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## ß-Hydroxy-ß-Methylbutyrate (HMB) supplementation of resistance trained men

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**Background:** Several studies of HMB supplementation with resistance trained individuals have been carried out previous to this study, however results have been indeterminate, and there have been concerns regarding the methodology of previous studies.
**Objective:** The purpose of this study was to validate or dispute claims of increased strength, increased fat free mass, and decreased fat mass with HMB supplementation during a period of resistance training, in trained men.
**Design:** A randomised double-blind, placebo controlled study was used to investigate the effects of supplementing 34 resistance trained men with 3g/d of ß-hydroxy-ß-methylbutyrate or cornstarch placebo on strength and body composition over 9 weeks of supplementation. During the study period; questionnaires were completed by participants; anthropometric measurements taken; body composition measured using bioelectrical impedance analysis; strength assessed using 1 repetition maximum strength testing; and food intakes assessed using 3-day dietary records. During the study period all participants completed the same resistance-training program.
**Outcomes:** Following supplementation there was no significant change found in anthropometric measurements ($P>0.095$), however percent change in leg extension strength increased significantly more in the HMB-supplemented group than the placebo (LE: HMB 14.7 ± 3.6%; Placebo 4.84 ± 2.8%, $P=0.041$). In addition, there were some significant differences found between dietary intakes of the supplementation groups. The HMB group consumed a greater percent of energy from carbohydrates, had a higher maltose intake, consumed less energy from fats, and had lower average cholesterol intake, than the placebo group ($P<0.047$). Several study participants failed to meet the recommended dietary intakes for adult New Zealanders for energy from carbohydrates, and intake of vitamin A, vitamin E, niacin, vitamin B6, potassium, magnesium, calcium, and selenium.
**Conclusions:** This study found no effect of HMB supplementation on body composition, however there was a significant increase in leg extension strength with HMB supplementation in response to resistance exercise.

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## Trends in dietary intake and physical activity level in female students (1988 to 2003) after excluding under-reporters, using six different methods to identify under-reporters

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**Background** – Exclusion of under-reporters (UR) have affected conclusions in some studies.
**Objective** - To investigate trends in non-under-reporters (NUR) using different methods to identify/exclude UR.
**Design** - Analysis of recorded energy (EI) and macronutrient intakes and activities in 887 female university students, 1988 to 2003. Physical activity level (PAL) and energy expenditure (EE) were determined using a factorial method. Methods used to identify UR were; (A) EI:EE <0.76; (B) Goldberg method (1) using subjects classified into three activity categories (low, PAL=1.56; medium, PAL=1.64; high, PAL=1.82); (C) Goldberg method (1) using PAL=1.55; (D) EI:BMR <1.1; (E) EI:BMR <1.27; (F) EI:EEp <0.70, where EEp was EE predicted from an equation. Trends were determined using linear regression of median data for NUR for each year.
**Outcomes** – The number of NUR using each method (A-F) and the statistical significance of trends (P value) in dietary intake and PAL between 1988 and 2003 are shown in the table.

| | No. NUR | EI | PAL | % Alcohol energy | % Protein energy | % Fat energy | % CHO energy | Alcohol (g) | Protein (g) | Fat (g) | CHO (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 440 | 0.017 | 0.663 | 0.138 | 0.329 | 0.011 | 0.190 | 0.180 | 0.042 | 0.209 | 0.003 |
| B | 598 | 0.077 | 0.666 | 0.213 | 0.038 | 0.000 | 0.042 | 0.216 | 0.020 | 0.032 | 0.184 |
| C | 679 | 0.459 | 0.403 | 0.202 | 0.034 | 0.000 | 0.084 | 0.311 | 0.018 | 0.006 | 0.088 |
| D | 618 | 0.453 | 0.768 | 0.144 | 0.055 | 0.000 | 0.082 | 0.180 | 0.054 | 0.009 | 0.165 |
| E | 413 | 0.018 | 0.664 | 0.196 | 0.201 | 0.003 | 0.435 | 0.285 | 0.072 | 0.288 | 0.008 |
| F | 331 | 0.008 | 0.573 | 0.592 | 0.423 | 0.018 | 0.183 | 0.601 | 0.129 | 0.175 | 0.014 |

**Conclusions** – Some trends varied with method used to identify UR. Using the more stringent methods (A, E and F), energy (EI) and CHO intake (g) increased over time, while % fat energy decreased.

1. Black, AE. Critical evaluation of energy intake using the Goldberg cut-off for energy intake:basal metabolic rate. A practical guide to its calculation, use and limitations. Int J Obesity 2000;24:1119-1130