



## CHILDREN'S NUTRITION: A FOUNDATION FOR A LIFETIME OF HEALTH

A solid nutritional foundation is important for children to build upon for a lifetime of good health. Yet the diets of children and adolescents are often poor because of inadequate consumption of fruits, vegetables, and whole grains and excessive consumption of processed foods with added sugar and unhealthy fats. And this scenario is true all over the industrial world. Two recent reports from the United Kingdom reaffirm similar data reported by the US, Canada, Europe, and elsewhere. The British Heart Foundation Statistics Database shows that approximately 90% of children do not eat the recommended 5 or more portions of fruits and vegetables per day, and a shocking 1 in 5 ate no fruit during the week of the survey.<sup>1</sup> UK National Diet and Nutrition Survey among young people aged 4-18 years showed that only about half of the children consume any whole grains.<sup>2</sup>

### WHY CHILDREN'S NEEDS ARE GREATER

Children go through phenomenal **growth and development** during their early years. They produce more than a billion new cells each day and it takes a lot of nutrients to support this rapid growth. Young tissues and organ systems need energy and the right balance of nutrients to develop properly. For example, children's immature immune systems are constantly exposed to bacteria and viruses, and many nutrients have been shown to support immune system response.

This is also a time when **cognitive skills and personalities are developing**, and scientific studies have found links between levels of certain nutrients and mental performance and mood.

**Rapid physical growth and mental development** during childhood and adolescence requires an increased supply of both energy and nutrients to keep the body's metabolic pathways running smoothly. Because their metabolic rates are so high, nutrient abundance and balance are particularly essential during these early stages of life. It is also vital that children acquire the right dietary behavioral patterns so that good food habits will continue through adult life.



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The science of nutrition has advanced dramatically over the last few decades. More than ever,

we understand the effects that deficient levels and a poor balance of key nutrients can exert on our health. The classical cases of nutritional deficiencies related to food shortage have been replaced by deficiencies driven by food excess and nutrient imbalance. Changes in our lifestyles and this abundance of the wrong kinds of foods together have contributed to the emergence of new nutritional problems that are driving an explosion of obesity and chronic diseases like Metabolic Syndrome and Diabetes Type II. The latest nutrition research has revealed that all of these conditions have their origins in the quality of nutrition during childhood and adolescence. We now know that the right or wrong balance and concentration of nutrients during these critical periods of growth and development set a pattern of health for the rest of our life. The concept is known to researchers as "Metabolic Programming" and it tells us that our nutritional status when we're young greatly determines our health and vitality as we get older.

# WHAT NUTRIENTS DO CHILDREN REALLY NEED?

Children, just like adults need the right balance of nutrients from a variety of food sources – whole grains, fruits and vegetables, healthy protein sources such as fish, along with adequate exercise and rest. Whole foods and supplements are a source of a variety of macronutrients, vitamins, minerals, and phytonutrients that play critical roles in these formative years in a child’s life.



**Carbohydrates** are the main source for energy. Children need more energy because they are more active, and are rapidly growing and developing. It is imperative that the carbohydrates come from good natural sources like fruits, vegetables, and whole grains. Simple carbohydrates like white flour and refined sugar should be limited.

**Protein** is the basic biochemical building-block needed for growing bodies and essential to human life. Children, as well as adolescents, need an abundance of high quality protein to sustain their rapid growth and optimal development. Skin, muscle, organ, and tissue cells are all composed of protein as are the hormones and enzymes that control growth and metabolism.

**Fats** are an important source of energy in children and adolescents. They also play roles as building blocks and are an important source of fat-soluble vitamins. However, it is important that our children consume the right kinds of lipids or fats in their diet, and avoid saturated and trans fats. Healthy fats include fish oil that is abundant in omega-3 fatty acids. These are essential to human health but cannot be made by the body in amounts needed to meet demand. For this reason, they must be obtained from the food we eat or be added to the diet in the form of supplements.

Other important dietary fats, known as lipids and sterols from whole grains influence nutrition at the cellular level. Lipids and sterols support a healthy cellular uptake of nutrients and cellular export of waste and metabolites.

