

# NUTRITION AND FOOD ALLERGIES: SHOULD YOU BE CONCERNED?

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# Schedule of Amendments No. 1220

## “Enhanced labeling of Food Ingredients”

- The source **MUST** be declared in
  - Hydrolyzed **soy** protein
  - Modified **wheat** starch
- The ‘source’ **MUST** be declared in the ingredient list in brackets after the ingredient
  - Calcium caseinate (**milk**)
- IF there is an “Allergy and Intolerance Information – Contains...” statement on the label, it **MUST** have a **COMPLETE LIST** of all the allergens and gluten sources present.

# Top 10 Priority Allergens

- Peanuts
- Tree nuts
- Milk
- Eggs
- Wheat
- Soy
- Sesame Seeds
- Seafood (Fish, Crustaceans and Shellfish)
- Sulphites (when above 10 ppm)
- Mustard

# NUTRIENTS OF CONCERN

- 1. MILK ALLERGY:** CALCIUM,  
VITAMIN D (+ MAGNESIUM,  
POTASSIUM, VITAMIN K)
- 2. FISH/SHELLFISH ALLERGIES:**  
OMEGA-3 FATTY ACIDS
- 3. EGG/WHEAT ALLERGIES:** IRON,  
FOLATE, VITAMIN B12

# Calcium RDAs (Recommended Dietary Allowance)

<b>Age group</b>	<b>RDA (mg)</b>	<b>Tolerable Upper Intakes (mg)</b>
0–6 months (boys and girls)	200	1,000
7–12 months (boys and girls)	260	1,500
1-3 years (boys and girls)	700	2,500
4–8 years (boys and girls)	1,000	2,500
9–18 years (men and women)	1,300	3,000
19–50 years (men women)	1,000	2,000
Women, pregnant or breastfeeding	1,000-1,300	2,500 3,000
51–70+ years: men	1,000 mg	2,000
women	1,200 mg	2,000
71+ years	1,200 mg	2,000

Source: <http://www.hc-sc.gc.ca/fn-an/nutrition/vitamin/vita-d-eng.php>

# Best food sources of calcium

- 1 cup (250 mL) rice milk (fortified) = **300 mg**
- 1 cup (250 mL) calcium-fortified orange juice = **261 mg**
- Figs (3, dried) = **200 mg**
- 1/2 cup (125 mL) cooked collard greens = **140 mg**
- 1/2 cup (125 mL) cooked cabbage = **108 mg**
- 1/2 cup (125 mL) cooked turnip greens = **104 mg**
- 1/2 cup (125 mL) cooked kale = **44 mg**

# Vitamin D Recommended Dietary Allowance

<b>Age group</b>	<b>RDA</b>	<b>Tolerable Upper Limit</b>
0 – 6 months	400 IU (10 mcg)	1,000 IU (25 mcg)
7-12 months	400 IU (10 mcg)	1,500 IU (38 mcg)
Children 1-3 years	600 IU (15 mcg)	2,500 IU (65 mcg)
Children 4-8 years	600 IU (15 mcg)	3,000 IU (15 mcg)
Children and Adults 9-70 years	600 IU (15 mcg)	4,000 IU (100 mcg)
Adults 71+ years	800 IU (20 mcg)	4,000 IU (100 mcg)
Women, pregnant or breastfeeding	600 IU (15 mcg)	4,000 IU (100 mcg)

Source: <http://www.hc-sc.gc.ca/fn-an/nutrition/vitamin/vita-d-eng.php>

# Best Food Sources of Vitamin D

Food	Serving	Vitamin D (IU)
Milk	1 cup	103
<b>Fortified rice or soy beverage</b>	1 cup	<b>88</b>
<b>Fortified orange juice</b>	1/2 cup	<b>53</b>
Fortified margarine	2 tsp	51
Egg yolk	1	25
Salmon, Atlantic, cooked	75 g	246
Salmon, chum, canned	75 g	168
Salmon, pink, canned	75 g	435
Salmon, sockeye, canned	75 g	585
Sardines, Atlantic, canned	75 g	70
Sardines, Pacific, canned	75 g	360
Tuna, canned, light or white	75 g	44
Tuna, skipjack, cooked	75 g	381
Tuna, bluefin, cooked	75 g	690



# Other nutrients important to bone health

- Vitamin K: dark leafy greens
  - spinach
  - kale
  - swiss chard
- Protein
- Potassium: fruits and vegetables
- Magnesium: pumpkin/sunflower/chia seeds (78-190 mg/2 -4 tbsp)

# Omega-3 and Omega 6 fatty acids

- **Essential Fatty Acids** because the body cannot synthesize them.

