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Exposing Toxic Chemicals in Consumer Products

Analysis by Dr. Joseph Mercola | November 22, 2026

STORY AT-A-GLANCE

- Leah Segedie founded Mamavation to investigate toxic chemicals in consumer products, inspired by family tragedies. The organization conducts independent testing and collaborates with scientists to educate the public about endocrine-disrupting chemicals (EDCs)
- Many EDCs, often found in plastics and other products, can activate estrogen receptors and increase cellular calcium, which is thought to drive oxidative stress and may contribute to autoimmune diseases, especially in women
- Mamavation tests for chemicals like PFAS, phthalates, and bisphenols in various products. Their work reveals that even some organic products may contain higher levels of contaminants than conventional alternatives
- Strategies for reducing chemical body burden include blood donation to lower PFAS levels and using infrared saunas. Segedie aims to test products across the entire grocery store to provide comprehensive consumer information
- By increasing awareness and demanding safer products, consumers can influence industry practices. Mamavation's work empowers individuals to make healthier choices and pressures companies to improve their products

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In an eye-opening interview, I spoke with Leah Segedie, the founder of Mamavation, about her groundbreaking work investigating and exposing toxic chemicals in food and consumer products. Segedie's organization has become a beacon of hope for health-

conscious consumers, conducting independent testing and research to help people navigate the often-murky waters of grocery shopping and make informed, healthier choices.

Segedie's journey into the world of consumer product safety began with a personal tragedy that reshaped her life's purpose. She recounted the pivotal moment that set her on this path:[1]

> *"When my father passed away from mesothelioma, it just rocked our family. And then after he passed away, I had an aunt die of breast cancer and uncle die of lung cancer and another uncle die of, you know, complications to pharmaceutical drugs.*
>
> *From that whole experience of having a big extended Nordic family, we were so tight knit to just decimation and my cousins moving all across the United States, it was so impactful on me, it just gave me this desire to have two things. Health and family were the most important thing for me after that."*

Mamavation's Mission — Empowering Consumers Through Knowledge

Since its creation in 2009, Mamavation has focused on a crucial yet often overlooked aspect of health: the presence of endocrine-disrupting chemicals (EDCs) in everyday products. Segedie explained the organization's core mission: "We help women navigate the grocery store by providing really hard-hitting investigations about hormone disrupting chemicals in food and consumer products."[2] This mission is carried out through a multifaceted approach:

- **Independent testing —** Mamavation commissions studies on a wide range of products, from dental floss and contact lenses to coconut oil and ghee, sending them to labs for analysis of contaminants such as PFAS (per- and polyfluoroalkyl substances), phthalates, heavy metals, and pesticides.

- **Scientific collaboration —** The organization works with a team of scientific advisors, including partners at prestigious institutions like Carnegie Mellon University's Institute for Green Science, to analyze the data and interpret the findings.
- **Public education —** Mamavation communicates its findings to the public through its website and social media channels, making complex scientific information accessible to everyday consumers.

Emphasizing the impact of this work, Segedie says:[3]

> *"I know that if I spend my own money and spend my resources and just start testing things, it moves the needle right away, because a lot of these companies, for the contaminants, a lot of these companies haven't done this testing. And the second I start doing it, it's out there in public, and then it kind of stops them from being able to say, 'Oh, we don't know.' Then they have to start looking into it themselves."*

Increasing Awareness About EDCs May Lower Chronic Disease

My book, "Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy," is filled with details on how to improve your mitochondrial function. It identifies three factors that, I believe, contribute to most chronic disease — and explains why addressing them may help restore your body's capacity to heal.

The three factors include seed oils (linoleic acid), electromagnetic fields (EMFs), and EDCs, which are largely related to plastics, though many other sources exist as well. EDCs represent a broad category of substances that interfere with hormone function and have been linked to various health issues, including reproductive problems, developmental disorders, and certain cancers.

Many of these chemicals — including bisphenols, phthalates, and certain pesticides — are thought to work primarily by activating estrogen receptors in your cells, similar to how EMFs activate voltage-gated calcium channels. This activation is believed to

increase calcium influx into cells, and excess intracellular calcium can sharply increase superoxide and nitric oxide. These can quickly combine to form peroxynitrite, which is an extremely potent oxidant stressor. This can lead to severe oxidative stress and cellular damage.

