

# **Chemical-Free Skin Health®**

**Stop • Challenge • Choose**

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## Chapter 12: My Two Worst Public Enemies! Triclosan and Parabens

Early on I told you about how the skin works. Overly simplifying a particular facet of the skin, the bacteria that exist on it keep our skin in balance. Washing our skin and particularly the face removes the remnants of the bacteria, dirt, pollutants and dead skin. No matter how hard we try to remove the bacteria, it is nearly impossible unless we use germicides or bactericides like parabens and triclosan.

Here is my simple concern. If I can put a paraben in a product to kill off bacteria and germs in the container, what does it do to the good bacteria on my skin? If I wash my hands with a hand sanitizer that contains the broad spectrum bactericide, triclosan, what does it do to my good bacteria?

Search as I might, I have not found any evidence that parabens and triclosan are tuned killers. Meaning that they waste the bad guys and protect the good. Everything that I have read supports the contrary.

I have talked to dermatologists, doctors and scientists asking their concerns about what is going on in personal care and cosmetics that concern them. Over 90% express concern over parabens and triclosan because of the long term health effects. Not from the chemicals, but from the effect it has on killing the probiotics of our skin. All express an even greater concern about these chemicals being used in our food, toothpaste and mouth washes.

You can choose to read this chapter or not. It is somewhat geeky, but necessary to explain my perceptions.

What I believe is that the only thing known to man that kills the good bacteria on our skin are parabens and triclosan. Remove the good bacteria and our balance is disrupted. Disrupt the balance and those bacteria that come at us first are the worst kind and literally attack unprotected skin.

I personally believe that these two chemical types are responsible for many of the skin disorders that doctors see.

Also, it took western medicine a long time to buy into the fact that we need probiotics to help our gut perform. I believe it is also time that we start to explore probiotics for our skin.

Finally, I do believe that the people that have link MRSA (Methicillin-Resistant Staphylococcus Aureus) outbreaks to parabens and triclosan are probably correct. Only time and research will prove them right or wrong. Indications are they are correct and it is probably time to eliminate parabens and triclosan from your life.

So read on if you want!

### ***Triclosan: The Biocide that Creates Super Bugs?***

FACT vs FUD is a chapter in this book as well as an article on our blog. In this overly inflammatory news based society of ours, my resistance is to publish anything that is not based in research that is a bit beyond a theory.

#### *Some History:*

One of the inspirations for this book and this article was an experience I had while in a store outside of Dayton Ohio. I was not too far from the headquarters of Proctor & Gamble (Cincinnati) delivering a speech about the Dirty Dozen at an annual event the store promotes. Probably 200 in attendance, I went through the Dirty Dozen chemicals created by the Marin County Cancer Project. At the end, I provided some chemicals of concern, so I went back through my “most feared” list. In the book, I describe that some of the Dirty Dozen are much more damaging than others, but tend to be used in only discrete segments and in only some products. Some ingredients like parabens are much more widely used often in multiple doses during the manufacturing process elevating their concentrations in products to well beyond the called for percentages by the chemical maker. During my speech, I invited questions as we went along and there were plenty.

At the end, I voiced my concern that triclosan was perhaps my greatest fear because it is so powerful a biocide. I had explained earlier that triclosan is the main ingredient in hand sanitizers and antibacterial soaps. A biocide, by design, kills gram positive and gram negative bacteria as well as most all bacteria. My concern all along has been two very important concerns:

1. If it indiscriminately kills all bacteria, then what does it do to the flora-probiotic on our skin?
2. Will the destruction of all bacteria on the skin create super-bugs that morph and become resistant to both the biocide and antibiotics?

As I always do when speaking to a group, I try to connect with the eyes of people in my audience. It is my way of trying to figure out if I am connecting with them. In my corporate life, I received training on how to read an audience as well. As I call it, 'Squirming Around' is a big flag that I have touched a nerve. As a CEO of a publicly traded company, you better believe that I experienced this at every shareholder meeting. So, this day, I was thrust back to my corporate life by a gentleman that had asked no questions, been very polite and had friendly eyes. When I lumped triclosan in with parabens as my major concern, his hand shot skyward as to immediately interrupt me. I obliged by stopping to acknowledge his question.

He asked, "Why would you add the main ingredient in hand sanitizers with that of preservatives used in almost every product made from personal care, to toothpaste, to food?"

First things first, I knew immediately that this person was from the industry because the question was one I would have expected in a meeting inside a research and development process. Not being ever deterred by confrontation, I answered both technically and emotionally. Here is my initial response.

