

# Nutrition Guidelines for Duchenne Muscular Dystrophy

Nutrition plays a critical role in managing your son's condition. It is important to start implementing dietary principles as EARLY as possible.

It is helpful for the whole family to embrace this healthy way of eating, not just the family member with Duchenne Muscular Dystrophy (DMD). Everyone benefits from the principles that we recommend as many of these are applicable for the general public. The individual with DMD will be more successful overall with their dietary therapy if the entire family is on board. Goals include:

- Preserve lean muscle
- Prevent excessive fat build-up and weight gain
- Keep bones strong
- Prevent insulin resistance
- Help maintain normal cholesterol and lipid levels
- Prevent constipation



*Below are some of the complications that can be encountered throughout Duchenne progression and treatment. By implementing these respective dietary changes below, we can to prevent and lessen these complications.*

## Protein Power

Given that DMD is a muscle wasting disorder, we want to preserve muscle mass, and minimize muscle wasting by aiming for at least 1 gram of protein per kilogram. Divide your child's weight (pounds) in half to determine how many grams of protein your child should aim for as a guideline. The dietitian can help identify sources and amounts of protein in your child's diet.

## Bone Health

It is important to keep bones strong to keep your body well-supported, to avoid fractures and prevent osteoporosis.

### Calcium Needs for Males

Age	Adequate Intake (mg/day)	With steroids and DMD (mg/day)
1-3 years	500	750
4-8 years	800	1200
9-18 years	1300	1500
19-70 years	1000	1500

## Good sources of calcium include:

- Dairy: Low-fat or non-fat milk/yogurt/cheese; fortified milk alternatives (i.e. soy, almond milk)
- Green leafy veggies (spinach, bok choy, beet, turnip, collard, dandelion) and broccoli
- Legumes/beans/hummus, tofu, and unsalted almonds; oranges and dried figs

The dietitian will determine if we are able to meet your child's calcium needs with diet alone, or if a calcium supplement should be introduced or increased.

### **Steroid effects-Weight gain, Cushingoid, Insulin resistance**

One of the side effects of steroids can include increased appetite, risk for weight gain, increased blood sugar levels, and insulin resistance. The goal is to prevent glucose intolerance, which is a precursor for diabetes. It is important to minimize surges in blood sugar and insulin (the hormone responsible for handling your blood sugar) by choosing a moderate amount of slow burning carbohydrates. Glycemic index is a measure of how fast a food causes our blood sugar to rise. By following a low glycemic index eating plan, we can avoid blood sugar and insulin spikes. A low glycemic index eating plan means opting for foods that are digested more slowly, and cause a slower rise in blood sugar. We aim to balance these foods evenly at meals and snacks to create an overall reduction in glycemic load. Please refer to the *Glycemic Index Eating Plan* for more details. In addition to the moderating the glycemic response, your dietitian can work with you help you achieve the right amount of calories your child needs to grow properly in relation to their Duchenne condition. Portion control will be important for starches-aim for your child's fist size (starches include grains and starchy veggies - potatoes, corn, peas, winter squash). Another common side effect of steroids, a puffy "Cushingoid" appearance, can be avoided by not exceeding 1500 mg of sodium/day (3/4 tsp). The goal is to limit high sodium foods.

### **Cardiac Health**

For treatment, elevated LDL cholesterol, we want to recommend saturated and trans fat in the diet by selecting more heart healthy proteins and fats. We want to limit butter and other full- fat dairy products, fatty meats, fried foods, and packaged foods containing trans fat (partially hydrogenated or hydrogenated oils). The aim is to replace these unhealthy fats with healthier fats -nut butter (just nuts, no salt) or unsalted nuts, seeds, canola or olive oil, fish, and avocado. For high triglycerides, the goal is to limit refined carbohydrates such as added sugars and low fiber grains. In some cases, we may also suggest starting your child on an omega- 3 fat supplement.

### **Constipation**

It is common for our patients with DMD to experience issues with constipation. The goal is to get plenty of fiber from whole grains, legumes, seeds, nuts, fruits and vegetables. However, we also need to drink enough fluids to keep things moving. Medications such as stool softener may also need to be part of child's bowel regimen to keep from getting backed up.

### **Fluids Goals**

As a guide, aim for 1 oz per pound of body weight; maximum of 100 oz/day. Your dietitian can specifically determine what volume of fluids would be best for your child. Choose beverages that are rich in calcium (i.e. low or non-fat milk) and those that do not contain added sugar (water, sugar-free fruit drinks)

### **Kidney Stones**

Individuals with DMD are at risk of developing kidney stones when taking various nutrition supplements, and not consuming adequate fluids. To decrease the risk of developing kidney stones, try the following tips: good hydration, avoid high salt intake, increase foods rich in potassium (i.e. potatoes, bananas, avocado) and increase intake of citric fruits.

*Please feel free to reach out to your dietitian with questions or concerns regarding your child's nutrition*  
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