

Citation:

Helsel DL, Jakicic JM, Otto AD. Comparison of techniques for self-monitoring eating and exercise behaviors on weight loss in a correspondence-based intervention. *J Am Diet Assoc.* 2007 Oct; 107(10): 1,807-1,810.

PubMed ID: [17904942](#)

Study Design:

Randomized Controlled Trial

Class:

A - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:

NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To determine whether different methods of self-monitoring eating and exercise behaviors affect the process of self-monitoring and change in body weight in overweight adults.

Inclusion Criteria:

- Age 21 to 45 years
- Body mass index (BMI) between 25 and 34.9kg/m².

Exclusion Criteria:

- Medical conditions that would limit a subject's ability to participate in the study
- Weight loss of more than 10-lbs in the previous six to 12 months
- Taking any medication that would affect body weight, heart rate and other metabolic parameters
- Medical conditions that would affect energy metabolism
- Were pregnant within the previous six months, currently pregnant or planned on becoming pregnant in the next six months
- Hypertension or taking medication that would affect blood pressure
- History of heart disease or orthopedic complications that would prevent participation in exercise.

Description of Study Protocol:**Design**

16-week correspondence-based randomized behavioral weight loss intervention.

Dietary Intake/Dietary Assessment Methodology

Participants were instructed to complete a self-monitoring diary each week for the dietary and exercise behaviors targeted in the intervention.

Intervention

- Subjects participated in a 16-week correspondence-based behavioral weight-loss program
- Subjects attended an initial six-minute in-person session to receive information about the intervention component of the study, which included dietary and exercise recommendations, general strategies for modifying eating and exercise behaviors and learning how to use methods of self-monitoring based on their randomized group assignment
- During the following 16-weeks, participants were mailed on behavioral lesson per week that described strategies for modifying these behaviors
- Subjects were provided structured meal plans that included energy and fat goals and suggested portion sizes. Participants weighing less than 200-lbs were placed on a 1,200kcal per day of the diet and those weighing more than 200-lbs were placed on a 1,500kcal per day of diet
- Subjects were given a home-based exercise prescription that consisted of progressing to at least 200 minutes of exercise per week
- The intervention groups were:
 - *Detailed Self-Monitoring Group*: Instructed to self-monitor eating and exercise behaviors using a weekly diary. Subjects recorded types, quantities, kcal and fat grams for all food consumed. Subjects also recorded type, minutes and intensity of exercise.
 - *Transitional Self-Monitoring Group*: Subject were instructed to self-monitor using the detailed approach for weeks one to eight, and then transition to an abbreviated eating and exercise diary during weeks nine to 16.

Statistical Analysis

- Statistical significance was set at $P < 0.05$
- Baseline data were analyzed to evaluate between-group differences using independent T-tests
- To examine the process measures for self-monitoring across the intervention, independent T-tests were performed to compare detailed self-monitoring and transition to abbreviated self-monitoring
- To examine data for body weight, a repeated measures analysis of variance was performed
- Significant between-group main effects and interaction effects were further examined using independent T-tests with P-values adjusted using the Bonferroni procedure
- Correlation coefficients were computed to examine the association between completion of diaries and weight loss.

Data Collection Summary:

Timing of Measurements

- Subjects participated in a 16-week trial
- Self-monitoring diaries were kept every week and height/weight measurements were taken at baseline and 16 weeks.

Dependent Variables

- Weight was measured by study personnel

- BMI was then calculated using the measured height and weight values.

Independent Variable

Intervention group, either detailed self-monitoring or transitional self-monitoring.

Control Variables

- Age
- Height
- Weight
- BMI
- Sex
- Education level.

Description of Actual Data Sample:

- *Initial N*: 42
- *Attrition (final N)*: 42
- *Age*:
 - Detailed self-monitoring: 38.0±5.9 years
 - Transitional self-monitoring: 35.0±6.6 years
- *Anthropometrics*:
 - Detailed self-monitoring: 32.0±1.6kg/m²
 - Transitional self-monitoring: 32.5±1.5kg/m²
- *Location*: United States.