	Omega 3 fatty acids	Omega 6 fatty acids
Most common forms	<b>ALA</b> (Alpha Linolenic Acid) <b>EPA</b> (Eicosapentanoic Acid) <b>DHA</b> (Docosahexanoic Acid)	<b>LA</b> (Linoleic Acid) <b>AA</b> (Arachadonic Acid)
Common Food Sources	<b>ALA:</b> canola, soybean oil, walnuts, ground flaxseeds and flaxseed oil  <b>EHA and DHA:</b> fatty fish (salmon, rainbow trout, sardines)	Vegetable oils (corn, sunflower, safflower), nuts

# Omega-3 and Omega-6 fatty acids

- The capacity for conversion of ALA to DHA is higher in women than men.
  - Healthy young men:
    - ALA → DHA: 0-4%
    - ALA → EPA: 8%
  - Healthy young women:
    - ALA → DHA: 9%
    - ALA → EPA: 21%

# Adequate Intakes (AI) for $\Omega$ -3 Fatty Acids

<b>Life Stage</b>	<b>Age</b>	<b>Source</b>	<b>Males (g/day)</b>	<b>Females (g/day)</b>
Infants	0-6 months	ALA, EPA, DHA*	0.5	0.5
Infants	7-12 months	ALA, EPA, DHA	0.5	0.5
Children	1-3 years	ALA	0.7	0.7
Children	4-8 years	ALA	0.9	0.9
Children	9-13 years	ALA	1.2	1.0
Adolescents	14-18 years	ALA	1.6	1.1
Adults	19 years and older	ALA	1.6	1.1
Pregnancy	All ages	ALA	-	1.4
Lactation	All ages	ALA	-	1.3

\*All omega-3 polyunsaturated fatty acids present in human milk can contribute to the AI for infants. ALA, alpha-linolenic acid; EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid.

# Adequate Intakes (AI) for $\Omega$ -6 Fatty Acids

<b>Life Stage</b>	<b>Age</b>	<b>Source</b>	<b>Males (g/day)</b>	<b>Females (g/day)</b>
Infants	0-6 months	Omega-6 PUFA*	4.4	4.4
Infants	7-12 months	Omega-6 PUFA*	4.6	4.6
Children	1-3 years	LA#	7	7
Children	4-8 years	LA	10	10
Children	9-13 years	LA	12	10
Adolescents	14-18 years	LA	16	11
Adults	19-50 years	LA	17	12
Adults	51 years and older	LA	14	11
Pregnancy	All ages	LA	-	13
Lactation	All ages	LA	-	13

\*The various omega-6 polyunsaturated fatty acids (PUFA) present in human milk can contribute to the AI for infants. # LA, linoleic acid

**TABLE**

$\alpha$ -Linolenic acid (ALA) content of selected oils, seeds, and nuts and amounts needed to meet adequate intakes<sup>1</sup>

Source of ALA	ALA	Amount needed by men to meet recommendation (1.6 g ALA/d)	Amount needed by women to meet recommendation (1.1 g ALA/d)
	<i>g/tbsp</i>	<i>tbsp</i>	<i>tbsp</i>
Pumpkin seeds	0.051	31.4	21.6
Olive oil	0.103	15.5	10.7
Walnuts, black	0.156	10.3	7.05
Soybean oil	<b>1.231</b>	<b>1.3</b>	<b>0.89</b>
Rapeseed oil	<b>1.302</b>	<b>1.2</b>	0.84
Walnut oil	1.414	1.1	0.78
Flaxseeds	<b>2.350</b>	<b>0.68</b>	<b>0.47</b>
Walnuts, English	2.574	0.62	0.43
Flaxseed oil	<b>7.249</b>	<b>0.22</b>	<b>0.15</b>

• Am J Clin Nutr June 2006 vol. 83 no. 6 S1526–1535S

# Alternative sources of ALA and EPA/DHA

## **ALA:**

- Chia seeds : 4200 mg/ 2 tbsp.
- Avocado (raw, cubed): 2720 mg/1 cup, cubed
- Brussel sprouts (cooked, drained): 133 mg/1 cup
- Kale: 60 mg/0.5 cup cooked
- Spinach (cooked from fresh): 90 mg/0.5 cup
- Spinach (fresh, chopped): 140 mg/3 cup
- Collard greens (cooked from fresh): 90 mg/0.5 cup
- Snap green/yellow beans (cooked): 56 mg/0.5 cup
- Black beans (cooked): 95 mg/0.5 cup