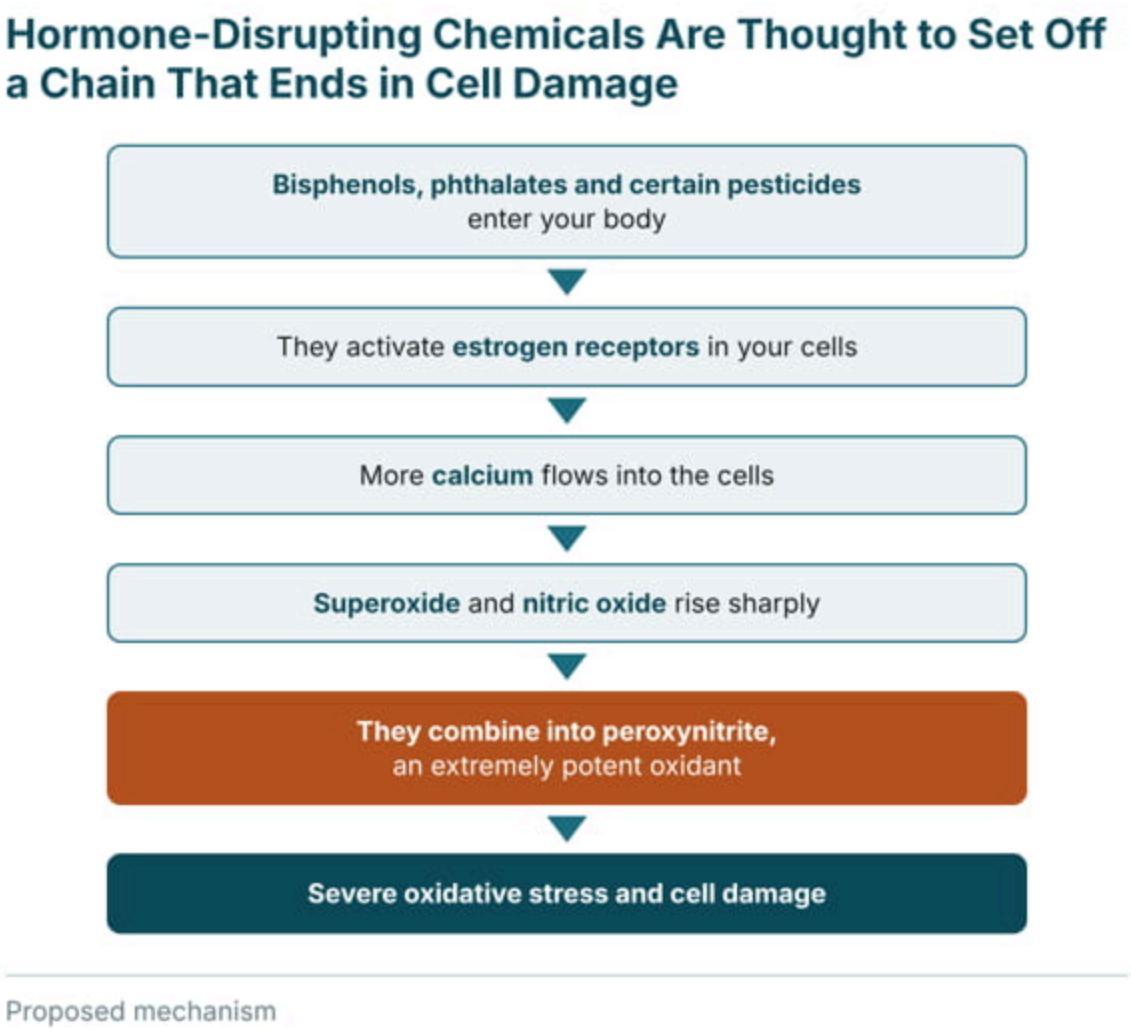


Figure 1. Bisphenols, phthalates, and certain pesticides are thought to activate estrogen receptors, setting off a calcium-driven chain that forms peroxynitrite and damages cells.

Interestingly, women naturally have higher estrogen levels than men, which could explain why most autoimmune diseases are significantly more prevalent in women. Examples include rheumatoid arthritis and multiple sclerosis.

While your body naturally produces some estrogen, EDCs provide an additional estrogenic stimulus that activates estrogen receptors. When combined with natural estrogen, this can lead to overload and a variety of diseases through a destructive chain of events:

1. It decreases mitochondrial energy production.
2. This reduction in energy disrupts the no-oxygen environment needed for beneficial gut bacteria.
3. Without the right environment, these bacteria can't produce short-chain fatty acids that nourish and maintain gut health.
4. This leads to increased gut permeability, also known as leaky gut.
5. Proteins that resemble structures in your body, like joints or neurological tissues, can then leak through the gut barrier, and your body may start reacting against these proteins, triggering an autoimmune response.

