Procedures Baseline testing was completed over 2 days. Day 1 consisted of signing an informed consent and completion of a health history questionnaire to ensure all subjects met the inclusion criteria. Body mass was assessed with a balance beam and height with a stadiometer (Detecto, Webb City, MO, USA). Body fat and lean mass were also measured by DXA (General Electric, Fairfield, CT, USA) on the initial visit. For the DXA, proper calibration procedures and quality assurance analysis were followed as previously described (13). Day 2 consisted of isometric handgrip strength (HG) and dominant leg ISO, in respective order. Subjects ingested the assigned supplement (PLA = 8 g dextrose; BA = 800 mg + 8 g dextrose) 4 times per day throughout the 28–day inter– vention (totaling 3.2 g BA per day for subjects in the inter– vention group). HG and ISO were assessed again at the 7–, 14–, 21–, and 28–day intervals. DXA was also reassessed on the 28th day. Testing protocols were completed in the same order for all subjects. Subjects were instructed to maintain the same training intensity throughout the study and completed weekly exercise logs at the baseline, 14th, and 28th days. Investigators visually evaluated subject exercise logs to ensure subjects did not experience dramatic changes in training intensity. Food logs were distributed to all subjects at the baseline, 14th, and 28th days to be completed on 2 nonconsecutive weekdays and 1 weekend day (29) and analyzed for total kilocalorie and individual macronutrient consumption (Nutritionist Pro, Redmond, WA, USA). A 3–hour fast was required before each trial on testing days (33). All subjects had never ingested exogenous supplementary BA and refrained from vigorous exercise, alcohol, and caffeine 24 hours preceding each trial. Subjects replicated similar attire for all trials and were allowed to use their own shoes and clips. Supplementation. Subjects were randomly assigned to either PLA or BA groups. As previously recommended for good practice in supplement research (17), the BA provided for this investigation (Powder City, York, PA, USA) was third–party laboratory tested for supplement purity and authenticity. To ensure the double–blind design was maintained, a separate investigator not participating in the data collection process completed supplement assignments. Conditions included PLA (8 g dextrose, 4 times per day) or BA (800 mg BA + 8 g dextrose 4 times per day). Individual doses of 800 mg were used to circumvent the potential occurrence of paresthesia (20,21), which would ultimately remove the double–blind design. Subjects were instructed to consume the supplement in 16 ounces of water (32). Isometric Grip Strength Testing. HG testing was used as a measure of isometric strength because it is highly correlated with overall strength (23). All HG measurements were administered by a trained technician and measured in kilograms using a hand–held dynamometer (Creative Health Products, Ann Arbor, MI, USA). All measurements were performed on the dominant hand with the subject standing, arm down at the side, wrist in neutral position, and inter– phalangeal joint of the index finger maintained at 908. Sub– jects maximally squeezed the handle for 5 seconds as standard encouragement was provided. The test was repeated 3 times on the dominant hand with 60–second rest between attempts. The greatest of the 3 attempts was used as the final strength measurement. High test–retest reliability (intra–class correlation [ICC] = 0.95) for the HG strength test has been previously recorded (5). Isokinetic Strength Analysis. The Biodex system II Isokinetic Dynamometer (Biodex Medical, Inc., Shirley, NY, USA) measured ISO using a 50–repetition protocol with 2408 eccentric/1808 concentric movement parameters. Subjects sat upright with the dynamometer axis of rotation aligned with the axis of rotation of the dominant knee.

Secured belts stabilized the trunk, pelvic girdle, and thigh to the Biodex chair to prevent additional body movement. The chair and dynamometer settings were recorded to ensure positioning for all testing remained the same between trials. Before test- ing, the dominant limb was weighed, so that it could be added and subtracted from torque values when working against and with gravity, respectively. Subjects fully extended and flexed the knee maximally during the 50-repetition test- ing period. To ensure maximal effort was given during the evaluation, strong verbal encouragement was provided throughout each testing session (3). All outcome variables were calculated using the Biodex system II Isokinetic Dyna- mometer software. Validity (8) and reliability (ICC = 0.95- 0.97) (12) of the Biodex system II Isokinetic Dynamometer have been previously demonstrated. Before testing, calibra- tion of the dynamometer was performed according to man- ufacturer specifications. Blinding Efficacy and Side Effects. On completion of the 28- day intervention, subjects were asked which supplement they believed that they had consumed. Subjects were also asked whether they experienced any side effects through- .out the course of the study related to the supplement ingested