KOPPERT CRESS
Architecture Aromatique
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Architecture Aromatique
Let’s change the way we look at fresh food and health
TEDx
Binnenhof
\( x = \text{independently organized TED event} \)
Biggest learning point
meet the Hunter Collector

Genetically the same
The human genome changes 0.2% in 1 million years
Years     Life Expectancy at birth (UK)
WRONG!
Mis-interpretation of statistics
LE@ 5yrs       Life Expectancy at birth (UK)
Life Expectancy by Age Group

Norsk Statistisk Sentralbyrå (Norwegian Central Office of Statistics) 1994
Life Expectancy by Age Group

Norsk Statistisk Sentralbyrå (Norwegian Central Office of Statistics) 1994
Life Expectancy by Age Group

Norsk Statistisk Sentralbyrå (Norwegian Central Office of Statistics) 1994
Life expectancy England & Wales

- Mid-Victorian men: 75
- 21st century men: 75.9
- Mid-Victorian men: 75
- 21st C: working class men: 72

Charlton 2004
The Mid-Victorian ‘Golden Age’

- c1850 – c1885
- Mid-Victorians, rich or poor, had similar life expectancy
- Better health expectancy
- Required significantly less health care
Cause of Death in England and Wales 1997
Cause of Death in England and Wales 1880 and 1997

- Other Causes
- Infections
- Lung Diseases
- Cardio Vascular Diseases
- Cancers

Clayton & Rowbotham JRSM, September 2008
Examples

- 1900: army rejects 50% of recruits

Minimum height of army recruits
- 1800 – 1880: 1.68m
- 1885: 1.60m
- 1900: 1.52 (=10% reduction)
Obesity Trends* Among U.S. Adults
BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1986

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1987

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1988

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1989

(*BMI ≥30, or ~ 30 lbs. overweight for 5’4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs. overweight for 5'4" person)
Obesity Trends* Among U.S. Adults
BRFSS, 1991

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BRFSS, 1992

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BRFSS, 1993

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BRFSS, 1994

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Obesity Trends* Among U.S. Adults
BRFSS, 1995

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BRFSS, 2000

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Obesity Trends* Among U.S. Adults
BRFSS, 2001

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Obesity Trends* Among U.S. Adults
BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2003

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2004

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2005

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2006

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2007

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2008

(*BMI ≥ 30, or ~30 lbs. overweight for 5’4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2009

(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2010

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends Among U.S. Adults
BRFSS, 2011

Prevalence*

*Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.
Prevalence*

Obesity Trends Among U.S. Adults
BRFSS, 2012

*Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.
Obesity Trends Among U.S. Adults
BRFSS, 2013

Prevalence*

*Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.
This **must** stop!
We need a

masterplan

to help new generations with healthy ageing
HOW CANCER DEVELOPS

INITIATION

- chemical products
- radiation
- viruses

PROMOTION

- Damaging of DNA

PROGRESSION

- Activation of carcinogenic ingredients / inactivation of suppressors

CANCER

DISSEMINATION

- Clinical demonstrable tumours

1 - 40 YEARS
The function of cancer-resistant ingredients

**Carcinogenic ingredients**
- Ultra-violet radiation
- Cigarettes

**Detoxification**

**Elimination**

**Initiation (days)**
- Free radicals
- Normal cell

**Promotion (1 to 40 years)**
- Initiated cell

**Progression (1 year and more)**
- Cell in pre-stage of cancer
- Cancer cell angiogenesis

**Malicious tumour**

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**Blocking the activity of the carcinogenic ingredients**
- Sulforafoan
- Indol-3-carbinol
- Diallylsulfide
- Ellaginezuur

**Blocking the promotion and progression of cancer cells**

- Curcumine
- EGCG
- Genisteine
- Resveratrol
- Lycopene

- Anthocyanidinen
- Ellaginezuur
- Omega-3 vetzuren
- Limoneen
- Proanthocyanidinen
Plants are the closest to our ancient diet

- Holland has the highest level of
  - know how on seeds
  - know how on greenhouse growing
  - expertise in vegetables and distribution

- We have great agricultural and medical universities
Help

Dutch government is waking up
“Towards a food policy: policy that takes into account the different values concerning food, the cohesion between production and consumption and the ever changing power relations within the food system”. Scientific Council for Government Policy (The Netherlands, 2014).
“Dutch government can not separate the economic value of the fruit and vegetable sector from public interest.

The Scientific Council for Government Policy advised us to introduce a broader food policy with special attention to health and sustainability. Before the end of the summer, the government will officially respond to this report.