In my view, reducing estrogenic stress is central to addressing these issues. So, Segedie's strategy of testing consumer products for EDCs and increasing awareness of where to find them — and how to avoid them — is a powerful way to help lower this estrogenic burden — one of the factors I believe drives these autoimmune conditions.

PFAS, Phthalates, and Other EDCs Are Key Chemicals of Concern

Segedie discussed several classes of chemicals that are of particular concern due to their potential health impacts. These include:

- **PFAS —** Often referred to as "forever chemicals," PFAS are a group of man-made chemicals that persist in the environment and human body for extended periods. Segedie noted, "PFAS is primarily the one that my advisors are concerned with ...

The reason for that is the persistence of the chemicals ... depending on the type of chemical you have in your body, it can take from months to 40 years to get it out of your body."

- **Phthalates —** These chemicals are commonly used as plasticizers and can be found in a wide range of products, from food packaging to personal care items.
- **Bisphenols —** Including the well-known BPA and its substitutes, these chemicals are often found in plastic products and food can linings.
- **Certain pesticides —** Some agricultural chemicals, like glyphosate, have been linked to endocrine disruption and other health concerns.

By testing consumer products for these toxic chemicals and alerting the public, Segedie and her team are, in many ways, doing what many people perceive to be the job of the U.S. Food and Drug Administration (FDA) and Environmental Protection Agency (EPA). This includes looking at the cumulative burden of environmental chemicals, which Segedie describes as a "chemical hormonal soup:"[4]

> *"[M]y advisors are all about that soup that we're unaware of. You know, the chemical hormonal soup. All of these EDCs are working together in a soup that we don't understand … Lobbying for many, many decades has created a situation where the FDA and EPA ignore most of the soup.*
>
> *Just to give you an example, when the FDA evaluates pesticides, they only look at the active ingredient, they don't look at all of the additional chemicals in the formulation."*

The Challenge of Testing and Transparency

One of the major obstacles in addressing chemical contamination in consumer products is the lack of comprehensive testing and transparency in the supply chain. For instance, PFAS are used to make fluoropolymer coatings and other products, but according to Segedie, there are no routine commercial tests to identify these fluoropolymers.

With more than 15,000 known PFAS chemicals — and only a small fraction identifiable by standard lab tests — this leaves consumers with a significant blind spot. According to Segedie:[5]

> *"The hardest thing about the fluoropolymers is they are impossible to identify ... there are no tests to identify these fluoropolymers. So, PTFE Teflon, that's just one example. We know that chemical is out there, but there's not a test to identify it.*
>
> *So, if you don't have a test to identify something, you can't test the health impact of the chemical ... there's 15,000 of these PFAS chemicals out there ... most of the tests that are used [only test for] 18 chemicals, 25 chemicals, 40 chemicals, and that's what the brands are testing for. And that's pretty much it.*
>
> *So, what I'm doing is a little different. And I'm doing this with the blessing of my advisors who work with PFAS chemicals. I'm doing organic fluorine testing, because organic fluorine is what all of these chemicals have in common. And 99.9% of the time, when you're finding organic fluorine, you are finding a type of PFAS, or you're finding a type of chemical that you do not want to drink or put on your skin."*

