

Healthy Mouth World Summit

Katie Spears, the Wellness Mama

My Experience with Supporting Oral Health from the Inside Out

Will: The next expert to share with us here in the OraWellness Healthy Mouth World Summit is Katie Spears. Katie, otherwise known as “The Wellness Mama” has a background in nutrition and journalism. As a stay-at-home-mom of four, she now writes at WellnessMama.com where she provides recipes, natural living ideas, fitness tips, and health information to help moms and families live healthier lives. The title of Katie’s talk is “My Experience with Supporting Oral Health from the Inside Out.”

Katie Spears, welcome to the Healthy Mouth World Summit!

Katie: Thank you so much for having me!

Will: Oh, thank you for coming and sharing with us your personal experiences. So, let’s just jump right into this. How did you become interested in oral health to begin with?

Katie: It’s been kind of a gradual process for me, actually. As I switched to a more natural diet and lifestyle as part of my wellness journey, it came naturally. But I also resisted it for a long time since I’d always been under the impression that oral health was somewhat separate of nutrition and it revolved mainly around brushing and flossing [inaudible] care. So, as I started to read this information and see it in my own mouth, I was fascinated, but also a little hesitant.

And, I'd had a lot of cavities as a kid. And I knew I wanted to avoid this for my children. And I read books like *Cure Tooth Decay* and *Nutrition and Physical Degeneration* by Dr. Weston Price. And they talked about the role of nutrition in oral health, and the possibility that you could actually heal or reverse tooth decay and improve overall oral health with nutrition and lifestyle changes. And the pieces started to fall into place in my own life.

And, it just started to make a lot of sense that just as the rest of the body is capable of regenerating itself, that the teeth would be able to do this also if we gave it the right tools.

Will: Yeah, exactly. Very well put. So, what personal experience have you had with improving your family's oral health?

Katie: It's been pretty drastic. To give you a little backstory, as a kid I had my fair share of dental problems, starting with I had a piece of tough tissue between my front teeth that let me have a lovely, embarrassing gap between them for most of the beginning of my life. And a dentist eventually cut that and pulled my teeth together with rubber bands, which was painful.

And, then after that, I had really inflamed gums there for a long time, and a scar that was really noticeable on my gums. And it didn't seem to be healing. Later on I had to have two baby teeth pulled because they wouldn't fall out on their own. I had four impacted wisdom teeth pulled. And I had braces for almost three years, including the gamut of head gear, rubber bands, the plate on the top of my mouth, the whole shebang.

Prior to braces, my teeth were horribly out of alignment. Actually, I asked my mom to try and find a picture of my teeth before braces so I could show you guys. And, she couldn't find one because I just didn't smile, basically. And the whole time I had braces and for months afterwards, my gums were always really inflamed and painful. And I later partially tied this to a latex allergy that was from the rubber bands and the braces. But, I brushed and flossed religiously prior to having braces, while I had braces, and it didn't ever seem to do any good for the puffy gums.

And, when my braces were removed, pieces of the surface of my teeth were actually pulled off with the brackets, that they'd been glued to the teeth. And I got several cavities in the months that followed that. And my teeth also became really sensitive, and I couldn't even eat cold food or drink something cold without cringing. And the thought of biting into a popsicle, just thinking about it, made me literally shiver.

So, in high school, I continued to brush and floss twice a day regularly per dentist instructions. My diet was definitely very far from optimal. And, I continued getting cavities. But, I attributed this to the sugar sitting on my teeth, which is what my dentist had explained was the cause. The sugar sitting on your teeth and the plaque opens the door for dental problems.

So, fast forward past college and getting married. And my diet had improved some, but I continued to still get the occasional cavity. And with my pregnancy with our first child, my teeth became even more sensitive, and several cavities cropped up. And my dentist explained that this was just normal during pregnancy.

Now, in hindsight, that probably should have been my first clue that there was some role of nutrition in oral health because, obviously, there's an increased need in the body for minerals and vitamins when you're pregnant since the baby needs those. So, important nutrients for my body or the foods I was eating were getting passed to the baby. And if there weren't enough for me, then things like my health or my teeth would suffer. So, that should have been a clue.

But, over the next couple years and through my next two pregnancies, I continued to find information that contradicted the conventional training I'd had in nutrition school, and also that contradicted what the dentist was saying. And, so, I slowly moved away from a low-fat, high-fiber diet that still contained sugar to a high-healthy fat diet with moderate protein. And most of my carbs came from vegetables or fruits or starches like sweet potatoes instead of processed foods or sugar. And I focused on eating for health and for replenishing nutrients, not just for food and for being full. So, I tried to choose foods at meals that would actually boost my nutrient levels, not just fill me up.

And during this time, I didn't develop any new cavities, even through these two more pregnancies, which, at the time, I just thought was because I wasn't eating sugar and starchy foods. And I figured that's why the cavities had stopped. But, as I learned about traditional foods in the role of gut health, I also started eating fermented foods and healthy fats like coconut oil and ghee and tallow and grass-fed butter, oily fish. And I also started taking high-quality probiotics.

And I saw improvement in many areas of my life -- my skin, my hair, how well I could tan. But, my teeth were the most surprising part. Not only did I continue not

to get cavities, but my tooth sensitivity was slowly vanishing. And my teeth were getting whiter even though I wasn't doing anything external to whiten them. And I'd had yellowish teeth since antibiotic use as a child, so that was shocking to me because I had been told that was a pretty permanent thing.

So, during this time, I had also started making and using my own homemade dental products, including a remineralizing toothpaste and a tooth powder that I made. I occasionally brushed with baking soda, but it was mostly the remineralizing toothpaste. And this seemed to whiten my teeth even more. And when I added in the OraWellness blend to the toothpaste and started using that daily, the last of my tooth sensitivity went away and my puffy gums went away. And my teeth also continued to whiten without any commercial products. So, I found that fascinating.

