TOPIC: OTHER TRACE MINERALS

Zinc (Zn)

RDA (19-50): 8-11 mg

- **Main bodily functions:**
  - Enzymatic: cofactor for over 300 enzymes.
  - Structural: stabilizes _____.
  - Regulatory: helps regulate _____ expression → fetal development.
  - Immunity: may reduce the duration of a cold*.

Food Sources	Deficiency (Rare)	Excess/Toxicity (Rare)
Fish, meat, & whole grains (or enriched/ leavened bread). 	Rare in _____ countries. ◆ Growth delays. ◆ Delayed sexual maturation. ◆ Reduced appetite. ◆ Increases susceptibility to infection.	From _____. ◆ Gastrointestinal upset. ◆ Headaches. ◆ Weakened immune function. ◆ Interfere with _____ absorption.
Things That Limit Absorption		
Non-heme iron, fiber, phytates.		
Main dietary concern: none.		

PRACTICE

Which of the following is a good source of zinc?

a) Unleavened bread. b) Oysters. c) Citrus fruits. d) Cantaloupe.

TOPIC: OTHER TRACE MINERALS

Selenium (Se)

RDA (19+): 55 µg

- **Main bodily functions:**
  - Cofactor for many enzymes.
  - _____ hormone production.
  - Antioxidant & immune function – correlation w/ lower risk of certain _____.

Food Sources	Deficiency (Rare)	Excess/Toxicity (Rare)
Almost all food groups → dependent on the amount in the _____. 	Unlikely if eating food from different _____. ◆ Inhibited thyroid function. ◆ Keshan disease (heart disorder).	_____: over supplementation. ◆ Brittle nails & hair loss. ◆ Skin rashes ◆ Nausea & vomiting. ◆ Liver damage.
Main dietary concern: none.		

PRACTICE

Which of the following statements best describes why selenium levels vary in different foods?

a) Virtually all plant foods are high in selenium, while animal products are not.

b) Areas with greater rainfall will have crops with less selenium.

c) Some geographic areas are naturally low in selenium, while others are high in selenium.

d) Fertilizers often contain selenium, so fertilized crops will be higher in selenium.

TOPIC: OTHER TRACE MINERALS

Manganese (Mn), Chromium (Cr), & Molybdenum (Mo)

Mineral	Function	Foods	Deficiency/ Toxicity
Manganese 1.8 – 2.3 mg	Enzyme cofactor in metabolism.	Mollusks, nuts, & whole grains. 	**D:** rare **T:** toxic at large doses (> 11 mg / day)
Chromium 25 – 35 µg	Enhances _____ function.	_____ diet → Chromium in food not well studied.	**D:** impaired glucose uptake. **T:** not recorded.
Molybdenum 45 µg	Enzyme cofactor; important in metabolism of amino acids containing _____.	Milk & dairy products, beans, whole grains, & nuts. 	**D:** rare **T:** low risk in humans

PRACTICE

Which trace mineral enhances insulin function?

a) Selenium. b) Chromium. c) Molybdenum. d) Manganese.