## DID YOU KNOW?

- Children eat nearly twice as many calories (770) at restaurants as they do during a meal at home (420).
- Children who consume fast food have higher intakes of fat, saturated fat, cholesterol, and sodium—and lower intakes of fibre, calcium, and iron—than those children who do not eat fast food.
- Consumption of milk—the largest dietary source of calcium—has decreased 36% among adolescent girls.<sup>3</sup>
- Did you know that children now drink 3 times more fruit than they eat! They are missing out on fibre and other essential nutrients.
- Children spend 5 times as much time watching TV than exercising outdoors. This predisposes them to obesity and health problems later in life. The beginnings of diabetes and cardiovascular disease begin in early childhood.

## 10 ESSENTIAL VITAMINS AND MINERALS KIDS OFTEN MISS

VITAMIN A	Promotes eye health, bone growth, and warding off infections
VITAMIN C	Enhances immune function and works with vitamin E to provide antioxidant support
VITAMIN D	Works with calcium to keep bones strong
VITAMIN E	Protects cells from the damaging free radicals that can lead to cancer and heart disease later in life
CALCIUM	Helps grow strong bones and healthy teeth
IRON	Keeps the blood supply healthy so it can deliver oxygen to the body’s tissues. Iron deficiency is still the most prevalent deficiency in children worldwide.
FOLATE	A special B vitamin— helps produce and maintain new cells and prevent anemia
MAGNESIUM	Helps keep the heart rhythm steady and the immune system and bones strong
POTASSIUM	Helps kidneys function properly, keeps blood pressure normal, and is important for heart health
ZINC	Promotes normal growth and development during childhood and keeps the immune system strong

## RESULTS OF A LOW-NUTRIENT DIET INCLUDE:

- Sub-optimal growth and development
- Inferior physical and intellectual performance
- Compromised immune system
- Impaired repair and maintenance of tissue

## FILLING CHILDREN'S NUTRITIONAL GAPS WITH DIETARY SUPPLEMENTS—WHY?

Scientific research has clearly demonstrated that including the right nutrients in your child's diet can have a dramatic impact on their physical as well as intellectual development and performance.

### CHILDREN WHO EAT BREAKFAST PERFORM BETTER AT SCHOOL

Studies show that children who eat a nutritious breakfast perform better at school, yet many children skip breakfast.<sup>4,5</sup> In general, those who have healthy eating habits when young are more likely to have healthy diets as adults too.<sup>6</sup>

### MULTI-VITAMIN MINERALS IMPROVE ATTENTION AND BRAIN FUNCTION

In a recent (2008) well-controlled study in the UK, published in the *British Journal of Nutrition*, a 12-week daily multivitamin mineral supplementation in children ages 8-14 years resulted in an increased attention task performance compared to non supplemented counterparts.<sup>7</sup>

### GIRLS WHO SUPPLEMENT THEIR DIETS WITH CALCIUM AND VITAMIN D GROW TALLER AND ARE STRONGER IN THEIR TEENS

Calcium supplementation, along with vitamin D plays a critical role in building strong and healthy bones and muscles in children. Recent studies reported significant gain in bone mass and muscle power in adolescent girls.<sup>8,9,10</sup>

### ZINC HELPS CHILDREN THINK

Another study showed that Zinc, associated generally with immune function may actually help children think better. In the trial, 11-year-olds who took 20mg zinc supplements for five days each week had better mental performance after three months than their classmates, as cited in a study by the US Agricultural Research Service's Grand forks Human Nutrition Research Center in North Dakota in April 2005.<sup>11</sup>

### OMEGA-3 & VITAMIN E MIX SHOWS POTENTIAL FOR IMPROVED SPEECH IN AUTISTIC CHILDREN

According to research published in the journal *Alternative Therapies in Health and Medicine*, daily supplements of omega-3 and vitamin E were associated with improvement in speech, imitation, eye contact and behavior in autistic children.<sup>12</sup>

### PROBIOTICS MAY REDUCE COLD AND FLU SYMPTOMS IN CHILDREN

A recent study published in the journal *Pediatrics* showed that a daily supplementation of Lactobacillus and Bifidobacterium strains may reduce the incidence of cold and flu-like symptoms in children by 50 percent.<sup>13</sup>



*"Precisely at the time when young bodies' nutritional requirements are greatest, many fail to obtain all the nutrients they need each day. Deficiencies of vital nutrients can inhibit not only physical growth, but internal development, mental performance, and repair and maintenance of developing tissues. Immune systems can be depressed, as well, leaving the child more vulnerable to infection and disease"*