But, what really cemented the idea of nutrition and oral health to me was I had a stressful time in my life when I was traveling a lot and nutrition wasn't as optimal. And my regular dental checkup revealed that I had some soft spots on my teeth, and the plaque had come back. But, I also had one "official" cavity. And it wasn't very bad, but they still suggested getting it filled pretty soon.

So, I wasn't in a huge rush. But, they also warned me I had the beginning stages of gingivitis in several places, which, thanks to, like, Listerine commercials in the 90s, really freaked me out. So, I had every intention of getting the cavity filled. And I was going to continue with regular dental appointments. But, of course, life happened, as it usually does. And I didn't get around to scheduling the appointment for several months. And by the time I finally had time to schedule it, I'd read more about the ability of teeth to heal.

So, I decided to hold off a little longer and try some of the more natural methods since it wasn't bothering me at all. And I reread the book *Cure Tooth Decay* by Ramiel Nagel. And I read accounts of other people who had reversed dental damage. So, I figured it wouldn't hurt to give it a try as long as I wasn't having any other pain or problems.

So, I gave myself a specific diet and supplement regimen that I was just going to stick to for a few months and see if it helped. And I noticed that my teeth did seem stronger. And there was no plaque on my teeth. The rough spots on the front of my teeth from where I had braces also became whiter and smoother again, which was surprising.

And, I also found out during this time that I was expecting our fourth baby. So, as a side note, this diet also promotes fertility! I just want to put that out there. [Laughs] And I decided to continue on the regimen for the pregnancy since all the things I was doing were also very supportive of a healthy pregnancy. And it also ended up being my easiest pregnancy by far, and my easiest delivery. I don't think it's coincidence, but I'm happy about it.

And it was the next fall before I finally got around to making it back to the dentist. And I know, if any dentists are listening, every six months, I got it! I'll stick to that from now on! But I didn't mention to the dentist about the cavities or the soft spots. And he didn't mention it either. It only took the hygienist about 5 minutes to clean and scrape my teeth instead of the 30 or 40 minutes it used to take them.

And I thought she was still just checking. And she told me she was done. The hygienist actually asked me if I'd started using fluoride or fluoride toothpaste and that's what had made the change, because my chart indicated that I didn't want them to use the fluoride treatment on me. And I told her, "No, I'm not using fluoride, but I've been trying to take better care of my teeth," which is true, but it was from the inside, not the outside.

And when the dentist checked my teeth, he didn't mention any of the problem areas or the cavity that he had seen before. And he did remark that my gums looked great. So, that was what cemented it for me, that my body had actually been able to heal that cavity. And since then, I haven't had any dental problems. And I continue to get good check marks on my gum health.

Will: So, let me recap this. You didn't get the best genetic tendency. It's not like you had the pristine genetic health and didn't have your share of dental issues in the beginning. It's beautiful. Excellent, excellent!

I didn't know that story. That's so cool!

Katie: Yeah, so now you know my dental history.

Will: Yeah, really. Wow. So, obviously, you have experience with this. What role does nutrition play, from your understanding, in achieving optimal oral health?

Katie: This is the part that was so fascinating to me. My background is in nutrition, so I am a little biased towards it. But, what I found in my research and my experience is that nutrition made a huge difference in my oral health

transformation. And what's interesting, since I posted about this on my own blog, I've gotten dozens of emails from readers who have had similar results. And, if you think about it, it makes a lot of sense that what you put into your body and what goes into your teeth internally would have an impact as much as what you put on them externally.

In my research, what fascinated me was the work of dentists like Dr. Price who documented the oral health of people around the world and compared their native diets. And he found populations who didn't have any kind of oral care like brushing or flossing, and some who even filed their teeth down to a point. But they had very low rates of tooth decay. And a lot of them had wonderfully spaced white teeth. And they didn't have access to modern dental care.

And he found this across several different populations across the world, so it wasn't just a genetic thing. And what was an interesting note, he also found that when these people were removed from their native environment and their native diet, they would also get tooth decay at the rates that the rest of us would.

So, on the opposite end of the spectrum, he found all these modern populations who were brushing and flossing and who did have access to modern dentistry, but even the children were becoming widely affected by tooth decay. So, he theorized and he later tested that nutrition played a really big role in oral health, and that certain traditional foods could make a big difference in oral health.

And at this point, I also read about the work of Dr. Edward Mellanby and his wife Dr. May Mellanby. And Dr. Edward Mellanby discovered vitamin D and discovered that its deficiency was linked to rickets. And they discovered that

tooth structure is determined during a child's growth, even in utero, and that poorly-formed teeth are more likely to decay, which is pretty logical. So, these doctors all reached similar nutritional conclusions after all their years of research, mainly that tooth structure and health is largely determined, not just by the external factors, but by diet, as well.

And then, three main factors that seem to be pretty common amongst both of those -- Dr. Price and the doctors Mellanby -- was that the dietary factors that affected oral health were the presence of enough minerals in the diet, the presence of especially fat-soluble vitamins in the diet, and Dr. Price especially focused on vitamin K2, which he called "activator X," and which we now know is present especially in raw grass-fed dairy and grass-fed meats. And also, the third thing was how bioavailable these nutrients were and how well the body was absorbing them, which they found was partially linked to the presence of phytic acid in the diet, which blocked mineral absorption.

So, to me, this made a lot of sense. From my own dietary changes and the resulting oral health changes, in my switch to more nutrient-dense food, I had started consuming a lot more minerals from foods, mainly bone broth, soup, seafood, which has a lot of iodine and magnesium. And I had added in a whole lot of healthy fats like fermented cod liver oil, grass-fed butter, grass-fed meat and tallow, lots of pastured eggs and organ meats, which all had fat-soluble vitamins.

