

# Wie sicher sind mit Nährstoffen angereicherte Lebensmittel?

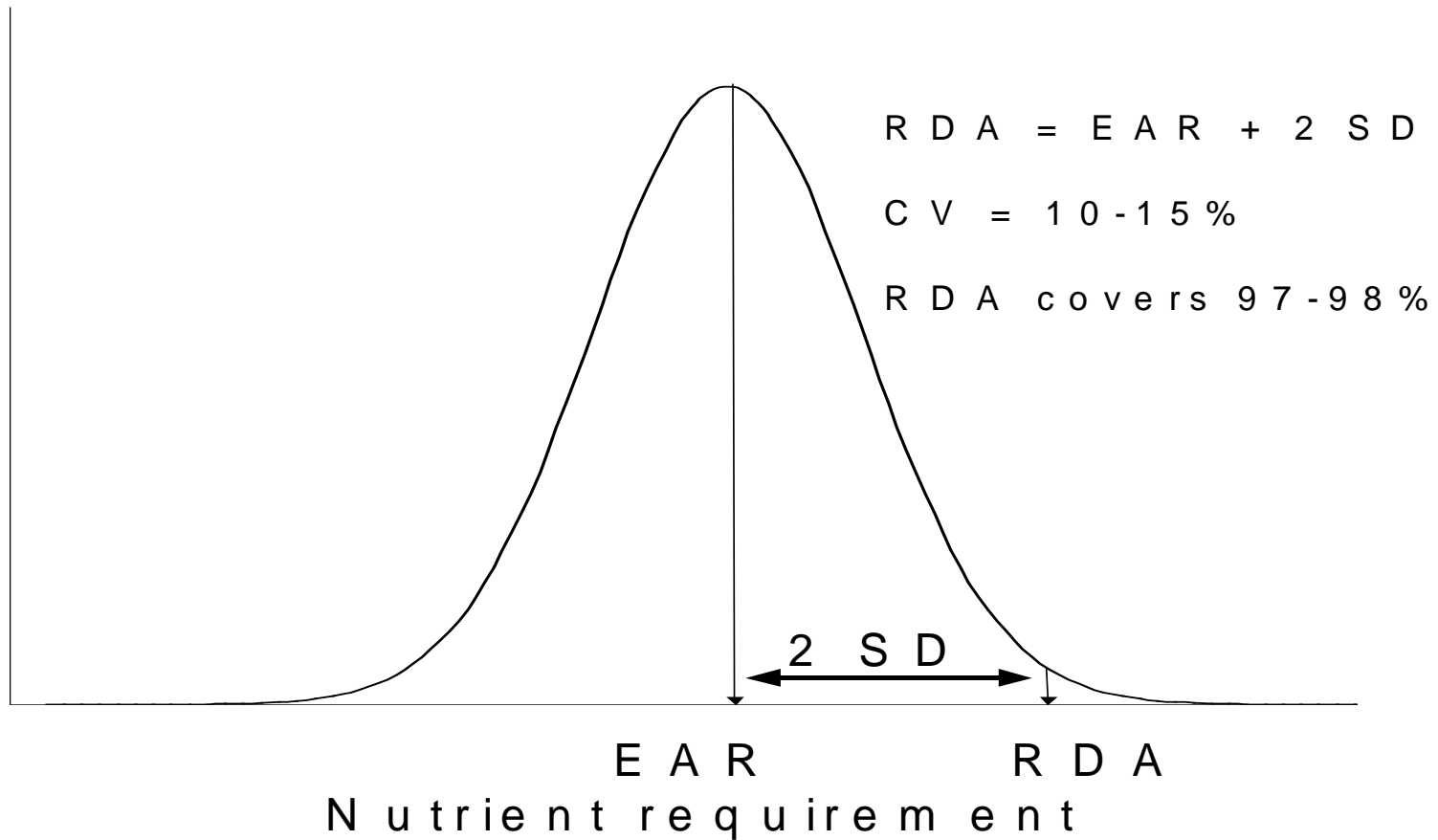
**SGE-Fachtagung 9. Juni 2006**

Prof. Dr. P. Walter  
Präsident Schweiz Gesellschaft  
für Ernährung (SGE)

# Ergänzungen zu einer unausgewogenen Ernährung

- Mineralstoffe
- Vitamine
- Spurenelemente
- Essentielle Fettsäuren
- Bioaktive Pflanzensubstanzen

# Normal frequency distribution of individual requirements for a nutrient



# Nutrient requirement

## Recommended dietary allowance (RDA)

- The level of intake of a nutrient that is adequate to meet the requirements of practically all healthy persons
- Other names are also RNI, PRI etc.