**Dr. Arthur Furst**  
Founding Member Emeritus, GNLD Scientific Advisory Board  
World Renowned Toxicologist & Pharmacologist



### GNLD PRODUCTS THAT CAN HELP YOU OPTIMISE YOUR CHILD'S HEALTH:

- **Chewable Vita-Squares**  
Offer complete vitamin and mineral support for children. Includes Tre-en-en Grain Concentrates.
- **NouriShake Protein Drink Mix**  
Nourishake contains slow burning carbohydrates that help maintain mental concentration for hours. Perfect for a morning tea at school!
- **Chewable Vita-Gard**  
Offers complete antioxidant protection of phytonutrients from fruits and vegetables.
- **Chelated Zinc**  
Significantly higher zinc absorption from GNLD's double amino chelates.
- **Chewable Neo-C**  
A delicious chewable, All-C provides the vitamin C equivalent of 4 oranges.

### FOR THOSE WHO CAN SAFELY SWALLOW CAPSULES:

- **Omega-III Salmon Oil Plus**  
Recent scientific evidence points to omega 3 fats as a way to improve behavioural problems in children!
- **Acidophilus Plus**  
Contains as many active cultures as in 10 servings of yogurt with guaranteed delivery of probiotics.

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<b>HOW MUCH DOES YOUR CHILD REALLY NEED?</b>				
Recommended dietary intake for children★				
AGE		1-3 years	4-8 years	9-13 years
<b>VITAMINS</b>	A (Retinol equivalents)	300 mcg	400 mcg	600 mcg
	C	35 mg	35 mg	40 mg
	D	5 mcg*	5 mcg*	5 mcg*
	E	5 mg*	6 mg*	9 mg (M)/8 mg (F)
	K	25 mcg*	35 mcg*	45 mcg*
	B1 (Thiamin)	0.5 mg	0.6 mg	0.9 mg
	B2 (Riboflavin)	0.5 mg	0.6 mg	0.9 mg
	Niacin	6 mg	8 mg	12 mg
	B6	0.5 mg	0.6 mg	1 mg
	Folate	150 mcg	200 mcg	300 mcg
	B12	0.9 mcg	1.2 mcg	1.8 mcg
	Pantothenic Acid	3.5 mg*	4 mg	5 mg (M)/4 mg (F)*
	Biotin	8 mcg*	12 mcg*	20 mcg*
	Choline	200 mg*	250 mg*	375 mg*
<b>MINERALS</b>	Calcium	500 mg	700 mg	1000 mg(M)/1300mg(F)
	Chromium	11 mcg*	15 mcg*	25mcg(M)/21 mcg (F)*
	Copper	700 mcg*	1 mg*	1.3mg (M)/ 1.1 mg (F)*
	Fluoride	0.7 mg*	1 mg*	2 mg*
	Iodine	90 mcg	90 mcg	120 mcg
	Iron	9 mg	10 mg	8 mg
	Magnesium	80 mg	130 mg	240 mg
	Manganese	2 mg*	2.5 mg*	3 mg (M)/ 2.5 mg (F)*
	Molybdenum	17 mcg	22 mcg	34 mcg
	Phosphorus	460 mg	500 mg	1250 mg
	Selenium	25 mcg	30 mcg	50 mcg
	Zinc	3 mg	4 mg	6 mg
	Potassium	2 g*	2.3 g*	3 mg (M)/ 2.5 mg (F)*
	Sodium	200-400 mg*	300-600 mg*	400-800 mg*
<b>MACRONUTRIENTS</b>	Protein	14 g	20 g	40 g (M)/ 35 g (F)
	Linoleic Acid	5 g*	8 g*	10g (M)/8 g (F)
	α-Linolenic Acid	0.5 g*	0.8 g*	1.0g(M)/0.8 g (F)
	Total Fibre	14 g*	18 g*	24g (M)/20 g (F)
	★ RECOMMENDED DIETARY INTAKE (per day) established by the Australian Government, Department of Health and Ageing, National Health and Medical Research Council. * AI- ADEQUATE INTAKE established by the Australian Government, Department of Health and Ageing, National Health and Medical Research Council.			