**Review: Nicotine replacement therapy is effective in both men and women**


**Question**
In smokers, does the efficacy of nicotine replacement therapy (NRT) differ by sex?

**Methods**
Data sources: Studies were identified by searching MEDLINE, Psychological Abstracts International, Dissertation Abstracts International, Social Science Citation Index, and reference lists of the Cochrane Review and previous meta-analyses.

Study selection and assessment: Studies were selected if they were randomized, double-blind, placebo-controlled trials that reported treatment outcomes, validated smoking status with biochemical tests or collateral reports, and included men and women.

Outcome: Abstinence rates. Studies were pooled using both random and fixed effects. Results were similar for both models; the fixed-effects model analyses were reported.

**Main results**
More participants were abstinent with NRT than with placebo in men and women combined. Results were similar when analyzed by sex for all follow-up periods, except that the difference between NRT and placebo was not statistically significant at 12 months for women (Table).

**Conclusions**
Nicotine replacement therapy increases the proportion of persons giving up smoking more than placebo at 3, 6, and 12 months. In men, the difference between NRT and placebo is statistically significant at each follow-up point; in women, the difference is statistically significant at 3 and 6 months but not at 12 months.

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### Nicotine replacement therapy (NRT) vs placebo for smoking cessation*

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Patient group</th>
<th>Number of trials</th>
<th>Weighted event rates</th>
<th>RBI (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 3 mo</td>
<td>All</td>
<td>16</td>
<td>29% 16% 85% (68 to 102)</td>
<td>8 (7 to 10)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>16</td>
<td>28% 15% 84% (60 to 109)</td>
<td>8 (7 to 11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>16</td>
<td>30% 16% 85% (61 to 110)</td>
<td>8 (6 to 11)</td>
<td></td>
</tr>
<tr>
<td>6 mo</td>
<td>All</td>
<td>17</td>
<td>19% 11% 76% (58 to 95)</td>
<td>13 (10 to 16)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>17</td>
<td>18% 11% 63% (41 to 88)</td>
<td>15 (11 to 23)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>17</td>
<td>21% 11% 92% (65 to 121)</td>
<td>11 (8 to 15)</td>
<td></td>
</tr>
<tr>
<td>≥ 12 mo</td>
<td>All</td>
<td>12</td>
<td>15% 11% 40% (22 to 60)</td>
<td>23 (15 to 42)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>12</td>
<td>14% 12% 20% (−0.9 to 46)</td>
<td>Not significant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>12</td>
<td>16% 10% 63% (34 to 97)</td>
<td>16 (11 to 30)</td>
<td></td>
</tr>
</tbody>
</table>

*Abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article using a fixed-effects model.

**Commentary**
The hypothesis that men and women may respond differently to drug treatments is an important focus of research. As a clinician, I am reassured that, in large trials and meta-analyses that have included sufficient numbers of women and men to reach reliable conclusions about each group, women and men have usually benefited equally from a range of drug treatments. For example, the reduction in the risk for cardiovascular disease from antihypertensive treatment and lipid lowering by statins does not differ between men and women.

Caution is always necessary in drawing conclusions from retrospective subgroup analyses. It is particularly important that conclusions about possible sex effects are based on adequate sample sizes. For example, early reports concluded that men, but not women, benefited from antiplatelet therapy in secondary prevention of cardiovascular disease. An adequately powered meta-analysis subsequently showed this conclusion to be false: The treatment reduced mortality in women and men equally (1).

In analyzing placebo-controlled trials of NRT, Cepeda-Benito and colleagues reassuringly found that proportions of men and women abstaining from smoking were similar at most follow-up points. The odds ratio for NRT versus placebo was not statistically significant for women at 12 months. However, the confidence interval around this odds ratio was compatible with a clinically significant benefit that overlaps with the effect in men.

In my primary care practice, we try to tailor smoking cessation treatment to the individual patient. This meta-analysis confirms that we are right to include NRT in the range of options available to both men and women seeking help to give up smoking, combining it with other forms of support and treatment when appropriate.

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**Reference**