Zin en onzin van diëten bij ouderen. Zijn er wel richtlijnen?

21 november 2015

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Definition geriatric patiënt

- Older than 75y
  - mean age study group ± 85 y
- Comorbidities (mean ± 5)
- Atypical disease presentation
- Polypharmacy (at least 5 drugs)
- Cognitive decline
- Psychosocial and nutritional problems
Major geriatric syndromes related to nutrition

- Anorexia of aging
- Sarcopenia
- Frailty
Anorexia of aging

- Age related physiologic decline in appetite and food intake
- Underlying mechanisms are complex and not well understood
Frailty

• A state of increased vulnerability to poor resolution of homeostasis after a stressor event, which increases the risk of adverse outcomes including falls, delirium, disability, mortality, admission to nursing home etc…

• Underlying mechanisms are complex and not well understood

The Lancet 2013; 381: 752-762
Prevalence of frailty in 204 hospitalized geriatric patients

<table>
<thead>
<tr>
<th></th>
<th>Cardiovascular Health Study criteria (CHS)</th>
<th>Study of osteoporotic fracture criteria (SOF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>frail</td>
<td>81 (40%)</td>
<td>66 (32%)</td>
</tr>
<tr>
<td>prefrail</td>
<td>120 (59%)</td>
<td>106 (52%)</td>
</tr>
<tr>
<td>non-frail</td>
<td>3 (1%)</td>
<td>32 (16%)</td>
</tr>
</tbody>
</table>
diëten
Healthy Eating Index and Mortality in a Nationally Representative Elderly (mean 73,5 y) Cohort
cumulative survival from all-cause mortality (A) and cardiovascular mortality (B)

- **HEI** (Healthy eating index).
  - >80: good
  - 51-80: fair
  - <51: poor
Diabetes II
Weekly fasting plasma glucose concentrations from all 18 patients (mean age 78y): diabetic vs regular diet
Effect of a low-glycemic index or a high-cereal fiber diet on type 2 diabetes (mean age 60y). A randomized 6 months trial

Figure 2. Mean Study Measurements in Participants With Type 2 Diabetes Following Either a High–Cereal Fiber Diet or a Low–Glycemic Index Diet

- **Body weight**: High-cereal fiber diet (n=104) vs. Low-glycemic index diet (n=106) with p=.053
- **HbA1c**: High-cereal fiber diet (n=104) vs. Low-glycemic index diet (n=106) with p<0.01
- **Fasting glucose**: High-cereal fiber diet (n=104) vs. Low-glycemic index diet (n=106) with p=.02

JAMA 2008; 300: 2742-2753
Glycemic control in hospitalized DM type 2 patients
low CH-high MUFA’s (glucerna®) vs high CH (Precitene Diabet®) enteral feeding

JPEN 2005; 29: 21-29
Calorie goal 1200-1800 kcal/d and 175 minutes physical activity/week vs controls in 5145 patients (45-75y, mean 58.7y, mean BMI 36.0) with DM II. Follow-up 13.5y

A Weight

B Physical Fitness

C Waist Circumference

D Glycated Hemoglobin

Main effect, −4 (95% CI, −5 to −3) P<0.001

Main effect, 0.6 (95% CI, 0.5 to 0.8) P<0.001

Main effect, −3.2 (95% CI, −3.9 to −2.4) P<0.001

Main effect, −0.22 (95% CI, −0.28 to −0.16) P<0.001

Calorie goal 1200-1800 kcal/d and 175 minutes physical activity/week vs controls in 5145 patients (45-75y, mean 58.7y, mean BMI 36.0) with DM II. Follow-up 13.5 y.

