What Actually Increases Your Energy? The Buck Institute Just Figured It Out

6 MIN READ

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Scientists at the Buck Institute for Research on Aging reviewed 16 popular energy interventions. The results are a reality check on almost everything being marketed right now.

You feel the shift before you can name it. Effort costs a little more than it used to. Recovery takes longer. Focus starts fraying earlier in the day. Most of us chalk this up to a full schedule, stress, or the general passage of time. But something more specific is happening, and it responds to intervention more than most people realize.

We call it Energy Span. At the Buck Institute for Research on Aging, we just released a **two-part review of 16 interventions** across six biological dimensions â?? one of the most rigorous evaluations of what actually moves the needle on energy to date. Here's what we found.

What Is Energy Span?

Energy Span is the capacity to generate, sustain, and regulate physical and mental energy across daily life. It emerges from the coordinated function of several interacting biological systems: mitochondria, metabolic flexibility, the autonomic nervous system, hormonal rhythms, sleep architecture, and inflammation. No single biomarker captures it. No single supplement restores it.

What's significant about this framing is what it implies about fatigue. The erosion of

energy, the researchers argue, is often the earliest signal that one or more of these systems is drifting long before any clinical threshold is crossed. Which means it’s often still reversible. Declining energy is information.

What Actually Increases Your Energy: 9 Findings

Here’s the finding that deserves the most attention: across all 16 interventions, the strongest, most replicated evidence belongs to behavioral approaches. Not the devices. Not the supplements. The things that require consistency over time.

1. **Structured exercise holds the most robust evidence base in the entire review.** A **2022 meta-analysis of 81 randomized controlled trials covering 7,050 people** found that consistent exercise reduces fatigue and meaningfully increases subjective energy and vitality. The mechanism matters here: exercise activates a molecular pathway that stimulates the growth of new mitochondria, expanding the body’s fundamental capacity for energy production. This is a trajectory outcome, not an immediate one. Subjective energy typically improves within two to four weeks. Mitochondrial adaptation takes eight to 12 weeks. No current supplement has demonstrated the same magnitude or consistency of effect on mitochondrial adaptation.
2. **Sleep duration and wake timing come next.** **The American Academy of Sleep** Medicine recommends a minimum of seven hours per night for adults, and research on chronic short sleep found that people regularly sleeping six hours performed as poorly on objective cognitive tests as those who had been awake for 24 straight hours, while only reporting mild sleepiness. **They didn’t feel as bad as they were performing.** The single most evidence-supported sleep behavior, more than any wind-down ritual or magnesium supplement, is a **consistent wake time, within 30 minutes, seven days a week.**
3. **Morning light is genuinely powerful and genuinely underused.** Getting outside within

60 minutes of waking, even on a cloudy day, activates light-sensitive cells in the retina that send signals directly to the brain's master circadian clock, anchoring your cortisol awakening response and your downstream energy arc for the day. **A meta-analysis of 53 studies** supports light therapy for sleep problems and circadian disruption. Outdoor morning light costs nothing and most of us skip it.

4. 4 **Caffeine timing is key.** The evidence-based priority isn't when you start. It's when you stop. **Research found that 400mg of caffeine consumed six hours before bedtime reduced total sleep time by more than an hour**, without people detecting the effect subjectively. The "delay your coffee 90 minutes after waking to protect your cortisol" advice, meanwhile, has never been tested in a single randomized controlled trial, **according to a 2024 review by the International Society of Sports Nutrition**. What's supported by evidence: a hard curfew six hours before you plan to sleep. What's marketing: everything else.

5. 5 **Fiber and protein from whole foods matter more than any individual food, supplement, or microbiome product.** Mediterranean-style eating, high in vegetables, legumes, whole grains, nuts, olive oil, seafood, and fermented foods, improves glycemic stability, insulin sensitivity, mitochondrial function, and inflammatory load, all of which directly constrain Energy Span. **A meta-analysis of 154 trial comparisons** found that anchoring every meal with protein cut post-meal blood sugar spikes by more than half in healthy adults. That matters because blood sugar volatility, the spike and crash after a carbohydrate-heavy meal, is one of the most common and most correctable drivers of afternoon fatigue. The evidence for this pattern on cardiometabolic outcomes is strong. For energy specifically, it's moderate, but the mechanism is sound and the downstream effects are real. No single superfood, powder, or microbiome supplement replicates what a consistent whole-food pattern does across systems. Think pattern, not perfection.

6. 6 **CBT-I (cognitive behavioral therapy for insomnia) is the most underused high-evidence intervention in this entire review.** Most people have never heard of CBT-I. It works by changing the thought patterns and habits that keep you awake, not by sedating you through them. **A meta-analysis of 20 randomized controlled trials**

covering 1,162 people found a 70% success rate, with lasting improvements in falling asleep, staying asleep, and overall sleep quality. The American College of Physicians recommends it as a first-line treatment, ahead of sleep medication. It outperforms every sleep supplement that has been studied. And yet most people reach for melatonin first. If your sleep has been disrupted more nights than not for three months or longer, start here. Sleepio is a digital version that is FDA-cleared. If you live in the US, you can access the program after a brief virtual intake with a healthcare provider. Reach out to **hello@sleepio.com** to get access.

