

Estrogen Therapy and Resistance Training

Patient Questions & Answers · written in plain language for patient-facing use

I'm doing the same workouts I always did, so why am I getting less out of them?

You're not imagining it. Research shows that after menopause, the body's muscle-building response to exercise is often blunted compared with earlier in life, and compared with men of the same age. In this study, women doing identical supervised training gained noticeably different amounts of muscle depending on whether they were using estrogen therapy. That doesn't mean your effort is wasted — it means the same effort may be working against a different hormonal backdrop than it used to.

Does this mean I need hormone therapy to build muscle?

No, and the study is quite clear on that. Every woman in the trial trained, including the group receiving a placebo patch, and that group still increased muscle size, lean mass and leg strength substantially over twelve weeks. Estrogen appeared to increase the return on training already being done. It did not replace the training, and no one in the study built muscle without doing the work.

How much muscle did women actually gain?

Thigh muscle cross-section grew about 7.9% in the estrogen group and 3.9% in the placebo group, measured by MRI. Whole-body lean mass rose 5.5% and 2.9% respectively. Both are real gains over just twelve weeks, particularly for women who had not been training before.

I'm not a gym person. What did the program actually involve?

Three supervised sessions a week for twelve weeks — 36 in total. Each session had six exercises: leg press, knee extension and knee flexion on machines, plus triceps extension, sit-ups and back extensions. The weight increased gradually while the number of repetitions came down, starting at two sets of 15 and finishing at four sets of 8. It's a standard, unglamorous program, not an athlete's routine.

Is it too late for me to start if I've never lifted weights?

This study was specifically done in women who had never trained regularly. Participants averaged 54 years old, all were within five years of menopause, and none were regular exercisers. Across the whole trial, leg strength improved by 34–59%. Starting untrained is exactly the situation this research looked at.

Did the women get stronger, or just bigger?

Both, but with an important nuance. Muscle size and lean mass increased more in the estrogen group. Maximal strength and jump performance improved substantially in both groups, with no significant difference between them. So estrogen appeared to change the amount of muscle tissue built more than it changed raw strength gains over this period.

Will I see this on the scale?

Probably not in the way you'd expect, and that's worth knowing before you start. These changes were measured by MRI scans of the thigh and DXA body composition scans. Muscle gain can offset fat loss on the scale, so the number can barely move while your body composition changes meaningfully. Judge progress by how you feel and function, not by weight alone.

Why does muscle matter so much after menopause?

Muscle mass and strength decline faster in women around the menopause transition than in men of the same age. Since women now spend more than a third of life after menopause, maintaining muscle affects long-term mobility, balance, metabolic health and independence. It's less about appearance than about capacity over decades.

Should I be eating differently if I start training?

Possibly, and the study itself raised this. Among participants who reported their diet reliably, protein intake averaged around 1.0 gram per kilogram of body weight per day — acceptable for general health, but at the low end of what's typically recommended to support muscle growth during resistance training. The researchers noted they can't rule out that higher intake would have improved results. It's a good thing to raise with your provider.

Is this enough evidence for me to make a decision about hormone therapy?

Not on its own. This was a small trial — 31 women over twelve weeks — in healthy, non-smoking women within five years of menopause and without a cancer history. It tells us something useful about muscle, but hormone therapy decisions involve your whole health picture: symptoms, cardiovascular risk, personal and family history, and your own preferences. This is one input to that conversation, not the conversation itself.

RESEARCH SOURCE CITATION

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