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Short Communication

Effect of sensory-based intervention on the increased use of food-related descriptive terms among restrained eaters

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ABSTRACT

The goals of this pilot randomized controlled trial were to investigate and determine whether sensory-based intervention influenced the number and type of terms (descriptive and hedonic) used by restrained women to describe a certain food, and whether changes in the number of descriptive terms were associated with changes in intuitive eating. We collected data at baseline ($T = 1$), at the end of the intervention period ($T = 2$), and at 12 weeks post-intervention ($T = 3$) using the descriptive form and Intuitive Eating Scale (IES). At $T = 1$, 50 women were randomly assigned to an intervention group (sensory-based intervention) or a control group (waiting list). To determine the effect of intervention over time on the number of descriptive and hedonic terms, we conducted statistical analyses using mixed models. To determine associations between Intuitive Eating Scale subscales and the number of descriptive terms, we also calculated Spearman correlation coefficients. We noted a significant group-by-time interaction for descriptive terms associated with all senses ($p < 0.04$), except for a sight-related trend ($p = 0.06$). In comparison with $T = 1$, intervention group women at $T = 2$ and $T = 3$ showed a significant increase in descriptive terms associated with smell ($p = 0.0002$ and $p = 0.03$, respectively), taste ($p = 0.001$ and $p = 0.01$, respectively) and hearing ($p = 0.04$ and $p = 0.0003$, respectively). Among intervention group women, we noted a positive correlation between changes ($T = 3$ vs. $T = 2$) in the number of descriptive terms used and changes in reliance on internal hunger and satiety cues ($r = 0.48$; $p = 0.04$), as well as between changes ($T = 3$ vs. $T = 1$) in the number of descriptive terms used and changes in unconditional permission to eat ($r = 0.45$; $p = 0.05$). Overall, these data show that sensory-based intervention may help restrained women become more objective and enjoyably connected to food and their own bodies, which may promote a more intuitive approach to eating.

1. Introduction

A range of nutrition education campaigns have been undertaken to increase awareness of healthy food choices and promote the adoption of better eating practices (Health Canada, 2013). However, it seems that information and awareness is not always sufficient to influence eating behaviours (Contento, 2008). A Canadian survey has shown that 40 percent of women feel overwhelmed by contradictory information on nutrition and lifestyle (Ipsos-Reid, 2008), which may lead to confusion and anxiety about food and eating (Fischler, 1994). Nutrition education that focuses mainly on knowledge often provides information only in terms of "good" or "bad" foods. Dichotomous thinkers do not factor complex options into their decision-making strategies, which

Abbreviations: BMI, Body Mass Index; IES, Intuitive Eating Scale.

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oversimplifies the classification of foods and may lead to unhealthy eating behaviours (Freeland-Graves & Nitzke, 2013). From a sociological viewpoint, food cannot be reduced to a mere medical prescription to prevent disease, nor to a set of rules (Franchi, 2012). To promote healthy eating behaviours, alternative approaches are required.

While many nutrition education strategies are based on restrictive practices (avoidance of unhealthy foods, etc.), they often fail to allow for the sensory aspects of eating (pleasure associated with food, sensory experience, etc.) (Reverdy, 2011; Rozin & Gohar, 2011). Many studies have shown taste and food preferences to be determining factors in food choices (Contento, 2008; Freeland-Graves & Nitzke, 2013). An alternative to information-based strategies, sensory-based education includes both information and practical training by focusing on the senses (Reverdy, 2011). Unlike sensory training which is meant for expert analysts (wine, etc.), sensory education concerns the sense of taste in general and is meant for non-expert consumers (Reverdy, 2011). The effects of sensory education have been studied primarily on children. It has been suggested that sensory education lets children focus on their own sensations and responses rather than established or conventional responses (Reverdy, 2011). Children can indeed improve the description of their taste experience by using more descriptive than hedonic terms (Mustonen, Rantanen, & Tuorila, 2009; Reverdy, Chesnel, Schlich, Köster, & Lange, 2008). Sensory education can also enhance children's chemosensory awareness and heighten their awareness of food (Mustonen, Rantanen, & Tuorila, 2009). These findings suggest this approach could increase awareness of eating and food, and make children more open to new experiences.