7. 7 **Paced breathing at six breaths per minute** is one of the most evidence-supported, zero-cost tools in the review, and one of the least discussed. At six breaths per minute, something shifts in the body. Pressure-sensitive receptors in your blood vessels, tuned almost precisely to this rhythm, send a signal that moves your nervous system from activation into recovery. This isnâ??t relaxation as a feeling, itâ??s recovery as a biological state. **A meta-analysis of 24 studies covering 484 people** found significant reductions in stress and anxiety, with most people noticing a difference within a single session. Four to eight weeks of daily practice produces lasting improvements in heart rate variability, which is how flexibly your nervous system moves between effort and rest. This is one of the better predictors of long-term resilience. Five counts in, five counts out, 10 to 20 minutes. Thereâ??s a practice in the â??Try Thisâ?• at the end of this article.

8. 8 **Iron deficiency screening** is one of the most commonly missed reversible causes of fatigue, and one of the most straightforward to address. Iron is an essential cofactor for the mitochondrial machinery that produces cellular energy, for oxygen transport via hemoglobin, and for dopamine synthesis. Depletion impairs all three before anemia appears on a standard lab panel, which is why it so often goes undetected. **A systematic review of 18 randomized controlled trials covering 1,170 people** found that iron supplementation significantly reduced fatigue in iron-deficient non-anemic adults. The groups most at risk: premenopausal women, vegetarians and vegans, endurance athletes, and frequent blood donors. A ferritin and CBC panel costs less than one month of most supplement subscriptions. One important note: do not supplement without testing

. Iron overload in people who are already replete carries real risk, particularly for men and postmenopausal women. Get the panel first.

9. 9 **Perimenopause and menopause evaluation** deserves to be on this list, because the energy changes that accompany this transition are biological, not psychological, not inevitable, and not something to simply manage through. Estrogen directly regulates mitochondrial biogenesis, the efficiency of the cellular energy machinery, and the brain's defense against oxidative stress. **When estradiol declines, that mitochondrial protection declines with it**, which is part of the specific biological basis for the fatigue, brain fog, and metabolic shifts many women experience. **Research published in *Acta Physiologica* in 2024** found that postmenopausal women receiving hormone therapy had measurably higher skeletal muscle mitochondrial respiratory capacity than untreated women. **The Menopause Society's 2023 position statement** supports hormone therapy for vasomotor symptoms and sleep in appropriate candidates, with moderate evidence for downstream energy and cognitive improvements. The point is not that hormone therapy is appropriate for everyone, it's that these symptoms have a biological basis, respond to clinical intervention, and deserve evaluation, not normalization as just getting older. If your energy has shifted meaningfully alongside other perimenopausal changes, bring it to your doctor with specificity. You deserve a real conversation, not reassurance.

Measuring Your Health Is Not the Same as Improving It

One of the most clarifying findings in the review is also the one most actively obscured by the wellness industry: consumer devices are measurement tools, not interventions. A smart ring, a fitness tracker, a continuous glucose monitor, these generate data. Whether that data improves anything depends entirely on what you do next. The data itself changes nothing.

This matters because the market has become very skilled at blurring the line. **A 2025 validation study** confirmed that wearables like the Oura Ring and WHOOP have

genuinely improved in accuracy. These are real measurement tools with real signals. But tracking your HRV is not the same as improving it. Watching your glucose trace is not the same as stabilizing it.

Blue-blocking glasses offer a useful case study. Despite widespread promotion as a sleep intervention, **a 2023 Cochrane review of 17 randomized controlled trials** found no clinically meaningful benefit for sleep. Consumer wearables marketed as vagus nerve stimulators typically deliver vibration to the wrist, which activates skin receptors, not the vagal pathways the clinical research behind them actually studied. The delivery mechanisms are entirely different.

Try This: The 6-Breaths-Per-Minute Reset

This isn’t meditation. You don’t need to clear your mind, achieve any particular state, or be good at sitting still. Your body responds to the rhythm of your breath regardless of what your thoughts are doing. Keep it up daily for four to eight weeks and your nervous system gets measurably better at recovering from stress between sessions.

How to do it:

1. Sit comfortably on a chair, on the floor, wherever you are right now.
2. Set a timer for 10 minutes.
3. Inhale slowly and steadily for a count of five.
4. Exhale slowly and steadily for a count of five.
5. Don’t pause between the inhale and exhale, let the breath move in a continuous wheel.
6. Repeat until the timer goes off.

That’s it. No special breathing technique, just slow, steady, counted breath. No particular posture. No particular mental focus, though some people find it easier to

count silently or rest their attention lightly on the physical sensation of breathing.

Don’t worry if your mind wanders**.** That is not failure. The physiological effect happens regardless of what your thoughts are doing. Paced breathing works through the body first. The mind followsâ?¦ or it doesn’t, and the practice works anyway.

What you might notice:

Within the first few minutes, a subtle slowing. A slight drop in the sense of urgency that most of us carry as baseline. Some people notice their shoulders drop. Some notice that the mental chatter quiets without them trying to quiet it. Some notice nothing in particular and feel vaguely skeptical, and still show measurable HRV changes when tested.

After four to eight weeks of daily practice, something more lasting tends to emerge: a nervous system that recovers more quickly between stressors. Better sleep onset. A wider window between a difficult moment and a reactive response. The research calls this improved autonomic flexibility. In daily life it feels like having more room.

When to do it:

Any time, but three moments tend to work especially well: First thing in the morning before checking your phone, when your nervous system is still relatively clear and the practice sets a tone for the day. After lunch, when the post-meal dip in alertness is real and a 10-minute reset is more effective than a second coffee. Before a difficult conversation, a high-stakes meeting, or anything that typically activates you. The practice shifts your baseline before you need the resource, not after.

This article was developed in collaboration with Healthspan Horizons, an initiative based at the Buck Institute for Research on Aging. The full Energy Span research series is available at ***healthspanhorizons.org****.*

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