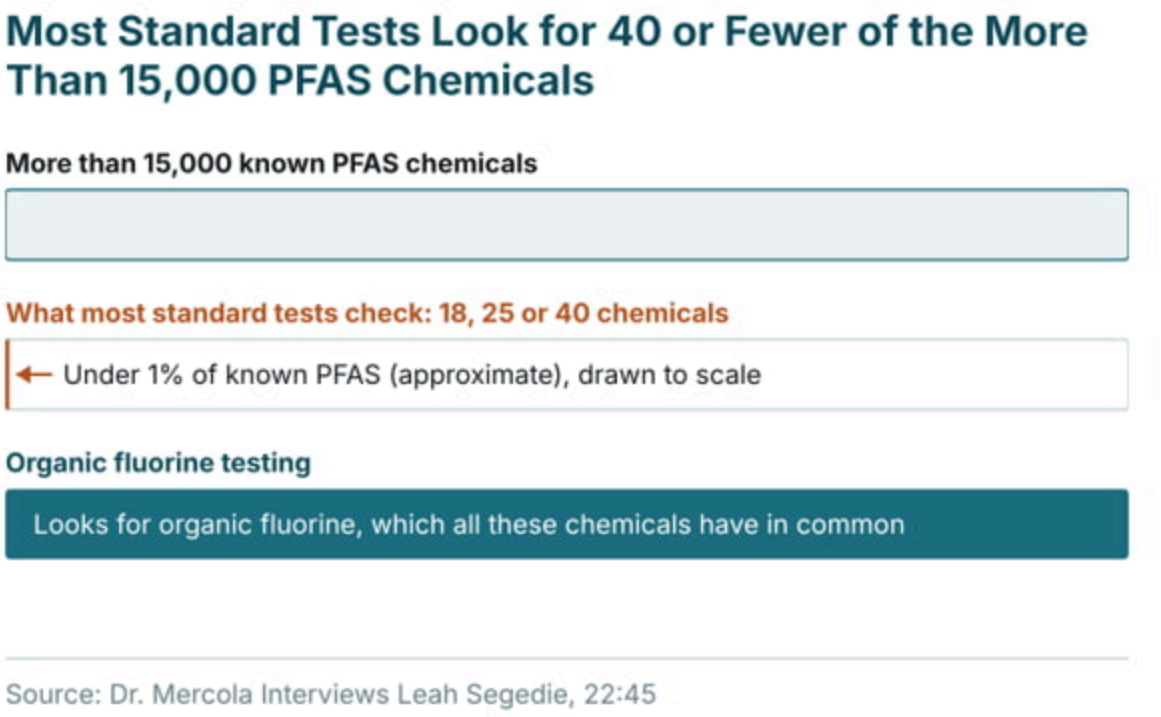


Figure 2. Most standard tests check for 18, 25, or 40 PFAS chemicals out of more than 15,000, while organic fluorine testing looks for the element they all share.

This lack of testing, whether due to ignorance or deliberate avoidance, creates a significant information gap for consumers. Mamavation's work aims to fill this gap, providing independent data that can drive both consumer awareness and industry change.

One of the most unexpected outcomes of Mamavation's investigations has been the discovery that some organic products may contain higher levels of certain contaminants than their conventional counterparts. Segedie explained this counterintuitive finding:[6]

> *"The hardest thing about this is the amount of organic products that we have found that have fluorination issues where the conventional stuff does not ... These manufacturers are smaller manufacturers that many years ago were not as relevant, decided to become organic, but don't have the more modern facilities ... to be able to support a product that would not be contaminated with a fluorine or something like that."*

This revelation underscores the importance of comprehensive testing across all product categories, including those perceived as healthier options. It also highlights the complex nature of chemical contamination in the food supply chain, where well-intentioned choices, like switching to organic products, are a step in the right direction but aren't always enough to guarantee your food is toxin-free.

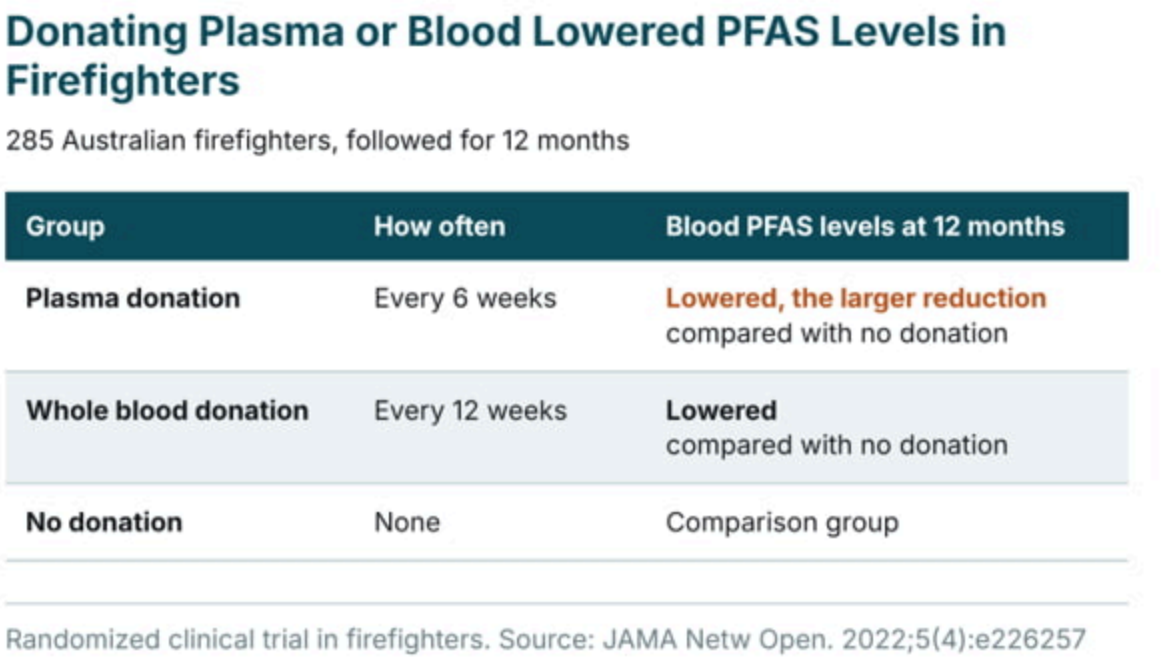
"I put ... many years [into] growing the [organic] industry. And now I find myself in a very ironic position where I'm testing them quite a bit and saying to them, 'y'all need to start working on phthalates, PFAS. You really need to start testing for these things because the organic eaters of the world really care about these toxins because they're just as bad as the pesticides," Segedie says.[7]

