The LA Times Creatine Article Against the Trials

A Healthy Skepticism Case Study

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On October 19, 2026, the Los Angeles Times ran a story by Deborah Vankin under the headline "Creatine isn't just for athletes. Here's who should be taking it (hint: probably you)" [30]. The headline claims more than the story itself supports, and the trials support less than the story claims.

A real claim rarely comes with only one fault, and this story carries several. This case study takes its main claims one at a time and checks each against the trials, and then it counts the harms, because the story calls creatine safe without giving a single number.

What the article says

- The story opens with anecdotes about the writer's 50-year-old boyfriend, her 84-year-old mother, and a TikTok influencer who promises you'll be "jacked, smart and recovering faster." It then quotes a Cedars-Sinai sports medicine doctor, a UCLA Health dietitian, and a nurse who owns a Fit4Mom fitness franchise, and it is the franchise owner who recommends creatine "to everybody" [30].
- It says creatine is for people over 40 for muscle and bone, women in perimenopause or menopause for fatigue, "foggy memory," and mood, vegetarians, older adults for thinking, and anyone short on sleep [30].
- It gives no effect sizes, no trial sizes, and no figures of any kind, absolute or relative, and the phrase "one of the most researched supplements" is offered in place of evidence [30].
- Late in the piece it concedes that creatine is "not dangerous to take if you don't exercise, but you won't see as much benefit," and it says the brain claims need more research [30].

That concession undercuts "probably you," because the benefit that trials have actually measured depends on resistance training, and the headline doesn't mention training at all.

Claim 1. Most people should take creatine ("probably you")

The fault: the causal leap (fault 5) and the syndrome trap (fault 6). The trials that found a benefit enrolled older adults doing supervised resistance training, and the story applies their result to everyone, so the advice reaches people the trials never studied.

The muscle claim is the strongest one, and the effect is real but modest. A meta-analysis pooled 22 trials with 721 older adults who were all doing resistance training, and creatine added about 1.37 kg of lean mass over training alone (95% CI 0.97 to 1.76 kg) [3]. The strength gains were small, with a standardized mean difference (SMD) of 0.35 for chest press and 0.24 for leg press [3], and a 2021 update found that the leg press gain disappears when studies with a loading phase are excluded [10].

The evidence for physical function is weaker. A 2024 meta-analysis found that 6 of its 33 trials reported a sit-to-stand measure, with 188 people in those trials, and the pooled SMD was 0.51 (95% CI 0.01 to 1.00), an interval that nearly touches zero [8]. Under weakly informative priors the posterior probability that creatine helps was 67%, and the effect shrank the longer people took it [8].

Without training, the best single trial found nothing. Sales and colleagues gave 3 g a day for two years to 200 older women with osteopenia, and creatine made no difference to their lean mass, strength, or physical function [27]. The 2024 meta-analysis did find a small lean-mass gain in its pooled subgroup without exercise, but that subgroup also differed from the exercise subgroup in disease status, so the comparison cannot separate the effect of exercise from the effect of disease [8].

Claim 2. Creatine helps prevent osteopenia and osteoporosis

The fault: Bernoulli's fallacy (fault 4). A small positive study was followed by two larger null ones, and readers who heard the first result now see advice that "keeps changing."

The story says creatine helps prevent osteopenia and osteoporosis [30], and the two largest trials don't support that. Chilibeck and colleagues ran a two-year trial in 237 postmenopausal women doing resistance training and walking, and it found no effect on bone mineral density, which was the trial's primary outcome [4]. It did report a change in the geometry of the femur as a secondary outcome [4]. The group's earlier positive result came from a smaller one-year study, and the authors now say that result was most likely a chance finding [4, 22].

The Brazilian trial by Sales and colleagues found the same thing in 200 older women with osteopenia who took 3 g a day for two years. Creatine made no difference to their bone density, bone markers, falls, or fractures [27].

Claim 3. Creatine helps memory, particularly in older adults

The fault: Bernoulli's fallacy (fault 4) again, and here it shows up as a result that does not reproduce. Two meta-analyses each report a significant memory effect, but they find it in different age groups, and the story repeats the age group from one of them.

Prokopidis and colleagues reported a memory benefit "especially in older adults" from 8 trials with 225 people [24]. A letter to the editor then pointed out that some participants had been counted twice, and the corrected analysis found no overall memory effect [25]. The older-adult effect survived the correction, but it rests on two studies with high heterogeneity ($I^2 = 83\%$) [25].

