

Genetically determined serum 25-hydroxyvitamin D is associated with total, trunk, and arm fat-free mass: a Mendelian randomization study

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1. BACKGROUND: Low serum vitamin D status is associated with reduced fat-free mass (FFM) but a causal association has cannot be determined from observational data.

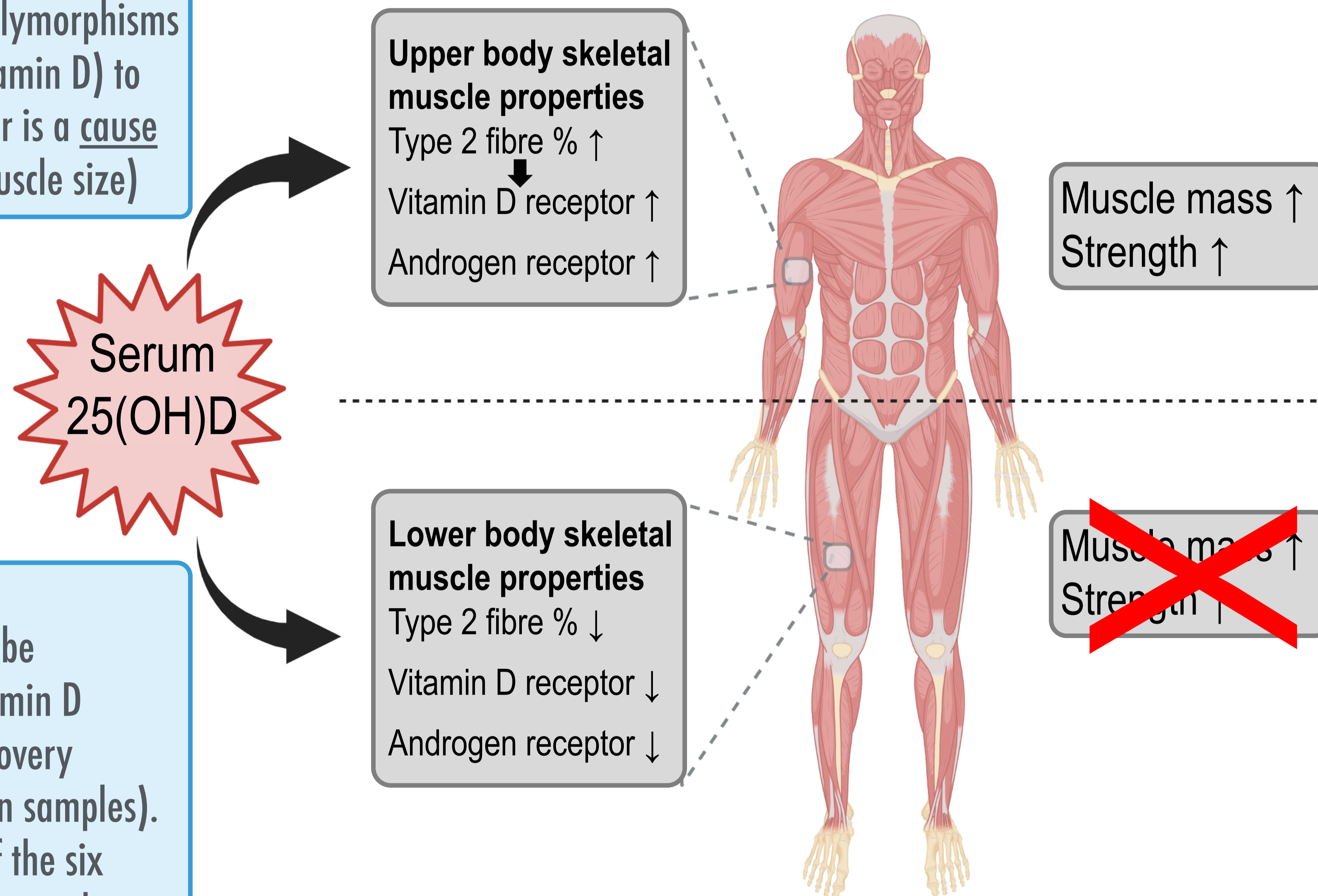
2. RATIONALE:

Mendelian randomization (MR) uses functional single nucleotide polymorphisms (SNPs) (in this case, serum vitamin D) to determine whether a risk factor is a cause of an outcome (in this case, muscle size)

3. METHODOLOGY:

We used six SNPs identified to be associated with circulating vitamin D (25(OH)D) levels (79,366 discovery samples and 42,757 replication samples). We analysed the association of the six genetic instruments with FFM using data obtained from UK Biobank (n≈500,000)

POTENTIAL MECHANISMS OF EFFECT



4. RESULTS:

Genetically determined higher serum 25(OH)D levels had a significant positive association with total trunk and arm FFM. However, the association with leg FFM was not significant.

5. CONCLUSION:

Our results illustrate the potentially causal, positive effect of serum 25(OH)D concentration on total, trunk and upper body appendicular fat-free mass.

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