Systematic review and meta-analysis of protein intake to support muscle mass and function in healthy adults

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Systematic search – Search strategies

Protein intervention
Database: Web Of Science - Medline <1950 to September, 2020>
Search performed: August 1st, 2021. (4338 citations)
#6 #4 and #5
#5 ((muscle or muscular or lean or fat-free) NEAR mass))
4 #3 OR #2 OR #1
3 (protein* NEAR ingest*)
2 (protein* NEAR (diet* or supplement* or intake* or consum*))
1 dietary proteins/

Protein intervention and Resistance Exercise
Database: Web Of Science - Medline <1950 to Present>
Search performed: September 23, 2020. (3682 citations)
13 (#12) AND LANGUAGE: (English)
12 #11 AND #4
11 #10 OR #9 OR #8 OR #7 OR #6 OR #5
10 ((muscle* or muscular) NEAR strength*)
9 muscle strength/
8 (exercise* NEAR (weight* OR isometric OR resistance OR endurance OR train*))
7 Isometric Contraction/
6 Weight Lifting/
5 Resistance training/
4 #3 OR #2 OR #1
3 (protein* NEAR ingest*)
2 (protein* NEAR (diet* or supplement* or intake* or consum*))
1 dietary proteins/

Protein intervention
Database: Embase <1974 to September, 2020> (3469 citations)

1. protein intake/
2. (protein* adj3 (diet* or supplement* or intake* or consum* or ingest*)).ti,ab,kw.
3. 1 or 2
4. ((muscle or muscular or lean or fat-free) adj3 mass*).ti,ab,kw.
5. exp animal/
6. human/
7. 3 and 4
8. 7 not (5 not (5 and 6))

Protein intervention and Resistance Exercise
Database: Embase <1974 to 2020 September 23> (1986 citations)

1. protein intake/
2. (protein* adj3 (diet* or supplement* or intake* or consum* or ingest*)).ti,ab,kw.
3. 1 or 2
4. resistance training/
5. weight lifting/
6. ((weight or isometric or strength or endurance or resistance) adj3 (train* or lift* or exercise*)).ti,ab,kw.
7. muscle strength/
8. ((muscle* or muscular) adj3 strength*).ti,ab,kw.
9. or/4-8
10. 3 and 9
11. exp animal/
12. human/
13. 10 not (11 not (11 and 12))
14. remove duplicates from 13
15. (cancer or sarcopenia or bed-rest).ti.
16. 14 not 15

Protein intervention

Database: Web of Science Core Collection <1976 to 2020 September> (4460 citations)

#6 #4 and #5 4460
5 (muscle or muscular or lean or fat-free) NEAR mass))
4 #3 OR #2 OR #1
3 (protein* NEAR ingest*)
2 (protein* NEAR (diet* or supplement* or intake* or consum*))
1 dietary proteins/

Protein intervention and Resistance Exercise

Database: Web of Science Core Collection <1976 to 2020 September 22> (2576 citations)

12 (#11 AND #4) AND LANGUAGE: (English)
11 #10 OR #9 OR #8 OR #7 OR #6 OR #5
10 ((muscle* or muscular) NEAR strength*)
9 muscle strength/
8 (exercise* NEAR (weight* OR isometric OR resistance OR endurance OR train*))
7 Isometric Contraction/
6 Weight Lifting/
5 Resistance training/
4 #3 OR #2 OR #1
3 (protein* NEAR ingest*)
2 (protein* NEAR (diet* or supplement* or intake* or consum*))
1 dietary proteins/

Protein intervention
Database: CINAHL <1974 to 2020 September> (1560 citations)
S6 S4 and S5
S5 (muscle* or muscular or lean or fat-free) N3 mass
S4 S1 OR S2 OR S3
S3 protein N3 (intake* or ingest* or supplement* or diet* or consum)
S2 MH Dietary Proteins+
S1 MH Diet, High Protein

Protein intervention and Resistance Exercise
Database: CINAHL <1974 to 2020 September 22> (1686 citations)

S15 s12 NOT s13 Limiters - English Language
S14 s12 NOT s13
S13 (MH "Animals+") NOT ((MH "Human") AND (MH "Animals+"))
S12 S4 AND S11
S11 S5 OR S6 OR S7 OR S8 OR S9 OR S10
S10 (muscle* or muscular) N3 strength*
S9 MH Muscle Strength+
S8 (weight* or isometric* or strength* or resistance or endurance or high intensity) N3 (train* or lift* or exercise*)
S7 MH Weight Lifting
S6 MH Muscle Strengthening+
S5 MH "Resistance Training"
S4 S1 OR S2 OR S3
S3 protein N3 (intake* or ingest* or supplement* or diet* or consum)
S2 MH "Dietary Proteins+"
S1 MH "Diet, High Protein"