So, the addition of probiotic-rich food and the gelatin from the bone broth, also helped that third factor, which was how well my body was absorbing them. And

since I removed the processed foods, I had gotten rid of the biggest sources of phytic acid from grains and beans and nuts. And I'd also gotten rid of sugar.

So, Dr. Price and even modern researchers like Ramiel Nagel, they explain that the diet can affect even tooth spacing and the formation. And I'm so curious to watch this with my own children. My husband and I both had cavities in our life and we both had braces for a long time. And so far our children, especially the younger ones who've had the most benefit from my switch in diet, have very well-formed teeth and wider jaw lines than either one of us had. So, I'm really fascinated to watch how that develops throughout their childhood.

But, to me, this nutrition-based model makes a lot more sense than the theory that tooth decay is simply from bacteria in the mouth that are eating simple sugars that produce acids that ruin our enamel. Certainly, I think the external factors like sugar on the teeth and that acid are definitely part of the story. But, if you think about it logically, that doesn't make sense that it could be the whole story because like the rest of our bodies, our mouths are a breeding ground for good and bad bacteria. And they're an ecosystem in the sense of themselves.

So, despite our best brushing and flossing regimen, even if we're swishing with hydrogen peroxide every ten minutes, we're still inhaling and exposed to thousands of germs per hour. So, there's really no way to completely eradicate the bacteria. But perhaps we can, from the inside, strengthen our teeth to resist that.

And there are numerous examples of populations that Dr. Price studied that consumed carbohydrates in large amounts but that didn't even brush their teeth at all, but they didn't suffer from tooth decay.

And the other thing that I've thought about lately is we've got the most recent surveys are showing that upwards of 90% of the U.S. population suffers from tooth decay or gum issues in some capacity. So, we can either surmise that only 10% of people are actually brushing and flossing their teeth and following their dentist's advice, or we can consider that other factors are involved and start going back to the traditional methods and looking at what can be the root of this, not just the external cause.

And, from the research I've done, these external factors, they don't just include diet, but the balance of minerals in our body, our blood chemistry, our hormone levels and the quality of our saliva, which is a living substance that's actually nourishing our teeth from the outside. But it's created from the inside. So, my theory is that until we stop focusing solely on the external, but also evaluate the internal, then we're going to continue to see deterioration.

Will: So, from your perspective, what would an optimal diet... You've discussed a lot of the points here. But let's really get down to the brass tacks here. What would an optimal diet for healing the mouth be from your angle?

Katie: That's a great question! And, fortunately, I think the diet that's best for oral health is also going to promote health in so many other areas like weight control, obviously fertility in my case, brain health, gut health, and even the body's ability to absorb and use vitamin D, which is also important for oral health.

And I just mentioned the rising rates of tooth decay among the population. So, obviously, the standard diet that we're eating is not the most supportive of oral health. What I found to be the most beneficial in my own family is a similar diet to the one suggested by Dr. Price and Ramiel Nagel and a lot of other natural health practitioners that are now promoting this.

And I was so excited to find their scientific explanations because it was giving me the backing to what I had discovered in my own life and helping me understand why it was working. We can probably all agree that a high-sugar diet is not good for our teeth or our body, internally or externally. But a diet that's truly supportive of oral health, it goes deeper than just getting rid of sugar and processed foods, that they're not sitting on our teeth. But that is a great first step.

Some recent studies I've seen have reported that many of us are deficient in minerals like calcium, magnesium and phosphorus. And sugar-containing foods and processed foods that are devoid of minerals actually deplete these minerals in our body. So, that's another logical reason why these foods would be causing tooth decay, not just that they're sitting on our teeth.

So, as I mentioned before, a diet that supports oral health is one that optimizes those three factors that Dr. Price and the doctors Mellanby found, mainly minimizing phytic acid, increasing the consumption of mineral-rich foods, and increasing fat-soluble vitamin levels.

So, minimizing phytic acid would be done by reducing or eliminating the foods that contain high levels of phytic acid, which most notably are grains, beans,

legumes, and nuts, especially foods like sesame seeds, unblanched almonds, soy products of all kinds are very high in phytic acid, as are oats and wheat, corn, peanuts, and brown rice.

And there are ways to reduce but not completely eliminate the phytic acid content of these foods if we use the traditional methods of soaking and sprouting and fermenting. But, in my experience and for those who are trying to reverse tooth decay, it seems much better just to avoid them altogether, at least temporarily. That's part of what works for me.

Another factor that I've seen to be important for us is increasing the body's stored minerals. And I've talked in depth on my blog about the importance of various minerals, especially magnesium, which it seems many people these days are deficient in. And calcium and magnesium and phosphorus are especially important for tooth health. So, for me, I had to supplement with transdermal magnesium in the form of magnesium oil on my skin and eat a lot of seafood and green leafy vegetables to bring my levels up. And I actually noticed a really big difference in my sleep quality when I did that. But I believe that also made a difference in my oral health.

And, consumption of sodas and caffeine, alcohol and processed foods are all things that deplete the body's stores of magnesium and other minerals, as does stress. So these factors all have to be considered as well, whereas foods like vegetables, seafood, and fermented foods are great sources of replenishing these minerals.

But, probably the most important factor I've noticed dietary-wise that supports oral health is the consumption of enough fat-soluble vitamins, which, as I mentioned were A, D, E, and K2. And top sources of these include grass-fed meats, raw grass-fed dairy and butter, wild-caught seafood, and especially organ meats from healthy land and sea animals. And, as a society, we've kind of eschewed these foods. And, we've replaced them with vegetable oils and processed foods and pasteurized dairy. So, to stop or reverse the rampant decay, we're going to have to turn back to these traditional foods to support not only our oral health, but the health of our whole body, which will, in turn, also boost oral health.

