

## NUTRITIONAL SUPPLEMENTS AND SPORTS NUTRITION

Many patients ask about the use of large doses of vitamins, minerals, or nutrients as a supplement to their diets in order to improve health or performance. Another confusing subject for many parents is herbal or homeopathic “natural” supplements. A few important points should be considered when deciding about giving your child supplements.

It is important to note that this does not refer to *standard* multivitamin supplements or feeding standard amounts of protein, fat or carbohydrate. These good nutritional practices are well studied and are known to be safe and beneficial.

Ideally, the use of *extra* nutritional supplements should be scrutinized to prove that

1. They are safe and do no harm.
2. They are beneficial and enhance health or function.

Unfortunately, most supplements have not been studied scientifically and we therefore cannot be sure of their good and bad effects. That is not to say, however, that there is definitely no risk or benefit – we just don’t know. Manufactures may make claims that are unproven or even false. How, then, can you decide what to do for you child?

### Vitamins

The American Academy of Pediatrics believes that healthy children receiving a normal, well-balanced diet do not need vitamin supplementation over and above the recommended dietary allowances, which includes 400 IU (International Units) of vitamin D daily in infants less than 1 year of age and 600 units/day for children over 1 year of age.

Megadoses of vitamins—for example, large amounts of vitamins A, C, or D—can produce toxic symptoms, ranging from nausea to rashes to headaches and sometimes to even more severe adverse effects.

### Probiotics

In otherwise healthy children and infants, administering probiotics early in the course of diarrhea from acute viral gastroenteritis can reduce its duration by one day. Probiotics also have been found to be modestly effective in **preventing** antibiotic-associated diarrhea in otherwise healthy children, though there is no evidence probiotics are effective at treating this type of diarrhea.

### Herbal Remedies

There are hundreds of herbal, homeopathic, or “natural” products sold to enhance health, especially related to immunity. Some are frankly harmful and dangerous; others appear to be harmless and may have benefit (although there is no scientific basis for most of these claims.) Use of herbal drugs may have the following problems:

1. Correct pediatric dose is unknown because there are no pediatric studies; products claiming to be for children are usually estimated reductions in adult dose.
2. There is no standardization of concentration in these products. The amount of the herbal drug may vary dramatically from brand-to-brand and even from tablet-to-tablet or drop-to-drop.

3. There is no supervision or regulation of purity. You may find many compounds other than the herbal drug in the product, with unknown effects.

At Hunterdon Pediatric Associates, we do not recommend herbal drugs.

### **Sports Nutrition**

Eating a healthy, well-balanced diet with adequate calories (the number depends upon the child's age and weight and the intensity of exercise) is important. The percent of calories from protein, fat and carbohydrates should be:

20-25% of calories come from protein

30-35% of calories come from fat

40-50% of calories come from carbohydrate

Adequate iron and calcium for age (please to refer to our Calcium and Iron handouts)

Athletes who do not eat from all food groups will find it difficult to meet these goals.

Fluid intake is essential. Plan on:

16 ounces of nonfat non-carbonated fluid two hours before an event

8-12 ounces one half hour before the event

4-8 ounces every 15-20 minutes during the event

16 ounces of fluid for every pound of body weight lost after the event.

Water is the best choice for exercise lasting less than 60-90 minutes; sports drinks (solutions of water plus carbohydrate and sodium) may be better for high intensity exercise as they contain some calories for energy.

Sports bars are convenient but expensive. They are an easy pre-exercise snack but are not better than other foods.

### **"Performance Enhancing Substances"**

As stated above, a good diet with a variety of healthy foods is the best way for an athlete to achieve optimal performance in sports. Unfortunately, many young athletes use Performance Enhancing Substances in an attempt to achieve a higher level of fitness. Many of these substances either do not work or have serious side-effects. Some are discussed below:

- Protein Supplements – Whey protein can easily be found in grocery stores. It one of the main proteins in milk.
  - Since they are not regulated by the Food and Drug Administration, there is no guarantee that whey protein products are truly what they claim to be.
  - They may contain other substances, including contaminants such as heavy metals, which are toxic.
  - They are expensive
  - Increasing protein in the diet can be done by eating healthy high-protein foods such as:
    - Lean meats
    - Chicken
    - Fish
    - Eggs (egg whites contain the protein)
    - Low fat Greek yogurt
    - Low fat cottage Cheese

- Low fat milk
  - *Carnation Breakfast Essentials – High Protein*
- Creatine – Is a compound mostly stored in muscles.
  - It a source of quick energy for muscle cells.
  - Our bodies make it naturally. It is also found in beef.
  - For people who eat beef, their muscles are “fully loaded” with creatine and therefore taking a creatine supplement is of no value.
  - Studies have shown limited performance benefit. It can be helpful in short, high intensity efforts, but the overall improvement in performance is about 3-5 %. This is much less than the 30% gain that can be achieved with supervised resistance training.
  - The most common side-effect is water weight gain which gives the appearance of being bigger which enhances the athlete’s perception that there is a positive effect.
- Stimulants –
  - Caffeine – studies show improvements in strength and endurance. Results vary and may be small. Maximum benefits occur with moderate intake (1 cup of coffee for a 150 pound person).
  - ADHD medications – Should only be used by people that they are prescribed for to treat ADHD. Use for performance enhancement is **illegal**. There are side-effects and for certain individuals with underlying medical problems, can be dangerous.
  - Herbal Stimulants (“fat burners”) are not regulated, have not been found to be effective in promoting sustained weight loss and can negatively affect academic performance.
- Anabolic Steroids –
  - Can cause serious side-effects
    - Liver problems
    - Increased LDL (bad) cholesterol, decreased good (HDL) cholesterol
    - Injury to heart muscle
    - Mood changes with aggression
    - Negative effects on brain development
    - Severe acne
    - Gynecomastia (breast development in males). It is irreversible
    - Baldness – irreversible
    - Premature Closure of the bones growth plates resulting in decreased final height
    - Abrupt discontinuation can lead to severe depression and suicide
- Human Growth Hormone
  - No proven athletic performance benefit
  - Can cause serious side-effects