

## Food Sources of Trace Elements

### Copper

- Copper is found primarily in organ meats, seafood, nuts and seeds. Whole grains and cocoa are also sources.
- Copper is also found in drinking water. If water contained the maximum allowed by the U.S. Environmental Protection Agency, it could add up to 2600 µg/d in adults and 1000 µg/d in children aged 1-4 years. However, 98% of U.S. drinking water samples had <460 µg copper/L, which is equivalent to intakes of <100-900 µg/d.

### Iodine

- Most unprocessed foods are low in iodine, although foods of marine origin (including certain seaweed) contain higher amounts.
- Processed foods may contain iodine from the addition of iodized salt or iodine-containing additives. Dairy products often contain generous amounts of iodine from iodine-containing solutions used in sanitizing equipment that fluid milk comes in contact with.
- In Canada, iodination of salt is mandatory, at a level of 76 mg/kg of salt. Thus, a teaspoon (5 g) of salt would provide about 380 µg of iodine.
- In the United States, salt is iodized on a voluntary basis, also at 76 mg/kg of salt. About half the U.S. population uses iodized salt.

### Chromium

- Currently existing nutrient databases do not contain data for chromium content of foods.
  - Analytical techniques are difficult, as chromium can be added during analysis unless rigorous efforts are made to avoid contamination.
  - Chromium content appears to vary in different samples of the same type of food, and may be influenced by geochemical factors.
- Despite these challenges, the following comments can be made about chromium content of foods
  - Most dairy products have low levels (<1 µg/serving)
  - Unprocessed meat, fish and poultry also contain small amounts (~1-2 µg/serving)
  - Chromium content of cereals varies greatly. For example, 43 different brands of cereal contained between 0.15 and 35 µg/serving. Bran products appear to contain high amounts.

- Chromium in fruits and vegetables varies widely.
- Some beers and wines appear to contain significant amounts of chromium.

### **Manganese**

- Manganese is widely distributed in foods. Grain products, legumes, nuts, vegetables, certain fruits, and brewed tea contain generous amounts.
- Meats and dairy products are generally low in manganese.

### **Molybdenum**

- Molybdenum content of plant foods depends on the content in the soil.
- Legumes, grains and nuts are good sources, while animal products, fruits and many vegetables are generally poor sources.