_Cumulative hazard curves for the primary composite end point_

Primary end point: death CV causes, nonfatal MI, nonfatal stroke, hospitalization for angina

Diet or diet plus physical activity versus usual care in patients with newly diagnosed type 2 diabetes. HbA1c

At 12 months
Diet + activity vs diet: p=0.43
Diet vs usual care: p=0.005
Diet + activity vs usual care: p=0.027

Lancet 2011; 378: 129-139
Diet or diet plus physical activity versus usual care care in patients with newly diagnosed type 2 diabetes. Fasting glucose

**Graph:**
- **x-axis:** baseline, 6 months, 12 months
- **y-axis:** fasting glucose mg/dl
- **Legend:**
  - blue: usual care
  - red: diet
  - green: diet + activity

**Results:**
- At 12 months:
  - Diet + activity vs diet: p=0.06
  - Diet vs usual care: p<0.0001
  - Diet + activity vs usual care: p=0.01

**Citation:** Lancet 2011; 378: 129-139
Enteral nutritional support and use of diabetes-specific formulas for patients with diabetes

• Post-prandiale glycemia stijging is gemiddeld 19 mg/dl [95% CI 10.5 – 27] lager met diabetes specifieke SV (6 RCT)

• Piek glycemie is gemiddeld 29 mg/dl [95% CI 16-42] lager met diabetes specifieke SV (2 RCT)

Diabetes care 2005; 28: 2267-2279
Hartfalen en hypertensie
zout

• 1 gr NaCl (keukenzout) bevat 400 mg Na⁺
• ± 90% Na⁺ inname via NaCl
• Gem NaCl inname/d = 9-12 gr of 3600-4800 Na⁺
• DRI 70+ = 1.200 mg Na⁺ ⇔ 3 gr NaCl inname/d
• UL = 2.300 mg Na⁺ ⇔ ± max 6 gr NaCl inname/d
• 80% NaCl inname via industrieel bereide produkten
ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2008†

The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2008 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association of the ESC (HFA) and endorsed by the European Society of Intensive Care Medicine (ESICM)

Weight monitoring

Increases in body weight are often associated with deterioration of HF and fluid retention. Patients should be aware that deterioration without weight gain can occur.

- Patients should weigh themselves on a regular basis to monitor weight change, preferably as part of a regular daily routine. In the case of a sudden unexpected weight gain of >2 kg in 3 days, patients may increase their diuretic dose and should alert the healthcare team. The risks of volume depletion with excessive diuretic use must be explained.

Class of recommendation I, level of evidence C

Diet and nutrition

Sodium intake

Sodium restriction is recommended in symptomatic HF to prevent fluid retention. Although no specific guidelines exist, excessive intake of salt should be avoided. Patients should be educated concerning the salt content of common foods.

Class of recommendation IIa, level of evidence C

Fluid intake

Fluid restriction of 1.5–2 L/day may be considered in patients with severe symptoms of HF especially with hyponatraemia. Routine fluid restriction in all patients with mild to moderate symptoms does not appear to confer clinical benefit.

Class of recommendation IIb, level of evidence C
Aggressive fluid (800 ml/d) and sodium (800 mg/d) restriction in acute decompensated heart failure

![Graph showing change in weight for intervention and control groups.](image)

Aggressive fluid (800 ml/d) and sodium (800 mg/d) restriction in acute decompensated heart failure
6.1.3 Sodium restriction

Epidemiological studies suggest that dietary salt intake is a contributor to blood pressure elevation and to the prevalence of hypertension.\textsuperscript{527,528} Randomized controlled trials in hypertensive patients\textsuperscript{500} indicate that reducing sodium intake by 80–100 mmol (4.7–5.8 g of sodium chloride) per day from an initial intake of around 180 mmol (10.5 g of sodium chloride) per day reduces blood pressure by an average of 4–6 mmHg,\textsuperscript{529–533} although with a large between patient variability.

The recommended adequate daily sodium intake has been recently reduced from 100 to 65 mmol/day corresponding to 3.8 g/day of sodium chloride, which may be currently difficult to achieve. An achievable recommendation is less than 5 g/day sodium chloride (85 mmol/day).\textsuperscript{538}
Patients were randomly assigned to DASH (fruits, vegetables, fish, poultry, ...) or control diet and ate their assigned diet at each of the 3 sodium levels for 30 days in random order in a cross over design.
Fatal and nonfatal outcomes, incidence of hypertension, and blood pressure changes in relation to urinary sodium excretion

A Cardiovascular disease mortality

B All cardiovascular disease events

24-Hour urinary sodium excretion tertile
- Low
- Medium
- High

Log-rank \( P < .001 \)

Log-rank \( P = .02 \)

JAMA 2011; 305: 1777-1785
Sodium intake and mortality in the NHANES II follow-up study

