

IADSA Annual General Meeting

Nutrition for the best years: A commentary on nutrition, healthy ageing and public policy

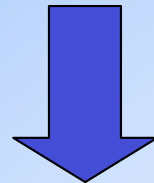
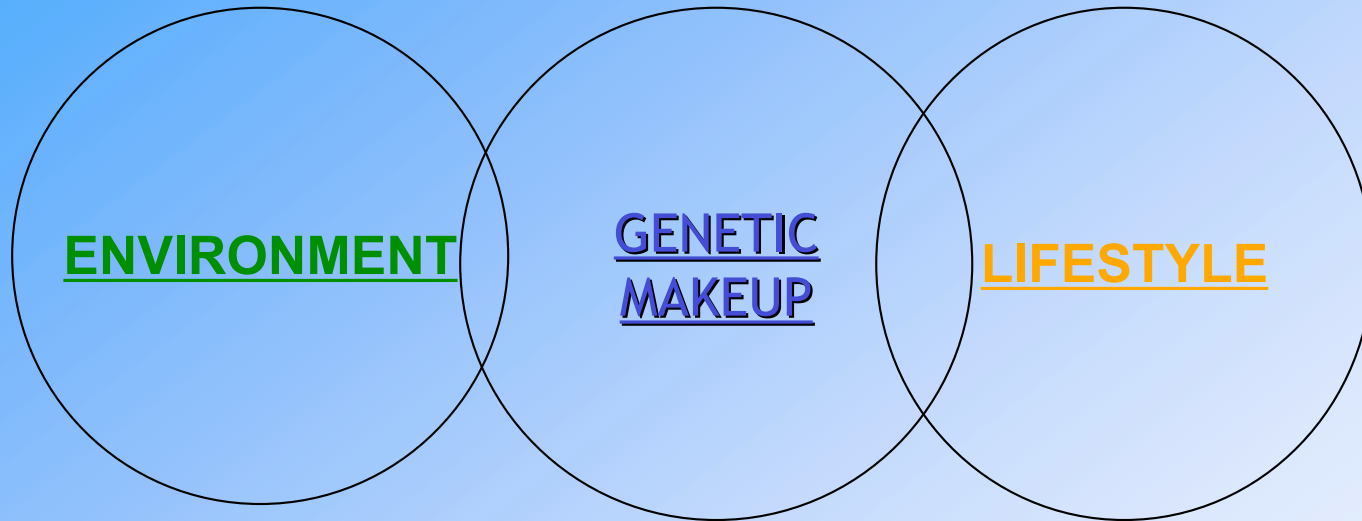
David P. Richardson

Scientific Adviser to UK CRN and IADSA

Nice

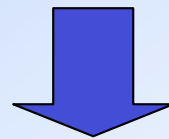
27th April 2006

FACTORS INFLUENCING HEALTH AND LONGEVITY



RATE OF AGEING

DISEASES



LONGEVITY

Meydani (2002)

Proc.Nut.Soc. 61, 165

COUNTRY	POPULATION IN MILLIONS	DEPENDENCY RATIO* %
Belgium	10.2	24.2
Denmark	5.3	22.4
Finland	5.1	20.9
France	58.0	22.7
Germany	82.0	21.7
Italy	57.4	23.2
Netherlands	15.6	18.8
Norway	4.4	25.0
Portugal	9.9	22.4
Spain	39.3	23.5
Sweden	8.9	28.6
Switzerland	7.1	22.4
UK	59.0	24.6

*Population aged 65+ as a proportion of population aged 15-64

World ranking and healthy life expectancy for selected countries including the 25 Member States of the European Union¹

Rank	Country	DALE ² (years)
1	Japan	74.5
2	Australia	73.2
3	France	73.1
4	Sweden	73.0
5	Spain	72.8
6	Italy	72.7
7	Greece	72.5
8	Switzerland	72.5
9	Monaco	72.4
13	The Netherlands	72.0
14	United Kingdom	71.7
15	Norway	71.6
16	Belgium	71.6
17	Austria	71.6
18	Luxembourg	71.1

