The pillars of strong bones

Viva columnist Dr Libby on the important things to consider to keep your bones strong and healthy

The New Zealand Herald · 6 May 2026 · ● Dr Libby Weaver PhD is a nutritional biochemist, 13 times best-selling author and international keynote speaker.

When people think about bone health, the conversation will often start and end with calcium. Maybe a supplement is needed, maybe it's a conscious effort to eat more dairy. There's also the sense that it's something to think about later in life, yet bone health is something we need to consider throughout our lives.



In New Zealand, one in three women and one in five men will experience an osteoporotic fracture — a broken bone resulting from minimal impact — in their lifetime.

Research in bone biology and endocrinology over the past two decades has expanded our understanding of bone. Where we once viewed bones as mostly structural, and bone health as largely about density, oestrogen and mineral intake, we now know that bone is metabolically active, endocrine-responsive tissue influenced by muscle, metabolism, a range of hormones, inflammation and broader nutrition.

One thing that is often glossed over when we talk about bone health is tensile strength. This refers to the force required to bend bone to the point that it snaps. Consider a new branch on a tree — green and flexible. You can't easily snap it; it bends. That's tensile strength, and it's just as important as bone density.

Bone is not fixed; it's living tissue. Right now, your body is constantly breaking down old bone and building new bone in its place, responding to how you move, muscle contractions, how you nourish yourself, hormone signals, and how well a host of internal systems and glands are functioning.

Bone renewal is not a perfect copy-and-paste process. It's more like ongoing construction. Over time, the breakdown very gradually starts to exceed the regrowth. The quality of that new bone depends on the signals and resources (such as nutrients) available.

One of the most important of these signals is mechanical load. Bone responds directly to the forces placed upon it. When we regularly use and build our muscles, particularly through resistance or weight-bearing movement, the bones have no choice but to become stronger in response to that load. Without that stimulus, the body adapts in the opposite direction. In this way, muscle is not separate from bone health — it is central to it.

Up until our early 30s, the body is typically quite responsive to building and maintaining muscle. After that, the balance begins to change. Without regular stimulus, we gradually lose muscle mass over time, often in the range of 3 to 8% per decade, a rate that increases over time.

While hours in the gym can be very beneficial, it's not the only way to support muscle function. It can also be woven into daily life: taking the stairs, carrying groceries, garden mulch and luggage, getting up and down from the floor, and finding a form of movement that feels genuinely enjoyable. The goal is not perfection, but consistency in how you live — continuing to give your body a reason to stay strong and capable as the years go on.

When it comes to nourishment, the focus has long been on calcium alone. Yet nothing in the body works in isolation — it relies on a symphony of nutrients and great digestion working together.

Protein provides the collagen framework that gives bone an important aspect of its structure and flexibility, while minerals such as magnesium support mineralisation. Vitamin D (found in oily fish) helps the body absorb calcium, and vitamin K2 (found in fermented foods like kimchi) plays a key role in directing that calcium into the bones where it belongs. Trace minerals like zinc, boron and silica further contribute to bone integrity. Minerals provide hardness, but it is the underlying protein matrix that gives bone its tensile strength and ability to withstand force without breaking.

As we age, the body's ability to absorb nutrients from food can begin to decline, and this is another way bone health can gradually be impacted over time. A focus on addressing any digestive issues, like inadequate stomach acid, can support the body to better access the nutrients it needs to rebuild and maintain strong bone.

Addressing insulin resistance also plays an important role. When blood sugar regulation is impaired, it can disrupt the balance of bone renewal, favouring breakdown over building, and compromising both bone density and quality over time.

Alongside this, chronic low-grade inflammation can further drive bone loss by increasing the activity of cells that break bone down, while dampening the processes that rebuild it.

Consistent alcohol and excess caffeine consumption over a lifetime also disrupt some of the processes needed to maintain robust bone health.

After more than two decades of clinical practice, what I've come to appreciate is that bone health is never about one thing. It reflects how we live — how we move, how we nourish ourselves and how well we support the body's ability to repair and renew.

When we care for these foundations, we are not just protecting our bones, we are supporting the strength and vitality of the whole body.

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