<table>
<thead>
<tr>
<th>mortality</th>
<th>Sodium measure/24h</th>
<th>HR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>cardiovascular</td>
<td>Sodium per 1000 mg</td>
<td>0.89 (0.8-0.99)</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Sodium&lt;2300 mg</td>
<td>1.37 (1.03-1.81)</td>
<td>0.03</td>
</tr>
<tr>
<td>All-cause</td>
<td>Sodium per 1000 mg</td>
<td>0.93 (0.87-1.00)</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>Sodium&lt;2300 mg</td>
<td>1.28 (1.10-1.50)</td>
<td>0.003</td>
</tr>
<tr>
<td>CHD</td>
<td>Sodium per 1000 mg</td>
<td>0.91 (0.79-1.05)</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Sodium&lt;2300 mg</td>
<td>1.21 (0.87-1.68)</td>
<td>0.25</td>
</tr>
<tr>
<td>stroke</td>
<td>Sodium per 1000 mg</td>
<td>0.95 (0.75-1.21)</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>Sodium&lt;2300 mg</td>
<td>1.78 (0.89-3.35)</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Effect chocolade op SBP (mmHg)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Mean Difference</th>
<th>SE</th>
<th>Cocoa Total</th>
<th>Control Total</th>
<th>Weight</th>
<th>Mean Difference IV, Random, 95% CI</th>
<th>Mean Difference IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taubert 2003</td>
<td>-5.1</td>
<td>0.73</td>
<td>13</td>
<td>13</td>
<td>7.3%</td>
<td>-5.10 [-6.53, -3.67]</td>
<td></td>
</tr>
<tr>
<td>Murphy 2003</td>
<td>-1</td>
<td>4</td>
<td>13</td>
<td>15</td>
<td>3.4%</td>
<td>-1.00 [-8.84, 6.84]</td>
<td></td>
</tr>
<tr>
<td>Engler 2004</td>
<td>1.8</td>
<td>4.43</td>
<td>11</td>
<td>10</td>
<td>3.0%</td>
<td>1.80 [-6.68, 10.48]</td>
<td></td>
</tr>
<tr>
<td>Fraga 2005</td>
<td>-4</td>
<td>1.6</td>
<td>14</td>
<td>14</td>
<td>6.4%</td>
<td>-4.00 [-7.14, -0.86]</td>
<td></td>
</tr>
<tr>
<td>Grassi 2005a</td>
<td>-6.5</td>
<td>1.49</td>
<td>15</td>
<td>15</td>
<td>6.5%</td>
<td>-6.50 [-9.42, -3.58]</td>
<td></td>
</tr>
<tr>
<td>Grassi 2005b</td>
<td>-11.3</td>
<td>0.95</td>
<td>20</td>
<td>20</td>
<td>7.1%</td>
<td>-11.30 [-13.16, -9.44]</td>
<td></td>
</tr>
<tr>
<td>Taubert 2007</td>
<td>-2.8</td>
<td>2.28</td>
<td>22</td>
<td>22</td>
<td>5.4%</td>
<td>-2.80 [-7.27, 1.67]</td>
<td></td>
</tr>
<tr>
<td>Crews 2008</td>
<td>-0.53</td>
<td>2.64</td>
<td>45</td>
<td>45</td>
<td>5.0%</td>
<td>-0.53 [-5.70, 4.64]</td>
<td></td>
</tr>
<tr>
<td>Grassi 2008</td>
<td>-3.7</td>
<td>0.7</td>
<td>19</td>
<td>19</td>
<td>7.3%</td>
<td>-3.70 [-5.07, -2.33]</td>
<td></td>
</tr>
<tr>
<td>Munivappa 2008</td>
<td>-1</td>
<td>1.6</td>
<td>20</td>
<td>20</td>
<td>6.4%</td>
<td>-1.00 [-4.14, 2.14]</td>
<td></td>
</tr>
<tr>
<td>Davison 2008a</td>
<td>-6.1</td>
<td>3.46</td>
<td>12</td>
<td>11</td>
<td>4.0%</td>
<td>-6.10 [-12.88, 0.68]</td>
<td></td>
</tr>
<tr>
<td>Davison 2008b</td>
<td>1.6</td>
<td>4.5</td>
<td>13</td>
<td>13</td>
<td>3.0%</td>
<td>1.60 [-7.22, 10.42]</td>
<td></td>
</tr>
<tr>
<td>Al-Faris 2008</td>
<td>-7.1</td>
<td>2.19</td>
<td>30</td>
<td>29</td>
<td>5.6%</td>
<td>-7.10 [-11.39, -2.81]</td>
<td></td>
</tr>
<tr>
<td>Ried 2009</td>
<td>2.9</td>
<td>6.55</td>
<td>20</td>
<td>19</td>
<td>1.8%</td>
<td>2.90 [-9.94, 15.74]</td>
<td></td>
</tr>
<tr>
<td>Monagas 2009</td>
<td>3</td>
<td>2.72</td>
<td>11</td>
<td>10</td>
<td>4.9%</td>
<td>3.00 [-2.33, 8.33]</td>
<td></td>
</tr>
<tr>
<td>Shilina 2009</td>
<td>0.6</td>
<td>3.82</td>
<td>42</td>
<td>42</td>
<td>3.6%</td>
<td>0.60 [-6.89, 8.09]</td>
<td></td>
</tr>
<tr>
<td>Bogaard 2010</td>
<td>0.25</td>
<td>1.54</td>
<td>41</td>
<td>41</td>
<td>6.4%</td>
<td>0.25 [-2.77, 3.27]</td>
<td></td>
</tr>
<tr>
<td>Heiss 2010</td>
<td>-5</td>
<td>3.23</td>
<td>16</td>
<td>16</td>
<td>4.2%</td>
<td>-5.00 [-11.33, 1.33]</td>
<td></td>
</tr>
<tr>
<td>Davison 2010</td>
<td>-2</td>
<td>5.22</td>
<td>13</td>
<td>14</td>
<td>2.5%</td>
<td>-2.00 [-12.23, 8.23]</td>
<td></td>
</tr>
<tr>
<td>Njike 2011</td>
<td>3.2</td>
<td>1.72</td>
<td>39</td>
<td>39</td>
<td>6.2%</td>
<td>3.20 [-0.17, 6.57]</td>
<td></td>
</tr>
</tbody>
</table>

