Association between a Dietary Obesity Prevention Score and Incidence of Overweight/Obesity: Prospective Analysis of the SUN Cohort

Authors and Affiliations
Clara Gómez-Donoso¹, Miguel A. Martínez-González¹,²,³, Karen Murphy⁴, Natalie Parletta⁵, Alfredo Gea¹,²,³, and Maira Bes-Rastrollo¹,²,³.
¹Department of Preventive Medicine and Public Health, University of Navarra, Pamplona, Spain. ²Biomedical Research Centre Network on Obesity and Nutrition (CIBERobn) Physiopathology of Obesity and Nutrition, Institute of Health Carlos III, Madrid, Spain. ³DISNA, Navarra’s Health Research Institute, Pamplona, Spain. ⁴University of South Australia, Adelaide, South Australia, Australia.

Introduction
Although preventable, unhealthy BMI and dietary risks have been recently identified as factors causing the greatest burden of disease. Some doubts still exist on the effectiveness of prevailing nutritional messages to prevent weight gain. We examined the association between an evidence-based Dietary Obesity Prevention Score (DOPS) and the incidence of overweight/obesity in the SUN (“Seguimiento Universidad de Navarra”) cohort.

Methods

Participants
11,349 initially normal-weight Spanish graduates, with no chronic diseases or pregnancy at baseline

Exposure
Adherence at baseline and after 10 years of follow-up to the DOPS, ranging from 14 to 42

SUN Cohort
Spain, 1999-2017

Statistical Analysis
Multivariable-adjusted Cox proportional hazards models and linear regression models

Outcome
Incidence of overweight and obesity (BMI ≥ 25 kg/m²) and yearly weight changes (g)

Results

<table>
<thead>
<tr>
<th>DOPS</th>
<th>≤20</th>
<th>21-27</th>
<th>28-34</th>
<th>≥ 35</th>
<th>p for trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>269</td>
<td>5097</td>
<td>5205</td>
<td>778</td>
<td></td>
</tr>
<tr>
<td>Absolute yearly weight change (g), mean (SD)</td>
<td>457.0 (1418.6)</td>
<td>428.0 (1479.1)</td>
<td>340.3 (1399.7)</td>
<td>161.3 (1287.0)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

- Results were consistent after updating dietary intake with repeated measures, and in sensitivity analyses (not shown).
- Findings require replication and further refinement.

Conclusion
Among participants from a middle-aged Mediterranean cohort, a higher adherence to the DOPS was associated with a significantly reduced risk of overweight/obesity and long-term weight gain across adulthood. This simple food-based score may help counsel patients regarding dietary risks and raise awareness of weight gain before the onset of obesity.

Scoring criteria for the DOPS
- Fruits
- Vegetables
- Legumes
- Nuts
- Vegetable to animal protein ratio
- Fish & seafood
- Yogurt
- Red meat
- Sugary beverages
- Processed meat
- Ultraprocessed food
- Refined grains
- Beer & spirits
- Animal fat

*In tertiles: 1st=1 point, 3rd=3 points

*Adjusted for sex, baseline BMI, physical activity, hours of TV watching, smoking status, marital status, highest level of education achieved, total energy intake, snacking between meals, following a special diet at baseline, family history of obesity (parents), and hours of sexta. Stratified by deciles of age and the date of recruitment (4+ periods).

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