A counseling strategy was better than usual care for adopting and maintaining physical activity in type 2 diabetes


**Question**
In patients with type 2 diabetes mellitus, is a counseling strategy better than usual care for adopting and maintaining long-term physical activity?

**Design**
Randomized [allocation concealed*]+, blinded [data collectors and data analysts]+,* controlled trial with 2-year follow-up.

**Setting**
An outpatient diabetes clinic in Perugia, Italy.

**Patients**
340 patients ≥ 40 years of age (mean age 62 y; 53% women) who were diagnosed with type 2 diabetes ≥ 2 years previously. Exclusion criteria were an illness that could reduce life expectancy; or cardiac, liver, or renal failure. Follow-up was 99.1%.

**Intervention**
182 patients were allocated to a counseling strategy, which consisted of usual care plus a 30-minute structured counseling session recommending physical activity (goal energy expenditure > 10 metabolic equivalents [METs] × h/wk) with a discussion of 7 points to promote exercise (motivation, self-efficacy, pleasure, support, comprehension, lack of impediments, and diary) using a checklist; and a 15-minute telephone call 1 month after the initial counseling session and clinic visits every 3 months for 2 years to determine adherence to planned physical activity, discussion of obstacles encountered, and reinforcement of original points from the initial visit. 158 patients were allocated to usual care (a 30-minute clinical examination, counseling for diet and physical activity, therapeutic prescriptions, general advice, and brochures about the benefits of healthy nutrition and regular physical activity).

**Main Outcome Measures**
Levels of voluntary physical activity (assessed every 3 mo using the Modifiable Activity Questionnaire, and calculated as the product of the duration [h × wk] of the different activities weighted by an estimate of the MET of each activity [METs × h/wk]). Secondary outcome measures were body mass index (BMI) and hemoglobin A1c (HbA1c) levels.

**Main Results**
Analysis was by intention to treat. More patients in the counseling-strategy group achieved target energy expenditure through voluntary physical activity than did those in the usual-care group (Table). At 2 years, both BMI and HbA1c were decreased in the counseling-strategy group, whereas BMI increased in the usual-care group (Table).

**Conclusion**
In patients with type 2 diabetes mellitus, a counseling strategy was better than usual care for adopting and maintaining physical activity.

*Source of funding: Italian Minister of Health.*
For correspondence: Professor P. De Feo, University of Perugia, Perugia, Italy. E-mail defeo@dimisem.med.unipg.it.

*See Glossary.*
†Information provided by author.

---

**Counseling strategy vs usual care for promoting physical activity in type 2 diabetes mellitus at 2 years†**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Counseling strategy</th>
<th>Usual care</th>
<th>RBI (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary physical activity &gt;10 METs × h/wk</td>
<td>69%</td>
<td>18%</td>
<td>288% (177 to 454)</td>
<td>2 (2 to 3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean change from baseline</th>
<th>Difference in mean change from baseline (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>−0.4</td>
</tr>
<tr>
<td>HbA1c</td>
<td>−0.6</td>
</tr>
</tbody>
</table>

**Notes:**
METs = metabolic equivalents; BMI = body mass index; HbA1c = hemoglobin A1c. Other abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article.

**Commentary**
Empirical evidence of the effectiveness of physical activity counseling in primary care settings has been mixed (1), and the perception that it is ineffective may contribute to the low rates of physical activity counseling that may have the greatest success in a busy clinical practice, and determine the clinician characteristics and behaviors most associated with a change in patients’ physical activity behavior. Physicians should be encouraged to learn more about behavioral physical activity counseling strategies (3), which can be useful for motivating patients to increase physical activity.

Future studies should include objective measures of physical activity to validate participant self-report, clarify the components of the intervention that may have the greatest success in a busy clinical practice, and determine the clinician characteristics and behaviors most associated with a change in patients’ physical activity behavior. Physicians should be encouraged to learn more about behavioral physical activity counseling strategies (3), which can be useful for motivating patients to increase physical activity.

Steven A. Smith, MD
Kristin S. Vickers, PhD
Mayo Clinic
Rochester, Minnesota, USA

**References**