20	Finland	70.5
21	Malta	70.5
22	Germany	70.4
24	USA	70.0
25	Cyprus	69.8
27	Ireland	69.6
28	Denmark	69.4
29	Portugal	69.3
34	Slovenia	68.4
35	Czech Republic	68.0
42	Slovakia	66.6
45	Poland	66.2
62	Hungary	64.1
63	Lithuania	64.1
69	Estonia	63.1
82	Latvia	62.2
160	South Africa	39.8
191	Sierra Leone	25.9

GLOBAL PATTERNS

- Global total life expectancy at birth in 1999 was 65 years, an increase of almost 6 years over the past 2 decades.
- Global healthy life expectancy at birth was 57 years, 8 years lower than total life expectancy at birth.
- Women live on average 3.9 years longer than men, but their healthy life expectancy is only 2.0 years higher than men, i.e. women live longer but spend a greater amount of time with disability.

UK FACTS

- ◆ Life expectancy is rising by 2 years per decade.
- ◆ By 2031 there will be 18m pensioners (24% of the population, of which 2.3m will be over 80).
- ◆ Those over 80 years are the fastest-growing sector of the population.
- ◆ Up to 65% of hospital beds for adults are occupied by people over 60.
- ◆ In 1951 Britain had 300 people aged over 100; by 2031 it will be 34000.
- ◆ Only one in six Britons born 150 years ago reached 75, whereas two thirds of those born today will do so.
- ◆ People over 60 currently constitute a fifth of the population but will be one third by 2031.

BABY BOOMERS: the 30-year difference

1976 Long hair

2006 Longing for hair

1976 Seeds and stems

2006 Roughage

1976 Growing pot

2006 Growing pot belly

1976 Going to a new hip joint

2006 Going for a new hip joint

1976 Rolling Stones

2006 Kidney stones

WHAT NEXT?