"I am more concerned with Triclosan than a Methyl Paraben for four primary reasons:

1. Triclosan has been used in hospital and scientific environments for many years because it is the most effect biocide.
2. The concentration of Triclosan in a function specific product like antibacterial soaps is much higher and therefore of greater concern to me because it does a much more wide reaching job of killing all bacteria on the skin including the good bugs!
3. The destruction from Triclosan is so powerful and long lived compare to parabens that I have more than a subtle concern that what bacteria arrive back on the scene will be the worst kind like staph, e. Coli etc.
4. I also worry that these strains of bacteria will grow back with a vengeance and become resistant to both Triclosan and known antibiotics."

The man stood straight up as if to confront me. I could also tell that I had just scared the hell out of the rest of the audience. Before I could temper my comments with the fact that this was my personal concern and that I had not gathered all the facts, he spoke.

He said, “I am a scientist that works down the road. First, I am a parent and father. I do not care that we have the best health insurance; I worry about what we expose our kids to. We have had an outbreak of Staph in the middle schools in this area and what you are saying is that because we require our kids to wash with antibacterial soap containing Triclosan that we are exposing them to the potential of transmitted staph infections like the ones we are experiencing now?”

My only answer had to be from the heart and not my corporate training to dodge the question. I said, Yes!”

He shook his head and sat down. Honestly, you could have heard a mouse burp in that room! I tried to interject some humor and my time was up. The people filed out of the room as the other speaker got set up. The man approached as did the sponsors from the store.

The sponsor thanked me for the informative talk and quickly said, can you send me something about this. She offered that she was a Cancer survivor and had a more than passing concern.

The man also echoed by adding that he was privileged to be able to read many documents about uses of chemicals. He said that what he always noticed is that most have warnings of irritation when used in high percentages and that antibacterial soap using Triclosan actually exceeded the minimum percentages. I asked if he could provide me with percentage data and he said; “No! I am not allowed to do that!” I got the message. I walked back to my team that was exhibiting at the health fare and told them of the experience. I shared, that I only wish I had a study to hand to everyone that at least echoed my fears.

Over the last two years, I have shared the story with colleagues. This morning in July of 2010, I received an email with a copy of the Opinion from the EU Scientific Directorate! Being a geek, I read all 56 pages and decided to sit down to finish this chapter of the book.

Remember this is an opinion and I would encourage you to read the entire document. There must be additional testing. We do know that bacteria exposed to destructive agents does morph into “super bugs” in many cases. This opinion echoes much of that concern. In one sense, I am pleased that this concern of mine and others has now taken another step up in the process of science.

My opinion! For what it is worth, science generally follows an orderly path. The Mandelbrot theory says that, if that what we see occurs in a large scale, it will occur in a small scale. If we can kill

bacteria...good and bad... with a large dose of a chemical, then small doses delivered more frequently and repeatedly will have the same effect. The other scientific principle that comes to mind here is Occam's Razor which is the principle that "entities must not be multiplied beyond necessity" or that the simplest explanation is usually the correct one. So, to me it makes sense from a logical perspective that using a chemical like Triclosan everyday in large doses will have a long term adverse effect on the flora of the skin. Only the test of time and scientific studies will bring the concern to even higher levels.

What I can share is that I personally avoid anything on or in my body designed to kill something like germs, bacteria and microbes. Like all of us, I have had to take antibiotics and we know from the warnings that sustained use can make them ineffective. Following Occam's Razor, I also believe that is true of these chemicals under various names that are designed to make my life more pure...Purity at the sake of what?

So, my mother may not have been right that eating dirt was all that bad for me ☺

### ***Triclosan: The Biocide that keeps on giving!***

Most of the free world including the US requires that Triclosan be listed somewhere on the label if it is used in a product. But how about if it is used in product packaging or molded into materials. Unregulated therefore no requirement for listing. Herein is the fallacy of confusing consequence with sequence.

Have you ever wondered why cheese seems to last longer than it used to? Have you wondered how companies can claim that if you buy their storage products that food will last longer? Have you wondered how a manufacturer could claim that their running socks are antibacterial?

We know that Triclosan is used in sanitizers and toothpaste as well as antibacterial soaps. Did you ever wonder what chemical they use in making utensils, cooking equipment, cutting boards and even sport clothing to make them antibacterial. You guessed it, Triclosan. The white powdery substance can be molded into products to make virtually antibacterial. Many food packages are molded with Triclosan to make them antibacterial to preserve the food longer.

If there was any reason to buy organic and local at the farmers market, this is a darned good one for me.