While the benefits of sensory education have been observed in children, one study has shown that sensory-based intervention (including sensory education) may be useful in improving certain eating-related attitudes and behaviours in restrained women (i.e., those with concerns about dieting and weight control) (Gravel et al., 2013). Women who took part in the study showed an increase in unconditional permission to eat, based on the Intuitive Eating Scale or IES (i.e., they were less likely to ignore hunger signals, classify foods as "good" or "bad", and avoid foods viewed as "bad") (Tylka & Kroon Van Diest, 2013). Intuitive eating is based on physiological hunger and satiety cues rather than situational and emotional cues (Tylka, 2006; Tylka & Kroon Van Diest, 2013). In contrast with restrained eating, people who eat unconditionally are less likely to overindulge, engage in binge eating or experience guilt when eating (Polivy & Herman, 1999). Unconditional permission to eat thus seems healthy, and sensory-based intervention may be effective in helping restrained women focus on their own sensations rather than on dieting rules. A positive approach (based on the pleasure of eating) has also proven more effective at changing behaviour than a restrictive approach, both in public nutrition messages (Freeland-Graves & Nitzke, 2013) and in a family context (Reverdy, 2011). IES is recommended for measuring a positive approach, since it can measure healthy food behaviours rather than just the lack of eating disorder symptoms (Tylka, 2006; Tylka and Kroon Van Diest, 2013). Based on these results, sensory-based intervention may be used as a tool to improve the eating- related experiences of restrained women. In particular, the more frequent use of descriptive rather than hedonic terms may promote a more intuitive approach to eating by helping these people to become more objective (unbiased) and enjoyably connected to food and their own bodies (by using their senses while eating), and to focus on non diet and weight related concerns.

The goals of this pilot randomized controlled trial were to investigate and determine whether sensory-based intervention influenced the number and type of terms (descriptive and hedonic) used by restrained women to describe a certain food, and whether changes in the number of descriptive terms were associated with changes in intuitive eating. We hypothesized that in contrast with restrained women from the control group, restrained women from the sensory-based intervention group would use more descriptive than hedonic terms to describe food. We also hypothesized that the use of more descriptive terms would be linked to higher levels of intuitive eating, but only for restrained women from the intervention group.

2. Methodology

2.1. Participants and Study Design

As previously noted (Gravel et al., 2013), women recruited for this study had to be concerned about dieting and weight control as measured by the Restraint Scale (Herman & Polivy, 1980). The study was a pilot randomized controlled trial in which women were randomly assigned to an intervention group (six, weekly 90-min workshops) or a control group (waiting list) for an 18-week period. We took dependent variable measurements at baseline ($T = 1$), at the end of the 6-week intervention period ($T = 2$) and at 12-weeks post-intervention ($T = 3$) (Fig. 1). We measured the weight and height of all participants after the descriptive form was completed, and then calculated BMI (kg/m^2).

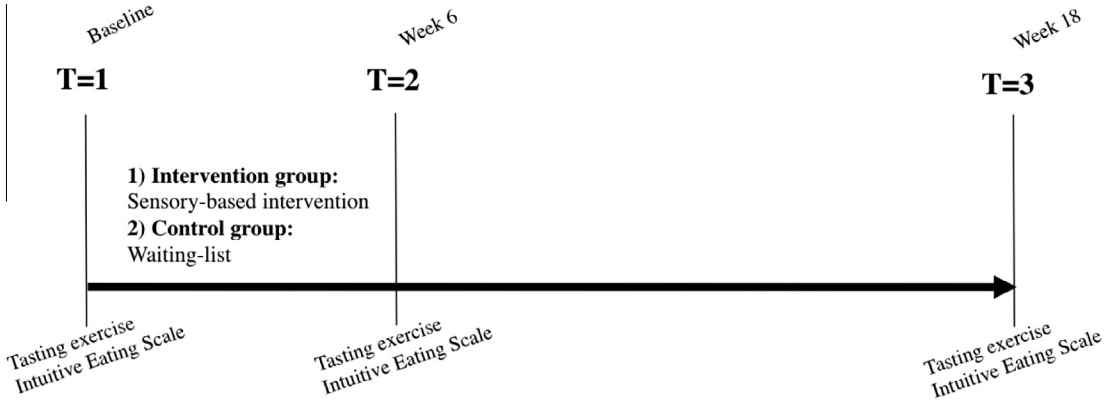

Fig. 1. Study design At $T = 1$, women ($n = 50$) were randomly assigned to: (1) intervention group (six weekly 90-min workshops conducted by a registered dietitian; $n = 24$); or (2) waiting-list control group ($n = 26$). Measurements were taken at baseline ($T = 1$), at the end of the 6-week intervention period ($T = 2$), and at 12-week post-intervention ($T = 3$). Measurements were taken three times over an 18-week period.