

## Outcomes of a 12-Month Technology-Based Intervention to Promote Weight Loss in Adolescents at Risk for Type 2 Diabetes

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### Abstract

#### Background:

Obese adolescents are at risk for type 2 diabetes mellitus (T2DM). Obesity interventions delivered through media, such as the web and text messages [short message service (SMS)] may be beneficial when targeting obese adolescents.

#### Methods:

A randomized controlled trial, Pace-Internet for Diabetes Prevention Intervention (PACEi-DP), compared three forms of an obesity intervention to usual care (UC): (a) website only (W); (b) website, monthly group sessions, and follow-up calls (WG); and (c) website and SMS (WSMS). Participants were overweight or obese adolescents at risk for T2DM ( $n = 101$ ; age 12–16 years; mean body mass index (BMI) percentile = 97.6; 74.3% Hispanic). In addition to the website, WSMS participants received SMS supporting intervention goals and behavioral strategies and communicated via SMS with a case manager. WG participants had additional group activities related to weight loss and received follow-up calls from a health coach. UC participants were given printed materials and encouraged to attend three initial group sessions. Repeated measures mixed model regression analyses tested treatment effects for anthropometric, behavioral, and behavioral change strategy outcomes.

#### Results:

There were no treatment effects for BMI, adiposity, physical activity, or diet at 12 months. Treatment effects were observed for sedentary behavior, with the W arm having a greater decrease in sedentary behavior (4.9 to 2.8 h/day) than the UC arm ( $p = .006$ ).

#### Conclusion:

Although not sufficient to produce weight loss, the combination of web intervention and group sessions with telephone follow-up yielded improvements in sedentary behavior and in the use of behavior change strategies expected to lead to behavior change.

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**Abbreviations:** (BMI) body mass index, (PACEi-DP) Pace-Internet for Diabetes Prevention Intervention, (QOL) quality of life, (RCS) relative change scores, (SMS) short message service, (T2DM) type 2 diabetes mellitus, (UC) usual care, (W) website only, (WG) website, monthly group sessions, and follow-up calls, (WSMS) website and short message service

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