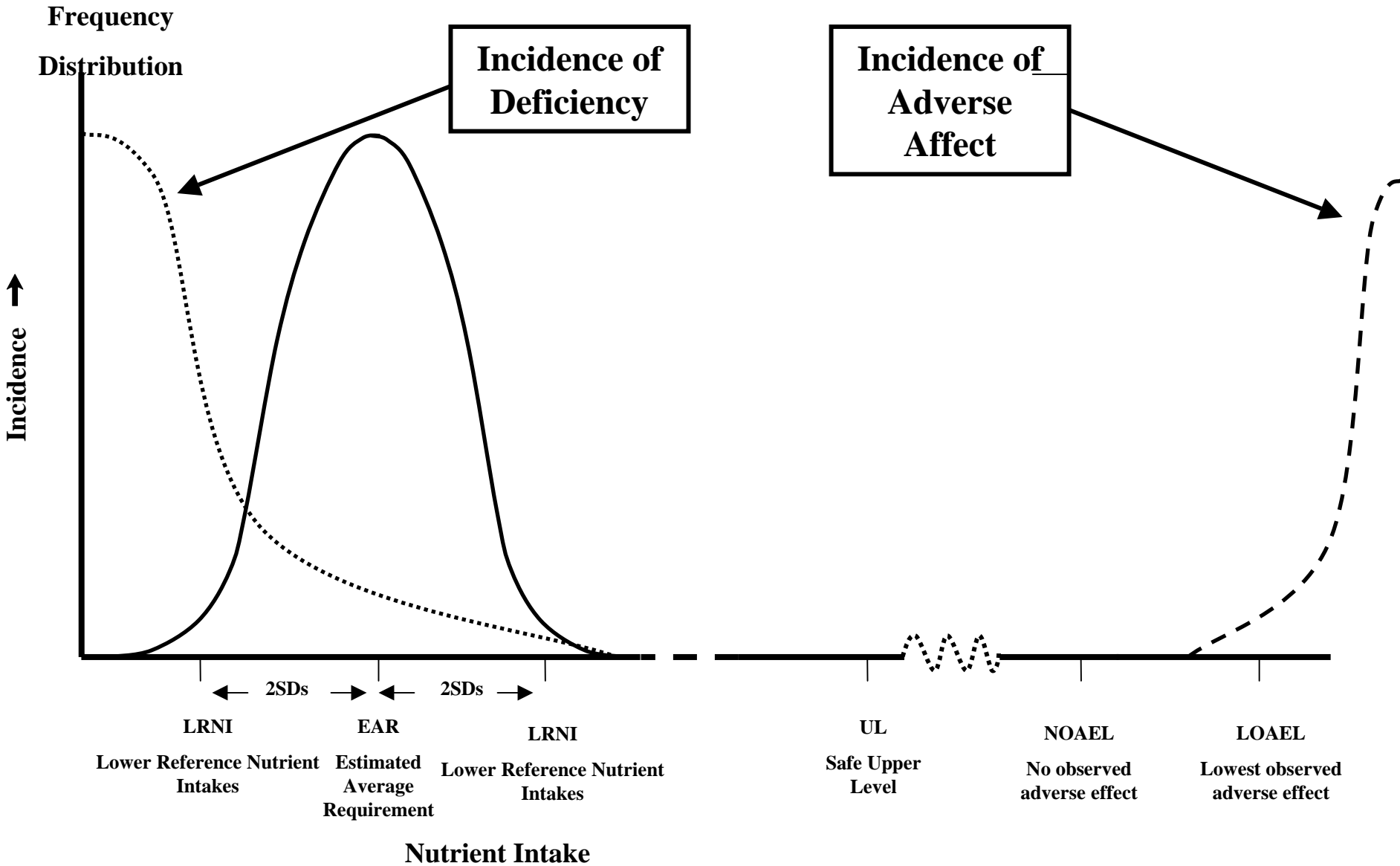
# Tolerable upper intake level (UL)

- the maximum level of **total chronic** daily intake of a nutrient (from **all sources**) judged to be unlikely to pose a risk of adverse health effects to humans

## **Applies to:**

- all groups of the general population, including sensitive individuals
- adults, pregnancy, lactation, children, adolescents

# *Dietary Reference Values*



# Steps in the development of the UL

## Hazard Identification

- Review evidence of adverse health effects caused by high intakes of the nutrient

## Hazard Characterisation

- selection of the critical data set
- dose response assessment: frequency + severity
- identification of NOAEL (or LOAEL) and critical endpoint
- uncertainty assessment: uncertainty factor (UF)
- derivation of a UL (= NOAEL/UF or LOAEL/UF)

## Definition of uncertainty level

## Risk Characterisation

**Moderate Risk of Excessive Intakes:**  
**Factor (UL/RDA) 5 - 100**

**Vitamins**

**Niacin (as nicotinamide)**

- **Vitamin B6**
- **Folic acid**
- **Vitamin C**
- **Vitamin E**
- **Vitamin K**

**Minerals**

- **Calcium**
- **Magnesium**
- **Iodine**

**Elevated Risk for Excessive Intakes :**  
**Factor UL/RDA < 5**

- **Retinol (Vitamin A)**
- **Vitamin D**
- **Iron**
- **Phosphorus**
- **Zinc**
- **(Selenium)**

# Risk Management

MA: Maximum amounts for safe addition of a nutrient to foods with little risk for adverse effects

MA can be estimated as the difference between the UL and the current intake at the 95th percentile (CI 95)

Example Vit C  $2000 - 180 = 1820\text{mg}$ .

# Wie sicher sind mit Nährstoffen angereicherte Lebensmittel?

In der Schweiz und in den meisten EU Ländern sind die erlaubten Mengen an zugegebenen Stoffen so abgestimmt, dass keine Überdosierungen zu erwarten sind.

Hingegen können bei der zusätzlichen Einnahme von stark erhöhten Mengen an Vitaminen und Mineralsalze (Supplemente) Überdosierungen vorkommen, insbesondere bei den Vitaminen A und D sowie für Eisen