So, when I found all this information, these types of dietary changes definitely seemed daunting. And it certainly can be overwhelming at first if you're going to jump in with two feet. I've actually compiled a list of resources to make the transition easier on my blog. So, you'll be able to access that resource page. And I've also found some tips for our family that involve fast and easy preparation of these foods.

For us, personally, we try to eat organ meats at least once or twice a week, if not more. Don't mention that to my husband and kids. I usually try to sneak it in with ground beef or in chili or strong-tasting things so they don't usually notice. But I think they're adjusting.

We also eat seafood a few times a week, especially wild-caught salmon with the bones in for lunches, which is also an easy lunch to make salmon salad. We eat oysters and fatty fish. And, when possible, we buy our meats just from local

farmers who are exclusively grass-fed. And that way, there's a higher concentration of those fat-soluble vitamins.

In practicality speaking, we do a whole lot of soups in the winter and stews because you've got the benefits of the bone broth, the fat soluble vitamins from the meats, and also lots of vegetables. Plus, they're easy for me because I can make a huge pot and reheat it easily. And the rest of the year we do a lot of stir fries and casseroles that have grass-fed butter or tallow cooked into them to boost those beneficial fat levels.

Will: It sounds like our house here. The same type of game. It's a constant bone broth being worked. Plus, the bottom line is, folks, and you don't know this yet, for those of you who are eating a nutrient-dense diet, you already know this, they just taste better.

Katie: Oh, absolutely!

Will: There's a reason that when you think about your grandmother's or your great grandmother's pot of stew, it's like it makes your mouth water. Well, that's because it was really good for you!

Katie: Absolutely! And the reason you crave that when you're sick -- warm soup -- it's got all those minerals.

Will: Exactly, exactly. So, you've mentioned phytic acid. You've mentioned vitamin D. What role do you see phytic acid and vitamin D playing in oral health?

Katie: This has been fascinating in my research. And I'll try to keep the nerd in me from coming out too much. But, phytic acid is a molecule of phosphorus that is tightly bound with other molecules. And it makes a compound that's not easily absorbed by humans. And the Weston A. Price Foundation actually talks a lot about phytic acid.

But, it's a principal storage form of phosphorus. And it's in many plant tissues, most notably the bran of a lot of grains and seeds. And it's basically just phosphorus, which is tightly bound in a molecule. But, in humans and other animals with only one stomach, the phosphorus isn't really available to us. And so, in addition to blocking the phosphorus in our body, it also binds with minerals like calcium and magnesium and iron and zinc, which make them unavailable to us, as well.

And, when they bind like that, that's called a phytate. So, phytic acid is found in grains, nuts, seeds, and legumes, and in smaller amounts in other fruits and vegetables. But as it enters the body, it converts into a phytate when it binds to our minerals. And this is unabsorbable. And it takes those minerals from our body. So, those who consume a high amount of this are more likely to see a mineral deficiency because of that.

And, according to Dr. Price's work, people who consume large amounts of phytic acid, which is most Americans, in the form of grains, seeds, nuts, or legumes, have higher rates of tooth decay and mineral deficiencies and osteoporosis.

So, just as lack of vitamin D and poor calcium absorption can cause malformation of the bones of the legs in the case of rickets, the same affect can

be seen in the jawbone of children if it forms poorly. And this can lead to spacing problems and the need for braces in a child, which Dr. Price found in his work.

And, as a parent, this was so exciting to me since because both of us had braces, the possibility that our children might not need that and we could nourish them in utero was just amazing. But, sadly, the most commonly-eaten diet in America these days is high in grains and sugars and vegetable oils, and low in animal fats and fat-soluble vitamins, which is exactly the opposite of what these doctors had found to be healthful.

But, the good news is that teeth and bones are able to heal themselves in a process called remineralization. And, basically, specialized cells in the tooth are able to regenerate from the inside while the outer layer can remineralize from the minerals in the saliva on the outside.

And, to prove this theory, the doctors I spoke about earlier -- the Mellanbys -- did a study on children who had existing cavities. And they put them into three groups. And the first group of children were given their regular diet. But they added oatmeal, which is higher in phytic acid. And the second group of children had a regular diet, but they were given vitamin D, which is seen to have a protective effect on the teeth. And then a third group was put on a low phytic acid diet plus vitamin D. And interestingly, they even noted the third group, they were still eating sugar. And it wasn't even a limited carbohydrate diet. They just limited the phytic acid.

And, what they found was fascinating. The group that consumed the phytic acid with no supplemental vitamin D continued to get cavities with little to no healing.

The group that just supplemented with vitamin D, but didn't reduce the phytic acid saw some healing, but they also got some new cavities. And the group that consumed no phytic acid and then supplemented with vitamin D showed very few new cavities, and they actually saw cavities heal, which you don't usually get told by a dentist, but these doctors were able to see these results in children. And Dr. Price was able to see this in populations around the world.

So, to recap, they were doing those three factors: they were increasing the minerals in the diet. They were increasing the fat-soluble vitamins. And they were making everything in the diet more bioavailable by reducing the phytic acid.

So, practically for us, it's not possible or even necessary to eliminate phytic acid completely. But, what we should consider is taking care to minimize the foods that contain the highest amounts of phytic acid.

And there are preparations like soaking and fermenting that reduce the phytic acid content even of the foods that contain high amounts. And certainly, I'd recommend that if you're going to be eating these foods. But, in many cases, it's better and easier in the case of healing teeth just to avoid these foods in the short term.

