

Probiotics: How to choose and why do they matter?

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SUMMARY: Yes a probiotic may be useful for many behavioral syndromes in children. Pick a probiotic with live cultures. It can be through food or as a supplement. Be wary of manufacturer a claim as labeling is not regulated. The probiotic you pick should have specified the Genus-species-strain and amount in CFUs (colony forming units). For example: Lactobacillus rhamnosus GG 5 billion CFU. For specific products check www.consumerlabs.com. Two products with the best track record for quality in children are: **FLORASTOR** or **CULTURELLE**. Specific to anxiety and behavioral issues there is some data about **PROBIOTIC STICKS** (Jamieson.) Remember quality control matters. If the label is inaccurate what you are getting may be useless (too few organisms), or if the bacteria are not viable (inactivated from poor manufacturing or storage), and it must be absorbed by the body (not destroyed by stomach acid) – all of these issues are fundamental to what makes a good probiotic supplement. When using a probiotic there are no uniform doses established. Dosing can vary from once or twice a day, or weekly dosing as a minimum. Follow manufacturer directions and reduce or increase the dosage based on the effects you experience.

DETAILS

Why might probiotics matter for ADHD, Autism, Anxiety and other disorders?

The scientific evidence is still emerging. The “dysbiosis theory” of autism (abnormal gut flora causing autism) or ADHD is far from proven and all developmental and behavioral syndromes are far more complicated than one theory. However, giving a probiotic that may prove beneficial is a harmless intervention worth trying. If after a few weeks to a month there is no change, it may not be worth continuing or you can try to simply add foods with live cultures (yogurts) to the diet. Lastly there are alternative laboratory tests which try to pinpoint the type of dysbiosis and specify the exact type of probiotic to use – there are many to choose from. These labs

tests are still open to investigation leaving families to guess as to which specific probiotic may be best. Hence my recommendation to try **TRUSTED** products such as those listed above. Autism specific vitamin and supplement manufacturers such as: Kirkman Labs, Klaire Labs, and Hopewell Pharmacy can have good products but quite often their claims are not back up with any scientific rigor. I try to stick with the products approved on www.consumerlabs.com, but you can explore the autism specific manufactures and compare.

What is a probiotic? A prebotic? A symbiotic?

The world health organization definition of a probiotic is – “A live microorganism that when ingested in adequate amounts, confers a beneficial effect on the host”. The most common organisms in probiotics are Lactobacillus and Bifidobacterium. Fermented foods also contain probiotics (yogurt with live active cultures) but supplements can provide a more consistent dose of probiotic organisms than food. The known established medical effects of probiotics include helping with diarrhea of various causes both infectious and immune, and post-antibiotic treatment to restore the normal balance of flora in the GI tract. However, there is also growing evidence about potentially beneficial effects from probiotics with behavioral disorders – autism, anxiety, ocd, adhd, etc. (1)

A prebiotic is non-digestible food carbohydrate that acts as food source for a probiotic. Taking prebiotics may nourish the natural GI flora. Examples of prebiotics include: chicory root, raw onion-garlic-asparagus-banana-leek-wheat bran-dandelion greens-raw artichoke. Obviously some of these foods are not palatable to eat raw, bananas may be your best bet!

A symbiotic is a food that contains a prebiotic and probiotic such as yogurt and kefir; these are products which have the probiotic and the prebiotic together in one food. It is possible to find dairy free yogurts and kefirs using soy, coconut and other products.

There is well established evidence showing normal bacterial colonization of the GI tract plays critical role in our immune system. Hence, it is important to have some basic science background information. The GI tract is the one organ in the body with the largest surface area and it is in constantly contact with the outside world. The “intestinal microbiota” is the term often

used interchangeably with microflora, though microbiota is the more medically correct term as flora refers to plant life. We all share a common microbiome of the GI tract. For example these are some of the common species in the GI tract: Clostridia, Bacteroides, Bifidobacterium, Peptostreptococcus, and Eubacterium among others. The bacteria change at different points in development and can change depending upon what you eat or medications you take. The bacteria in the GI tract are normal and are commensal they coexist with us in a healthy way. We also can have pathogenic organisms –bacteria and fungi that do not belong and cause infections. This can unbalance our microbiome and cause problems some of which may affect gastrointestinal symptoms but others ***may affect our immune system and our neurologic function.***

What is the relationship of the immune system to the GI tract?

