

## Not Enough Minerals / Vitamins

- Many major and trace minerals are involved in cellular energy production

### Our Mineral and Vitamin Sources are Disappearing

We need 50+ nutrients daily to survive.

Sadly, we no longer receive the necessary nutrients from our food supply

- ◆ The Earth Summit Report reported that the levels of soil-based minerals in North America have dropped over 85% in the last 100 years - A 1996 U.S. soil analysis detected only 20 minerals, compared to 60 minerals in 1940. Typically today, *ONLY\_3 MINERALS ARE REPLACED* in the soil: Nitrogen, Phosphorus and Potassium.
- ◆ The following practices greatly degrade mineral and vitamin content:

- **Use of herbicides / pesticides**
- **Greatly degrade mineral/vitamin content**
- **Commercial food preparation processes** e.g. Canning, Dicing/slicing, blanching/freezing, dehydration)
- **Picking fruit under-ripe**
- **Long transit times\***
- **Post-harvest storage treatments** (e.g. chemical spraying),

\* A study of 30 fruit and vegetable truck transit miles to Chicago, showed most traveled on average 1000 - 2000 miles Pirog et al, 1998, with the expected impact on both produce freshness and the environment (e.g. carbon monoxide from exhaust fumes, wear and tear on roads).

- ◆ Many other factors also affect mineral levels in produce, including:

- **Geographical area**
- **Soil moisture**
- **Soil health** (humus content, fertility, microbial activity, fertilization - e.g. green manuring / composting),
- **Soil Type**
- **Pollution**
- **Weather and climatic conditions** (temperature, rainfall, flooding, drought),

- **Length of growing season**
- **Plant variety / seed source**
- **Irrigation / cultivation**
- **Post-harvest handling**  
(temperature, relative humidity).
- ◆ Increased drinking of demineralized, purified water - produced by distillation, deionization, reverse osmosis, or other processes, removes an otherwise substantial dietary mineral source.
- ◆ Poor “Food” Choices – 90% of money spent on American food is for processed foods, which have poor nutritional content

## Why are Minerals and Vitamins so Important in the Body?

- ◆ Mineral levels determine the number of Oxygen-carrying red blood cells – **Oxygen** levels affect energy production.
- ◆ Hormones are ineffective without proper minerals and vitamins – Hormones regulate **energy** production.
- ◆ Minerals energize and fuel the body's electrical system – Minerals are charged electrolytes. They provide the charge for our cell “batteries” for cellular **energy** production, and by their distribution either side of the cell membrane maintain cellular water balance. Minerals conduct electricity in the body for cellular communication. The majority of minerals participate as **electron** carriers. Eg. Iron, Zinc and copper are **electron** carriers in proteins, during the most **energy**-producing part of the **Cellular respiration cycle**.
- ◆ Minerals are your body's building blocks - Eating food is ultimately a mineral delivery system. Minerals provide structural integrity to the skeletal system and proteins. Eg. Calcium, Magnesium, Phosphorus, Iodine, and Flourine are integral to bones and teeth.

**DOES THE FDA CARE  
THAT AMERICANS ARE NUTRITIONALLY  
DEFICIENT?**

In 1912, Dr. Elmer Nelson, director of the Bureau of Chemistry (precursor to the FDA) was quoted as saying:

*”It is wholly unscientific to state that a well-fed body is more able to resist disease than a poorly fed body. My overall opinion is that there hasn’t been enough experimentation to prove that dietary deficiencies make one susceptible to disease.”*

One would like to think that this is no longer the foundational thinking of today’s FDA!

- ◆ Enzymes and their necessary coenzymes both require minerals for their production - Every metabolic function of the body (digestion and absorption of food) depends upon enzymes.
- ◆ Minerals play a critical role in the manufacture of your DNA (cellular blue-prints) — Eg. Zinc provides structural integrity to proteins involved in DNA replication (called transcription).
- ◆ **Antioxidant** vitamins are necessary to control the free-radicals produced by the body - and also to neutralize free radicals produced as a result of stress or environmental toxins entering the body. There are many food-source antioxidants, but the “Big 4” are Vitamins A, C, E and D, all in short-supply by being processed out of today’s typical Western food sources. Processors do sometimes attempt to add them back in with synthetic replacements. E.g. Vitamin A and D added Milk, enriched bread.
- ◆ **Vitamin D** is best obtained by exposure to the sun’s UV-B radiation – allowing scare tactics to deter us, we no longer partake of the sun’s natural, multi-faceted therapy as we should. Vitamin D3 production is only one of the benefits. *Vitamins A and D are not only catalysts for protein utilization, but minerals simply can not be absorbed without them.* Vitamin A and D are both naturally found in cod liver oil and butter from grass-fed cows.

Vitamin A – “The Grass Vitamin”  
Vitamin D – “The Sunshine Vitamin”

**Vitamins are worthless unless your body is nutrient balanced!**