The success of the Caerphilly Cohort Study

Peter Elwood

Cochrane Institute, Cardiff University

October 30th 2014
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Thanks to 2,235 men and their families!
The Caerphilly Collaborative Cohort Study 1979 - date
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2,235 middle-aged men have co-operated
for 35 years…. and the study continues!
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**SUCCESSES:**
- The importance of milk and dairy products
- The benefits of fatty fish consumption
- The long-term harm of smoking
- Long-term benefits of having been breast fed
- The benefit of a healthy lifestyle

**FAILURES:**
- The prediction of heart attacks
- The uptake of a healthy lifestyle
The Caerphilly Collaborative Cohort Study
1979 – 2014…

The importance of milk and dairy products

Milk drinking, ischaemic heart disease and ischaemic stroke
I. Evidence from the Caerphilly Cohort.
European J Clinical Nutrition 2004;58:711-7

Lipids 2010;45(10):925-32
The Caerphilly Collaborative Cohort Study
1979 – 2014...

The importance of milk and dairy products

Evidence of benefit from milk and dairy has moved on....

Fat in milk (trans-Palmitoleic Acid), and new-onset diabetes

Saturated fats from milk and a reduction in the risk of incident diabetes: the EPIC case-cohort study of 16,154 subjects.
Lancet Diabetes & Endocrinology, Early Online Publication, 6 August 2014.
The benefits of fatty fish consumption


The long-term effects of smoking

Some long term effects of smoking on the haemostatic system: a report from the Caerphilly Collaborative Study.

The Caerphilly Collaborative Cohort Study
1979 – 2014...

A long-term benefit of having been breast-fed

The long term effect of breast feeding and cognitive function in the Caerphilly Cohort. Arch Dis Child 2003;88(suppl 1) A12-A16.
Platelets 2002;13:333
Platelets 2003;14:139-41
Heart 1998;80:578-582.
The Caerphilly Collaborative Cohort Study
1979 – 2014…

The failure of vascular disease prediction

Platelets 2002;13:333
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The Caerphilly Collaborative Cohort Study
1979 – 2014…

The benefits of a healthy lifestyle
The Caerphilly Collaborative Cohort Study
1979 – 2014…

The benefits of a healthy lifestyle

**Five healthy behaviours**
- non-smoking,
- a low body weight *(a BMI between 18 and 25)*
- regular exercise *(1/2 hour walking or equivalent)*
- a plant based diet *(‘five a day’) fruit and vegetables)*
- a low alcohol intake *(drinking within the guidelines)*
The Caerphilly Collaborative Cohort Study
1979 – 2014…

The benefits of a healthy lifestyle

Five healthy behaviours
- non-smoking,
- a low body weight
- regular exercise
- a plant based diet
- a low alcohol intake

UNHEALTHY
None or one behaviour

HEALTHY
Four or five behaviours
The benefits of a healthy lifestyle

<table>
<thead>
<tr>
<th>1,023 ‘CONSISTENT’ Men**</th>
<th>REDUCTIONS IN DISEASE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diabetes 214 men</td>
<td>Vasc, disease 752 men</td>
</tr>
<tr>
<td>‘Unhealthy’</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>‘Healthy’</td>
<td>-72%</td>
<td>-67%</td>
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*Significance of trend: 0.001, 0.0005, 0.88, 0.02*
The benefits of a healthy lifestyle

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<td>-72%</td>
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Better than any pill... and no side effects
The benefits of a healthy lifestyle

**BENEFITS OF A HEALTHY LIFESTYLE:**

1. Reductions in incident disease:
   - *up to 70% less diabetes*
   - *up to 60% less heart disease & stroke*
   - *up to 35% less cancer*
   - *up to 60% less dementia*
BENEFITS OF A HEALTHY LIFESTYLE:

1. Reductions in incident disease
2. Delayed onset of disease:
   - *vascular disease delayed by up to 13 years*
   - *dementia delayed by up to 6 years*
The Caerphilly Collaborative Cohort Study
1979 – 2014…”

The benefits of a healthy lifestyle

BENEFITS OF A HEALTHY LIFESTYLE:

1. Reductions in incident disease
2. Delayed onset of disease
3. Disease burden in the community reduced
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1979 – 2014…

The benefits of a healthy lifestyle

**BENEFITS OF A HEALTHY LIFESTYLE:**

1. Reductions in incident disease
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3. Disease burden in the community reduced
   
   - if the subjects in the cohort had each been urged to take up one additional healthy behaviour….
The Caerphilly Collaborative Cohort Study
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**BENEFITS OF A HEALTHY LIFESTYLE:**

1. Reductions in incident disease
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   If only half had done so, there would have been.....
The Caerphilly Collaborative Cohort Study
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The benefits of a healthy lifestyle

BENEFITS OF A HEALTHY LIFESTYLE:

1. Reductions in incident disease
2. Delayed onset of disease
3. Disease burden in the community reduced

- if the subjects in the Caerphilly cohort had each been urged to take up one additional healthy behaviour…. and If only half had done so, there would have been.....

12% less diabetes
6% less vascular disease
13% less dementia
The Caerphilly Collaborative Cohort Study
1979 – 2014…

The benefits of a healthy lifestyle

1. Reductions in diabetes, vascular disease, cancer and dementia

2. Delays of up to 6-12 years in the onset of disease

3. Burden of disease in the community reduced
The Caerphilly Collaborative Cohort Study
1979 – 2014…

The low uptake of a healthy lifestyle in Caerphilly
The Caerphilly Collaborative Cohort Study
1979 – 2014...

The low uptake of a healthy lifestyle in Caerphilly

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# The Welsh Health Survey

## 2009-2013

## The low uptake of a healthy lifestyle in Wales

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A wake-up call to Wales
A wake-up call to Wales

The challenge to each person in Wales:

'Take up one additional healthy behaviour'

...there will be....
- reductions in disease
- delays in the onset of disease
- disease burden in the community reduced
- large NHS savings
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The study has led to UK BIOBANK and the Dementia Platform
UK Biobank, with 500,000 subjects

“improving the health of future generations”
UK Biobank, with 500,000 subjects

“improving the health of future generations”

Caerphilly - 1/200 the number of subjects

is for this generation!
OUR CHALLENGE TO EACH PERSON IN WALES.....

‘take up one additional healthy behaviour’

- reduce your risk of disease.....
- postpone the onset of disease.....
- reduce the eventual burden on your partner, your family and your community
90% responded.... *not everyone*!