POTENTIAL CONTRIBUTORS TO NUTRITIONAL PROBLEMS IN ELDERLY PEOPLE

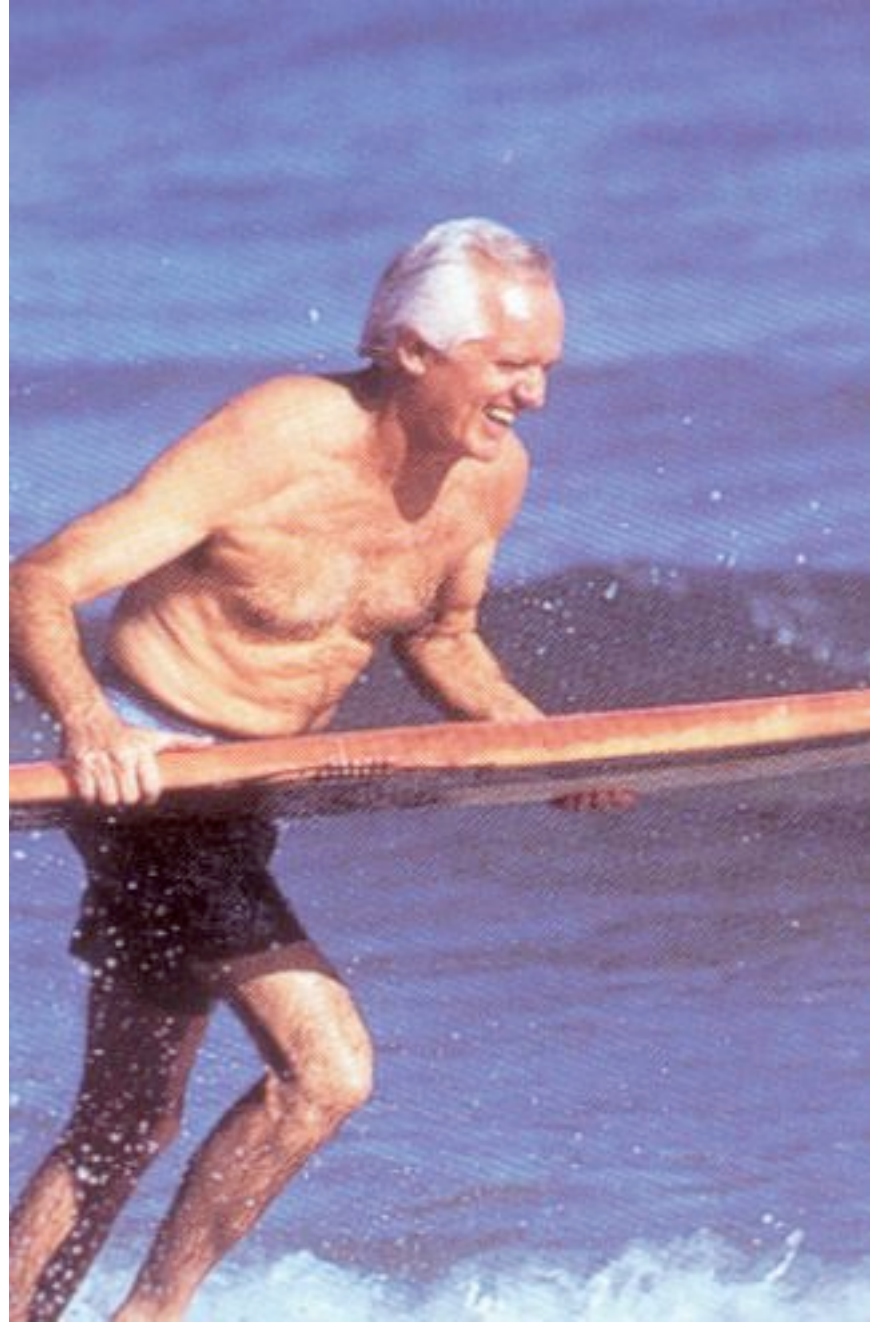
Physical factors	
Reduced total energy needs	Drug-nutrient interactions
Declining absorptive and metabolic capacities	Side effects of drugs (anorexia, nausea, altered taste, suppressed appetite)
Chronic disease	Restrictive diets
Anorexia	Alcoholism
Changes in taste/odour perception	
Poor dentition	
Reduced salivary flow	
Dysphagia	
Lack of exercise	
Physical disability (restricting the capacity to purchase, cook or eat a varied diet)	

POTENTIAL CONTRIBUTORS TO NUTRITIONAL PROBLEMS IN ELDERLY PEOPLE

Social & psychological factors	
Depression	Inadequate cooking or storage facilities
Loneliness	Poor nutrition knowledge
Social isolation	Lack of transportation
Bereavement	Shopping difficulties
Loss of interest in food or cooking	Cooking practices resulting in nutrient losses
Mental disorders	Inadequate cooking skills (men)
Food faddism	
Socioeconomic factors	
Low income	

PHYSICAL EFFECTS OF AGEING: BODY COMPOSITION CHANGES IN NORMAL ADULT MALES

Age (years)	Muscle mass (kg)	Body fat (kg)
20-29	24	15
40-49	20	19
60-69	17	23
70-79	13	25



THE OSTEOPOROSIS TIMEBOMB

- ✿ Affects 1 in 3 women and 1 in 12 men over 50.
- ✿ Causes over 200,000 fractures a year - a broken bone every 3 minutes.
- ✿ Costs the NHS £940 million each year.
- ✿ Increases by 10% each year.
- ✿ Osteoporosis is not just a problem for the elderly - increasing among young men and women.
- ✿ Modern diet, exercise and lifestyle habits all effect the growing and mature skeleton.

(National Osteoporosis Society)

