Carnitine Supplementation and Skeletal Muscle Function

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Basic anthropometric characteristics of the subjects were evaluated as mean ± SD. For educational and physical activity levels, a percentage of the total tested was used, while a frequency of meat consumption was presented as median and range. Changes in both groups across the supplementation time and ratios as well as changes in other measurements were analyzed with a Microsoft Excel (Microsoft Office) spreadsheet for the analysis of parallel-group controlled trials. For this, effects were interpreted using magnitude-based inferences. All data were log-transformed for analysis to reduce bias arising from non-uniformity of error; means of change scores in the placebo and l-carnitine groups, standard deviations of change scores, and effects (variations of change in both the means and their confidence limits (CL)) were back-transformed to percent units. Mean changes and effects were adjusted to the overall mean baseline value of the placebo and l-carnitine groups, by including the baseline value as a covariate in the analysis. Magnitudes of the effects were evaluated with the log-transformed data by standardizing the deviation of the baseline values of the placebo and l-carnitine groups. Threshold values for assessing magnitudes of standardized effects were 0.20, 0.60, 1.2 and 2.0 for small, moderate, large and very large respectively. Uncertainty in the effects was expressed as 90% CL and as probabilities that the true value of the effect was beneficial, trivial or harmful. These probabilities are not presented quantitatively but were used to make qualitative probabilistic clinical inferences about effects in preference to a statistical inference based on a null-hypothesis significance test. The effect was deemed unclear when the chance of benefit was sufficiently high to warrant the use of the treatment but the risk of harm was unacceptable. Such unclear effects were identified as those with an odds ratio of benefit to harm of <66, a ratio that corresponds to an effect that is borderline possibly beneficial (25% chance of benefit) and borderline most unlikely harmful (0.5% risk of harm). All other effects were deemed clinically clear and the likelihood of the true effect as being trivial, beneficial or harmful was expressed with the following scale: 25–75%, possibly; 75–95%, likely; 95–99.5%, very likely; >99.5%, most likely. To maintain an overall error rate of <5% to declare one or more changes as having opposite magnitudes (a substantial decrease instead of an increase, and vice versa), the effects were also evaluated as beneficial or harmful with a threshold of 1%, equivalent to the consideration of the overlap of substantial values with a 98% confidence interval (CI).