

# **NCD**

## **Non-Communicable Disease**

### **-Logic of Life-**

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# Our History - Starvation and Infectious Diseases

## Great Rift Valley

Agriculture (~10K yrs ago) and Civilization (5K yrs ago)

## Modern history

- 14th Century in Europe, *plague* - city/more naturally immunized
- As human mobility increases many indigenous people died of infectious diseases due to lack of immunity
- 17-18th Century, Modern science, Industrial Revolution
- End of 18th Century, Edward Jenner & small pox vaccination
- More invasion, emmigration, slavery, more and more mobility
- Thru 1950, TBC had been #1 killer, streptomycin 1943; 1946-48
- Changing life style, suddenly **Westernized**
- NCD has become #1 disease burden only recently, 20~30 years
- What's next??

## Life and Environ; Salt

550 million    -explosion of life/ Cambrian  
Vertebrates; amphibians, reptiles to bird, mammals

Sea water --3.5% NaCl and low gravity ( $1/6G$ )--  
Fresh water, River/ponds  
--little NaCl and lower gravity ( $1/6G$ )

to Terrestrial life --little NaCl and  $1.0G$  gravity—  
and Extracellular fluids- 0.9% NaCl



# NaCl Intake of Terrestrial Mammals

Humans in stone ages

Carnivore vs Herbivore

# History of Salt and Human Civilization

Via Salaria, Salary

Salzburg, Hall

Table salt, Nordic history

King Louis 14<sup>th</sup>

Gandhi's salt march

# Plasma level of angiotensinogen

T235M (threonine vs methionine)

TT - highest

TM - medium

MM – lowest

T mutation – blood pressure higher

M mutation- blood pressure lower

African Black	>90%T
American Black	80-90%T
Caucasian in EU & US	~40-50%T
Japanese	~80%T



# Principle of Survival

-sources not abundant in natural life environs,  
but essential for survival

Hypertension      salt <1.5gr/day

Obesity            food & energy storage

Type 2 diabetes    glycogen storage/insulin  
when insulin rises?

Cholesterol        excess fat in natural environs?



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