Probiotics.

Hilliard Pediatrics, Inc. – Dr. Tim Teller, M.D. – 1/14

Probiotics are supplements or foods that contain live bacteria that change the types and number of healthy bacteria in our system. Prebiotics are supplements or foods that contain an ingredient that stimulates the growth or activity of healthy bacteria in our system. Breast milk contains prebiotics

I am often asked what I think of probiotics. I will try to summarize what we know scientifically about probiotics and prebiotics. Most of what I know about them is from the "Clinical Report -- Probiotics and Prebiotics in Pediatrics", Dec. 2010, by Drs. Thomas and Greer and others.

Realize that when things are scientifically studied, the gold standard for studies about probiotics or prebiotics are **randomized clinical trials (RCT)**. With RCTs, the patient and the doctor do **not** know whether they are getting the "real treatment" or the placebo. That way, when answering the "Was it really better because of the treatment?" question, the doctor, patient, and family are **not biased** by knowing what they were taking. If I think probiotics *really* help with diarrhea as a side effect from antibiotics, I may be more likely to say "Yeah, that diarrhea really was better that time I took the probiotics with the Augmentin!". That is why it is so much more helpful to know that "80% of kids on antibiotics have less diarrhea if they take SuperPro [I am making this up as an example]" than "my sister's friend's child took SuperPro while on an antibiotic and they did not have any diarrhea".

A few things to know from the start: 1. Probiotics are available **over the counter** without a prescription. 2. There has not been enough studies to help us say **"**this is the brand to buy!" and feel super-confident about it. 3. Probiotics and prebiotics **positive effects only last as long as you take them**. If you stop taking a probiotic, the "good bacteria" benefits quickly get out of your system. 4. The top three bacteria in available probiotics are *Lactobacillus, Bifidobacterium, and Streptococcus*. These bacteria are believed to be the most helpful based on current research. 5. It makes sense that the health probiotic bacteria will help more if more of them are alive. Some probiotic products are kept refrigerated, potentially keeping the bacteria at their best. However, we still do not know for sure if these probiotics are necessarily more effective.

By 2-4 days of age, vaginally delivered infants have millions of bacteria in our intestines. Breastfed infants have more "healthy" bacteria in their system, even by 7 days of age. After infancy, the average person has 10,000,000,000,000 (!!) bacteria in their intestines, the vast majority being healthy bacteria. These healthy bacteria play a vital part in our immune defense system. Science is still studying all of the particulars of how these bacteria interact and play a role in our immune system.

Because of where probiotics work (in the intestine), the most hope for probiotics are diseases or illnesses that occur in or are effected by the intestines and its immune system. That means that diarrhea, eczema, inflammatory bowel disease, irritable bowel disease, colic, and constipation are the conditions studied in children with regards to whether probiotics have had an effect.

So far, the research shows probiotics can 1. Help **prevent** some cases of **viral "stomach flu"** (acute viral gastrointestinal infections) in children in child care, 2. **Reduce how long** (by about a day and a half) **rotavirus diarrhea** illness lasts, and 3. Reduce by about half the **diarrhea associated with antibiotic** use when started when the antibiotic is started. Probiotics may be helpful in eczema prevention, treating inflammatory bowel disease, infant colic, and constipations, but we need more large RCTs to know for sure. In addition, large studies on side effects of probiotics have found them to be well tolerated with no significant side effects.

Foods that include can or do contain probiotics include yogurt (look for the Live & Active Cultures seal), kefir, and aged cheeses (cheddar and Gouda). In addition to foods that include probiotics, many over-the-counter brands are available. **To emphasize, there has not been a well done head-to-head study comparing these probiotic brands against each other.** In addition, the Federal Drug Administration does ***NOT*** evaluate the "this is how helpful we are" claims by probiotics. Therefore, the "helps" and "supports" words used to promote probiotics need to be taken with a grain of salt.

A good friend of mine exercises every day, eats healthy, does not smoke, and does many other things well to take care of his general health. For a long time, he claimed why he was so healthy was the $80-100 worth of vitamin and mineral supplements he took every month. This is despite the fact that he was getting all he needed of vitamins and minerals from what he ate. This is a thousand dollars a year of unnecessary expense. Realize when zinc supplements (again, not evaluated by the FDA) claim to "support your immune system" that the immune systems that are likely respond to zinc supplements are those folks with zinc deficiency. And zinc deficiency is quite rare.

Commonly available brands include:

Culturelle® Kids Packets or Chewables (contain *Lactobacillus*)

Dosing for age 1-3 years of age: 1 packet once a day. If using for diarrhea: 1-2 packets every few hours with a maximum

of 7 packets in 24 hours.
Dosing for age 3 and above: 1 chewable once a day. If using for diarrhea: 1 chewable 4 times a day.
BioGaia® ProTectis Chewables or Drops (contain *Lactobacillus*)
Dosing: one to two capsules once a day or 5 drops daily.
Florastor® for Kids Capsules or Powder Packets (contain *Saccromyces* and lactose)
Dosing: one to two capsules or packets twice daily.
Florajen4Kids® Capsules (can be opened and powder sprinkled on food; contains *Bifidobacterium* and *Lactobacillus*; best if refrigerated)
Dosing: one capsule once a day.

Based on all of the above information, if you are going to try a probiotic for your child, here is what I would recommend.
For colic: BioGaia® ProTectis Drops 5 drops daily. If no change in 1-2 weeks, you are not likely to notice a change for the better after that first couple weeks. If it is helping, continue until 3-4 months of age.
For diarrhea: Culturelle®, Florastor®, or Florajen4Kids®. Dosing as above. Start as soon as the diarrhea begins and continue until significantly improved.
For prevention of diarrhea while taking an antibiotic: Culturelle®, Florastor®, or Florajen4Kids®. Dosing as above. Start taking when you take the antibiotic and continue for the full 10 days of antibiotic.
For constipation or irritable bowel symptoms: Florajen4Kids®, Florastor®, or Culturelle®. Your child will likely need to continue the probiotic for 4-6 weeks or more to be able to tell if it is helping. If it does help, feel free to continue the probiotic.

Summary: 1. Probiotics may be helpful to treatment or prevention of some conditions. 2. Probiotics are very safe and free of side effects when used with the proper dosing. 3. Many more scientific studies need to be completed to know all we need to know about probiotics. 4. If you chose to try a probiotic for your child, I would recommend following the above information.

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