Healthy Ageing - a realistic objective!

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What experts forecast ....

2.1 billion people aged 60+ in 2050, versus 901 million in 2015.

70% of world’s population eventually falling below replacement level of 2.1 births per woman.

8 out of 10 of the world’s 60+ population will live in developing countries by 2050.

6 out of 10 women and 5.2 out of 10 men born during 2000-2005 are expected to live to 80.

US$15 trillion spending power of consumers 60+ globally.

Age breakdown of global population by 2100E:
- 22% of the global population will be under 15.
- 60% between 15-64.
- 18% 65+.

36.1 years is the world’s median age by 2050, versus 29.6 today.

7 workers per older person globally, will fall to 4.9 in 2030.

48% of the retirement-age population does not receive a pension.

1 in 4 of 65+ expect to never be able to fully retire.

US$15-25 trillion amount of longevity risk globally.

Source: BofA Merrill Lynch.
Today’s elderly perform activities which were inconceivable decades ago

- Is age limited?
- Is healthy age limited?

Fauja Singh after completion of the Edinburgh Marathon in 2005, aged 94.

Places of healthy ageing - what can we learn?

**Nicoya, Costa Rica**
World’s lowest rate of middle age mortality

**Loma Linda, California**
Community lives 10 years longer than North American counterparts

**Okinawa, Japan**
Females 70+ are world’s longest lived population

**Sardinia, Italy**
World’s highest concentration of male centenarians

**Ikaria, Greece**
One of world’s lowest rates of dementia

**Switzerland**
Men have highest life expectancy in the world (80.7 years)

Countries share some common lifestyle characteristics including diets, which are rich in plant based foods (low in energy, high in nutrients)

Source Dan Buettner 2008, OECD
Dietary risks are the key risk factor for mortality

Example Germany

Burden of disease attributable to 15 leading risk factors in 2010, expressed as a percentage of Germany DALYs

Source: http://vizhub.healthdata.org/gbd-compare
Causes of premature death and Years of Life Lost

Example Germany

- Number 1 reason of death are **non communicable diseases** (NCDs)
- NCDs have many risk factors, and **life-altering interventions** are necessary to mitigate them
- NCDs are difficult to manage with traditional health measures but **innovative interventions** exists
- To reduce the prevalence of NCDs **all stakeholders need to engage** more actively in shaping the factors that influence health

Source [http://vizhub.healthdata.org/gbd-compare](http://vizhub.healthdata.org/gbd-compare)
• More than 40% of nutrition related diseases take place before the age of 70.

• Approximately one third of cancers can be prevented.

• Up to 80% of heart disease, stroke and diabetes type 2 deaths are preventable.

Source: WHO
Addressing key topics for healthy ageing with micronutrients

- **Eye health**
  - Loss of seeing
  - Dry eye
  - Macular eye disease

- **Cognitive Function**
  - Decrease of memory
  - Alzheimer Disease

- **Heart and vascular health**
  - High blood pressure
  - Triglycerides

- **Mobility**
  - Muscle and bone loss

- **Energy/vitality**
Eye health: Nearly 200 million people are impacted globally by macular eye disease

Macular degeneration is the leading cause of severe vision loss in people over age 50 and older. It occurs when the macula deteriorates. Although macular degeneration is almost never a totally blinding condition, it can be a source of significant visual disability.

The loss of central vision in AMD can interfere with simple everyday activities, such as the ability to see faces, drive, read, write, or do work, such as cooking.

Source NIH
A combination of vitamin E, C carotenoids and minerals reduces risk for AMD (AREDS study)

A daily supplement with
- Vitamin C (500 mg)
- Vitamin E (400 IU)
- Lutein/Zeaxanthin (10/2 mg)
- DHA/EPA (350/650 mg)
- Zinc oxide (80 mg)
- Cupric oxide (2mg)

is recommended

The AREDS study (I and II) in elderly with risk for macular eye disease demonstrated a 18-34% reduction in risk of further disease deterioration or vision loss.

Source Jama Ophthalmology 2013
Muscle and bone loss is a major issue in ageing

One in three women and one in five men over the age of 50 years will sustain an osteoporotic fracture.

3.5 million new osteoporotic fractures occur each year in Europe.

In women, the incidence of fractures is higher than the total incidence of cancer, heart infarction, stroke or diabetes.

Osteoporotic fractures accounts for more days spent in hospital than many other diseases, including diabetes, myocardial infarction and breast cancer.

