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# MOLECULES & HEALTH

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## Antibiotics and Obesity

It's probably safe to say that most of us have at least one childhood memory that involves choking down a liquid antibiotic that even a spoonful of sugar couldn't help. Despite all of the attempts to mask the taste with bubble gum, cherry, and grape flavors, our sophisticated palates told us that this stuff was "icky!" Of course, we eventually got it down and hopefully within a couple of days we were feeling much better – once again reminded that mom and dad know best.



We know that antibiotics are extremely important in keeping us healthy and stopping the spread of disease, however

it is becoming more apparent that the overuse of these types of medications may have more negative consequences than anticipated. Some of the negative consequences like antibiotic resistance were somewhat anticipated while other side effects may catch some people by surprise. For example, a study published in the *Journal of the American Medical Association (JAMA) Pediatrics* concluded that repeated exposure to broad-spectrum antibiotics within the first 24 months of life significantly increases a child's likelihood of becoming obese.<sup>1</sup>

The results of this study are troubling considering the high

rates and negative health effects of obesity plus reports from the Centers for Disease Control (CDC) showing that children aged 0-2 have the highest rates of antibiotic use of any age group. Another study indicated that broad-spectrum antibiotics are being used more often than narrow-spectrum antibiotics in children and adolescents, with a 143% increase in use between 2000 and 2010.<sup>2</sup> Even more alarming is that almost 80% of antibiotic prescriptions for acute respiratory illnesses were unnecessary based on accepted practice guidelines.<sup>3</sup>

But how could antibiotics possibly contribute to childhood

obesity? The authors of the JAMA-Pediatrics study concluded that the link between broad-spectrum antibiotic use during childhood and obesity is most likely a result of the disruption of healthy intestinal bacteria (probiotics) caused by antibiotics, and this finding is supported by additional research. Countless studies have confirmed the importance of intestinal bacteria in maintaining your health with several studies linking specific intestinal microflora to obesity and other metabolic disorders.<sup>4-9</sup>



Healthy intestines require a proper balance between beneficial bacteria and harmful (pathogenic) bacteria.<sup>10</sup> Certain foods and medications disrupt this balance causing negative effects throughout the entire body.<sup>11</sup> When you take a broad-spectrum antibiotic, it not only kills the bacteria making you sick, but can also kill your beneficial intestinal bacteria that keep you healthy. This is one of the reasons that every antibiotic is capable of causing upset stomach or diarrhea and also why your healthcare provider may recommend using a prebiotic and/or probiotic supplement when taking



antibiotics.

### **Prebiotics and Probiotics: What's the Difference?**

The term “prebiotic” is used to describe the food that “probiotic” bacteria eat. When you incorporate Prebiotic Fiber into your diet, it naturally supports and maintains the balance of healthy bacteria in your intestines by providing them with an ample food supply. Small Molecule Technologies Prebiotic Fiber contains a type of soluble fiber that has been shown to increase the amount of beneficial bacteria like Lactobacillus and Bifidobacterium in your intestines.<sup>12,13</sup> When these bene-

ficial bacteria are thriving, they crowd out the harmful bacteria that make you sick, cause inflammation, and are linked to obesity.

In contrast, “Probiotic” supplements contain actual bacteria and are intended to restore levels of healthy bacteria by ingesting large quantities living organisms. Their effectiveness relies on a high concentration of viable (living) bacteria surviving long enough to make it into your large intestines, where they only flourish if there is enough prebiotic food available to support them. Most commercial sources of probiot-





ics require refrigeration to prevent the bacteria from dying while the product is in transit or sits on a shelf. Even when stored properly, they generally lose potency quickly, giving them a very short shelf life.

Some food sources that advertise about probiotics, such as frozen yogurt, actually contain little to no viable probiotics due to freezing, heating, manufacturing processes, or bacteria-killing preservatives.

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Prebiotic Fiber does not contain (or need to contain) any living bacteria, so it does not require refrigeration and will not lose potency on the shelf or after being frozen or heated.<sup>14,15</sup> Using Prebiotic Fiber daily can help you maintain a healthy balance of probiotic bacteria in your intestines.<sup>16-18</sup> You can also add the Olivamine10-containing Small Molecule Technologies Nutritional Supplements to help provide your body and immune system with vital antioxidants and other nutrients to stay healthy. After all, the best way to reduce the side effects from antibiotics is to avoid needing to use them in the first place!

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