So, nuts for instance, have a high phytic acid content, many of them. But, if you're going to eat nuts, you could reduce the phytic acid content by soaking the nuts in salt or lemon water overnight, and then rinsing and dehydrating in the oven, which is a time-consuming step. But it gets even more time-consuming when you're dealing with grains or really small seeds that take longer to do that with.

So, you might notice that meats, eggs, vegetables and healthy fats have not been mentioned on that phytic acid list. And, as I mentioned before, these foods contain really high levels of vitamins and minerals, and they're more nutrient-dense anyway as well as being good sources of vitamin D when you're talking about seafood and grass-fed dairy.

And Weston A. Price Foundation has a lot of good resources if you are going to continue to eat the foods with phytic acid of how to reduce them and make them less harmful. But, especially for children who are still in the process of developing their tooth and bone structure, I found it was easiest and best just to remove the sources of highest sources of phytic acid in the short term so their teeth could heal and regenerate and get stronger.

Will: Right, right. This is so perfect, Katie. Thank you for all this information and putting it so well put together here. What I'm getting real clearly and what I want to kind of hammer home here is not only if a person is eating a processed or heavily grain-based diet like the US-Duh [USDA] likes to promote to us, not only are they not getting the nutrients that they need, but actually the foods that they're eating are inhibiting the absorption of nutrients in whatever nutrients that they still do get in their diet.

Katie: Exactly. And you've probably heard the expression that so many of us are overfed but undernourished. And it's because we're consuming volume-wise a ton of food. But we're not absorbing it, and it doesn't even have those minerals that we need when we are absorbing it.

Will: Exactly, which, you know, we joke about this quite often, the idea of a low-fat diet. The reason that people will so commonly overeat is because their bodies are saying, “Give me more because I’m starving here because I don’t have the fats that I need.”

Katie: Exactly.

Will: Yeah. So, what other factors have you found affect oral health?

Katie: I’ve seen several from my own experience. And, just with the other aspects of health and nutrition that I’ve looked at, it seems like there’s never a single cause or solution. And nothing works in isolation. So, just like just brushing your teeth alone won’t fix it, or just improving your diet doesn’t fix it, there are other factors that weigh also.

And oral health is dependent, logically, on the overall health of the body and vice versa. So, things that affect our overall health will impact our oral health, as well. And the factors that I’ve seen that make the biggest difference for me are hormone levels, how much sleep we’re getting, stress levels, and also saliva quality. And there seems to be a lot of the emerging research I’ve seen lately that hormones are playing a critical role in oral health.

And, it’s pretty logical if you think about it. People often experience more cavities or changes in their oral health during puberty when hormones are changing, during pregnancy you’re at higher risk for tooth decay, after menopause or during stressful times when your hormones are affected by your cortisol levels.

And the statistics I've seen indicate that at least by modern dental standards, women are more likely to take care of their teeth with brushing and flossing and regular oral care. But on average, men tend to have better oral health. So, that, again causes us to look at the hormone connection there.

And one of the theories is that the changing hormones over the course of a woman's life through puberty and her monthly cycle and pregnancy and menopause as levels of progesterone and estrogen and other hormones fluctuate, it can cause an increased blood flow to the gums, they cause pH changes in the mouth. And all of this can affect tooth and gum health, especially if she's not getting enough minerals.

And since stress hormones like cortisol affect other hormones including estrogen and progesterone and testosterone, it's easy to see why stress would have the same affect. And stress also, as we know, depletes the immune system. It makes us less likely to be able to fight any infection, including an oral infection. And it can change the pH of our bodies and our mouths, which increases the risk of oral health problems, as well.

And pregnant women are at higher risk for gum disease and tooth decay. And I've seen many statistics that periodontal disease can put a mother at higher risk for a low-birthweight babies or preterm labor, which is another indication of the important internal factors that affect oral health and how drastically our oral health can impact the rest of our body, as well.

And, women on hormonal contraceptives can also have some of these same risk factors simply because these contraceptives mimic the symptoms and the

hormones of pregnancy in the body. So, the hormonal changes of menopause can also have a well-documented affect. And we hear about that most often referring to a woman's bone health at menopause. But factors that support oral health like the diet and supplements and lifestyle factors can also help strengthen a woman's bones during this time in her life and prevent bone loss.

What surprised me the most to find in my own life and also to find the research that backed it, though, was that factors like sleep and stress can have just as big of an impact on oral health. In fact, I found one study in the *Journal of Periodontology* that listed sleep as one of the top factors that has the biggest impact on oral health. And they listed smoking as the number one risk factor, and lack of sleep was a close second for the highest risk factor for periodontal disease.

And, they found that participants who slept eight hours a night had a much lower risk of oral health problems than those who slept less than six hours. So, there are so many factors that impact that. And lack of sleep also impairs the immune response and changes hormone levels, which can lead to oral health problems and other health problems.

And, we've seen the evidence that lack of sleep is linked to higher risk of obesity, higher risk of heart disease and diabetes. And, I think as more information comes out about the connection between systemic disease and periodontal disease, I think we're going to see the link with stress and sleep becoming even more important.

Will: I agree. I agree. That's an excellent recap there of a lot of the research that we've also done in OraWellness. This is awesome!

So, our background is in the Chinese longevity arts. We have a video out there called "Mouth Probiotics," which helps people bring awareness to the importance of the quality of saliva.

How does, from your perspective, someone optimize saliva quality to improve their oral health, but also their whole body health, which it affects?

Katie: Actually, I love the video that you guys have out. And this is a factor that dentists are very aware of and mention also is that saliva is very important for overall oral health. Not only does it keep the mouth and gum tissue moist and prevents infection that way, but it controls the oral pH. It has an antimicrobial affect and a cleansing activity on the gums. But, most importantly from what I've found, is it carries the minerals to our teeth that allow them to remineralize and to keep their strong enamel.

