



DOSSIER · SUBSTANCE

BPC-157

BPC-157 is a synthetic peptide made of 15 amino acids; controlled studies in humans are lacking, and most findings come from animal experiments.

220

STUDIES IN
TOTAL

21

IN HUMANS

1

OF WHICH
CONTROLLED

135

IN ANIMALS

7

IN THE LAB

Figures from the IHR study database · Last updated 2026-10-17

How to Read This Dossier

ESTABLISHED

measured in humans, with a comparison group

PLAUSIBLE

supported by mechanism, animal studies or observation

HYPOTHESIS

a likely connection that still needs to be tested

BPC-157 at a Glance

For tendons, ligaments and muscles, no controlled studies in humans are available; reviews describe better healing in animal experiments ¹⁸.

For joints and pain, controlled comparisons are lacking; in a retrospective analysis without a control group, 7 of 12 patients reported pain relief after injection into the knee ¹.

A case series describes pain improvement after injection into the joint with BPC-157 alone or combined with thymosin beta-4 (TB4) ⁴.

Clinical safety data are largely lacking ¹; two review articles mention no side effects ¹⁰¹¹, while medical records from users mention isolated complaints ³.

We evaluated 13 human studies on BPC-157, including one meta-analysis or systematic review; there are no controlled human studies yet. As of 3 October 2026.

1. What Is BPC-157? Occurrence, Origin and Forms

BPC-157 (Body Protection Compound 157) is a laboratory-made peptide of 15 amino acids. Its sequence matches a section of a protein found in human gastric juice; the peptide itself does not occur in the body in this form.

BPC-157 does not occur in food. It is produced exclusively by chemical synthesis.

It is produced by peptide synthesis. It is mostly offered as a powder to be dissolved for injection and in capsules; it is not approved as a medicine. Most research comes from animal studies.

Forms and Preparations Studied

- Injection under the skin, into the muscle or into the joint
- Oral capsule or solution
- Combination products with BPC-157 – the other ingredients are named in each case

Not covered on this page:

- Other peptides such as TB-500 (thymosin beta-4) when BPC-157 is not included

2. What Does BPC-157 Do? Results by Area

AREA	RESULT IN CONTROLLED STUDIES	STRENGTH OF EVIDENCE	STUDIES	PARTICIPANTS
Tendons, ligaments and muscles	reviews only	unclear	0 meta-analyses · 0 controlled · 3 other	0
Joints and pain	observational data only	unclear	0 meta-analyses · 0 controlled · 5 other	0
Stomach and gut	reviews only	unclear	0 meta-analyses · 0 controlled · 3 other	0
Blood vessels and wound healing	reviews only	unclear	0 meta-analyses · 0 controlled · 4 other	0
Other outcomes	observational data only	unclear	0 meta-analyses · 0 controlled · 8 other	0

How to read the table: counted are human studies whose results concern the area. “High” means at least one meta-analysis and two controlled studies showing improvement, or at least three controlled studies of which three quarters show improvement, with at least 300 participants in total. “Moderate” means at least two controlled studies showing improvement, as a majority, or one meta-analysis alongside controlled studies. “Low” means one controlled study showing improvement. Where an area has no controlled study, the strength of evidence is at most “low” (result “reviews only” or “observational data only”). Everything else is “unclear”. A study counts as showing improvement when at least half of its outcomes in this area improved. Reviews of combination products do not count as meta-analyses; results that only describe side effects or shares of users do not count as an effect. The same study is counted only once.

3. What the Studies Show in Detail

BPC-157, Tendons, Ligaments and Muscles: Human Studies

For tendons, ligaments and muscles, no controlled studies in humans are available; the statements are based on reviews that evaluate almost only animal studies. In a systematic review, muscle, tendon, ligament and bone injuries healed better under BPC-157 in animal models ¹. A review also describes better regeneration in tendons and myotendinous junctions, predominantly preclinical ⁸. Reliable statements about effects in humans cannot be derived from this.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON	RES
¹ Vasireddi et al. 2025	review · 12 participants	BPC-157; relief reported for >6 months; vs. no control group in the clinical study	fun
² Tewari et al. 2026	systematic review	BPC-157 and five other peptide supplements; heterogeneous, no uniform dosing; vs. most human studies lacked robust controls	ten
⁸ McGuire et al. 2025	review	BPC-157 (synthetic pentadecapeptide); vs. no comparison; narrative review	Req