Xu and colleagues pooled 16 trials with 492 people and found a small memory effect (SMD 0.31), with no effect on overall thinking or on planning and decision-making [32]. In their subgroups the benefit showed up in people aged 18 to 60 and not in older adults [32]. A 2026 commentary found that Xu's analysis counted the same participants more than once, which is the error the Prokopidis authors corrected, and noted that the European Food Safety Authority had raised the same concern [5]. So whether the memory benefit is "particularly in older adults" depends on which meta-analysis you pick.

The evidence for the sleep and mood claims is weaker still. The sleep result comes from one lab, which gave healthy adults aged 20 to 28 a single dose of 0.35 g/kg, about 25 g, and found that their test scores fell less after a night without sleep, in a trial of 15 people [11]. The authors say not to try that dose at

home [11]. A follow-up from the same lab gave 29 adults a lower dose of 0.2 g/kg, about 14 g, and found a smaller benefit [12]. For depression, a meta-analysis of 11 trials with 1,093 people found an SMD of 0.34, which is about 2.2 points on a 17-item scale on which the smallest change patients notice is 3 points, and the interval reaches zero [9]. The authors rate the certainty of that evidence very low [9].

The benefits, counted

One benefit is well supported, and it needs resistance training to show up. The rest are small, uncertain, or both.

Claimed benefit	Who was studied	Evidence	Size of effect	How sure
More lean mass	Older adults doing resistance training 2 to 3 days a week	22 trials, 721 people [3]	About 1.4 kg more than training alone (95% CI 1.0 to 1.8 kg) over roughly 4 months. Part of this is water held in muscle.	High. Consistent across meta-analyses.
More strength	Same	Same	Small. SMD 0.35 for chest press and 0.24 for leg press [3]. A 2021 update found the leg press gain disappears when loading-phase studies are excluded [10].	Moderate for upper body, low for lower body.
Better physical function (sit-to-stand)	Older adults and adults with chronic disease	6 of 33 trials reported it, 188 people [8]	SMD 0.51 (95% CI 0.01 to 1.00). Under weakly informative priors, the posterior probability that creatine helps was 67%. The effect shrank with longer supplementation.	Low. The interval nearly touches zero.
Lean mass without exercise	Older women, 2 years, 3 g a day	200 people [27]	None. No effect on lean mass, strength, or function [27]. The 2024 pooled subgroup found a small gain without exercise, but the groups differed in disease status [8].	The best single trial says no.
Stronger bones	Postmenopausal women	237 and 200 people, 2 years each [4, 27]	None on bone density, the primary outcome, in both. Chilibeck reported a	The two largest trials are null.

Claimed benefit	Who was studied	Evidence	Size of effect	How sure
			secondary change in femur geometry.	
Memory	Mixed ages, mostly young	8 trials, 225 people, corrected [24, 25]; 16 trials, 492 people [32]	SMD about 0.3 in Xu. No overall effect in the corrected Prokopidis analysis. The two disagree on which age group benefits.	Low. GRADE rates memory moderate and every other domain low [32].
Thinking when sleep deprived	Healthy adults aged 20 to 40	15 people [11], then 29 at a lower dose [12]	Less decline in test scores after one large dose (0.35 g/kg, about 25 g), and a smaller effect at 0.2 g/kg. The authors say not to try that dose at home.	Very low. These are small trials from one lab, at single doses of 14 to 25 g, far above daily use.
Mood	Adults with depression	11 trials, 1,093 people [9]	SMD 0.34, about 2.2 points on a 17-item scale. The smallest change patients notice is 3. The interval reaches zero.	Very low, by the authors' own GRADE rating.

In counting terms, the muscle result means this. Take 1,000 older adults who lift weights two or three times a week for about four months, and give half of them creatine. On average, each person in the creatine half ends up carrying about 1.4 kg more lean tissue than each person in the other half, and part of that is water held in muscle [3]. That is the only benefit the trials establish well.

Claim 4. Creatine is "considered safe"

The fault: none of the six faults covers this claim directly. The safety claim rests on counting studies rather than people, and the expert making the broadest recommendation is the one with a commercial interest.

The counts do not support the "no harm" summaries. One harm is real, and it is diarrhea, which depends on how many grams are in each serving. Creatine also raises blood creatinine, because the body breaks creatine down into creatinine, and that lowers the kidney-function estimate doctors calculate from the blood test even though measured kidney filtration does not change [1]. The risk there is a misread test, and in NET-PD LS-1 the kidney stopping rule took 41 people on creatine off the study drug against 8 on placebo [17]. More people also stopped taking creatine than placebo in the two largest trials, 34 in 100 against 26 in NET-PD LS-1 and 35 against 26 in CREST-E [14, 17]. Neither trial separates the reasons, and some of the NET-PD stops may come from the creatinine stopping rule, so the excess shows that creatine is harder to stay on without showing why people stopped. The multi-year trials show no excess of death or serious harm, and every other concern is either unresolved or unsupported. The best harm data come from two neurology trials that gave adults with Parkinson or

Huntington disease 10 to 40 g a day for years [14, 17] and from the two-year bone trial [4], not from the 685-trial tally the supplement literature cites [18].