Blood Donation and Sauna Use as Detoxification Strategies

Given the ubiquity of these chemicals in our environment, strategies for reducing the body burden of these substances are urgently needed. For PFAS specifically, Segedie highlighted an interesting finding from research on firefighters, who are exposed to high levels of these chemicals in firefighting foam: "The best way that they found to get rid of PFAS is to donate your blood."[8]

That research was a 2022 randomized clinical trial of 285 Australian firefighters, published in JAMA Network Open,[9] in which regular plasma donation (every six weeks) or whole blood donation (every 12 weeks) over 12 months lowered blood PFAS levels compared with no donation, with plasma donation producing the larger reduction.

This discovery offers a potential avenue for individuals looking to reduce their PFAS levels and offers additional health benefits as well, including **lowering your iron levels**. This may be particularly important for men and postmenopausal women, as menstruating women lose blood with each monthly cycle.



Donating Plasma or Blood Lowered PFAS Levels in Firefighters

285 Australian firefighters, followed for 12 months

Group	How often	Blood PFAS levels at 12 months
Plasma donation	Every 6 weeks	**Lowered, the larger reduction** compared with no donation
Whole blood donation	Every 12 weeks	**Lowered** compared with no donation
No donation	None	Comparison group

Randomized clinical trial in firefighters. Source: JAMA Netw Open. 2022;5(4):e226257

Figure 3. In a 2022 trial of 285 Australian firefighters, regular plasma or whole blood donation lowered blood PFAS levels over 12 months, and plasma donation lowered them more.

You can also use an infrared sauna to support detoxification. While Segedie said she starts her sauna at 100 degrees F and goes up to 120 degrees F over the course of 30 minutes, I recommend starting at 120 degrees and gradually increasing the temperature by 2 degrees a week. The disadvantage of using lower temperatures is that you need to stay in the sauna much longer to get the benefits — by my estimate, roughly an hour at 120 degrees versus about 16 minutes at 150 degrees in a far infrared sauna.

As a veteran sauna user, I use temperatures in a far infrared sauna between 160 and 170 degrees F. However, you don't need to go that high — and should not start out that high if you're a new sauna user.

A More Precise Way to Monitor Your Sauna Session

While sauna room temperature and session duration are useful starting points, a more precise way to gauge your sauna session is to monitor your actual core body temperature using an oral digital thermometer. This personalized approach accounts for individual variations in heat tolerance, body composition, and acclimation status.

Research suggests that many of sauna's benefits — including heat shock protein activation[10] — are closely tied to how far your core body temperature rises, rather than to room temperature or time spent inside alone.

Since individual responses to heat vary significantly based on factors like body mass, hydration status, fitness level, and heat acclimation, using a thermometer gives you direct feedback on what matters most: your body's actual response.

