**The Muscle Carnosine Response to Beta-Alanine Supplementation: A Systematic Review with Bayesian Individual and Aggregate Data E-Max Model and Meta-Analysis**

**Online Supplemental Material**

**Supplemental Table 1:** Overview of studies included in the meta-analysis

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author (date)** | **Population** | **N (PLA/BA)** | **Dosing Strategy / TCD (g)** | **MCarn measurement (unit)** | **Device** | **Pre MCarn (PLA)** | **Post MCarn (PLA)** | **Pre MCarn (BA)** | **Post MCarn (BA)** |
| Baguet et al. (1)  | Recreationally trained men | 7/8 | 2.4g for 2 days (4.8g)3.6g for 2 days (7.2g)4.8g for 42 days (201.6g)(Total = 213.6g) | SOLTAGAS | MRS3 | 5.85 ± 0.765.51 ± 0.626.98 ± 1.20 | 5.89 ± 0.914.55 ± 1.257.18 ± 1.38 | 5.63 ± 0.946.25 ± 1.117.66 ± 1.37 | 7.83 ± 1.747.93 ± 1.709.45 ± 1.78 |
| Baguet et al. (2)  | Trained men and women rowers) | 9/8 | 5g for 49 days (245g) | SOLGAS | MRS3 | 3.45 ± 0.624.87 ± 1.07 | 3.29 ± 0.574.69 ± 1.30 | 3.13 ± 0.584.57 ± 0.56  | 4.48 ± 1.335.86 ± 1.63 |
| Bex et al. (3) | Trained men (road cyclists, swimmers, flat-water kayakers)  | 0/35 | 6.4g for 23 days (147.2g) | SOLGASDEL | MRS3 | - | - | 0.14 ± 0.040.16 ± 0.040.14 ± 0.03 | 0.21 ± 0.040.22 ± 0.030.22 ± 0.03 |
| Bex et al. (4) | Trained and sedentary men (jogging and cycling) | 0/28 | 6.4g for 23 days (147.2g) | SOLGAS | MRS3 | - | - | 5.00 ± 0.868.33 ± 1.35 | 7.83 ± 1.3811.38 ± 2.33 |
| Black et al. (5) | Recreationally trained men | 10/10 | 6.4g for 42 days (268.8g) | VMVLRFWT | MRS1.5 | 0.21 ± 0.100.24 ± 0.080.18 ± 0.070.23 ± 0.13 |  0.20 ± 0.070.29 ± 0.150.17 ± 0.060.23 ± 0.10 | 0.18 ± 0.050.21 ± 0.070.15 ± 0.120.20 ± 0.08 | 0.16 ± 0.050.21 ± 0.090.15 ± 0.070.19 ± 0.08 |
| Blancquert et al. (6)  | Recreationally trained men and women | 0/20 | 6g for 23 days (138.0g) | SOLGASVL | MRS3 | - | - | 4.56 ± 0.747.31 ± 1.115.06 ± 1.47 | 6.91 ± 0.789.51 ± 1.896.54 ± 0.96 |
| Carvalho et al. (7) | Trained men (cyclists) | 14/14 | 6.4g for 28 days (179.2g) | VL | HPLC/MS | 1.08 ± 0.62 | 1.21 ± 0.78 | 1.18 ± 0.51 | 1.85 ± 0.75 |
| Chung et al. (8)  | Trained men (cyclists, triathletes) | 13/14 | 6.4g for 42 days (268.8g) | SOLGAS | MRS3 | 3.77 ± 1.435.56 ± 1.76 | 4.30 ± 1.556.55 ± 1.11 | 3.95 ± 2.565.56 ± 1.55 | 9.41 ± 1.8611.70 ± 1.92 |
| Church et al. (9) | Recreationally trained men and women | 20/10 | 6g for 28 days (168g)12g for 14 days (168g)(Total = 336g) | VL | HPLC | 8.24 ± 1.63 | 7.55 ± 2.06 | 8.06 ± 3.606.87 ± 2.14 | 12.22 ± 6.199.68 ± 3.06 |
| Cochran et al. (10)  | Recreationally trained men | 12/12 | 3.2g for 70 days (224g) | VL | UPLC | 6.40 ± 1.80 | 6.20 ± 1.70 | 6.40 ± 1.30 | 9.70 ± 1.60 |
| Da Eira Silva (11) | Recreationally trained men | 0/14 | 6.4g for 28 days (179.2g) | GAS | HPLC | - | - | 22.17 ± 10.10 | 34.67 ± 12.85 |
| Danaher et al. (12) | Recreationally trained men | 5/3 | 4.8g for 28 days (134.4g)6.4g for 14 days (89.6g)(Total = 224g) | SOLGAS | MRS3 | 5.94 ± 0.568.73 ± 1.08 | 6.33 ± 0.897.42 ± 0.74 | 5.57 ± 0.258.08 ± 0.68 | 10.48 ± 1.3513.11 ± 1.97 |
| Del Favero et al. (13) | Sedentary men and women | 6/12 | 3.2g for 84 days (268.8g) | GAS | MRS3 | 1.35 ± 0.41 | 1.41 ± 0.38 | 1.20 ± 0.73 | 2.02 ± 0.85 |