And, saliva is actually part of the digestive process as it begins to break down carbohydrates. So, while most of us might think of saliva simply as just spit that keeps our mouth wet, it's an important part of the mouth's ecosystem. And it actually can be an indicator of a lot of other things in the body, as well.

In fact, there are diagnostic tests that are able to determine hormone balance and steroids or sex hormones through saliva tests alone. And, some tests are now using the presence of bacteria or yeast or viruses in the saliva to help in diagnosis of oral or systemic disease infection.

So, I don't know if you've seen the research, but I've been told by my dentist that a mother can pass on harmful bacteria in her mouth to her child by sharing food or licking a pacifier or a bottle. And, this is because saliva, like the rest of the mouth and the rest of the digestive system, it has a delicate balance of good and bad bacteria, which can actually be transferred. So, for this reason, cavities and oral health problems can actually be considered like a communicable infection or disease because it can be spread.

So, from an oral health perspective, saliva carries the minerals that help our teeth remineralize, including, as I spoke of before, calcium, magnesium, and phosphorus. And this is why you'll see low saliva production or dry mouth, could be an increased risk factor for cavities or gum problems or other oral health issues.

There have been studies I've seen that have linked adequate saliva production with reduced risk of oral health problems. And many of these studies actually suggest chewing sugar-free gum as a way to increase saliva production. I'm not a big fan of chemicals in my gum. So, while that's one external factor that does, I found that actually your OraWellness Brushing Blend seems to immediately increase my saliva production. But, also that internal factors have influenced that, as well, most noticeably drinking enough water, which is pretty logical. But, building the body's fat-soluble vitamins seems to normalize saliva levels and make that much more common for me.

So, the absence of the important minerals in the saliva can lead to a more acidic saliva, as well. And that can contribute to tooth demineralization, which, I've heard several dentist tell me personally.

So, simply put, the absence of healthy saliva puts a person at a higher risk for oral health issues. And, the things that have helped me the most with improving my saliva and my oral health pH measurements have been drinking enough water, getting enough minerals from my diet or from supplements, and especially those fat-soluble vitamins and minerals from the healthy fats.

Will: Right on the mark. So, this really has been all about solutions. Let's get into some specifics with you and your family and what you've found. From your perspective as a stay-at-home mom of four kids with a heavy background in the wellness lifestyle like you're sharing with us here, are there any special considerations you have found beneficial when dealing with your children's oral health in your own family?

Katie: Yeah. The great thing with kids is they seem to respond much more quickly than adults to any health changes, including oral health changes. I'm a firm believer that optimal oral health for children begins before the mother gets pregnant. And I only wish I knew then what I know now when I had my first child. And it's been amazing to watch our family, as we've had children. And the younger children who've had the benefit to me eating a higher nutrient diet, their teeth are naturally whiter. They're smoother. Their jawlines are wider.

But, I also am seeing changes in my older children who didn't have that benefit. And this coincides with the information I've seen from Dr. Price about diet having

a tremendous impact on oral health and tooth spacing. So, in my kids, especially the older ones, their teeth have gotten whiter as our diets improved. And my oldest actually had his teeth starting to wear down in the front. And this has gotten to the point where the dentist no longer worries about it because they've hardened and gotten stronger and whiter. So the dentist is not concerned about them.

And the older kids also had a couple spots that I wondered if they might be the start of a cavity. And, since our switching to a more nutrient-dense diet, the dentist has never been able to find a cavity or problem in their teeth.

But, I think we should be especially mindful of our children's oral health because there's so much emerging research that's showing a link between oral health and overall health. And, children under age 10 are the part of the population where we see the fastest increase in rates of tooth decay and gum disease. And, if they're already seeing them at this age, it's going to become a serious problem later in life. But, fortunately, children are the easiest to help stop or reverse the problem in. And they do tend to adapt more easily than adults.

So, what I've seen to help my kids in our daily oral health routine is a simple combination of diet, supplements, and our external oral health support that easily just fit in our schedule now. We all brush in the morning with our homemade toothpaste or tooth powder and a few drops of the OraWellness Brushing Blend. And, for anyone who's interested, I have those recipes on my resource page.

But, we support our overall oral health with high-nutrient meals, usually consisting of pastured eggs for breakfast cooked in coconut oil or grass-fed

butter. And the kids have adapted really well to this. They seem to really crave and want those healthy fats and healthy proteins.

One thing I do to boost my husband's and my fat-soluble vitamin levels is if we drink coffee or tea in the morning -- usually tea -- I'll put it in the blender and add a tablespoon of coconut oil. So, it's an easy way to get that extra health fat. And it also keeps you full for a really long time. And, at breakfast, we all take the fermented cod liver oil and the other vitamins, which was definitely an easier adjustment for our kids than for us. They don't mind the taste at all, and I'm still adjusting.

And, we give them also probiotics and a homemade multivitamin that I make. And the kids get about half a teaspoon of the fermented cod liver oil. My husband and I both take about a teaspoon a day. When I'm pregnant or nursing, I take about two teaspoons a day. And then at night, we just brush again with the homemade toothpaste or tooth powder and the OraWellness Blend.

And if I'm having a specific health concern, or one of the kids is, or if I just want to whiten my teeth, I also brush with activated charcoal powder, which seems crazy and a little weird. In fact, it generated a lot of heat on my blog because people were like, "Why would you put that on your teeth?" But, it's able to remove and kill toxins from the outside. And it also has the affect of whitening teeth.

So, a word real quick about the homemade toothpaste that we use: I created both of these recipes after I couldn't find a good option in the store that I was satisfied with. And this was before I found you guys, or I probably never would

have created them. But, I'm sure you've had other presenters who will address the possible problems with conventional toothpaste much better than I could.