Within our intestines are various tissues which secrete substances responsible for immune regulation within the GI tract and elsewhere in the body. In the GI tract we call these areas GALT (gut associated lymphoid tissue) or MALT (mucosal associated lymphoid tissue). There is a complex interplay between immunoglobulin (IGA) in the intestinal tract, immune tissue, and our body's reactions which trigger immune responses. These responses can be appropriate to fight off disease and infection, or become overzealous and attack our own bodies via an auto-immune pathway. Without getting more technical the point to note here is the GI tract houses part of our immune system, and this system can be affected by diet, infection, and the consumption of probiotics.

Do we need to take probiotics?

We do not yet know the answer to this question. However the benefits of taking a probiotics likely outweigh the risks. There are some specific theories about why probiotics may be necessary these are outlined below.

#1. The Hygiene Hypothesis. This hypothesis states that the ***lack of*** early child hood exposure to infectious diseases (through over treatment with antibiotics, obsession with cleanliness and hygiene with antibacterial soaps etc, overprotection from normal environmental exposures) has impaired the development of healthy immunity in the GI tract. In western countries though we have improved sanitation and hygiene, we also have higher and

climbing rates of allergic and auto immune diseases compared to the developing world. There may be a connection. This is still a hypothesis not a proven theory.

#2. Another theory has to do with overuse of antibiotics taken as medicine and consumed secondarily through diet (i.e. antibiotics in animal feed) have disrupted the balance of our intestinal flora causing **dysbiosis**. This lack of balance causes the GI tract to become “leaky” and substances which should not get into the blood stream do, and some cross the blood brain barrier and get into the nervous system causing some of the behaviors we see in autism, adhd, and related conditions.

#3. A third theory is that consumption of processed foods and reduced fiber intake disrupts the normal balance of bacteria in the GI tract. This occurs through generating an allergic response to foods (your body sees the food as a foreign invader – this is experienced as intolerance – gas, bloating, diarrhea), GI sluggishness (lack of fiber so foods sit in GI tract longer), and metabolites of chemical in food (trans fats, artificial sweeteners etc) which may be toxic. Once again this is a theory it is not proven and has the least hard scientific evidence of the three.

Proven evidence based studies specifically implicating disrupted GI flora and autism, allergic diseases, inflammatory bowel disease etc. are still lacking though the body of evidence is growing. Probiotics may have a protective effect locally in the GI tract and secondarily on the immune system as a whole. To summarize this happens by: reducing permeability to toxins, increasing a layer of mucin (protects the gut), competing for receptors with disease causing bacteria, and finally acidifying the GI tract so bacteria cannot grow. (3)

For more information on the science of probiotics read the links below. Just remember if you simply Google “autism and probiotics” you will mostly find manufacturer claims on sites trying to sell you a product, and you can find some valuable information but also be misled. Choose your product wisely and always consider cost and safety factors mentioned above. Once you start a probiotic give it a few weeks to a month watch for side effects (diarrhea or constipation), changes in behavior, and changes in overall health. To continue taking the supplement be sure you see enough benefit

to merit its use. Remember as with any health supplements effects may not be dramatic or immediate but can contribute to the overall health and well being.

1. <https://sfari.org/news-and-opinion/news/2013/friendly-bacteria-treat-autism-like-symptoms-in-mice>
2. <http://www.autismspeaks.org/blog/2013/01/11/guidance-probiotics>
3. <http://www.uctv.tv/shows/Supplements-for-Children-Is-There-a-Friendly-Bacteria-16721>