**Total (95% CI)**

429 | 427 | 100.0% | -2.77 [-4.72, -0.82]

Heterogeneity: Tau² = 12.98; Chi² = 109.34, df = 19 (P < 0.000001); I² = 83%
Test for overall effect: Z = 2.78 (P = 0.005)
De gustibus et coloribus non est disputandum

• Vanilla, coffee and strawberry/raspberry milky sip-feeds (ONS) are reliable products whereas chocolate flavour appears to be slightly less liked
  – Darmon et al, clin nutr 2008; 27: 660-665

• Chocolate flavour ONS was the most preferred product
  – Age and Ageing 2010; 39: 733-738
Figure 1. Correlation between Countries’ Annual Per Capita Chocolate Consumption and the Number of Nobel Laureates per 10 Million Population.
vet
Low cholesterol, total mortality, and quality of life in old age during a 39-year follow-up. 3.277 healthy businessmen (30-45y)

I = TC < 200 mg/L,     VI = TC > 340 mg/dl
Low-fat dietary pattern vs usual-diet and risk of treated diabetes mellitus in postmenopausal women (WHI study)

Arch intern med 2008; 168:1500-1511
dietary intervention (low fat & high intake fruits and vegetables vs controls) on fatal and non fatal coronary heart disease and stroke. WHI (n=48.835, 50-79y, mean 62.3y)
dietary intervention (low fat & high intake fruits and vegetables vs controls) on fatal and non fatal coronary heart disease and stroke. WHI (n=48,835, 50-79y, mean 62.3y)
70 tot 90 jarige personen zonder chronische ziekten die een mediterraan dieet volgen (groenten, noten, olijfolie), matig alcoholgebruik (1 à 2 units/d), niet roken en 30’/d wandelen…
Dieet, lifestyle en langer leven

...hebben minder dan 50% kans om te sterven van hartziekten, kanker en totale sterfte tijdens de studieduur (10j) dan de controlegroep