- **Target temperature guidelines —** Using an oral digital thermometer:
    - **Beginner target —** Work toward reaching an oral temperature of 100°F (37.8°C)
    - **Optimal target —** Gradually progress to 101°F (38.3°C) for greater heat shock protein activation
    - **Do not exceed —** 101.5°F oral temperature (38.6°C)

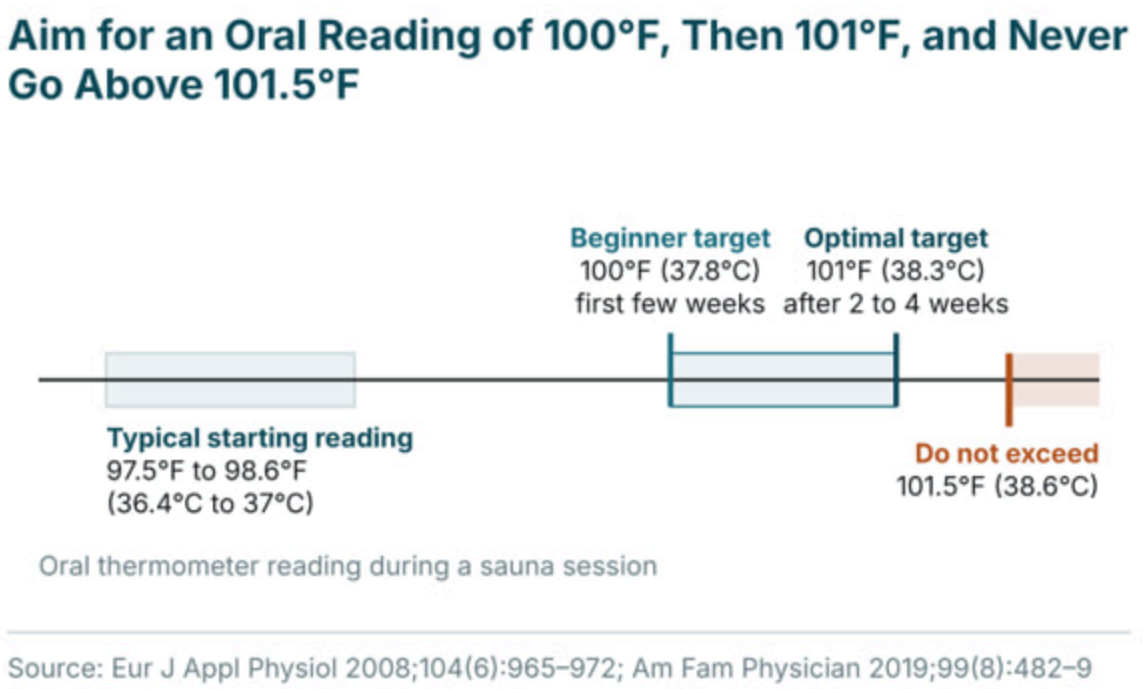


Figure 4. Exit the sauna at an oral reading of 100°F in the first few weeks, work up to 101°F after 2 to 4 weeks, and never exceed 101.5°F.

Important note on oral vs. core temperature — Oral temperature typically reads approximately 0.5°F to 1°F (0.3°C to 0.5°C) lower than true core (rectal) temperature. An oral reading of 101°F corresponds to a core temperature of approximately 101.5°F to 102°F (38.6°C to 38.9°C) — the range research has associated with greater heat shock protein induction.[11]

