Citation:

de La Hunty A, Gibson S, Ashwell M. A review of the effectiveness of aspartame in helping with weight control. *Br Nutr Found Nutr Bull.* 2006: 31; 115-128.

Study Design:

Meta-analysis or Systematic Review

Class:

M - Click here for explanation of classification scheme.

Research Design and Implementation Rating:

NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To review the evidence for the effect of aspartame on weight loss, weight maintenance and energy intakes in adults.

Inclusion Criteria:

Randomized controlled trials (RCTs) with healthy adults, which examined the effect of substituting sugar with either aspartame alone or aspartame in combination with other intense sweeteners on energy intake or body weight.

Exclusion Criteria:

- Not RCTs
- Not with healthy adults
- Did not measure energy intakes for at least 24 hours (for those with energy intakes as an outcome measure).

Description of Study Protocol:

Recruitment

Identification of articles for review: Published reviews were used as starting point for the search.

Design

Meta-analysis of RCTs.

Blinding Used

- Most studies included in the meta-analysis were blind and people did not know whether they were consuming the sugar or the aspartame-sweetened version
- Four studies had an unblind component.

Intervention

- Four trials used soft drinks only as the vehicle for aspartame substitution (approximately two to six cans per day). In a fifth trial, 80% by weight of substituted foods were given as soft drinks
- Other trials used breakfast cereals or selections of commercially available foods and drinks with aspartame or a mixture of intense sweeteners.

Statistical Analysis

- Energy intake: Included studies varied in their design, subjects and types of control; thus, a random effects model was used rather than a fixed effect model. Hedges' adjustment was used. Plots were used to illustrate the size and direction of effect for each study and the overall effect of all studies combined, with 95% (lower and upper) confidence intervals
- Body weight: Analysis was conducted in three stages. The first stage used all weight outcomes including follow-up weights, the second excluded studies in which the control group gained weight and the third excluded follow-up periods as well. Forrest plots were presented.

Data Collection Summary:

Timing of Measurements

- The longest trial had an intervention period of 19 weeks, and then followed up subjects for three years, while the shortest trial had an intervention period of only one day
- Seven trials had an intervention period less than one week while three trials lasted for 10 or 12 weeks.

Dependent Variables

- Energy intake (minimum of 24 hours)
- Body weight.

Independent Variables

Aspartame-sweetened foods and drinks.

Control Variables

- Baseline values
- Non-sucrose control (e.g., water, plain cereal or no soda)
- Sucrose before or after
- Sucrose parallel.

Description of Actual Data Sample:

- *Initial N:*
  - 16 studies; 15 were included in the energy intake analysis and nine were included in the body weight analysis
  - Of the trials, the largest had 163 participants while the smallest had six and eight subjects. Most trials had between 10 and 30 participants

- *Attrition (final N):* Same
- *Age:* Adults
- *Anthropometrics:* Subjects in three trials were obese; two of these trials were weight loss trials. The remaining trials were in overweight or normal weight adults.

Summary of Results:

Key Findings

- A significant reduction in energy intakes was seen with aspartame compared with all types of control except when aspartame was compared with non-sucrose controls such as water. Parallel design studies which compared the effects of aspartame with sucrose had an overall effect size of 0.4 standardized difference (SD), which corresponded to a mean reduction of about 10% of energy intake.
- For body weight, a significant reduction in weight was seen for all three analyses. The combined effect figure was 0.2 SD, which corresponded to about a 3% reduction in body weight
- Information on the extent of energy compensation was available for 12 of the 15 studies. Energy compensation was 32%.

Author Conclusion:

Using foods and drinks sweetened with aspartame instead of sucrose results in small, but significant reductions in energy intakes and body weight.

Reviewer Comments:

A description of the search process used to identify the studies included in the review was not provided.

Research Design and Implementation Criteria Checklist: Review Articles

Relevance Questions		
1.	Will the answer if true, have a direct bearing on the health of patients?	Yes
2.	Is the outcome or topic something that patients/clients/population groups would care about?	Yes
3.	Is the problem addressed in the review one that is relevant to nutrition or dietetics practice?	Yes
4.	Will the information, if true, require a change in practice?	N/A

Validity Questions		
1.	Was the question for the review clearly focused and appropriate?	Yes

2.	Was the search strategy used to locate relevant studies comprehensive? Were the databases searched and the search termsused described?	No
3.	Were explicit methods used to select studies to include in the review? Were inclusion/exclusion criteria specified and appropriate? Were selection methods unbiased?	Yes
4.	Was there an appraisal of the quality and validity of studies included in the review? Were appraisal methods specified, appropriate, and reproducible?	No
5.	Were specific treatments/interventions/exposures described? Were treatments similar enough to be combined?	Yes
6.	Was the outcome of interest clearly indicated? Were other potential harms and benefits considered?	Yes
7.	Were processes for data abstraction, synthesis, and analysis described? Were they applied consistently across studies and groups? Was there appropriate use of qualitative and/or quantitative synthesis? Was variation in findings among studies analyzed? Were heterogeneity issued considered? If data from studies were aggregated for meta-analysis, was the procedure described?	Yes
8.	Are the results clearly presented in narrative and/or quantitative terms? If summary statistics are used, are levels of significance and/or confidence intervals included?	Yes
9.	Are conclusions supported by results with biases and limitations taken into consideration? Are limitations of the review identified and discussed?	Yes
10.	Was bias due to the review's funding or sponsorship unlikely?	No