

Spotlight

Worksite-based intensive lifestyle therapies for diabetes remission

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In a randomized controlled trial, Yoshino et al.¹ examined the effects of a worksite-based intensive lifestyle therapy on body weight, glycemic control, and diabetes remission, in adults with obesity and type 2 diabetes.

Since adults spend most weekday waking hours at work, worksite interventions are uniquely positioned to improve employee health.² These wellness programs can also benefit the company by lowering healthcare costs, while boosting employee productivity. Since the passage of the Affordable Care Act, the availability of worksite wellness programs has increased, in part, due to the law's incentives for companies to implement such programs. Current estimates suggest that 84% of large companies (200 + employees) in the US provide a program in at least one area: smoking cessation, weight management, and behavioral or lifestyle coaching.³ However, most worksite-based programs result in only modest weight loss, likely because interventions tend to be low or moderate intensity and provide minimal supervision.

In a recent randomized controlled trial by Yoshino et al.,¹ adults with obesity and type 2 diabetes were assigned to one of two work-based interventions: intensive lifestyle therapy or standard care. The intensive therapy group met weekly with a dietitian to receive personalized diet and behavioral weight loss counseling. The energy intake goal for this group was adjusted weekly to achieve 0.5%–1.0% weight loss and >10% weight loss over 8 months. Meal replacements were supplied to help meet energy intake targets. In addition, the intensive lifestyle group participated in endurance and resistance exercise four times per week for 60 min per session. In contrast, the standard care control group received basic diet and physical activity instructions, based on American Diabetes Association guidelines.⁴ This group had minimal contact with the study

team and only interacted with interventionists once per month for clinical measurements.

After 8 months of treatment, the intensive lifestyle therapy group achieved 17% weight loss, with individual results ranging from 6% to 29%. Fat mass and visceral fat mass decreased while lean mass was maintained. Diabetes medication use decreased by 61% from baseline, HbA1c was reduced by 0.9%, and three participants achieved diabetes remission. Improvements in intrahepatic triglyceride content, pancreatic beta-cell function, cardiorespiratory fitness, and muscle strength were also noted. However, none of these benefits were observed in the standard care control group because the body weights of these participants remained stable.

This study has several strengths. First, the intensive therapy included both diet and behavioral counseling. The former is essential to improve diet quality and the latter is crucial to modify behaviors that contribute to weight regain. Both of these counseling components are vital for long-term weight and glycemic control and should be incorporated into all work-based interventions.⁵ Second, the participants met with study personnel on a weekly basis. This high level of interaction between subjects and the study team likely played a major role in the extreme amount of weight loss (17%) observed in this trial. Third, the intensive therapy included both an endurance and resistance training component. Exercise plays an important role in maintaining muscle mass during weight loss. In the absence of exercise, approximately one-quarter of the total weight lost is lean mass.⁶ Because the intensive lifestyle group was exercising

four times per week, they were able to lose a significant amount of body weight without losing any lean mass. Maintenance of muscle mass is crucial for preserving resting metabolic rate,⁷ which can help with long-term weight management.

Although the study has several strengths, some limitations were also noted. For example, the sample size was very small ($n = 23$) compared to other studies in the field that involved 60 to 5828 participants.^{2,8,9} In addition, the very low dropout rate in the intensive lifestyle group (8%) is considerably different from previous reports that show dropout rates ranging from ~20% to 30%.^{2,8,9} The degree of weight loss observed by Yoshino et al.¹ (17% from baseline) is also very high compared to other studies in the field, which report losses of ~1%–5% from baseline. It is also striking that every subject in the intensive group lost weight, with the lowest amount of weight loss being 6% and the highest being 29%. In comparison, other trials show that approximately 20%–40% of participants are not responsive to therapy and lose no weight.^{2,8,9} The adherence data, which indicates that participants attended 98% of weekly diet counseling sessions and 92% of exercise sessions over 8 months, also seems quite high.^{2,8,9} These concerns put into question the generalizability of the findings. This study seems to have recruited a highly motivated group of people with type 2 diabetes, which may not be representative of this population. Additionally, we question the feasibility of delivering such an intensive intervention to hundreds or even thousands of employees or those who do not work in a traditional office setting (e.g., truck drivers, nurses). In view of this, these



findings should be interpreted with caution as these data are considerably different from what has been reported previously.^{2,8,9}

Another concern is the lack of follow-up for the intensive lifestyle group. It is truly impressive that these participants were able to lose so much weight, improve multiple parameters of metabolic health, and even achieve diabetes remission. However, without proper long-term care,¹⁰ most of these individuals will regain their weight and their diabetes risk factors will return to baseline levels. This study would have been stronger if it included a long-term follow-up component, where subjects were contacted months or years after the trial to see if they were still following the interventions in the absence of intensive monitoring. These data would help to clarify whether the benefits of this workplace lifestyle initiative can be maintained over years.

Challenges aside, the study by Yoshino et al.¹ highlights the potential of worksite wellness programs to assist employees in managing their weight and improving metabolic health outcomes. This trial suggests that intensive work-based programs can play a critical role in helping

to combat the obesity and diabetes epidemic.

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