

CHROMIUM

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- **Cr^{VI} - toxic (mutagenic, carcinogenic and lipoperoxidation agent)**
- **Cr^{III} – necessary to insure optimal glucose metabolism, antioxidant**
- **concentration /S, P 0.05 – 0.5 µg/l
 1 - 10 nmol/l
 /B 0.7 - 28 µg/l
 13.4 – 538 nmol/l**

Metabolism

- RDI for females 70-130 $\mu\text{g}/\text{d}$, males 80-150 $\mu\text{g}/\text{d}$
- absorption 0.04 – 2%
- in plasma binds to albumin, transferrin and globulins
- urinary excretion 0.1 – 2.0 $\mu\text{g}/\text{l}$ = 1.9 – 38.4 nmol/l
↑ in physical activity, pregnancy, lactation, high sugar intake

Function

- Cr^{III}
- ↓ lipoperoxidation, participation in saccharides, lipids and proteins metabolism via **regulation of insulin action**
- **peptide chromodulin (4 Cr):**
- **binds IC part of insulin receptor after insulin → tyrosinkinase activation → potentiation of insulin effects**

Deficiency

- **hyperglycaemia irresponsive to insulin**
- **glycosuria**
- **peripheral neuropathy**
- **hyperlipidemia**

Toxicity

- **occurs in environmental pollution**
- **alergic eczema, skin ulcers;
bronchogenic carcinoma or other tumors**
- **contaminant in parenteral solutions**