**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) | SOL  TA  GAS | MRS3 | 5.85 ± 0.76  5.51 ± 0.62  6.98 ± 1.20 | 5.89 ± 0.91  4.55 ± 1.25  7.18 ± 1.38 | 5.63 ± 0.94  6.25 ± 1.11  7.66 ± 1.37 | 7.83 ± 1.74  7.93 ± 1.70  9.45 ± 1.78 |
| Baguet et al. (2) | Trained men and women rowers) | 9/8 | 5g for 49 days (245g) | SOL  GAS | MRS3 | 3.45 ± 0.62  4.87 ± 1.07 | 3.29 ± 0.57  4.69 ± 1.30 | 3.13 ± 0.58  4.57 ± 0.56 | 4.48 ± 1.33  5.86 ± 1.63 |
| Bex et al. (3) | Trained men (road cyclists, swimmers, flat-water kayakers) | 0/35 | 6.4g for 23 days (147.2g) | SOL  GAS  DEL | MRS3 | - | - | 0.14 ± 0.04  0.16 ± 0.04  0.14 ± 0.03 | 0.21 ± 0.04  0.22 ± 0.03  0.22 ± 0.03 |
| Bex et al. (4) | Trained and sedentary men (jogging and cycling) | 0/28 | 6.4g for 23 days (147.2g) | SOL  GAS | MRS3 | - | - | 5.00 ± 0.86  8.33 ± 1.35 | 7.83 ± 1.38  11.38 ± 2.33 |
| Black et al. (5) | Recreationally trained men | 10/10 | 6.4g for 42 days (268.8g) | VM  VL  RF  WT | MRS1.5 | 0.21 ± 0.10  0.24 ± 0.08  0.18 ± 0.07  0.23 ± 0.13 | 0.20 ± 0.07  0.29 ± 0.15  0.17 ± 0.06  0.23 ± 0.10 | 0.18 ± 0.05  0.21 ± 0.07  0.15 ± 0.12  0.20 ± 0.08 | 0.16 ± 0.05  0.21 ± 0.09  0.15 ± 0.07  0.19 ± 0.08 |
| Blancquert et al. (6) | Recreationally trained men and women | 0/20 | 6g for 23 days (138.0g) | SOL  GAS  VL | MRS3 | - | - | 4.56 ± 0.74  7.31 ± 1.11  5.06 ± 1.47 | 6.91 ± 0.78  9.51 ± 1.89  6.54 ± 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) | SOL  GAS | MRS3 | 3.77 ± 1.43  5.56 ± 1.76 | 4.30 ± 1.55  6.55 ± 1.11 | 3.95 ± 2.56  5.56 ± 1.55 | 9.41 ± 1.86  11.70 ± 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 ± 3.60  6.87 ± 2.14 | 12.22 ± 6.19  9.68 ± 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) | SOL  GAS | MRS3 | 5.94 ± 0.56  8.73 ± 1.08 | 6.33 ± 0.89  7.42 ± 0.74 | 5.57 ± 0.25  8.08 ± 0.68 | 10.48 ± 1.35  13.11 ± 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) | SOL  GAS | MRS3 | 7.25 ± 1.47  8.56 ± 1.88 | 7.85 ± 1.04  9.99 ± 1.31 | 7.76 ± 1.36  10.16 ± 1.91 | 11.39 ± 1.38  13.90 ± 2.60 |
| Gross et al. (15) | Trained men (team sports, cycling, running, triathlon) | 9/8 | 3.2g for 38 days (121.6g) | TA  GAS  VI  VL | MRS3 | 6.80 ± 1.10  9.60 ± 1.20  5.70 ± 1.30  7.10 ± 0.70 | 7.10 ± 0.90  9.20 ± 1.60  6.10 ± 1.00  7.20 ± 1.00 | 6.90 ± 0.80  8.80 ± 1.00  5.60 ± 1.10  7.40 ± 1.60 | 9.40 ± 0.80  10.80 ± 1.10  8.20 ± 1.10  9.20 ± 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 ± 3.71  24.23 ± 5.28 | 27.38 ± 2.97  35.37 ± 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 ± 2.10  24.20 ± 3.90 | 24.70 ± 3.70  23.40 ± 3.40 | 21.60 ± 7.80  25.20 ± 3.90 | 31.30 ± 6.90  31.80 ± 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) | SOL  GAS | MSR3 | - | - | 3.46 ± 0.70  4.54 ± 1.08 | 5.21 ± 0.83  6.25 ± 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) | GAS  TA | MRS3 | 9.09 ± 0.51  6.01 ± 0.41 | 9.05 ± 0.50  5.97 ± 0.45 | 8.88 ± 0.44  5.69 ± 0.22 | 10.77 ± 0.62  7.84 ± 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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