

Estrogen Therapy and Resistance Training

Key Talking Points · eight points for patient conversations

POINT 01

Estrogen therapy roughly doubled the muscle gained from identical training.

Over twelve weeks of supervised resistance training, quadriceps cross-sectional area rose 7.9% with transdermal estrogen versus 3.9% on placebo. Both groups did the same 36 sessions with 100% adherence, making the hormone the only meaningful variable.

POINT 02

Lean mass gains were nearly double as well: 5.5% versus 2.9%.

Whole-body fat-free mass measured by DXA rose in both groups, with the larger increase in the estrogen arm. This is a body-composition finding, not a scale-weight finding, which is worth setting up front with patients.

POINT 03

Training worked regardless of hormone status.

The placebo group — untrained women averaging 54 years old — still increased muscle size, lean mass and leg strength substantially. Resistance training should be recommended on its own merits, not conditioned on hormone therapy.

POINT 04

Maximal strength improved equally in both groups.

Leg strength climbed 34–59% across the whole trial with no significant difference between arms. The separation appeared in tissue mass, not in force production, and overstating the strength claim will not survive scrutiny.

POINT 05

Grip and finger strength improved only in the estrogen group.

The training program targeted the lower body, yet hand and finger strength improved only with estrogen. The authors suggest a direct hormonal or neuromuscular effect, which is a useful signal but a secondary outcome in a small trial.

POINT 06

Muscle mass was measured by MRI and DXA, not estimated.

Cross-sectional area was assessed by MRI at two positions on the thigh and lean mass by DXA, with scans processed blinded. The imaging basis is worth mentioning to patients who have encountered weaker exercise research.

POINT 07

The trial protocol is directly reproducible.

Three supervised sessions weekly, six exercises, progressing from 2 sets of 15 repetitions to 4 sets of 8 over twelve weeks. Patients asking what resistance training actually means can be given this concretely.

POINT 08

Reported protein intake was at the low end of recommendations.

Valid dietary data was available for only 11 participants, and reported intake sat near 1.0 g/kg/day — below what is typically recommended to support training-induced muscle growth. Worth raising when patients start a new program.

RESEARCH SOURCE CITATION

TITLE	Transdermal Estrogen Therapy Improves Gains in Skeletal Muscle Mass After 12 Weeks of Resistance Training in Early Postmenopausal Women
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