

# Understanding a Child's Digestive System and Its Relationship to a Child's Health

***The digestive tract holds 70-75% of all the body's immunity in a growing child!***

## **Chemical Stressors to a child's digestive system that decrease health:**

- Not breast-fed
  - World Health Organization and American Academy of Pediatrics recommend breastfeeding for a minimum of 1 year with emphasis on feeding until 2 years
- Poor chemically/artificially fortified formula/food intake
  - Nutramigen (Enfamil) and Alimentum (Similac) formulas are best choices if formula feeding is the only option
- Chronic over exposure to the same foods creating intolerances
- Introduction of certain foods too early in life
- Previous and present use of broad spectrum antibiotics
  - Antibiotics disrupt normal flora in the digestive tract for the rest of the child's life
  - Use probiotics if even one dose of antibiotics has been administered
- Chronic use of over the counter fever reducers, decongestants, expectorants, cough/cold remedies

## **The Limitations of the Infant Digestive Tract**

- Infant has no teeth and insufficient salivary secretions necessary for starch breakdown.
  - Significant concentrations of these enzymes are not present until the first teeth appear at approximately 5-7 months.
- Breakdown of more complex starches occurs in the small intestines and involves pancreatic amylase.
  - Most pediatric gastrointestinal doctors agree that this enzyme does not appear until around 15 months.
- Newborn stomach secretions contain pepsin and hydrochloric acid, which, along with the pancreatic enzymes trypsin and steapsin, effectively breakdown the specific proteins, minerals and fats presents in breast milk.
- The walls of the infants small intestine are extremely permeable during the first 9 months ensuring maximum absorption but with less discretion than that of a mature gut.

## **Feeding Guidelines According to Maturation of Infant Gut**

***"9 months in you, 9 months out of you" - exclusive breastfeeding for 9 months***

- No two children are alike
- 6-9 months (preferably 9)
  - Generally the earliest age for new food and beverage **introduction**.
  - Also appropriate time for implementation of a multi vitamin.
- 9-12 months
  - When infant's digestive tract has developed sufficient enough to handle foods other than breast milk.

- Requires constant close observation and accurate monitoring/recording of abnormal responses
- Parents should have understanding of rotational diet plan implementation (as to avoid over exposure to any one food type)

## Determining What Foods are Best

- Start with one food at a time and continue for 3-4 days provided there are no signs of intolerance
- Start with **FRUIT**
  - Better consistency and well tolerated, similar to breast milk.
  - It's not because they taste better
  - Fruit requires little digestion for adequate absorption and utilization
  - Contain an abundance of vitamins and minerals
  - Excellent source of energy rich in natural carbohydrates
  - Infants take to them well due to high water content
  - Similar protein content to breast milk
  - In season and regionally grown are preferred and are usually tolerated well.
  - Organic is always best
  - Start with the juicier fruits (peaches, pears, nectarines, melons, etc)
  - Freshly juice the fruits first rather than starting with whole mashed fruit to begin
  - If tolerated, mash or puree accordingly.
  - In most cases, it is appropriate to use the entire fruit being sure to put end product through fine mesh strainer.
- Second – **Vegetables**
  - Seasonal and organic are best and well tolerated
  - Start with freshly prepared juices of carrots, squash, beets, celery, cucumber, and zucchini.
  - Carrot is good starting point due to high natural sugar content
  - Best diluted 4 parts water to 1 part fresh juice.
  - When certain of tolerance, the dilution may slowly be reduced
  - As with fruits, whole is better than part.
  - Raw is best to ensure that all enzymes and nutrients remain intact
- Third - **Grains**
  - Growing number of experts agree that grains are less likely to be properly digested until between 1-1 ½ years of age
  - Should never be rushed into infants diet
  - Because of the frequency of allergy and intolerance to wheat and other gluten containing grains (barley, oats, rye and triticale), it is suggested that they are introduced last
  - Non-gluten grains (brown rice, millet, buckwheat, amaranth) are better choices when introducing grains for the first time
- Fourth – **Protein**
  - Protein should only be introduced into an infants diet after they are 1 year old in order to ensure they have the appropriate enzymes to digest the protein
  - The best first protein to introduce is fish
  - A parent can start introducing proteins earlier than a year but it should be very infrequent
  - Eggs are a good protein to introduce

- Raw milk can be given when breast-feeding stops after 1 year of age but it is not a good source of protein.
- Consider almond or rice milk instead of cow's milk

### **Signs of Intolerance – Something was introduced too early into diet**

- Redness around the mouth within 1-2 hours or around anus within 12-24 hours
- Abdominal bloating, gas and distention
- Irritability, fussiness, over activity, poor restless sleep often waking through the night, moderate crying
- Constipation, diarrhea, foul odor to stool
- Frequent regurgitation of foods
- Nasal and upper respiratory congestion, runny nose
- Eczema-like skin on face, groin, bottom, or anywhere else on the body
- \*If a bowel movement turns greenish in a breastfed baby, it could mean the child is sensitive to dairy

### **Consequences of wrong foods at the wrong time**

- Implementing foods other than breast milk too early in a child's life can create negative ramifications on overall health
- Enhanced absorption of infant small intestines and the specific and limited digestive capacity of their digestive system, combine to allow 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 and potentially harmful (because they were not completely digestible) and attempts to remove them from the blood by forming antibodies (autoimmune response). These antibodies can remain in circulation for many years and perhaps even a lifetime.
- As the child ages, and the foods that originally triggered an antibody response are eaten, the body will respond via its immunological defense system -ALLERGIES

Source: International Chiropractic Pediatric Association  
 Transition to Wellness Seminar  
 Dr. Anthony Carrino, DC  
[www.icpa4kids.com](http://www.icpa4kids.com)