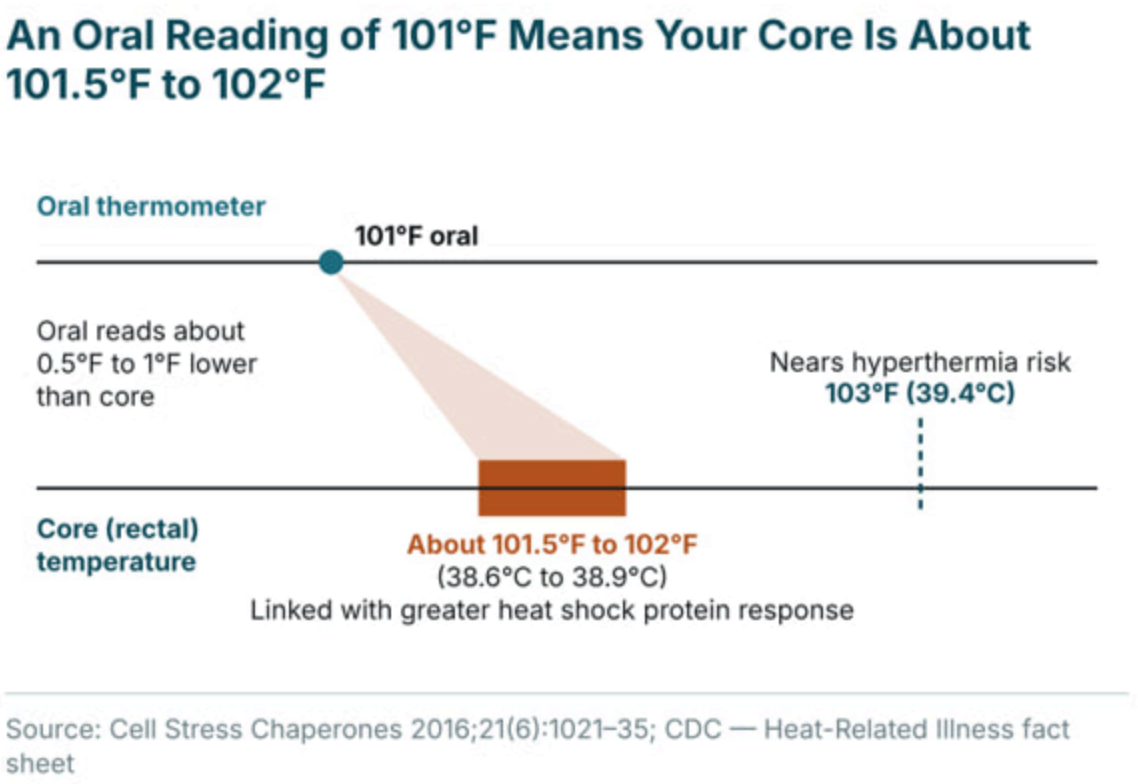


Figure 5. Because oral readings run about 0.5°F to 1°F below core temperature, an oral reading of 101°F reflects a core temperature of about 101.5°F to 102°F.

- **How to use this method:**

    1. **Take your baseline —** Before entering the sauna, record your oral temperature (typically 97.5°F to 98.6°F/36.4°C to 37°C).

    2. **Check periodically —** Keep thermometer out of the sauna as it will prolong its life and give you better measurements. After 10 to 15 minutes in the sauna, or as soon as you feel hot, measure your temperature. Be sure to put thermometer outside the sauna after measuring your temperature.

    3. **Track your progress —** First few weeks: Exit when you reach 100°F (37.8°C). After acclimation (2 to 4 weeks of regular use): You may extend sessions until reaching 101°F (38.3°C). Never exceed 101.5°F oral temperature.

4. **Listen to your body —** If you feel dizzy, nauseous, or unwell at any temperature, exit immediately regardless of the thermometer reading. If you are pregnant, have a heart condition, or take medications that affect how your body handles heat, talk to your healthcare provider before using a sauna.

- **The science behind these numbers:**
  - Research has linked greater heat shock protein (HSP) expression with core temperatures of approximately 38.5°C (101.3°F) or higher[12]
  - In a small heat-acclimation study, time spent with core (rectal) temperature at or above 38.5°C correlated with greater HSP72 mRNA expression[13]
  - Core temperatures above 39.4°C (103°F) approach hyperthermia risk territory[14]
  - The 101°F to 101.5°F oral target is intended to keep you in the range associated with these effects while maintaining a safety margin[15,16]
- **Why this beats room temperature alone —** A 175°F traditional sauna may raise one person's core temperature to 101°F in 15 minutes while taking another person 25 minutes to reach the same point. Similarly, a 140°F infrared sauna session may be perfectly adequate for one person while insufficient for another. Your oral thermometer tells you what's actually happening in your body.

Quick Reference Summary

Parameter	Guideline
Measurement tool	Oral digital thermometer
Beginner target	100°F (37.8°C) oral
Optimal target	101°F (38.3°C) oral
Maximum safe limit	101.5°F (38.6°C) oral

Parameter	Guideline
Thermometer	Keep outside of sauna

- **Additional scientific references supporting these recommendations:**

  1. Gibson et al. (Cell Stress & Chaperones, 2016) found that time spent with rectal temperature ≥38.5°C correlated with greater heat shock protein (Hsp72) mRNA induction[17]

  2. A 30-minute sauna session at 80°C increases rectal temperature by approximately 0.9°C in adults (PubMed: 3218894)[18]

  3. Heat therapy research indicates core temperatures above 40°C (104°F) risk hyperthermia[19]

  4. Oral temperature typically reads 0.3°C to 0.5°C lower than rectal temperature (NCBI NBK562334)[20]

  5. Some research places the threshold for heat shock protein activation closer to approximately 39°C/102.2°F core temperature[21]

The Power of Consumer Awareness and Action

Segedie's work with Mamavation demonstrates how independent testing and information sharing can influence both consumer choices and industry practices. Organizations like Mamavation are filling in the gaps left by regulatory agencies and holding industries accountable.