JAMA 2004; 292:1433-1439
Dietary patterns and survival in older Dutch women

A healthy traditional Dutch diet (vegetables, fruit, nonalcoholic drinks, dairy products and potatoes) rather than a mediterranean diet (vegetable oils, pasta and rice, sauces, fish and wine) or a traditional Dutch dinner (high intake of meat, potatoes, vegetables and alcoholic beverages) appears beneficial for longevity and feasible for health promotion in older Dutch women.
Prevalence of undernutrition/risk according to the MNA-SF in ambulatory 75+ (mean diet duration 11y)

Diet: low sodium, diabetic and low cholesterol diet

*p<0.001
eiwit
sarcopenia

• syndrome characterised by progressive and generalised loss of skeletal muscle mass and strength with an increased risk of adverse outcomes
• Underlying mechanisms are complex and not well understood
Mean grip strength (kg) in hospitalized geriatric patients

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<th>Study of osteoporotic fracture criteria(SOF)</th>
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<tr>
<td>frail</td>
<td>14.73 kg (n=84)</td>
<td>15.42 kg (n=62)</td>
</tr>
<tr>
<td>non-frail and frail</td>
<td>20.81 kg (n=125)</td>
<td>20.81 kg (n=131)</td>
</tr>
<tr>
<td>P value</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Effects of 10 days of bed rest in 12 healthy older adults-lean mass

- Lean mass, whole body (kg) before: 48.05 kg, after: 46.51 kg
- Lean mass, lower extremity, kg before: 15.01 kg, after: 14.06 kg

% change:
- Whole body: 3.20%
- Lower extremity: 6.30%

JAMA 2007; 297:1772-1774
Effects of 10 days of bed rest in 12 healthy older adults - muscle strength

**isokinetic muscle strength knee extension (Nm per s)**

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>120</td>
<td>101</td>
<td>16</td>
</tr>
</tbody>
</table>
Adjusted lean mass (LM) loss by quintile of energy-adjusted total protein intake. Health ABC study, n=2066

Adjusted for age, sex, race, study site, total energy intake, baseline LM or aLM, height, smoking, alcohol use, physical activity, oral steroid, prevalent disease and interim hospitalization

Health ABC. Am J Clin Nutr 2008; 87:150-158
Veranderingen in spiermasse in armen en benen volgens gewichtsveranderingen en inname eiwit volgens quintilen

**Health ABC. Am J Clin Nutr 2008; 87:150-158**

- gem 0.8 g/kg/d
- gem 1.2 g/kg/d
24h muscle protein synthesis before and 10 d of bedrest in elderly subjects

Control (placebo, n=11) vs EAA (3X 15 gr essential aminoacid suppl, n=10)

Clin Nutr 2010; 29: 18-23
Effects of vitamin D and leucine-enriched whey protein (2x20g whey/d) on measures of sarcopenia in older adults. a RCT (13 weeks)

Change (kg) in appendicular muscle mass from baseline to week 13 follow-up

380 sarcopenic independent living older adults (Δ age: 77.7 y)

- Active (n=184): per serving, 2xd
  20 g whey protein
  3 g total leucine
  9 g carbs
  3 g fat
  + 800 IU vit D
  + mixture of vitamins, minerals, and fibers

- Control (n=196): isocaloric product, no protein or micronutrients
Effects of vitamin D and leucine-enriched whey (2x20 gr whey/d) protein on measures of sarcopenia in older adults. A RCT – 13 weeks

