IDR4000 Portfolio assessment

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Assignment 1 - Effect of resistance training on muscle hypertrophy

1.1 Choice of subject

Muscle hypertrophy is the growth of individual muscle fibers that results from an increase in the number of sarcomeres in parallel within the myofibrils (Goldspink, 1970). Traditional resistance training is known to increase hypertrophy, which in turn increase muscle size and strength (Schoenfeld, 2010).

1.2 Finding the literature

All literature discussed in this assignment were accessed through PubMed (*National Center for Biotechnology Information*, n.d.). Only one set of key words was used to find the studies: (((Strength training) AND (muscle hypertrophy)) OR (muscle mass)) OR (lean mass), «clinical trial» or «Randomized controlled trial» published between 2005 and 2025. Of 4121 results 10 studies including a measurement of muscle mass pre and post an intervention were chosen (Table 1).

Table 1: This is table 1

Author	Design	n	Hypertrophy
Chaves et al. (2024)	RCT	39	VL mCSA (US)
Cribb et al. (2007)	RCT	33	lean mass (DXA), fiber specific CSA (biopsy)
Evangelista et al. (2021)	RCT	67	VL, BB, TB, RF and VL MT (US)
Kassiano et al. (2023)	RCT	42	MGC and LGC (US)
Neves et al. (2022)	RCT	24	QF mCSA (MRI)
Ruple et al. (2023)	RCT	19	VL mCSA (US)
Schoenfeld et al. (2015)	RCT	24	BB + Brachialis, TB, RF, VI, VL MT (US)
Schoenfeld et al. (2016)	RCT	23	-‖-
Schoenfeld et al. (2019)	RCT	45	-‖-
Wohlann et al. (2024)	Quasi-RCT	81	PM MT (US)

Bibliography

Goldspink, G. (1970). The Proliferation of Myofibrils during Muscle Fibre Growth. *Journal of Cell Science*, *6*(2), 593–603. https://doi.org/10.1242/jcs.6.2.593

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Schoenfeld, B. J. (2010). The Mechanisms of Muscle Hypertrophy and Their Application to Resistance Training. *Journal of Strength and Conditioning Research*, *24*(10), 2857–2872. https://doi.org/10.1519/JSC.0b013e3181e840f3