Concern	The counts	Standing
Diarrhea and stomach upset	Ostojic 2008, 59 soccer players, 28 days: diarrhea in 10 of 18 on 10 g once a day, 6 of 21 on 5 g twice a day, and 7 of 20 on placebo, reconstructed from the abstract's percentages [23]. CREST-E, 553 Huntington patients at 30 to 40 g a day: 115 of 275 on creatine and 55 of 278 on placebo [14]. NET-PD LS-1, 1,741 Parkinson patients at 5 g twice a day for 4 years: 47% in each arm [17].	Supported at 10 g or more per serving. No excess at 5 g servings in the two trials that asked [17, 23], though most trials never asked.
Kidney damage	The "artifact" defense rests on measured-GFR studies of about 150 people over 12 to 16 weeks [1, 16]. The largest, in 25 people with type 2 diabetes, found a GFR difference of −0.3 with a 95% CI of −24.9 to +24.2 [13]. No measured-GFR study runs past 16 weeks. The 2026 meta-analysis includes some patients with chronic kidney disease or on hemodialysis [1], but there is no long trial in reduced kidney function.	Unsupported in normal kidneys. Untested over the long term in reduced kidney reserve, which includes many people over 70.
Death and serious events	NET-PD LS-1: 44 deaths on creatine and 36 on placebo, not significant [17]. CREST-E: serious events in 42 of 275 against 48 of 278, and deaths 2 against 7 [14]. Chilibeck 2023: falls over 3 years 30 against 19 (p = 0.24), and fractures 4 and 4 [4].	No excess in about 2,300 randomized patients with Parkinson or Huntington disease followed for years.
Mania	Toniolo 2018, 6 weeks: 2 of 17 bipolar patients on creatine switched to mania and 0 of 18 on placebo, and both were on lithium plus quetiapine [29]. Roitman 2007, open label: 2 of 2 bipolar patients switched [26]. The base rate in placebo arms of comparable trials is 52 of 817, about 64 in 1,000 [21]. At that rate the chance of 2 or more switches among 17 people is 0.30, and the Fisher exact p for 2 of 17 against 0 of 18 is 0.23 (our calculation).	Does not exceed chance. It is untested in bipolar disorder rather than shown dangerous, and there is no signal in anyone else.
Muscle cramps	Chilibeck 2023, the one long trial that counted cramps: 2 on creatine against 2 on placebo [4].	Unsupported. No difference in the one long trial that counted cramps.
Weight gain	Loading at 20 g a day adds 1 to 3 kg of water in a week [2]. NET-PD LS-1, at 10 g a day for up to 5 years, found no difference in BMI between creatine and placebo (−0.3, 95% CI −0.8 to 0.2) [17].	A short-term water gain with loading only. No lasting gain in the one long trial that

Concern	The counts	Standing
		measured it, which used 10 g a day.
Cancer	Mouse studies used chow doses equivalent to hundreds of grams a day in a person [31, 33]. The human arm of the 2026 Nature Communications paper was 11 volunteers at 20 g a day with no control group [28, 31]. NHANES, a cross-sectional survey that cannot show cause, found an odds ratio for cancer of 0.84 (0.75 to 0.95) with higher dietary creatine, which points the other way [15].	Unsupported in humans. There are no safety data in people with active cancer either.
Hair loss	One 2009 study of DHT in 20 rugby players never measured hair [2]. One 2025 trial in 38 men over 12 weeks found no difference in hair density or DHT [20].	Unsupported in the short term. Untested over years.
Dehydration	Ten controlled studies found no effect on heat tolerance or hydration [2].	Unsupported, and creatine raises body water.
Drug interactions	None documented with NSAIDs, diuretics, lithium, or metformin [2].	Theoretical only.