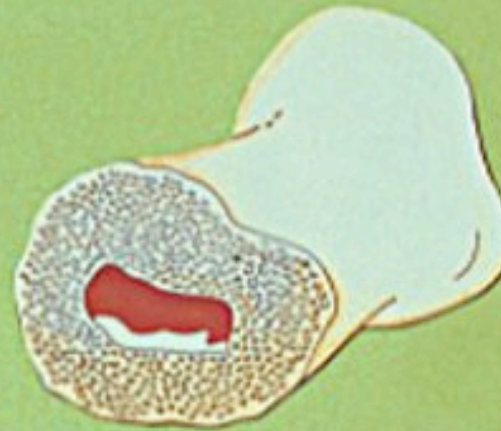
Osteoporosis – Brittle Bones



Dowagers hump



Fragile bones



Normal



Osteoporotic

BONE LOSS/OSTEOPOROSIS/BONE FRACTURES

- Annual cost of osteoporosis in the EU is over €4.8 billion in hospital care alone.
- 414000 hip and 237000 spine fractures occur in Europe each year.
- Hip fractures account for over 90% of health service budget spent on osteoporosis.
- Hip fractures lead to an overall reduction in survival of around 15%.
- Most deaths occur within first 6 months following a fracture.

JOINT HEALTH AND MOTILITY

- ➔ Osteoarthritis affects people over 50. Joint inflammation and pain results in loss of mobility and significantly decreases quality of life.
- ➔ It is a major cause of disability, affecting 37% of the adult population and 85% of those over 80.

GUT FUNCTION AND IMMUNITY

- Flavour perception, dentition and dry mouth
- Gastric acid secretion
- Malabsorption in the small intestine
- The large intestine and gut flora

Do older people have different vitamin needs?



NEUROLOGICAL AND COGNITIVE FUNCTIONS

Mental impairment, confusional states and dementia can impact severely on a person's autonomy and independence. Hence, the prospect of postponing or reducing risk of cognitive impairment in the elderly is of great importance.

WHO, 2002.

