

Bone Health for Children with Motor Delays

Child Development Program

BONE BUILDERS: CALCIUM, VITAMIN D AND EXERCISE

Good nutrition and exercise help prevent bones from getting weak and breaking. Calcium and vitamin D are important nutrients for building strong, healthy bones.

Most **Calcium** is stored in your bones and teeth, but some calcium is in your blood. You need to eat enough calcium to keep your bones, teeth and blood calcium levels normal. It is best to get calcium from food, but sometimes calcium supplements are needed.

Vitamin D helps your body absorb the calcium that comes from food. Your body can also make vitamin D with the help of the sun. It can be difficult to get enough sun during the winter and in the summer when wearing sunscreen because sunscreen blocks the vitamin D made from the sun. People with darker skin need more sun time to get enough vitamin D. Very few foods contain enough vitamin D, so the research suggests that all children take a vitamin D supplement.

Calcium and vitamin D are especially important for children with motor delays and on medications

- Children with motor delays (like cerebral palsy) are at increased risk for having weak bones because they spend less time doing weight bearing activities (walking, standing).
- Children taking seizure medications or corticosteroids are at increased risk of having weak bones.

Physical Activities

- Weight bearing activities such as standing, walking and running are important for bone health.
- Ask your health-care providers about physical activities for your child.

How much Calcium and Vitamin D does your child need?

_____ needs to take ____mg of elemental Calcium and ___IU of Vitamin D each day. He/she also needs to eat lots of healthy foods (*see tips on back*).

***Calcium supplements should not be taken with other medicine. Calcium can make other medications less effective.*

Age	Elemental Calcium	Vitamin D
1-3 years	500 mg	800IU
4-8 years	800 mg	800IU
9-18 years	1300 mg	800IU



References:

- Greer, F.R., Krebs, N.F., Committee on Nutrition (2006). Optimizing bone health and calcium intakes of infants, children and adolescents. AAP, 117(2), p. 578-585.
- About Kids Health (2008). Calcium, vitamin D and exercise: The bone building team. www.aboutkidshealth.ca.
- Fehlings, D., et al. (2010). Holland Bloorview Kids Rehabilitation Hospital clinical guidelines for osteopenia prevention and treatment in children with neuromotor disorders. Submitted for publication.

Good Sources of Calcium

Food	Serving size with 300mg Calcium	Usual Serving Size and Amount of Calcium
Drinks: 1%, 2%, homo, chocolate, soy, rice milk, orange juice	1 cup (250ml)	1 cup (250 ml) = 300 mg Calcium
Yogurt: plain, flavored	$\frac{3}{4}$ cup (175 ml)	$\frac{3}{4}$ cup (175 ml) = 300 mg Calcium
Dessert: frozen yogurt, ice cream, pudding made with milk	1 cup (250 ml)	$\frac{1}{2}$ cup (125 ml) = 150 mg Calcium
Cheese: cheddar, mozzarella, swiss,	1.5 oz (45 g) (1.5"x1.5"x1.5")	1 $\frac{1}{4}$ " / 3 cm cube = 250 mg Calcium
Cheese: processed slices		2 slices = 250 mg Calcium
Fish: canned salmon	$\frac{1}{2}$ can (7.5 oz can)	$\frac{1}{2}$ can (7.5 oz can) = 300 mg Calcium
Tofu: firm, extra firm	$\frac{1}{2}$ cup (125 ml)	$\frac{1}{4}$ cup = 150 mg Calcium
Beans: cooked soy beans, black beans, kidney beans, chickpeas	2 cups (500 ml)	1 cup (250 ml) = 150 mg Calcium
Baked beans	1 cup (250 ml)	1 cup (250 ml) = 300 mg Calcium
Waffles/Pancakes: made with milk	3	3 medium = 150 mg Calcium
Soup: made with milk	1 cup (250 ml)	1 cup (250 ml) = 300 mg Calcium

Other sources of Calcium:

Broccoli, kale, bok choy, seaweed, brussel sprouts, oranges, figs, almonds, molasses, hazelnuts, sesame seeds, tahini.

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Holland Bloorview Kids Rehabilitation Hospital is Canada's largest children's rehabilitation hospital, fully affiliated with the University of Toronto. We pioneer treatments, technologies, therapies and real-world programs that give children with disabilities the tools to participate fully in life. Every year, we see about 7,000 children with about 600 inpatient admissions and 58,000 outpatient visits.

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