BPC-157 Research Summary

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What the Research Suggests, in Plain Language

BPC-157 has been studied mostly in animals, especially rats. Research in people is very limited.

• In animal studies, results suggest BPC-157 may be linked to faster recovery of injured tendons, ligaments, muscles, the gut and blood vessels. Most of these experiments come from one research group in Croatia.

• In people, there are only three very small studies, with 30 people in total and no comparison group. In those studies, most participants reported less knee pain or fewer bladder symptoms, and no side effects were reported. A 2026 review of these studies judged the evidence to be of very low quality.

• A few human trials have been registered, but none has published results yet.

In short: these studies point to possibilities that researchers are still testing. They do not show that BPC-157 is safe or effective in people.

Overview

BPC-157 is a synthetic peptide made of 15 amino acids (a pentadecapeptide) derived from a partial sequence of a protein found in human gastric juice. Published literature describes it as a stable peptide primarily studied in animal models of tissue injury.

What the Research Actually Presents

Human pilot studies (small, uncontrolled):

• Lee et al. 2021 (17 patients, knee pain): Authors reported most patients experienced relief of knee pain at 1-year follow-up. No control group.

• Lee et al. 2024 (12 women, interstitial cystitis): 10 of 12 reported complete symptom resolution after one treatment; 2 reported ~80% improvement. No adverse events reported.

• Lee et al. 2025 (2 healthy adults, safety pilot): No measurable changes in tested biomarkers; no side effects reported.

2026 systematic review (Poolton et al.): Rated the three human studies (n=30 total) as very low certainty and concluded BPC-157 should not be used clinically outside regulated trials.

Animal studies (~156 records, most of them rat studies from the University of Zagreb group):

• Tendon and ligament injury models: Researchers observed improved histological scores, better collagen organization, and faster functional recovery compared with untreated controls.

• Muscle injury models: Animals showed improved muscle recovery markers and functional recovery in the models tested.

• Gastrointestinal and vascular injury models: Studies reported observations consistent with tissue protection and recovery in those specific injury settings.

Registered trials, none with posted results: a randomized phase 2 trial in hamstring strain (NCT07437547, recruiting), a rotator-cuff surgery study (NCT07803250, not yet recruiting) and an older phase 1 study in healthy volunteers (NCT02637284, status unknown).

What the Research Suggests

The three small human pilots report symptom improvement under the conditions tested. A 2026 systematic review of those studies rated the evidence very low certainty.

In rat models, BPC-157 administration was associated with improved tissue recovery measures across tendon, ligament, muscle, gastrointestinal, and vascular injury models. These are animal findings only and have not been confirmed in completed published randomized controlled human trials.

Mechanism and Signaling Pathways (as described in the literature)

Animal studies report observations consistent with modulation of growth factor signaling, nitric oxide pathways, angiogenesis (new blood-vessel formation), and collagen organization in the injury models tested. Some reports note focal adhesion kinase involvement. All descriptions are from animal and in-vitro (cell) work.

Research Landscape

Catalog: 243 records — 3 human randomized controlled trials (RCTs, all registry entries without results), 8 other human, 156 animal, 3 in-vitro, 53 reviews, 2 systematic reviews/meta-analyses, 18 other. The majority of animal work comes from one Croatian group.

Key Studies

• Poolton JT et al. 2026: systematic review of human evidence; 3 studies, 30 participants in total; certainty rated very low (PMID 42885452).

• Lee E et al. 2021: uncontrolled human pilot, knee pain; 17 patients (PMID 34324435).

• Lee E et al. 2024: uncontrolled human pilot, interstitial cystitis; 12 women (PMID 39325560).

• Lee E et al. 2025: human safety pilot; 2 healthy adults (PMID 40131143).

• Biçer O et al. 2026: animal study (rats), Achilles tendon injury model comparing BPC-157, TB-500 and both together (PMID 42542926).

• Registered trials without results: NCT07437547 (phase 2, hamstring strain), NCT07803250 (rotator-cuff surgery), NCT02637284 (phase 1, healthy volunteers).

Safety Findings Reported in the Studies

No treatment-related adverse events reported in the three small human pilots. Long-term human safety data are absent.

Limitations and Evidence Gaps

Human evidence limited to three small uncontrolled pilots rated very low certainty. Animal literature concentrated in one research group. No completed published RCTs.

Regulatory Status

Not an approved drug. The U.S. Food and Drug Administration (FDA) placed BPC-157 in Category 2 (significant safety risk) of the bulk substances nominated for pharmacy compounding under section 503A from September 2023 until the nominations were withdrawn on April 22, 2026; FDA’s compounding advisory committee reviewed it in July 2026. It is included in the Department of Health and Human Services (HHS) draft/interim 503A compounding enforcement-discretion policy (Federal Register 2026-22192, October 30, 2026); there is no final rule adding it to the 503A bulks list. Prohibited by the World Anti-Doping Agency (WADA).

References

Poolton JT et al. 2026 (PMID 42885452). Lee E et al. 2021 (PMID 34324435), 2024 (PMID 39325560), 2025 (PMID 40131143). Biçer O et al. 2026 (PMID 42542926). Registered trials NCT07437547, NCT07803250, NCT02637284. Animal literature primarily from University of Zagreb group.

Evidence reviewed through November 2026 (PHX research catalog snapshot of PubMed, ClinicalTrials.gov and Europe PMC).

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