Muscle strength and function outcomes

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Change From Baseline, Mean (SD)</th>
<th>Estimated Between-Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Week 7</td>
<td>Week 13</td>
</tr>
<tr>
<td><strong>Handgrip strength, kg</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active†</td>
<td>20.9 (7.9)</td>
<td>0.20 (3.2)</td>
<td>0.79 (3.6)†</td>
</tr>
<tr>
<td>Control†</td>
<td>20.6 (7.5)</td>
<td>0.34 (2.8)</td>
<td>0.54 (3.2)</td>
</tr>
<tr>
<td><strong>SPPB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active‡</td>
<td>7.5 (1.9)</td>
<td>0.50 (1.26)</td>
<td>0.86 (1.38)**</td>
</tr>
<tr>
<td>Control‡</td>
<td>7.5 (2.0)</td>
<td>0.51 (1.21)</td>
<td>0.77 (1.45)**</td>
</tr>
<tr>
<td><strong>Chair-stand time, s</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active§</td>
<td>17.1 (15.2, 21.2)</td>
<td>−1.4 (−3.3–0.4)</td>
<td>−2.5 (−4.2 to −0.6)**</td>
</tr>
<tr>
<td>Control§</td>
<td>17.6 (14.6, 20.6)</td>
<td>−1.0 (−3.0–1.1)</td>
<td>−1.2 (−3.3–0.8)**</td>
</tr>
<tr>
<td><strong>Balance test</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active#</td>
<td>3.0 (2.0, 4.0)</td>
<td>0.0 (0.0–0.0)</td>
<td>0.0 (0.0–1.0)</td>
</tr>
<tr>
<td>Control#</td>
<td>3.0 (2.0, 4.0)</td>
<td>0.0 (0.0–1.0)</td>
<td>0.0 (0.0–1.0)</td>
</tr>
<tr>
<td><strong>Gait speed, m/s</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active***</td>
<td>0.8 (0.2)</td>
<td>0.03 (0.11)</td>
<td>0.07 (0.12)**</td>
</tr>
<tr>
<td>Control***</td>
<td>0.8 (0.2)</td>
<td>0.03 (0.10)</td>
<td>0.05 (0.12)**</td>
</tr>
</tbody>
</table>

SPPB=short physical performance battery (gait speed, balance, 5x chair-rise assessment)
Efficacy of 2× 20 g whey protein/d on physical performance measures in 80 mobility-limited adults 70-85y (6 months)

<table>
<thead>
<tr>
<th>Physical Function</th>
<th>Whey (N = 42)</th>
<th>Control (N = 38)</th>
<th>Point Estimates (95% CI)*</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stair-climb time (s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>7.7 ± 4.2</td>
<td>8.5 ± 4.6</td>
<td>0.3 (−1.1, 1.8)</td>
<td>.03</td>
</tr>
<tr>
<td>Six months</td>
<td>7.1 ± 3.9</td>
<td>7.0 ± 3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair-rise time (s; 10×)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>31.8 ± 8.5</td>
<td>33.6 ± 16.7</td>
<td>−1.9 (−5.2, 1.4)</td>
<td>.0001</td>
</tr>
<tr>
<td>Six months</td>
<td>24.9 ± 6.9</td>
<td>26.8 ± 5.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPPB score</td>
<td></td>
<td></td>
<td></td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Baseline</td>
<td>8.5 ± 1.1</td>
<td>8.4 ± 1.7</td>
<td>0.21 (−0.41, 0.83)</td>
<td></td>
</tr>
<tr>
<td>Six months</td>
<td>10.3 ± 1.5</td>
<td>10.0 ± 1.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four hundred-meter walk (gait speed; m/s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>1.1 ± 0.2</td>
<td>1.0 ± 0.2</td>
<td>0.08 (−0.02, 0.19)</td>
<td>.13</td>
</tr>
<tr>
<td>Six months</td>
<td>1.1 ± 0.2</td>
<td>1.0 ± 0.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mean change whey (6 month less baseline) minus change in control, and the corresponding 95% CI.
voorbeelden

- eiwitsupplementen
  - Bv Resource proteïnen (Nestlé) 2 à 3 x 5 à 10 g/d
- op afdeling geriatrie worden alleen energierijk en energierijk-diabetes voorgeschreven

<table>
<thead>
<tr>
<th></th>
<th>Kcal/d</th>
<th>proteins</th>
<th>fat</th>
<th>carbs</th>
<th>simple carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Energy rich</td>
<td>2.526</td>
<td>82.5</td>
<td>13.1</td>
<td>101.9</td>
<td>319.7</td>
</tr>
<tr>
<td>2. Energy rich diabetes</td>
<td>2.069</td>
<td>81.1</td>
<td>15.7</td>
<td>97.4</td>
<td>225.9</td>
</tr>
<tr>
<td>3. Normal</td>
<td>1.785</td>
<td>69.1</td>
<td>15.5</td>
<td>69.5</td>
<td>220.1</td>
</tr>
<tr>
<td>4. Diabetes</td>
<td>1.431</td>
<td>69.0</td>
<td>19.3</td>
<td>47.5</td>
<td>180.0</td>
</tr>
</tbody>
</table>
Mean (± SE) changes in muscle strength after exercise, nutritional supplementation (240 ml/360 kcal/d), neither or both