But, I had a friend who had a scare with fluoride toothpaste. And her child had ingested it. And, the things the poison control center told her about the levels and what would be easily fatal to a child made me really not want to have tubes of fluoride toothpaste sitting around my house.

And, as I saw information about the link between thyroid problems and fluoride use, I also wanted to avoid it since thyroid problems run in my family. But, every natural option I was finding had glycerin in it, which, I've seen a lot of information that this can coat the teeth and keep them from even benefitting from their remineralization efforts. So, I didn't want to use a toothpaste with glycerin. I didn't want to use a toothpaste with fluoride. And this left a homemade option. So, I set out to create one, and that's how both of those were born.

We started using those, and the kids have adjusted those really well. In fact, I think they'd eat them if I didn't watch them because they really like the taste. And I think intuitively, kids seem to know that there's something healthy about that.

Will: And the good news is there would be no harm in them eating them!
[Laughs]

Katie: Exactly! Yeah. [Laughs]

Will: So, what about children and sweet foods? How have you navigated that with your family?

Katie: Well, my poor deprived kids live in a world pretty much without cake or soda or candy or other sweet treats. This really hasn't been that hard for us. But, I think it actually is harder on my husband and I than the kids because we had all those sweet foods growing up and in college. And we know what they taste like and there's always that taste from you know what they taste like if you see them.

But, especially our younger ones have never really tried sweet foods much. So they don't expect them or want them. But, one thing that is kind of a soap box for me is the way that kid-friendly foods are marketed constantly, and this perception that kids either can't or won't eat the healthy foods that adults either like or would eat because they know they're healthy.

And it makes absolutely no sense to me that we would provide kids these processed sweet foods or provide kids processed chicken nuggets at a restaurant and fries, while the adult's ordering grilled chicken and vegetables because we're creating that perception that they're not going to like those healthy foods.

And, in my opinion, kids don't need specially-packaged juices or treats that are full of sugar or they don't need a toy packed in their lunches. So, for birthdays and other events, we try to focus on the experience rather than the food that's usually associated with that. So, we let them choose a place to go on special events rather than a food. So, we might go to the park or the zoo or an orchard and let them pick the activities for the day. And we kind of shy away from having a cake or sugary treats.

And my hope is that we're building the emotional connection to these experiences. We're not building an emotional connection like, "On days that I'm happy or we're celebrating, we eat food," because I don't want to create that mental connection there.

To clarify, though, I do occasionally make either coconut flour pancakes or waffles. And we'll use real maple syrup and lots of butter. Or we'll make muffins or cinnamon rolls from coconut or almond flour. And we've made homemade ice cream with coconut milk or raw milk and egg yolks and maple syrup. And then we flavor it with strawberries or vanilla or mint from our garden. But, I try to make these treats somewhat rare and still make them from healthier ingredients when we do make them just so they don't become accustomed to them and learn to crave them like I did as a kid.

Will: Right. Well put. So, what about those who are pregnant or nursing or have a weakened immune system? What do you have as suggestions for them?

Katie: Another great question since I definitely tend to be in this category myself pretty often. [Laughs] As I mentioned before, pregnancy can affect oral health in many women. But it can create an increased risk for gum disease or tooth decay. And, a lot of Dr. Price's research looked into the diets of these native people around the world and how this affected their bone structure. And, he found that a mother's diet during pregnancy actually impacted the child's oral health and their tooth formation.

And there seems to be some emerging modern evidence of this, as well. And at the very least, it seems wise to me to support a healthy pregnancy in every way

possible, both for mother and baby. And logically, as the mother's body supports the baby through your pregnancy and nursing, she's going to have an increased nutrient need.

And, so often, we think this is just an increased need for calories or food. But, really, especially during pregnancy and nursing, the quality of those is vitally important since a woman's body is designed to nourish the baby at this time. Her body's going to use it's available stores of nutrients to support the baby. And if she's not replenishing these nutrients at the right levels, even if the baby doesn't suffer, her body will suffer. So, it's extremely important to replenish those.

So, for me, the lifestyle factors that I've found that help the most all the time, but especially during pregnancy, and seem to have made my pregnancies a little easier in the past like I mentioned before, eating lots of healthy sources of fat, which, ironically, has made me gain less weight during pregnancy, the more fat I eat than when I was eating the whole low-fat yogurt thing all the time.

And this supports the oral health and remineralization, as well as supporting the baby's healthy brain development because the baby needs all those beneficial fats. And you hear about the DHA and the RHA for brain development. And for me, this means getting about 2 to 4 tablespoons of coconut oil a day during pregnancy and nursing, and also using grass-fed butter daily.

And, I try to consume organ meats from clean sources at least once a week but more often during pregnancy. And to get protein from eggs and fish and grass-fed beef or pastured poultry daily. And, I also take during pregnancy or nursing a

teaspoon or more of fermented cod liver oil and high-vitamin butter oil to provide for the baby's needs and also for mine.

I also consume a lot of bone broth during pregnancy, which gives all those minerals that baby needs for development. And that's a great source of calcium and magnesium and gelatin and other compounds that support both the mother's oral health and the healthy pregnancy.

And I've seen a little bit of research correlating this to oral health specifically. But one thing I'll mention on a side note is that I always make sure to get adequate magnesium during pregnancy. And this has probably made the biggest difference in my morning sickness or lack thereof recently in my last pregnancy, as magnesium is so important for the baby's development, but it also helps replenish the mother's stores so that morning sickness never hits.

And I tend to get magnesium oil on the skin when I'm pregnant just because it's easier to absorb than the internal ones which can cause some bowel disturbances, which most pregnant women prefer not to have.