But, I can already say that the ambition of the Vegetable Conference to work together with teachers, doctors, farmers and retailers to inspire Dutch consumers to eat more fruits and vegetables from their own country, fits into the response of the government to this report.”
More help is needed
The Big 10 Companies That Control Everything We Eat
What’s missing?
Fresh food
<table>
<thead>
<tr>
<th>Product</th>
<th>Nutrient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Onion</td>
<td>quercetine</td>
</tr>
<tr>
<td>Broccocress</td>
<td>sulforaphane</td>
</tr>
<tr>
<td>Plumb tomato</td>
<td>lycopene</td>
</tr>
<tr>
<td>Cherry tomato</td>
<td>lycopene</td>
</tr>
<tr>
<td>Carrots</td>
<td>β-carotene</td>
</tr>
<tr>
<td>Egg plant</td>
<td>folic acid</td>
</tr>
<tr>
<td>Blue berry</td>
<td>anthocyanes</td>
</tr>
<tr>
<td>Green paprika</td>
<td>vitamine C</td>
</tr>
<tr>
<td>Orange paprika</td>
<td>vitamine C</td>
</tr>
<tr>
<td>Spinach</td>
<td>luteine</td>
</tr>
<tr>
<td>Raspberry</td>
<td>anthocyanes</td>
</tr>
<tr>
<td>Green cabbage</td>
<td>luteine</td>
</tr>
<tr>
<td>Winter carrots</td>
<td>β-carotene</td>
</tr>
<tr>
<td>Broccoli</td>
<td>sulforaphane</td>
</tr>
<tr>
<td>Red Berry</td>
<td>anthocyanes</td>
</tr>
<tr>
<td>Sweet paprika</td>
<td>vitamine C</td>
</tr>
</tbody>
</table>
My focus: sulforaphane level

- **12396 published studies** on the positive relationship between broccoli and health on Pubmed.gov
Broccoli protects against type 2 diabetes and heart and vascular diseases
Preliminary evidence for the **first treatment for autism** that improves symptoms by correcting underlying cellular problems

In a placebo-controlled trial, sulforaphane derived from broccoli sprouts eased autism symptoms in nearly half of the 40 boys and men treated

- significant improvements in **social interaction**
- significant improvements in **verbal communication**
- substantial decreases in **abnormal behaviors**

Singh, K., et al. (2014). *Sulforaphane treatment of autism spectrum disorder (ASD).*
Broccoli test
Sulforaphane level

Broccoli (fresh): 0,2 mg / 100 gram
Broccoli (stir-fried): 0,1 mg / 100 gram
Broccoli (steamed): 0,1 mg / 100 gram
Broccoli (boiled): 0,01 mg / 100 gram

1 sprout BroccoCress®: 0,13 mg
We can do it

combine

• Medical research

with

• Plant research for fresh produce
We have to do it

• In order to reduce health costs
• To promote healthy ageing
Trend

Increase in average healthcare spending

• The right food (choice) can prevent a large scale of the lifestyle related diseases

• Obesity 95%
• Type 2 diabetes 80%
• Heart and vascular diseases 40%
• Cancer 50%
Crossovers between top sectors

- Life Science & Health
- Agri & Food
- Horticulture and starting materials
- Logistics
- Water
- Chemistry
- Energy
- High Tech
We need a stimulator

Food
Ministry of Agriculture

Ministry of Fresh Food & Health

Human
Ministry of Health

Fresh Food is not just an economic affair
Fresh Food is HEALTH!
Restaurant derives from restore

[restaurer, to restore, from Old French restorer; see restore: to bring back to or put back into a former or original state (Medical Definition of restore)]
DUTCH CUISINE - 80/20

Rediscovering the Dutch kitchen where vegetables are leading
QUALITY
BINDING FACTOR

GROWER PRODUCER

CHEF INSPIRATOR

DUTCH CUISINE

DOCTOR/DIETICIAN ADVISOR
For everything comes together on the plate.
How can we feed 9 billion people?
How can we create value for horticulture?
How can we move away from an agricultural policy towards a food policy
How can we put preventing before treating?
How can we give ‘going Dutch’ a new meaning?
Markthal Rotterdam
Strange contradiction

- World population is growing 9 billion people 2050
- Farmers are getting broke because of low prices
- Supermarkets make huge margins on V&F.
- Consumer eats less V&F
- Bulk production of average quality due to low pricing
- Educated consumer wants products which are not available
Freedom of choice!
Everybody knows

Nobody does
Fresh food
Fresh Food = Health

Inspired by
Richard Béliveau, Denis Gingras, Michael Pollan, Michael Moss, Carolyn Steel, John Charlton, Paul Clayton, Judith Rowbotham, Paul Talalay, Jaap Seidell, Kris Verburgh, Ralph Morren, David Servan-Schreiber, Suzanne Poot, Leonard Hofstra, Jaap Seidell, Meghan Telpner, Richard de Letter Growers in 90 countries and many others