Huidige situatie in 157 Vlaamse WZC omtrent maaltijdambiance en concrete aanbevelingen

Is een diëtist beschikbaar in het WZC

- 64%
- 36%

Chantal Hermans  Masterproef CZV 2012
Huidige situatie in 157 Vlaamse WZC omtrent maaltijdambiance en concrete aanbevelingen

**menukeuze**

- 52% staandar menu + beperkte wijziging mogelijk
- 20% meerdere keuzes
- 20% meerdere keuzes en wijzigingen mogelijk
- 8% geen keuze en geen wijzigingen

Chantal Hermans  Master CZV 2012
Huidige situatie in 157 Vlaamse WZC omtrent maaltijdambiance en concrete aanbevelingen

is er een strict dieetbeleid in het WZC

ja 70%

neen 30%

Chantal Hermans  Master CZV 2012
Huidige situatie in 157 Vlaamse WZC omtrent maaltijdambiance en concrete aanbevelingen

wie schrijft dieet voor?

- Arts: 3%
- Arts+bewoner: 15%
- Diëtist: 17%
- Andere: 65%

Chantal Hermans  Master CZV 2012
A recipe for improving food intakes in elderly hospitalized patients

<table>
<thead>
<tr>
<th>Menu group</th>
<th>Energy (kcal)</th>
<th>Protein (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>1425 (136)</td>
<td>47.4 (6.5)</td>
</tr>
<tr>
<td>Fortified</td>
<td>1711 (195)</td>
<td>48.7 (6.3)</td>
</tr>
<tr>
<td>Normal+cooked breakfast</td>
<td>1744 (176)</td>
<td>57.4 (6)</td>
</tr>
</tbody>
</table>

Fortified: reduced portion size (-20%), butter, cream, cheese, glucose polymers
Cooked: normal+ranging from tomatoes on toast to bacon, eggs and beans according to the patient’s wishes,
Effect family style mealtimes vs control group in 178 residents (mean 77y) without dementia in NH during 6 months

<table>
<thead>
<tr>
<th>variable</th>
<th>Intervention (n=98)</th>
<th>Control (n=83)</th>
<th>Diff</th>
<th>Inter-cont*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of life (0-100)</td>
<td>+0.4 (-1.8 to 2.5)</td>
<td>-5 (-9.4 to 0.6)</td>
<td>6.1 (2.1 to 10.3)</td>
<td></td>
</tr>
<tr>
<td>Physical performance (0-48)</td>
<td>+0.2 (-2.3 to 2.7)</td>
<td>-2.2 (-4.1 to -0.4)</td>
<td>3.2 (0.9 to 5.5)</td>
<td></td>
</tr>
<tr>
<td>Body weight (kg)</td>
<td>+0.5 (-0.3 to 1.2)</td>
<td>-1.1 (-1.9 to -0.2)</td>
<td>1.5 (0.6 to 2.4)</td>
<td></td>
</tr>
<tr>
<td>Energy intake (kcal)</td>
<td>+117 (20 to 215)</td>
<td>-102 (-174 to -31)</td>
<td>241 (113 to 360)</td>
<td></td>
</tr>
</tbody>
</table>

* Adjusted for age, LOS, sex, nursing home and cluster effects of wards
Take home message

• algemeen geaccepteerde dieetrichtlijnen voor ouderen bestaan niet!
  • nadenken alvorens een dieet voor te schrijven
  • geen dieet tenzij op vraag van patiënt
  • energierijk!

• eiwit
  • RDA van 0,8 naar 1,2-1,5 g/kg/d (cave CNI)
  • eiwitrijke voeding
    • hoge kwaliteitseiwitten: zuivel, vis, vlees, …
    • 2 of 3 x 20 gr eiwitsupplement per dag (best na fysieke inspanning ?)
    • klinische efficientie ???