Skeletal Muscle Mass & Metabolic Health

Based on: Kim et al., Endocrinology & Metabolism (2020;35(1):1-6)

Central Theme

- Skeletal muscle is not just for movement but a central metabolic organ.
- Higher muscle mass = better metabolic health.
- Low muscle mass = risk factor for diabetes, metabolic syndrome, fatty liver, frailty.

Evidence & Associations

- Greater muscle mass → improved insulin sensitivity, lower risk of T2D.
- Low muscle mass → worse lipid profile & more metabolic syndrome.
- Sarcopenia = higher prevalence of NAFLD and frailty.

Mechanisms

- Muscle acts as glucose sink → better post-meal glucose control.
- Elevates resting metabolic rate, aids weight management.
- Myokines released during exercise improve insulin sensitivity & reduce inflammation.
- Healthy muscle buffers lipids, prevents fatty liver.

Implications

- Preserving/increasing muscle mass is essential for metabolic disease prevention.
- Resistance training is crucial yet underutilized.
- Combine training + nutrition (protein) + aerobic/BFR for best results.

Take-Home Message

- Muscle = metabolic powerhouse and disease buffer.
- Build and maintain muscle for better glucose control and lower risk of chronic disease.
- Critical for aging, independence, and quality of life.