Ultimately, Segedie said, "I want to test the entire grocery store. I mean, that's my first plan right now is just to get as much as I possibly can tested and I'm expanding our testing."[22] This goal underscores the vast scale of the chemical contamination issue and the need for comprehensive, independent testing to provide consumers with the information they need to make informed choices.

It also serves as a powerful call to action for consumers, industry leaders, and policymakers alike. By shining a light on hidden chemicals in everyday products, Mamavation's work empowers individuals to make healthier choices and puts pressure on companies to improve their practices.

As more people become aware of these issues and demand safer products, companies will face growing pressure to respond — a shift that can help move us toward a healthier, less toxic future. By staying informed, supporting independent research, and making conscious choices, we can all play a part in reducing the toxic chemicals in our everyday lives. You can find out more about Leah Segedie and her many consumer product investigations at **Mamavation.com**.

This article is for informational purposes only and does not constitute medical advice. Consult a qualified health care provider before making changes to your health regimen.

How to Use Progesterone

Before you consider using progesterone, it is important to understand that it is not a magic bullet, and that you get the most benefit by implementing a Bioenergetic diet approach that allows you to effectively burn glucose as your primary fuel without backing up electrons in your mitochondria that reduces your energy production. My new book, "Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy," covers this process in great detail.

Once you have dialed in your diet, an effective strategy that can help counteract estrogen excess is to take transmucosal progesterone (i.e., applied to your gums, not oral or transdermal), which is a natural estrogen antagonist. Progesterone is one of only three hormones I believe many adults can benefit from. (The other two are DHEA and pregnenolone.)

I do not recommend transdermal progesterone, as your skin expresses high levels of 5-alpha reductase enzyme, which causes a significant portion of the progesterone you're

taking to be irreversibly converted primarily into allopregnanolone and cannot be converted back into progesterone.

Ideal Way to Administer Progesterone

Please note that when progesterone is used transmucosally on your gums as I advise, the FDA believes that somehow converts it into a drug and prohibits any company from advising that on its label. This is why companies promote their progesterone products as "topical."

However, please understand that it is perfectly legal for any physician to recommend an off-label indication for a drug to their patient. In this case, progesterone is a natural hormone and not a drug and is very safe even in high doses. This is unlike synthetic progesterone called progestins that are used by drug companies, but frequently, and incorrectly, referred.

Dr. Ray Peat has done the seminal work in progesterone and probably was the world's greatest expert on progesterone. He wrote his Ph.D. on estrogen in 1982 and spent most of his professional career documenting the need to counteract the dangers of excess estrogen with low LA diets and transmucosal progesterone supplementation.

He determined that most solvents do not dissolve progesterone well and discovered that vitamin E is the best solvent to optimally provide progesterone in your tissue. Vitamin E also protects you against damage from LA. You just need to be very careful about which vitamin E you use as most supplemental vitamin E on the market is worse than worthless and will cause you harm not benefit.

It is imperative to avoid using any synthetic vitamin E (alpha tocopherol acetate — the acetate indicates that it's synthetic). Natural vitamin E will be labeled "d alpha tocopherol." This is the pure D isomer, which is what your body can use.

There are also other vitamin E isomers, and you want the complete spectrum of tocopherols and tocotrienols, specifically the beta, gamma, and delta types, in the

effective D isomer. As an example of an ideal vitamin E, you can look at the label on our vitamin E in our store. You can use any brand that has a similar label.

You can purchase pharmaceutical grade bioidentical progesterone as Progesterone Powder, Bioidentical Micronized Powder, 10 grams for about $40 on many online stores like Amazon. That is nearly a year's supply, depending on the dose you choose.

However, you will need to purchase some small stainless steel measuring spoons as you will need a 1/64 tsp, which is 25 mg and a 1/32 tsp, which is 50 mg. A normal dose is typically 25 to 50 mg and is taken 30 to 60 minutes before bed, as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

If you are a menstruating woman, you should take the progesterone during the luteal phase or the last half of your cycle, which can be determined by starting 10 days after the first day of your period and stopping the progesterone when your period starts.

If you are a male or non-menstruating woman, you can take the progesterone every day for four to six months and then cycle off for one week. The best time of day to take progesterone is 30 to 60 minutes before bed as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

This is what I have been personally doing for over a year with very good results. I am a physician so do not have any problems doing this. If you aren't a physician, you should consult one before using this therapy, as transmucosal progesterone therapy requires a doctor's prescription.

Sources and References

- [1, 3] Dr. Mercola Interviews Leah Segedie, 3:42
- [2] Dr. Mercola Interviews Leah Segedie, 0:27
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