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| **Study**  **Supplementary Table 4. Assessment method and outcomes of individual studies assessing body composition, muscle strength and physical function** | **Outcome measures** | | **Significant effect** |
| Abe et al., 2016 | Muscle strength  Physical function | HGS, right hand  10 metre walk time | MCT, HGS, p<0.01  MCT, 10 metre walk time, p<0.05 |
| Aleman-Mateo et al., 2012 | Body composition  Muscle strength | DEXA  HGS | HGS, p=0.06 |
| Aquiliani et al., 2008 | Muscle strength  Physical function | Cycle ergometer power output  6 minute walk distance | Cycle ergometer, p<0.01  6 minute walk distance, p<0.01 |
| Bakhitiari et al., 2012 | Body composition | BIA | Soy, BIA p<0.05 |
| Bauer et al., 2015 | Muscle strength  Physical function | HGS, both hands  SPPB | NS |
| Björkman et al., 2012 | Body composition  Muscle strength  Physical function | BIA  HGS, non-specified hand  MDS ADL | NS |
| Bonnefoy et al., 2003 | Body composition  Physical function | TBW  6 metre walk time | NS |
| Bonnefoy et al., 2010 | Body composition | TBW | NS |
| Bouillanne et al., 2013 | Body composition  Muscle strength  Physical function | DEXA, BIA  HGS, non-specified hand  Katz ADL | DEXA, p=0.01 |
| Cameron et al., 2011 | Muscle strength  Physical function | HGS, dominant hand  Barthel Index | NS |
| Chapman et al., 2009 | Body composition  Muscle strength  Physical function | DEXA  HGS, non-specified hand  15 foot walk time | HGS, p=0.029 |
| Collins et al., 2005 | Physical function | SF-12 PCS | NS |
| Dal Negro et al., 2010 | Body composition  Physical function | BIA  Physical activity per week | BIA, p=0.05  Physical activity, p<0.01 |
| Dal Negro et al., 2012 | Body composition  Muscle strength  Physical function | BIA  HGS, non-specified hand  Physical activity per week | BIA, p=0.04  HGS, p<0.01  Physical activity, p<0.01 |
| Dangour et al., 2011 | Physical function | TUG | NS |
| Dreyer et al., 2013 | Muscle strength  Physical function | Quadriceps strength, operated leg  Pedometer data | NS |
| Espaulella et al., 2000 | Physical function | Barthel Index | NS |
| Fiatarone et al., 1994 | Muscle strength  Physical function | Hip and knee ES, both legs  Usual gait velocity | NS |
| Gariballa and Forster, 2007 | Physical function | SF-36 PCS | NR |
| Kim et al., 2012 | Body composition  Muscle strength  Physical function | BIA  Knee ES, non-specified leg  Usual gait velocity | NS/NR |
| Kim and Lee, 2013 | Muscle strength  Physical function | HGS, non-specified hand  SPPB | SPPB, p=0.04 |
| Lauque et al., 2000 | Muscle strength | HGS, non-specified hand | NS |
| Lauque et al., 2004 | Body composition  Physical function | DEXA  Katz ADL | NS/NR |
| Leenders et al., 2011 | Body composition  Muscle strength | DEXA  Quadriceps strength, both legs | NS |
| McMurdo et al., 2009 | Muscle strength  Physical function | HGS, non-dominant hand  Accelerometer data | HGS, p<0.01  Accelerometry, p=0.02 |
| Miller et al., 2006 | Muscle strength  Physical function | Quadriceps strength, injured leg  SF-12 PCS | NS |
| Myint et al., 2013 | Muscle strength  Physical function | HGS, dominant hand  Elderly Mobility Score | NS |
| Ng et al., 2015 | Muscle strength  Physical function | Knee ES, dominant leg  Maximal gait speed | NR |
| Payette et al., 2002 | Muscle strength  Physical function | HGS, both hands  TUG | NS |
| Persson et al., 2007 | Muscle strength  Physical function | HGS, dominant hand  SF-36 PCS | NS |
| Rondanelli et al., 2011 | Muscle strength  Physical function | HGS, ‘best’ hand  Barthel Index | HGS, p<0.01  Barthel Index, p=0.04 |
| Rosendahl et al., 2006 | Muscle strength  Physical function | Hip and knee ES, both legs  Usual gait velocity | NS |
| Schurch et al., 1998 | Muscle strength  Physical function | Biceps strength, dominant arm  Katz ADL | NS |
| Smoliner et al., 2008 | Body composition  Muscle strength  Physical function | BIA  HGS, non-dominant hand  SF-36 PCS | NS |
| Sugawara et al., 2012 | Body composition  Muscle strength  Physical function | Anthropometry  Quadriceps strength  6 minute walk distance | Quadriceps strength, p<0.01  6 minute walk distance, p=0.01 |
| Tieland et al., 2012 | Body composition  Muscle strength  Physical function | DEXA  HGS, both hands  SPPB | SPPB, p=0.02 |
| Volkert et al., 1996 | Physical function | Barthel Index | IG compliers, Barthel Index, p<0.05 |
| Yamada et al., 2015 | Body composition  Physical function | BIA  Physical activity per day | BIA, p<0.001 |
| Zak et al. 2009 | Muscle strength  Physical function | Hip and knee ES, both legs  6 minute walk distance | NS |

ADL: activities of daily living; BIA: body impedance analysis; DEXA: dual-energy X-ray absorptiometry; ES: extensor strength; HGS: handgrip strength; MCT: medium chain triglycerides; NR: not reported; PCS: physical component score; SF-12: Short Form-12 Health Survey; SF-36: Short Form-36 Health Survey; SPPB: Short Physical Performance Battery; TBW: total body water; TUG: timed up-and-go.