis and Toxin Release



George Yu, M.D.

Key Elements of Effective Detoxification

If you lose weight, you will gradually move the toxic chemicals out from the fat with the triglyceride mobilization into your blood, from where they can then be removed. This was clearly demonstrated in a 1999 study.⁴ This is an important concept, as two-thirds of Americans are overweight.

A simple way to detoxify is to optimize your lean body mass, because you can't store toxins if fat is absent. To mobilize and excrete toxins, Dr. Yu recommends using [niacin](#) in combination with exercise and sauna therapy. Exercise is key, in order to eliminate the toxins through your skin, otherwise, they'll just end up being reabsorbed by your body. Using a sauna will also allow for excretion through your pores. [Infrared saunas](#) are a great option, and can significantly expedite the detoxification process.

The sauna heats your tissues several inches deep, which can enhance your natural metabolic processes. It also enhances circulation and helps oxygenate your tissues. If you do use an infrared sauna, make sure that is a low or no EMF model as many of the infrared saunas emit very high levels of potentially harmful EMF radiation. Your skin is a major organ of elimination, but many people do not sweat on a regular basis. This may be due to wearing synthetic or tight clothing that does not breathe. Sedentary living and sun damage also inactivate your skin. Repeated use of the sauna slowly restores skin elimination, which can help reduce your toxic load quite significantly.

For added elimination, you can also use substances like activated charcoal (Dr. Yu typically recommends 500 mg, or about five 100 mg tablets), and/or zeolite clay (even oils which also absorb toxic chemicals)—both of which will pull the toxins from your blood and out through your GI tract. In the old days, we used to treat drug overdose with anti-asthmatic drugs, such as theophylline, by simply using a heavy dose of charcoal to absorb the drug through the GI tract.

Just beware that any medicines and supplements you take around the same time will also be bound up by the activated charcoal, and expelled before they can take effect. Similarly, toxic pesticides and industrial chemicals are not the only toxins mobilized and eliminated by the niacin-exercise combination. Other substances that will also be expelled include the following. Dr. Yu actually recommends using this type of detoxification post-surgery (and in cases of drug abuse), to eliminate medications that might otherwise remain trapped in your fatty tissues:

Anesthesia after surgery	Medications	Cosmetic chemicals
Cleaning agents	Food additives	Vitamins

Dosage and Frequency Recommendations

In terms of dosage, people exposed to highly toxic situations, such as the 9/11 firefighters, are slowly worked up to a dose of 5,000 milligrams (mg) of niacin over the course of 30 days. Ordinarily however, 100 mg of niacin, once to twice per week, will be sufficient for most people, in combination with exercise and/or post-exercise sauna or a hot bath to draw out the toxins. If you're engaged in an active weight loss program, you may benefit from *daily* niacin, exercise, and sauna therapy.

"You have to mix in the exercise because it also causes vasodilation on top of the Niacin flush effect and increased cardiac outputs," Dr. Yu explains. "You're moving things. We insist that we follow the same protocol for the more toxic people: they take [niacin], they exercise, and then they go into the hot room to sweat it out."

A 100 mg dose or higher may give you what's referred to as a "niacin flush," courtesy of the vasodilation caused by the niacin. Typically, this effect will last for about 30 minutes. Taking a cold shower can help ameliorate any discomfort you may experience from the niacin flush. It's also advisable to start with a lower dose, say 50 mg/day, and work up, in order to become accustomed to its effect. The niacin causes a "Rebound Lipolysis" first described by L.A. Carlsen of Sweden when studying Niacin for use in treating hypercholesterolemia—this vitamin first tries to prevent lipolysis and then after one to two hours, it rebounds and leads to massive fat cell release of triglycerides and at the same time release of toxic chemicals.

Although Carlsen did these elaborate studies, what is needed is still more studies on the basic science; studies of simultaneous triglyceride and toxic chemical release. This process is where the toxic chemicals are also released. Although there are many effects of niacin, Dr. Yu believes it is the rebound lipolysis phenomenon that is the most important factor in mobilizing fat and toxins. We are now surrounded by so many toxic chemicals, it's virtually impossible to completely avoid exposure. In addition to avoiding known toxic

exposures, your best bet is to use a proactive approach to clean out your body on a regular basis.