| Derave et al. (14) | Trained men (track-in-field athletes) | 7/8 | 2.4g for 4 days (9.6g)3.6g for 4 days (14.4g)4.8g for 20 days (96g)(Total = 120g) | SOLGAS | MRS3 | 7.25 ± 1.478.56 ± 1.88 | 7.85 ± 1.049.99 ± 1.31 | 7.76 ± 1.3610.16 ± 1.91 | 11.39 ± 1.3813.90 ± 2.60 |
| Gross et al. (15) | Trained men (team sports, cycling, running, triathlon) | 9/8 | 3.2g for 38 days (121.6g) | TAGASVIVL | MRS3 | 6.80 ± 1.109.60 ± 1.205.70 ± 1.307.10 ± 0.70 | 7.10 ± 0.909.20 ± 1.606.10 ± 1.007.20 ± 1.00 | 6.90 ± 0.808.80 ± 1.005.60 ± 1.107.40 ± 1.60 | 9.40 ± 0.8010.80 ± 1.108.20 ± 1.109.20 ± 1.40 |
| Harris et al. (16) | Recreationally trained men | 6/10 | 3.2g for 28 days (89.6g)5.2g for 28 days (145.6g)(Total = 235.2g) | VL | HPLC | 23.63 ± 5.95 | 25.49 ± 4.97 | 19.58 ± 3.7124.23 ± 5.28 | 27.38 ± 2.9735.37 ± 6.17 |
| Harris et al. (17) | Sedentary men | 0/7 | 3.2g – 28 days (89.6g) | VL | HPLC | - | - | 25.90 ± 4.30 | 41.30 ± 5.50 |
| Hill et al. (18)  | Recreationally trained men | 6/6 | 4g for 7 days (28g)4.8g for 7 days (33.6g)5.6g for 7 days (39.2g)6.4g for 56 days (358.4g)(Total = 459.2g) | VL | HPLC | 23.60 ± 2.40 | 23.90 ± 2.50 | 19.90 ± 1.90 | 34.70 ± 3.70 |
| Kendrick et al. (19) | Recreationally trained men | 13/13 | 6.4g for 28 days (179.2g) | VL | HPLC | 29.17 ± 9.82 | 27.29 ± 9.52 | 23.96 ± 5.94 | 36.77 ± 8.26 |
| Kendrick et al. (20)  | Recreationally trained men | 7/7 | 6.4g for 28 days (179.2g) | VL | HPLC | 22.60 ± 2.1024.20 ± 3.90 | 24.70 ± 3.7023.40 ± 3.40 | 21.60 ± 7.8025.20 ± 3.90 | 31.30 ± 6.9031.80 ± 5.70 |
| Kresta et al. (21) | Trained women (running, cycling, swimming, resistance training, fitness classes) | 7/8 | 6.1g for 28 days (170.8g) | VL | HPLC | 15.70 ± 4.70 | 16.53 ± 4.80 | 19.74 ± 8.69 | 23.68 ± 1.56 |
| Saunders et al. (22) | Trained men (running, cycling, team sports) | 9/15 | 6.4g for 168 days (1075.2g) | VL | HPLC | 23.18 ± 5.90 | 23.46 ± 3.70 | 22.38 ± 4.46 | 42.52 ± 9.11 |
| Stegen et al. (23) | Sedentary men and women | 0/34 | 3.2g for 46 days (147.2g) | SOLGAS | MSR3 | - | - | 3.46 ± 0.704.54 ± 1.08 | 5.21 ± 0.836.25 ± 1.16 |
| Stellingwerf et al. (24) | Sedentary men | 10/21 | 3.2g for 28 days (89.6g)1.6g for 28 days (44.8g)1.6g for 56 days (89.6g)(Total = 224g) | GASTA | MRS3 | 9.09 ± 0.516.01 ± 0.41 | 9.05 ± 0.505.97 ± 0.45 | 8.88 ± 0.445.69 ± 0.22 | 10.77 ± 0.627.84 ± 0.43 |
| Varanoske et al. (25) | Sedentary men and women | 8/12 | 6g for 28 days (168g) | VL | HPLC | 7.28 ± 2.19 | 7.35 ± 2.29 | 7.28 ± 2.19 | 10.72 ± 3.67 |
| Varanoske et al. (26) | Recreationally trained men and women | 8/21 | 6g for 28 days (168g) | VL | HPLC | 8.12 ± 1.59 | 6.96 ± 3.61 | 7.38 ± 2.35 | 11.08 ± 2.64 |

SOL = Soleus; GAS = Gastrocnemius; TA = Tibialis Anterior; VI = Vastus Intermedius; VL = Vastus Lateralis; VM = Vastus Medialis; DEL = Deltoid; RF = Rectus Femoris; WT = Whole Thigh; MRS1.5 = Proton Magnetic Resonance Spectroscopy 1.5-T; MSR3 = Proton Magnetic Resonance Spectroscopy 3-T; HPLC/MS = High-Performance Liquid Chromatography Coupled to Electrospray Ionization Tandem Mass Spectrometry; HPLC = High-Performance Liquid Chromatography; UPLC = Ultra-performance Liquid Chromatography

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