The Beginning of Human Life and Prevention of Chronic Disease: Reframing the First 1,000 Days Paradigm

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PREVENTION BEGINS BEFORE CONCEPTION
Application of knowledge and advanced technologies, to develop an innovative care process that integrates clinical molecular and exposome evaluation, education and empowerment, monitoring via wearables devices.

A multi-disciplinary approach providing translational tools for early diagnosis/treatment of obstetrical, developmental and chronic disorders affecting children and future generations.

A novel ground-breaking effort that will collect pregnancy-related samples and data from parents and children from before conception to about two years of life.
The first 1000 days of human development including preconception and pregnancy phases accounts for the 70% of individual future life.

Future Parents Prepare For Conception

Mother and infant effective point to intervene

Child/adolescent effective point to intervene

Adult: screening may be too late to reduce risk

Affected adult: interventions have limited effect

Preconception

Plasticity

Life course

Detrimental effects of lifestyle challenges/increasing mismatch
Aging population and chronic diseases rise

Number 60+
868m 12% of total worldwide population

Number 60+
1.3b 16% of total worldwide population

Number 60+
2.03b 21% of total worldwide population

Death trends from 2000 to 2030:
- Cancer
- Ischaemic heart disease
- Cerebrovascular disease
- Acute respiratory infections
- Perinatal conditions
- HIV/AIDS
- Road traffic accidents
- Tuberculosis
- Malaria

Graph showing the increase in deaths from various causes from 2000 to 2030, with a significant rise in chronic diseases by 2050.
Modern lifestyle

Health stressors
- Hormonal factors
- Behavioral factors
- Chemical stressors
- Non-chemical stressors

Modern lifestyle
- Diets
- Microbial patterns
- Physical exercise

Inflammation and altered immune functions

Multisystem effect
- Tissue damage, oxidative stress and tissue repair

Increased NCD risk

Stress and HPA responses

Metabolic responses

Mood, behavior, development, degeneration

Cardiovascular response

Gastrointestinal inflammation

Lung development and function

Joints and tissues

Chemical stressors

Non-chemical stressors

Hormonal factors

Behavioral factors

Increased NCD risk

The most effective anti-inflammatory medicine

Health stressors

Modern lifestyle

Inflammation

Multisystem effect

Increased NCD risk
“Wellness educates for healthy lifestyles and promotes prevention”

Illness-wellness continuum

52% of world population

5% of world population

Pre-mature death

Wellness paradigm

Treatment paradigm

Neutral point
(no discernable illness or wellness)

High-level wellness
Chronic disease prevention: a life course approach
Putative effects of exercise and obesity on the predisposition to metabolic diseases
Wellness lifestyles (especially exercise training) have the potential to modify the epigenome of human reproductive cells and could have an unprecedented affect on the health of future generations influencing offspring health and disease risk.
Health and wellness are a multi-dimensional entangled universe.
Sound scientific evidence proves that wellness plays a key role in population’s health in synergy with the traditional medical paradigm.

**Children’s wellness** (pre-conception and the first 1000 days) represents a critical period to prevent Non Communicable Diseases and to enhance the individual mindfulness for the rest of the lifespan.

Health and wellness professionals should promote and apply the educational role of wellness for primary and secondary prevention in shaping the new prevention paradigm and ensure the sustainability of the Healthcare systems.
Thank you!

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