Source IOF
Reduced risk of falling with Vitamin D intake

Fewer falls = fewer fractures

Meta-analysis: 8 double-blind randomized controlled trials (RCTs) (n = 2376 individuals): significant heterogeneity by dose and achieved plasma 25(OH)D

Reduction of falls by 19% with dose of vitamin D above 700 - 1000 IU or higher achieved plasma 25-hydroxyvitamin D levels

Bischoff-Ferrari, BMJ, 2009
However Vitamin D status is low in Europe (boxes indicate studies in elderly)

Reference:

With an optimal vitamin status of 75 nmol/L the fracture rate could be reduced by 20% (meta-analysis Heike Bischoff-Ferrari)
Heart disease is the number one reason for morbidity and mortality

- In the Europe, someone has a heart attack every 30 seconds.

- Each minute, someone in Europe dies from a heart disease-related event

- Health data from more than 190 countries show heart disease remains the No. 1 global cause of death with 17.3 million deaths each year

- Direct and indirect costs of cardiovascular diseases and stroke total more than $320.1 billion

- Nutrition and lifestyle interventions have been identified as preventive factors
Omega-3s reduce risk for cardiovascular heart disease

Source Atherosclerosis Supplements
14 (2013) 243-251
However omega-3 status is low in most countries. 5% of CHD events could be prevented... by supplementation with 1000 mg omega-3/day and person.

We face 2 deaths per minute (>1,000,000 per year) due to low omega-3 status.

Source: Progress in Lipid Research http://authors.elsevier.com/sd/article/S0163782715300333
Cognitive impairment is a growing issue

- 44 million people worldwide live with dementia in 2013, with numbers doubling every 20 years, to reach 135 million by 2050.

- There are 7.7 million new cases of dementia each year worldwide, with one new case every four seconds.

- Dementia and cognitive impairment are by far the most important contributors, among chronic diseases, to disability, dependence, and transition into residential and nursing home care.

Of the leading causes of death, Alzheimer’s Disease is the only one for which there is no way to prevent it, cure it, or slow its progression.
The shrinking brain ….

- As we age (over ~ 60) the brain shrinks at a rate of ~ 0.5% per year, i.e. ~ 7 mL per year.
- Those with memory problems - ‘mild cognitive impairment’ - show a faster rate of shrinkage of ~ 1.0% per year.
- In patients with Alzheimer’s disease, the rate is higher still, at ~ 3% per year.

A combination of high doses of B vitamins with omega-3 fatty acids slows shrinking of the brain and memory decline in the elderly.

Source: Jerneren AJCN 2015
Improving cognitive domains is possible (FINGER study)

83% higher improvement

40% higher improvement

Source Kivipelto et al., Lancet 2015
Finland as role model - lifestyle interventions work

Finland transformed from the highest CVD mortality rate in the world to a leading country due to
- change of food recommendations
- salt reduction in foods

Finland may act as a role model for a successful implementation of food fortification with vitamin D3 and the population at the optimal level of 75 nmol/L

... many of the actions and learning can be transferred to other countries

Source: Lancet 2013;382:1898-1955
Gain in life years ...

Gain in life years (1990 - 2010)

If we continue with this pace we will add year by year 73 days to our life!

Source Lancet 2012
“Good Nutrition: Perspectives for the 21st Century” is a work of advocacy, whose prime objective is to call readers to action, to outline what action needs to be taken, and how this should be done, to achieve tangible outcomes and impact.

The publication draws on the input of globally recognized experts and presents their insights in a clear and accessible way. The book is a ‘one-stop information source’, paving the way for further science-led publications on this topic.

“Good Nutrition: Perspectives for the 21st Century” aims to reach the agenda of policymakers, donors, academics, private sector organizations and civil society, as well as of organizations dedicated to the nutrition space.
Healthy ageing is a realistic objective:

Summary and outlook

• Non-communicable diseases, like CVD, diabetes, cancer are the key reason for morbidity and mortality in today’s societies.

• Many people have an inadequate intake and status of essential nutrients which are essential for growth, maintenance and reducing risk for diseases.

• In nations and populations in which integrated interventions have taken place, dramatic decreases in non-communicable disease-related death and disability have occurred.

• Healthy ageing is a realistic objective - and requires the collaboration and engagement of all stakeholders to develop capacity and willingness to participate in the generation and shaping of nutritional solutions for sustainable public health.
Age is an issue of matter over mind. If you don’t mind it does not matter.

Mark Twain 1835-1910

Thank you!

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