So, I also try to get vitamin D daily from sun exposure when I'm pregnant, and really focus on minimizing stress and maximizing sleep since that restorative time is so important when you've got a developing baby.

Will: Wow. So, how have you been successful? I want to hear more about you and your family and how you guys eat and all that. How have you been successful in working these nutrient-dense or health-giving foods or really foods

that we need to be eating if we want to live optimally vital lives into your family and your children's diet?

Katie: I would probably be considered a mean mom, actually, by a lot of standards. But, as I've learned more about health and wellness, I have just implemented the changes kind of cold turkey. But the kids have adjusted without a problem. They were sometimes a little complain-y at first, but they seem to adapt even faster than we do.

The one thing that I do think really helps is that when we as parents have a definite plan going into it and a resolve for the changes and we commit to just making them without cajoling or pleading with the kids. We take the time with our kids to explain the reason we eat the way we do since it's not our job just to feed our kids, but we're trying to build that lifelong nutritional foundation so that they will understand it and choose it for themselves as they get older.

I think we usually underestimate kids a lot and their ability, not only to try healthy foods, but to choose them on their own. And in fact, I found out from another mom that my five-year-old has refused cookies or snacks at their house because they weren't healthy.

So, certainly if a child is used to a certain way of eating that may or may not be healthy, the change can be more difficult. But I think if we, as parents, approach it from a positive perspective, and we're excited about the new way of eating, our kids'll pick up on that.

But, on the other hand, if we approach it thinking that the kids are going to balk or not accept the change or that we have to convince them or bribe them or force them, they're going to pick up on that and they're going to resist. So, what's worked best for us was just a calm discussion on why certain foods were healthier and why we were choosing these. And we told them that we loved them very much and we want them to have the best building blocks for building strong bodies. And so part of this was that we were going to try all of these new and exciting foods.

Granted, you probably need to use a little bit more adult language if your kids are older than five. But we took the kids to the farmer's markets, we took them to local farms and to the grocery store. And we let them see the difference for themselves between the healthier foods and the unhealthier foods. And we even let them try real organic raw cheese right next to pasteurized, processed cheese. And they could taste the difference.

I usually let them help me pick meals they like in meal planning. And if I can, and it's not just boiling soup, I usually let them try to help me cook, also. So, for the most part, our kids are pretty adventurous eaters now.

We do actually have a couple of rules at the table that have gone a long way to making that adjustment easier. And with four kids so close together, if we have one of them that has a negative opinion of food and voices it out loud, it tends to go down the line pretty quickly.

So, our rules are that we put a small amount of everything we cook on each child's plate. And they have to try that one bite of everything before they can

request seconds of anything. And this way they know they have to try things. But it's not menacing because there's not a huge pile of liver that they're going to have to eat if they don't love it.

And, they're never required to eat if they truly aren't hungry because I don't want to force food if they're truly listening to their body. But, our family policy is that all of us will sit at the table during meal time so we can have a chance to talk as a family. And, while they don't have to like or eat everything that's given to them, they are not allowed to complain about it or spit it out or make negative comments.

And the example I've used with them is that just like if they drew a picture or made art work or built something and they were really proud of it, and they brought it to me, I would never be like, "Oh, that's ugly. I don't like it." Foods that I prepare for them are a way that I care for them and show them I love them. So, when they're like, "Eww, I don't like it," that's a rude thing and they have to learn not to say that.

So, I don't want to sound like we're sticklers for the rules, though. Most of the time, they're asking for extra broccoli or more butter or more fish or more soup. The first couple weeks were a little rough with the older ones. But now it's rare that they don't like a food.

Will: Wow. That's awesome. That's awesome. So, do you have any last minute suggestions or tips for our listeners at this point?

Katie: Yeah, my encouragement to other moms and families or to anyone listening would be to just try adopting some of these dietary and lifestyle changes. We don't have a rampant increase in our oral health problems because we have a lack of fluoride in our diets or because we have a lack of dental fillings or a lack of root canals. But there's an underlying cause that's making us more likely to suffer from these problems in the first place.

And, for me, addressing the internal cause not only helped my oral health, but my overall health and my children's health so much. And it just makes sense that what we put into our bodies impacts all aspects of health, even our teeth and our gums. The methods aren't magic. They're just supporting the body and they're allowing it to heal and repair itself. So, at the least, removing the chemicals from our lives and improving our nutrition is going to have positive benefits in so many areas. But, it's also going to have oral health-boosting affects, as well.

And, I also just encourage everyone to do their own research, even on the things that I've said because we're in an exciting time and we're seeing the melding of new research that's emerging constantly, but it's fitting in with things the traditional cultures have said for years. So, I think we're in a really exciting time.

Will: Absolutely. So, Katie, where can folks learn more about you and your work?

Katie: I definitely invite everybody to check out my blog WellnessMama.com. And I have a special page set up specifically about oral health. And the address is WellnessMama.com/OralHealth.

And I have links to all the recipes I've talked about -- the homemade toothpaste and the homemade tooth powder. I also have articles on oral health and all the sources for the information I just talked about. There's a recommended book list, a quick-start guide, some sample recipes and meal plans, also, my own before and after photos of my teeth, and the links to all the specific products I've mentioned.

And I'd also love for everybody just to stop by and say, "Hi" or connect with me on social media and introduce themselves. I'd love to say, "Hi!"

Will: Wonderful. Katie, thank you so much for your time!

Katie: Oh, thank you so much for having me!



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The logo features a light blue rectangular box containing the text "HealThy Mouth" in a large, white, sans-serif font, with "WORLD SUMMIT" in a smaller, white, sans-serif font below it. In the background, there is a faint circular emblem with the words "Empower", "Educate", and "Solutions" around the perimeter, and "Oral Wellness" in the center. A green leaf and a toothbrush icon are also part of the background design.