So, like phthalates, Triclosan is not just in personal care. They found phthalates in children's toys and car dashboards. Triclosan is in much more than antibacterial soap. So here is a partial list of products that use Triclosan:

- Sanitizers
- Antibacterial soap (really a detergent)
- Deodorant
- Toothpaste
- Shaving Cream
- Mouthwash
- Skin Care
- Makeup
- Acne Products
- Antimicrobial Creams
- Cleaning Supplies
- Kitchen Utensils
- Food Storage
- Plastic Wrap
- Trash Bags
- Toys
- Bedding (People and Pets)
- Socks

- Sports Clothing
- Child Car Seats

Someone asked me if I could link a direct connection to MRSA (Methicillin Resistant Staphylococcus Aureus) and Triclosan. I said, “Honestly, I do not know!” Do I believe that it is connected? Yes! So you can imagine my surprise when I read an article in a medical journal prescribe sits baths for MRSA suffers in a solution of 2% Tricolsan!

**Triclosan** is used in many common household products that you would not expect.

OK, I am starting to sound like a radical working at an NGO! Environmental issues are big as well.

Parabens!

Parabens...Good Guys or Bad Guys?

*As a part of my ongoing series of looking at the Dirty Dozen Chemicals shown to provide elevated Cancer rates in people and animals, in this article, I outline why we do not use parabens leaving the judgmental diagnosis to the NGO's attacking them. The Dirty Dozen Chemicals are a list of 12 developed originally by the Marin County Cancer Project which at the time, had the highest Cancer Rates in the US. Followed by Search For The Cause and Teens Turning Green the list is now designated the Dirty Thirty.*

So, are parabens good guys or bad guys? Both it seems and there is a reason why we do not use them as well.

Below is a scavenged description of parabens from Wikipedia. On the surface and from a chemical perspective they do their job. Many chemists and companies support their use based on a belief of safety. I believe that they are looking at the wrong reasons for safety.

Our society seems to primarily look at safety as, “will what we put on our skin hurt us directly?” I believe that we should be looking at whether it hurts us based on contact and will it cause something else to hurt us because of it.

So first let's try to understand what parabens are and why some manufacturers use them. Here is that Wikipedia description:

**Parabens** are a class of chemicals widely used as preservatives in the cosmetic and pharmaceutical industries. Parabens are effective preservatives in many types of formulas. These compounds, and their salts, are used primarily for their bactericidal and fungicidal properties. They can be found in shampoos, commercial moisturizers, shaving gels, personal lubricants, topical/parenteral pharmaceuticals, spray tanning solution and toothpaste. They are also used as food additives.

Their efficacy as preservatives, in combination with their low cost, their long history of safe use and the inefficacy of natural alternatives like grapefruit seed extract (GSE), probably explains why parabens are so commonplace. They are becoming increasingly controversial, however, and some organizations which adhere to the precautionary principle object to their everyday use.

#### Chemistry

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Parabens are esters of *para*-hydroxybenzoic acid, from which the name is derived. Common parabens include methylparaben (E number E218), ethylparaben (E214), propylparaben (E216) and butylparaben. Less common parabens include isobutylparaben, isopropylparaben, benzylparaben and their sodium salts.

#### Occurrence

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Some parabens are found naturally in plant sources. For example, methylparaben is found in blueberries, where it acts as an antimicrobial agent. However, when parabens are eaten, they are metabolized and lose the ester group, making them less strongly estrogen-mimicking.

***( Bob Comment) Part of the rub here is a number of studies that link parabens to breast Cancer because of these properties, but let's not get too off track!***

#### Synthesis

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All commercially used parabens are synthetically produced, although some are identical to those found in nature. They are produced by the esterification of *para*-hydroxybenzoic acid with the appropriate alcohol. *para*-Hydroxybenzoic acid is in turn produced industrially from a modification of the Kolbe-Schmitt reaction, using potassium phenoxide and carbon dioxide.

Now that you are an expert on parabens, I think it is fair to talk about the pros and cons of them.

Remember that I believe that it is an indirect result of the parabens that is as important to look at as well as the direct result of their actions.

The pros of parabens or grapefruit seed extract are that they kill bacteria and fungus inside products. It is very difficult to sterilize containers and apparatus without using chemicals. The technique we use is super-heated steam on our equipment, but those parabens do a really good job of killing microbes, gram positive and gram negative rods. The con is that they do a good job of killing bacteria on our skin as well.

You might say that is good, but much research shows that what we want to do is inhibit bacteria growth on our skin while permitting flora bacteria to exist as it does in nature. To me, it is sort of like drinking parabens in hope they will kill diseased bacteria in our gut in hopes that they will leave all that good bacteria we want alone. If science could figure that out, it would be major... just has not happened yet.

