

Infant Digestion

Understanding Your Infant's Limitations

At birth, your infant's digestive system is still developing and is not yet ready to carry out the complex tasks of masticating (liquefying) and digesting (breaking down) foods. Your infant, of course, has no teeth yet and the salivary secretions necessary for proper starch breakdown are still insufficient. The salivary secretions responsible for initiating starch breakdown are not present in significant concentrations until around the time the first teeth appear (commonly six to eight months of age). This is often accompanied by a noticeable increase in saliva and drooling.

The next step in the breakdown of more complex starches occurs in the small intestine and involves an enzyme called pancreatic amylase. There are widely respected experts in pediatric gastro-enterology, who assert that this essential enzyme does not appear until close to eighteen months of age and certainly not before twelve months. Yet the first foods that many well-intentioned but unfortunately ill-advised health professionals suggest introducing are pablum or cereal, made from grains which are complex carbohydrates.

Feeding infants foods which they cannot digest properly merely leads to the decomposition of these foods in their intestines and the associated challenges which result. These include the most common infant complaints of today, namely: colic, irritability, insomnia, constipation or diarrhea, bloating and gas, skin rashes and eczemas, recurrent upper respiratory infections, allergies and asthma. This is not to say that the subsequent treatment of the above conditions stops with diet modification, but appropriate treatment must certainly include it. Participating Health Coach centers will understand the relationship here, but the majority of participants in our healthcare delivery system may not, as their training has emphasized and focused on other aspects of healthcare.

It is however difficult to understand those healthcare providers who vehemently deny any possible connection between what an infant (or anyone else for that matter) ingests and how they function. More puzzling still, is why many of these individuals have neglected to take it upon themselves to properly investigate the interplay between food and health, an obvious connection for even the less schooled (and less biased) lay person.

How do I profess to know what others have researched clinically and what they have not? It is quite simple. To do is to understand. All who do reasonable clinical research here begin to understand the true relevance of nutrition's role in health and disease, thus dissolving any opposition on their part. I understand, as do participating Health Coach centers, because this is the area with which we work, day after day, client after client, infant after infant, and we see the remarkable transitions in health which result. This is in the absence of the suppressing "cover up" effects of any drugs, which so readily mask the true state of an infant's or client's health. Who should you, the reader, believe? How about your own direct experience from the results which you achieve by following a sensible program. The choice of programs is yours. The Health Coach System is committed to seeing that you indeed get a choice. A choice that can do

no harm when followed as coached and has the potential for a great deal of good, both personally and ultimately globally.

The argument that children must be fed solid foods to enhance their growth and development is simply not supported by any valid evidence or properly controlled studies. To quote a recognized authority in the field of infant nutrition, Dr. L.F. Hill from the Committee on Nutrition of the American Academy of Pediatrics on *The Feeding of Solid Foods to Infants*, "the early introduction of solid foods into the infant diet is the result of empiricism and competition, not of sound nutritional principles. It is attended by certain dangers, which are not compensated for by any discernible advantages."

An infant's gastrointestinal tract is designed to maximize digestion and absorption of the constituents of human breast milk. These include: proteins, carbohydrates (beta-lactose), fats/oils, minerals, vitamins, enzymes and water. The newborn's stomach secretions contain pepsin and hydrochloric acid, both of which are effective protein and mineral digestants. In the baby's pancreatic secretions, there are the protein and fat digesting enzymes, trypsin and steapsin respectively. It appears that the carbohydrate which newborns are best equipped to digest is the milk sugar, lactose. Lactose is broken down with the aid of the enzyme lactase, which is present in infants' small intestines. The above enzymes are sufficient to digest the constituents of human breast milk effectively, while the relatively permeable walls of the infant's small intestine ensure maximum absorption.

What happens when foods other than breast milk are introduced too early? The enhanced absorption characteristics of an infant's small intestine (in comparison to that of an older child or adult) and the limited digestive capacity, combine to allow for increased uptake, from the intestine into the blood, of incompletely digested proteins or antigens. The infant's immune system subsequently identifies these antigens as foreign, non-utilizable and potentially harmful and attempts to remove them from the blood by forming antibodies. Antibodies are substances produced by our body's immune system which facilitate the elimination of antigens (foreign substances) which find their way into our blood and tissues

The human body has been created with a marvelous array of protective barriers and mechanisms which generally serve to prevent foreign substances from entering it and interfering with its function. These include our skin and the mucous membranes which line our respiratory and gastrointestinal systems. These organs, our outer and inner skins, are where all direct contact, of a physical nature, occurs daily with the external environment. There is a direct relationship between the state of our health and the integrity of these two protective organs. They indeed are where our internal environment interfaces with our external environment. They function to keep what must remain inside in and what must remain outside out, while they constantly allow for a selective exchange of both nutrients and wastes; as required in the maintenance of the intricate balance necessary for our healthy function.