The reassurance that creatine is safe rests largely on a 2025 tally of 685 trials by Kreider and colleagues [18, 19], but the tally does not support it. It counts studies rather than people, so a trial that never asked about side effects counts the same as one that asked everyone and found none, and about 87 in 100 trials reported none [19]. The typical trial was small and short, with athletic performance as its outcome, so it was not built to find harms [18]. Where the tally does count people, the figures lean toward harm, and the p-values it reports for them cannot come from those counts [18]. Pooled across about 13,000 people in each arm, its GI rates of 5.51% against 4.05% give a risk ratio of 1.36 (95% CI 1.22 to 1.52), by our calculation from the abstracts. A 2026 follow-up used the same study-level method and reached the same conclusion [6]. The lead author chairs the scientific advisory board of AlzChem, which makes creatine [2]. The one long, government-funded trial, Chilibeck's, is the better guide, and it found no excess of kidney or GI events and a difference in falls, 30 against 19, that could be chance ($p = 0.24$) [4].

In counting terms, the trials that asked every participant about the gut found about 21 more people out of 100 with diarrhea on creatine than on placebo when it came as a single 10 g serving [23], and about 22 more out of 100 at 30 to 40 g a day [14]. At 5 g servings the same trials found no excess at all [17, 23]. The study-level tally, built mostly from trials that did not ask, puts the difference at about 1 or 2 people in 100 [18], and that is the figure behind the reassuring summaries.

What no trial has measured

Every benefit above is a surrogate, which means it is a measurement standing in for an outcome people care about. No trial has been built to show that creatine changes something a person would notice years later.

- No trial has falls, fractures, loss of independence, or death as its primary outcome. Chilibeck's trial logged falls and fractures for one extra year as a secondary count, but it was sized to detect a change in bone density [4].
- The longest trials in healthy older adults run two years [4, 27], and the average trial in the 685-study tally ran 65 days [18].
- Nobody has tested whether 1.4 kg of lean mass at age 70 makes any difference to how a person lives at 80.
- There are no long trials in people with reduced kidney function and no trials in pregnancy or in people with active cancer. In those groups the trials are missing, and missing trials are not evidence of safety.
- The groups who publish most on creatine, including the authors of the safety tally above, have advisory or funding ties to the industry [2]. Chilibeck, whose two-year trial found no effect on bone, says he takes no industry money [7].

Who the evidence applies to

What the evidence shows depends on one question, which is whether the person does resistance training, and the headline's "probably you" skips that question.

For people who lift weights two or three times a week, the trials found that 3 to 5 g a day of creatine monohydrate added about 1.4 kg of lean mass over a few months and a small amount of strength [3]. The counted costs are these. Diarrhea is common at 10 g in a single serving and showed no excess at 5 g servings in the trials that asked [17, 23], and no trial says who is susceptible. Creatine lowers the creatinine-based estimate of kidney function by about 11 points without changing measured kidney function, so a doctor reading the blood test needs to know the patient takes it [1]. In the two largest trials, about 8 more people in 100 stopped creatine than stopped placebo, for reasons the trials do not separate [14, 17]. The multi-year trials in neurology patients and postmenopausal women show no excess of death or serious harm [4, 14, 17]. Both the benefit and the cost are real, and both are small.

For people who do not train, the best two-year trial found nothing for muscle, strength, or function [27]. The brain and mood effects are small and uncertain [9, 25, 32], so there is no measured benefit to weigh against even small harms.

For everyone, the two largest trials show nothing for bone [4, 27], and the memory evidence comes from two meta-analyses that disagree about who benefits [25, 32]. For people whose kidney function is already reduced, no long trial has measured what creatine does, and the reassurance about healthy kidneys rests on about 150 people followed for 16 weeks [1, 16]. For people with bipolar disorder, the mania signal does not exceed chance, but 19 patients in two small studies are not a safety record [26, 29]. For any one person who gets diarrhea, the trials cannot say whether creatine caused it, because they report rates across groups rather than causes in individuals.

Summary

Claim	Fault	What the evidence shows
Most people should take creatine	The causal leap (fault 5) and the syndrome trap (fault 6)	About 1.4 kg more lean mass in older adults who do resistance

Claim	Fault	What the evidence shows
		training, and nothing in a two-year trial without training.
Creatine helps prevent osteoporosis	Bernoulli's fallacy (fault 4)	A small positive study, then two larger two-year trials with no effect on bone density.
Creatine helps memory, particularly in older adults	Bernoulli's fallacy (fault 4)	Two meta-analyses that disagree about which age group benefits, one of them corrected to no overall effect and the other criticized for the same double counting.
Creatine is considered safe	None of the six directly. The safety tally counts studies rather than people.	Diarrhea at 10 g servings, more people quitting, a blood test that misreads kidney function, and no excess of death or serious harm over years.

The story is right that creatine helps some people, but it has the wrong people in mind. The trials show creatine as a training supplement with a modest benefit and a small, countable cost, and they do not show it as a supplement for everybody.

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