ROLE OF NUTRIENT ANTIOXIDANTS

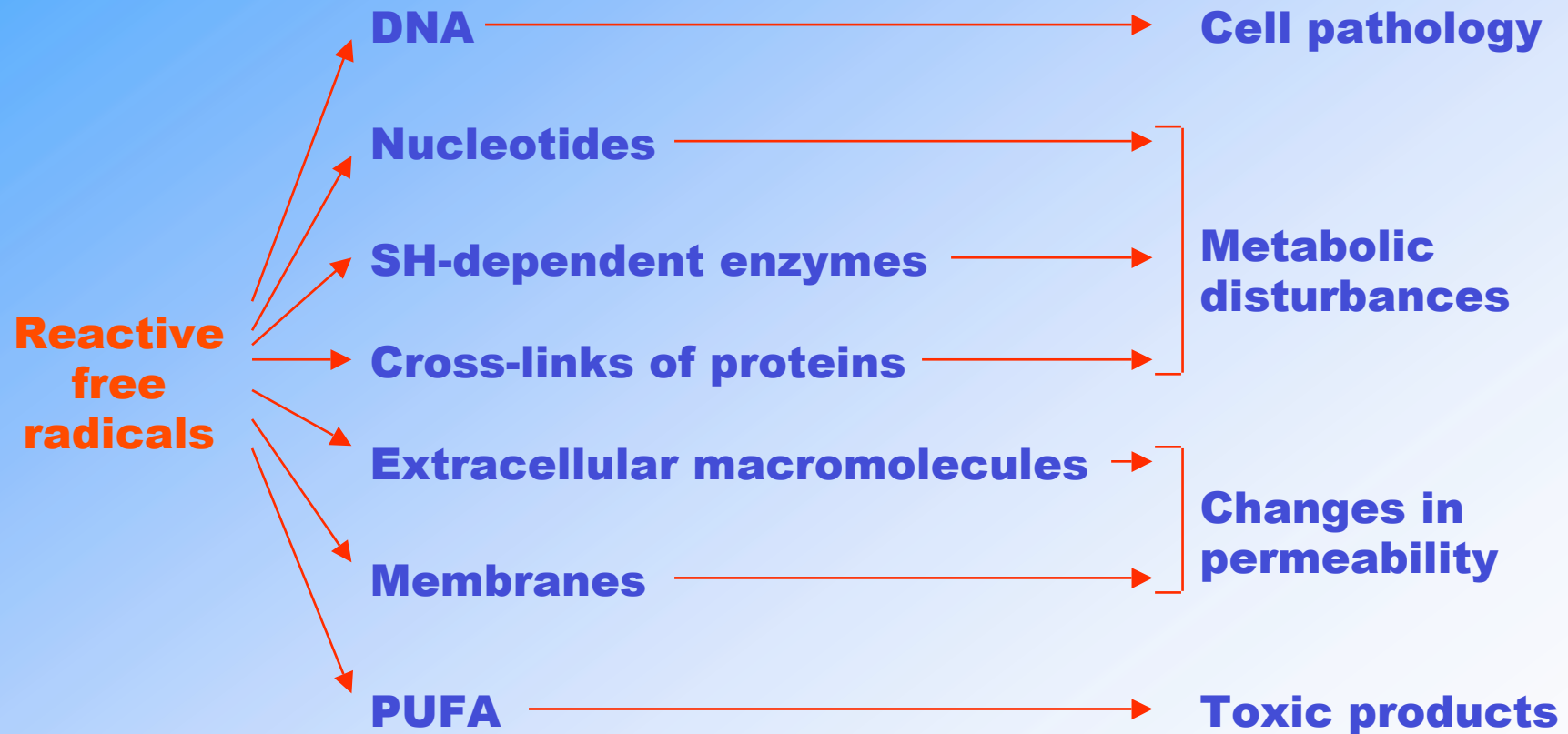
In health

ROS production
balanced by
antioxidant defences

Oxidative
Stress

Insufficient
defences to cope
with ROS

SITES OF DAMAGE



LIFE IS
A CONSTANT BATTLE
TO AVOID
BECOMING RANCID

Average daily energy intake as a percentage of Estimated Average Requirements for energy by sex and age

Sex	Age range Years	EAR MJ/day (kcal/d) for energy ¹	Mean intake (kcal/day) ³		Mean intake as % EAR ²	
			Free-living diary sample	Institution participants	Free- living diary sample	Institution participants
Males	65-74	9.71 (2330)	1954	1956	84	90.5
	75-84	8.77 (2100)	1843		87.8	
	85+	8.77 (2100)	1713	1901	81.5	90.7
Females	65-74	9.71 (2300)	1445	1699	75.8	92.6
	75-84	8.77 (2100)	1399		76.7	
	85+	8.77 (2100)	1374	1610	75.4	88.5

**With lower energy (calorie) intakes,
ensuring nutrient density of the diet
is even more vital.**

**Proportion of free-living older people in UK with
dietary intakes of selected nutrients from all sources
below LRNI**

Micronutrient	Men			Women		
	65-74	75-84	85+	65-74	75-84	85+
Vitamin A (total)	4	6	2	7	6	9
Folate	-	1	4	3	7	11
Calcium	4	5	2	8	10	15
Magnesium	16	29	36	19	27	34
Zinc	6	12	15	3	7	10

MALNUTRITION IN THE ELDERLY IN THE UK

Mode of living

Prevalence %

Free – Living

5-10

Hospital

22-59

Nursing Home

10-85

- **Increased mortality**
- **Increased susceptibility to infection**
- **Reduced quality of life**

GERIATRIC CARE: ALIGNING NUTRITIONAL SUPPORT TO NEEDS FOR ACUTE AND CHRONIC CONDITIONS

- ◆ Special needs of older people
- ◆ Ensuring optimal energy, nutrient and fluid balances
- ◆ Appropriate nutritional interventions
- ◆ Incidence and recognition of malnutrition
- ◆ Nursing home care/hospital care/care in the community

THE ROLE OF FOOD SUPPLEMENTS IN HEALTHY AGEING

Body composition

sarcopenia, protein, branched chain amino acids, vitamins &

Loss of lean body mass -
minerals.

Bone health

Ca, vitamin D, Zn, P, Mg.

Joint mobility

Glucosamine, chondroitin,
omega-3 fish oil.

Immune function

Vitamin B₆, folic acid, vitamins
A, C & E; Zn, Fe.

Gut function & immunity

Probiotics and prebiotics.

Brain & cognitive function

Micronutrients, amino acids.

Encouraging better nutrition and supply of micronutrients can be an effective way of decreasing the incidence and progression of age-related loss of function and the development and progression of disease.