## **EPA/DHA:**

- Seaweed snacks (toasted nori): 80 mg per snack
- Wakame (raw): 22 mg/2 tbsp

# Recommended Dietary Allowances for Iron

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Age	Males (mg/day)	Females (mg/day)	Upper Tolerable Limit (mg/day)
7 to 12 months	11	11	40
1 to 3 years	7	7	40
4 to 8 years	10	10	40
9 to 13 years	8	8	40
14 to 18 years	11	15	45
19 to 50 years	8	18	45
Pregnancy		27	45
Lactation		9-10	
51+ years	8	8	45



# Best food sources of iron

- 2/3 cup (100 g) Job's Tears (hato mugi) = 16.9 mg
- 2.5 oz (75 g) Liver (chicken, turkey, lamb) = 6.2-9.7 mg
- 3/4 cup (175 mL) enriched cereal = 5.4-8.2 mg
- 1/4 cup (60 mL) dried pumpkin seeds = 5.2 mg
- 3/4 cup (175 mL) cooked lentils = 4.5 mg
- 1/2 cup (125 mL) cooked white beans = 3.3 mg
- 1 tbsp. (15 mL) blackstrap molasses = 3.6 mg
- 1/2 cup (125 mL) cooked, Teff grain = 2.6 mg
- 5 dried peach halves = 2 mg

# How to enhance iron absorption?

- Include a source of vitamin C with your meals
- MFP factor
- Avoid absorption-inhibiting foods
  - Phytates/fibers in whole grain cereal
  - Calcium and phosphorus in milk
  - Tannic acid (antioxidant) in tea, coffee nuts
  - Avoid having too much dairy with an iron rich meal

# Recommended Dietary Allowance for Folate

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<b>Age</b>	<b>Male</b>	<b>Female</b>	<b>Upper Tolerable Limit</b>
Birth to 6 months*	65 mcg DFE*	65 mcg DFE*	
7–12 months*	80 mcg DFE*	80 mcg DFE*	300 mcg
1–3 years	150 mcg DFE	150 mcg DFE	300 mcg
4–8 years	200 mcg DFE	200 mcg DFE	300 mcg
9–13 years	300 mcg DFE	300 mcg DFE	600 mcg
14–18 years	400 mcg DFE	400 mcg DFE	800 mcg
19+ years	400 mcg DFE	400 mcg DFE	1,000 mcg
Pregnant		600 mcg DFE	1,000 mcg
Lactating		500 mcg DFE	1,000 mcg

Source: <http://ods.od.nih.gov/factsheets/Folate-HealthProfessional/>

# Best food sources of folate

- 3 oz (85 g) cooked chicken liver = 476  $\mu\text{g}$
- 1 cup (250 mL) cooked romano beans = 364  $\mu\text{g}$
- 1 cup (250 mL) cooked black-eyed peas = 356  $\mu\text{g}$
- 1 cup (250 mL) cooked, drained spinach = 263  $\mu\text{g}$
- 1 cup (250 mL) cooked broccoli = 168  $\mu\text{g}$
- 1 cup (250 mL) cooked beets = 136  $\mu\text{g}$
- 1 cup (250 mL) cooked, parboiled rice, enriched = 92  $\mu\text{g}$

# Recommended Dietary Allowances for Vitamin B12

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<b>Age</b>	<b>Male</b>	<b>Female</b>
0–6 months*	(AI) 0.4 mcg	0.4 mcg
7–12 months*	(AI) 0.5 mcg	0.5 mcg
1–3 years	0.9 mcg	0.9 mcg
4–8 years	1.2 mcg	1.2 mcg
9–13 years	1.8 mcg	1.8 mcg
14+ years	2.4 mcg	2.4 mcg
Pregnancy		2.6 mcg
Lactation		2.8 mcg

# Best food sources of Vitamin B12

- 2.5 oz (75 g) organ meats (cooked): 12-64 mcg
- 2.5 oz (75 g) caribou/venison (cooked): 5 mcg
- 2.5 oz (75 g) ground beef (cooked): 2.4-2.7 mcg
- 1 cup (250 mL) fortified rice beverage: 1.0 mcg
- $\frac{3}{4}$  cup (28 g) fortified cereal: 3.2 mcg
- 1 tsp (2 g) powder Nutrition Yeast (Red Star):  
1.0 mcg