Summary of Results:

- There was a significant decrease in body weight from zero to 16 weeks in the detailed self-monitoring group (-7.5±5.3 kg) and the transitional self-monitoring group (-7.6±5.5kg) (P=0.001), with no significant difference between the groups
- There were significant correlation coefficients between change in body weight and number of diaries returned (R=0.53, P<0.03).

Author Conclusion:

The authors concluded:

- The self-monitoring process is important for facilitating weight loss and change in eating and physical activity behaviors
- Transitioning to a simplified approach to self-monitoring does not negatively affect short-term weight loss in overweight adults.

Reviewer Comments:

- *This intervention study did not include a control group that did not self-monitor eating and exercise behaviors, and thus it is difficult to determine whether the weight loss was due to self-monitoring or due to the prescribed low-calorie diet*

- *The study does not report changes in eating or exercise behaviors, making it difficult to determine what to attribute the weight loss to and to determine how well subjects complied with the prescribed diet and exercise*
- *The study had high rates of attrition, 36% to 48%*
- *It is unclear whether self-monitoring would be effective over a longer period of time.*

Research Design and Implementation Criteria Checklist: Primary Research

Relevance Questions

- | | | |
|----|---|-----|
| 1. | Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies) | N/A |
| 2. | Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about? | N/A |
| 3. | Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice? | N/A |
| 4. | Is the intervention or procedure feasible? (NA for some epidemiological studies) | N/A |

Validity Questions

- | | | |
|-----------|---|-----|
| 1. | Was the research question clearly stated? | Yes |
| 1.1. | Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified? | Yes |
| 1.2. | Was (were) the outcome(s) [dependent variable(s)] clearly indicated? | Yes |
| 1.3. | Were the target population and setting specified? | Yes |
| 2. | Was the selection of study subjects/patients free from bias? | Yes |
| 2.1. | Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study? | Yes |
| 2.2. | Were criteria applied equally to all study groups? | Yes |
| 2.3. | Were health, demographics, and other characteristics of subjects described? | Yes |
| 2.4. | Were the subjects/patients a representative sample of the relevant population? | Yes |
| 3. | Were study groups comparable? | Yes |
| 3.1. | Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT) | Yes |

3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	Yes
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	Yes
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	N/A
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	N/A
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	Was method of handling withdrawals described?	Yes
4.1.	Were follow-up methods described and the same for all groups?	Yes
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	Yes
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	Yes
4.4.	Were reasons for withdrawals similar across groups?	Yes
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
5.	Was blinding used to prevent introduction of bias?	Yes
5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	Yes
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	Yes
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	N/A
5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	N/A
5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
6.	Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were intervening factors described?	No

6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	Yes
6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	N/A
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	Yes
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	Yes
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	No
6.6.	Were extra or unplanned treatments described?	No
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	No
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
7.	Were outcomes clearly defined and the measurements valid and reliable?	No
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	No
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	Yes
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	No
7.5.	Was the measurement of effect at an appropriate level of precision?	???
7.6.	Were other factors accounted for (measured) that could affect outcomes?	No
7.7.	Were the measurements conducted consistently across groups?	Yes
8.	Was the statistical analysis appropriate for the study design and type of outcome indicators?	Yes
8.1.	Were statistical analyses adequately described and the results reported appropriately?	Yes
8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes
8.3.	Were statistics reported with levels of significance and/or confidence intervals?	Yes
8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	Yes

8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	No
8.6.	Was clinical significance as well as statistical significance reported?	Yes
8.7.	If negative findings, was a power calculation reported to address type 2 error?	No
9.	Are conclusions supported by results with biases and limitations taken into consideration?	Yes
9.1.	Is there a discussion of findings?	Yes
9.2.	Are biases and study limitations identified and discussed?	Yes
10.	Is bias due to study's funding or sponsorship unlikely?	???
10.1.	Were sources of funding and investigators' affiliations described?	???
10.2.	Was the study free from apparent conflict of interest?	???