In our discussion of the infant's gastrointestinal system, it is important to note that not only does it differ from that of a more mature gut with respect to its digestive secretions, but it also differs with respect to the function of the mucous membranes which line it. This is particularly true in the small intestine where the barrier function

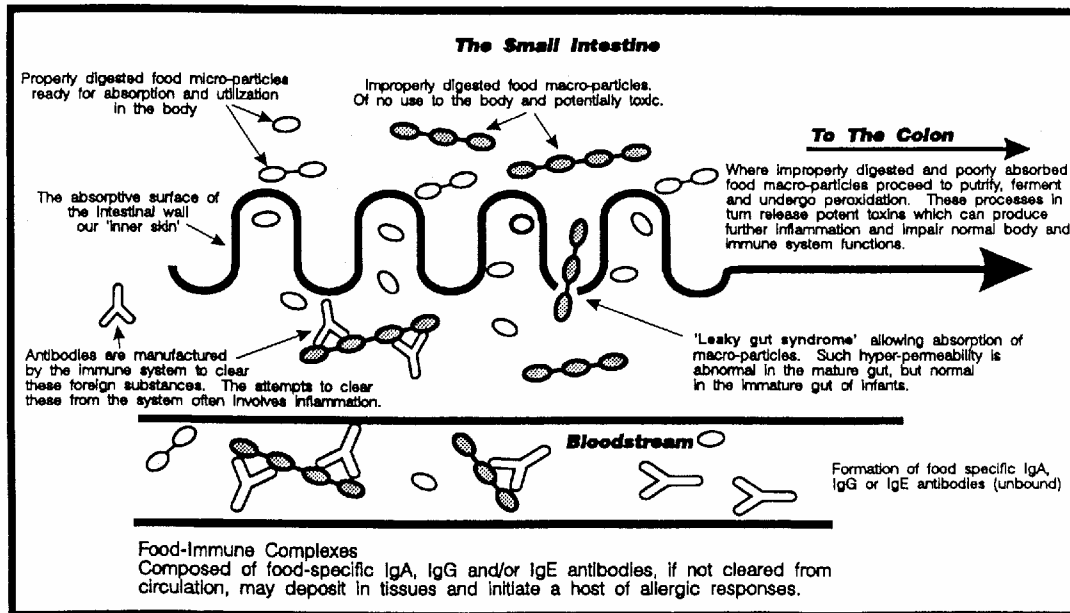
has been compromised in order to enhance the absorption function. In other words, the infant's small intestine, especially during the first nine months of life, serves to absorb its contents (the foods ingested) more rapidly and with less discretion than that of the adult gut. This means that foods which have not been reduced by the available digestive enzymes, to their basic nutrient components, are more likely to find their way into the infant's circulation and to then trigger antibody formation. These antibodies then remain in circulation for many years and perhaps even a lifetime. (see Fig. 4 on page 31)

Subsequently in the future, when the same foods that originally triggered the antibody formation are eaten, the body will respond via its immunological defense system. The immune system releases such powerful pro-inflammatory substances as histamines and leukotrienes, often provoking any of a myriad of symptoms, which health scientists are only just recently linking to these food reactions. Once again, these can include many of the common infant and childhood health disorders such as: colic, abdominal gas and bloating, constipation, diarrhea, skin rashes and eczema, recurrent upper respiratory infections, asthma, tonsillitis, ear infections, mood swings, irritability and behavioral problems.

Virtually any food fed to an infant before the age of six months may contribute to these food reactions or allergies. The later a food is introduced to your infant, the more mature their gastrointestinal system and the less likely that they will react in this fashion. Is it any wonder that the foods commonly fed to infants in these early months are the most common allergens found in the adolescent and adult population? These include cow's milk and milk products, wheat, corn, citrus fruits, eggs, yeast and soy products. You may note that this list reads much like the list of ingredients found in most infant formulas.

Complicating the scenario further is the fact that the early introduction of one food, for example cow's milk, may trigger intolerance to other foods introduced at a later date, such as corn or wheat. This is due to the food antigen's inflammatory effect on the gut membranes and the subsequent further increase in their permeability. This phenomenon referred to as the 'leaky gut' syndrome has been linked to the pan-allergic conditions which are becoming increasingly common especially in our children. These are the tragic cases where the child has become hyper-sensitive to so many foods and substances, that their life becomes a constant juggling act, as parent and child scramble to minimize exposure to any and all, now toxic antigens. Fortunately there are solutions to these challenges, where, under the guidance of a skilled Health Coach" participant, the child's '(leaky gut' is restored, normalizing its barrier and absorption functions while a more resourceful dietary plan is established.

Digestion, Gut Permeability, Food Allergy and Bowel Toxicity



Note: Understanding this model is essential to your infant's health. Please review it with your Health Coach™.

Fig. 4