Frankly, when I developed our first products, I did not know what parabens were. So it was simple...ignorance was bliss. I did know that I needed a preservative and my aboriginal friends suggested rosemary. Turns out it is also a natural high grade antioxidant, but for me, it minimized bacteria growth in our natural products.

When a contract manufacturer approached me to make our products, I politely listened as the salesperson told me why I had to use parabens. My silence forced him to exasperation and he blurted out, "What would you do if the FDA said you have to use parabens?" My answer? I would mark the products refrigerate after opening! He was not amused and yet that is exactly what I would do.

It turns out that we have traced part of Wendy's reaction to prescription products after her Melanoma to a paraben reaction. Admittedly rare, I personally believe that it is more common than we think.

I will let our friends at the Breast Cancer Fund fight the paraben battle on their own front. I would encourage you to research that more for yourself.

## Why We Do Not Use Parabens

Simply, I have done enough research and read enough that parabens in our personal care, household products and mouth care kill all forms of bacteria on our skin and in our gut. Like studies have shown with triclosan and germicides used in household products, my own studies have shown these same agents kill the natural flora on the skin and in the gut. What I believe happens next is that the really bad bacteria including gram positive rods like e. Coli and Staph (MRSA) have an opportunity to come back with a vengeance and attack our systems freely.

For example, it is common in our microbiology lab to take an agar petri dish and smear a natural ingredient on it to see if colony, gram positive or gram negative rods (bacteria) show up in an accelerated 72 hour test. What is not common, but we have done it, are to take a sample of “bugs” and kill them and then watch what grows back first in an open air environment. More than not, we see some harmless colony bacteria show up first, but then some really nasty bacteria take over and on most occasions we see fungus appear to feed on the bacteria. Can’t prove it, but I have to wonder if all this MRSA staph that has shown up in our middle schools is not a direct link to the triclosan in antibacterial soaps and the parabens in all of our products.

Okay, now that I have you flipped out a bit, I did a test of ten products at one of my labs and measured the cumulative amount of parabens in them. What I mean is that I know that the providers of parabens suggest a range or percentage to use. Let’s say it is 0.5% of the total solution. When I tested the products all showed excessive amounts of parabens well beyond the recommended dose. Knowing that chemists strive for economy, I began to wonder why the levels were so high...high enough to kill anything. I could not figure out why until I was giving a speech on the Dirty Dozen near Dayton Ohio and one chemist from P&G asked how many ingredients were typically in natural products. I answered, “probably 10 to 15.” He laughed and said our average is 45. It suddenly dawned on me how the paraben levels could be so high in the products I tested. The answer, the ingredient/chemical suppliers were also using parabens to preserve their raw material. Think it through! The manufacturer puts 0.5% into the product and each of the suppliers of those 40+ chemicals put 0.5% into the raw materials. Simply, we are being overdosed with parabens and every product we use adds to the equation. Ten products times the 1.6% average we tested is a daily dose of 16% on our skin. I think the most recent statistics I heard from the EWG is that the average woman uses 12 products a day containing parabens and men average 6 products.

That means that if I am correct with my average that women are getting ~19.2% paraben contact. We have always joked that “chemists add and engineers subtract, but maybe it is not a joke.

### **Our Simple View**

To overly simplify the reason we do not use parabens is that we believe that what comes out of the bottle designed to kill bacteria in the packaging also kills the flora on our skin and our gut facilitating bad super-bug bacteria to grow in its place that also facilitates fungal growth and imbalance.

Right now, this is a tested theory long from scientific fact. What if I am right!

See, I told my mother eating dirt was good!

BTW, The Mayo Clinic states, *“Most MRSA infections occur in hospitals or other health care settings, such as nursing homes and dialysis centers. It's known as **health care-associated MRSA, or HA-MRSA**. Older adults and people with weakened immune systems are at most risk of HA-MRSA. More recently, another type of MRSA has occurred among otherwise healthy people in the wider community. This form, **community-associated MRSA, or CA-MRSA**, is responsible for serious skin and soft tissue infections and for a serious form of pneumonia.”*

I personally believe that people are walking in with the MRSA and when surgery is performed that is when it invades. Maybe hospitals should pretest for MRSA and an incoming inspection....Do you think?

### **Chapter Quick Notes:**

1. Parabens and Triclosan are bactericides and germicides. That means they kill all bacteria indiscriminately. Good or bad bacteria alike, it they just kill.
2. Parabens and Triclosan indiscriminately kill the good probiotic bacteria on the skin. My belief is that this permits bad bacteria attacking the undefended skin.
3. Washing the skin does not remove our probiotic good bacteria from the skin.
4. Bactericides cause an imbalance on the skin possibly leading to many skin disorders.