"The way I look at it... it should be a part of your lifestyle," Dr. Yu says. "You should have a sauna at home. You should be doing this maybe twice a week as part of your exercise routine and it doesn't have to be with Niacin but . use it in graduated doses starting with 50 mg and increase slowly so your body gets accustomed to it once a month or more when you have some exposure.

Remember, hair coloring is a toxic chemical, especially hairdresser, people with large burden of chemicals from massive tattoos, and people who work with chemicals and solvents probably need the cleansing more. I would say [sit in the sauna for] an hour. The temperature has to be high enough, so that you're sweating. Now, you could be sweating even in a bathtub if the water's clean.

If you are on an aggressive weight loss program, it is imperative in our clinic that they use this system as they are expelling large amounts of toxic chemicals in the weight loss program and need to eliminate it otherwise they will reabsorb into both fat and brain. Thus, Yo-Yo diets can be more dangerous than you think.

What is the down side of using Niacin besides the flush vasodilation? Very little! As I and others have seen, mild liver function elevations which are transient. I myself had to go through the program (using up to 3000 mg in a 30 day period) to understand and checked my liver functions without any changes. It is the non flush longer acting niacin which can cause more liver problems, which I never recommend."

In terms of timing, you'll want to begin your exercise 20 minutes after taking the niacin. Exercise for about 20 minutes, making sure you're really breaking a sweat, then get into the sauna for up to an hour. The sauna should be at least 130 to 140 degrees Fahrenheit, in order to produce profuse sweating. After you

get out of the sauna, you can use [activated charcoal](#) or zeolite clay to further help eliminate toxins through your GI tract.

Keep in mind that when you sweat, you lose a lot of minerals and even vitamins, so make sure you replenish with electrolytes and potassium. [Coconut water](#) is an excellent rehydrator. It's a powerhouse of natural electrolytes, vitamins, minerals, trace elements, amino acids, enzymes, antioxidants and phytonutrients, and is low in sugar but you need vitamins and minerals especially magnesium, sodium and potassium. Dr Yu's recommendations seems to make sense and I am going to start experimenting with it soon and integrate it into my workout schedule by taking niacin before my Peak Fitness workouts, doing Peak Fitness on my elliptical, and then go into the sauna for half an hour twice a week.

Free Detox Treatment for Veterans with Gulf War Illness

The Gulf War Illness (GWI) Detoxification Program is a research program approved by the Department of Defense. Its purpose is to "evaluate the ability of rehabilitative therapy to decrease the symptoms and improve the quality of life of Gulf War Veterans who suffer from Gulf War Illness." The toxin mobilization and elimination strategies discussed above (niacin, exercise and daily sauna therapy) are employed in this program.

The program is free, and is open to veterans deployed to the Persian Gulf region any time between August 1990 to July 1991, and who are experiencing symptoms associated with Gulf War Illness. This includes but is not limited to fatigue, muscle and joint pain, sleeping difficulties, and memory problems. The therapy facility is located in Annapolis, Maryland. You can obtain more information about this program by contacting:

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Regular Toxin Flush Is an Important Part of a Healthy Lifestyle

When you consider how many toxins you may encounter in your day-to-day life, through your food, household and beauty products, air and water pollution, and more, it would be wise to integrate a mobilization and elimination strategy such as that discussed by Dr. Yu. To recap, twice a week (or more frequently if you're engaged in a weight loss program to shed a lot of weight) take about 100 mg of niacin; wait 20 minutes, then exercise for 20 minutes to break a sweat and stimulate circulation.

Follow up with up to 60 minutes in a hot sauna, to really sweat out all the impurities. You can finish off by taking either five activated charcoal tablets, or some zeolite clay, which will bind with toxins, allowing them to be eliminated through your GI tract. Just make sure you do not take it in combination with medications or supplements, as these will also be bound up and eliminated.