BPC-157, Joints and Pain: Human Studies

For joints and pain, no controlled studies in humans are available, only small case series and reviews. In a case series without a control group, knee pain improved after injection into the joint in most patients ⁴. A review counts only three small pilot studies in humans and considers larger studies with a control group necessary ⁸. Reliable statements are not possible, because control groups are lacking and the case series are small.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON
¹ Vasireddi et al. 2025	review · 12 participants	BPC-157; relief reported for >6 months; vs. no control group in the clinical study
² Tewari et al. 2026	systematic review	BPC-157 and five other peptide supplements; heterogeneous, no uniform dosing; vs. most human studies lacked robust controls
⁴ Lee et al. 2021	case series · 17 participants	BPC-157 alone or combined with TB4, injected intra-articularly; Follow-up mostly 6 months to 1 year after injection; vs. no control ar
⁵ Lee et al. 2024	case series · 12 participants	BPC-157 compounded by a 503A pharmacy; Total 10 mg injected around inflamed bladder areas during a single procedure; Single t
⁸ McGuire et al. 2025	review	BPC-157 (synthetic pentadecapeptide); vs. no comparison; narrative review

BPC-157, Stomach and Gut: Human Studies

For the stomach and intestines, no controlled studies in humans are available; only review articles exist. One review article describes healing effects in the gastrointestinal tract without naming results in humans in detail ¹⁰. Another review article describes BPC-157 in clinical studies in inflammatory bowel diseases as safe, but does not name any results on efficacy ¹¹. The peptide was studied as an injection as well as a capsule or solution; the overall strength of evidence is unclear because controlled comparisons in humans are lacking.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON	RESULT
¹⁰ Sikiric et al. 2017	review	BPC-157 (gastric pentadecapeptide); vs. L-NAME or L-arginine application, controls	healing in gastrointestinal tract: improv
¹¹ Sikiric et al. 2010	review	BPC-157 (PL-10, PLD-116, PL 14736)	safety in inflammatory bowel disease;
¹² Sikiric et al. 2006	review	BPC 157 (PL 10, PLD 116, PL 14736, Pliva, Croatia); vs. atropine, ranitidine, omeprazole or control	lesions of stomach, esophagus and du

BPC-157, Blood Vessels and Wound Healing: Human Studies

For blood vessels and wound healing in humans, no controlled studies on BPC-157 are available. One review article reports better angiogenesis and endothelial repair, but relies predominantly on animal and laboratory models ⁸. Another review article describes effects on wound and fistula healing and on blood vessels without naming results in humans in detail ¹⁰. BPC-157 was studied as a synthetic peptide as well as intake as a capsule or solution; robust evidence for a benefit in humans is lacking.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON	RESULT
⁸ McGuire et al. 2025	review	BPC-157 (synthetic pentadecapeptide); vs. no comparison; narrative review	angiogenesis and endothelial repair
¹⁰ Sikiric et al. 2017	review	BPC-157 (gastric pentadecapeptide); vs. L-NAME or L-arginine application, controls	wounds and fistulas healing, blood v
¹¹ Sikiric et al. 2010	review	BPC-157 (PL-10, PLD-116, PL 14736)	safety in wound healing
¹² Sikiric et al. 2006	review	BPC 157 (PL 10, PLD 116, PL 14736, Pliva, Croatia); vs. atropine, ranitidine, omeprazole or control	vessels presentation of left gastric a

BPC-157: Further Outcomes in Studies

For this area, no controlled studies in humans are available. According to a systematic review, BPC-157 increased the formation of growth hormone receptors in animal and laboratory studies and promoted signaling pathways of new blood vessel formation ¹. The same review describes fewer inflammatory messengers, also from animal and laboratory studies ¹. Proof of efficacy in humans remains open because the clinical observations are uncontrolled and the remaining studies are predominantly preclinical or narrative.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON
¹ Vasireddi et al. 2025	review · 12 participants	BPC-157; relief reported for >6 months; vs. no control group in the clinical study
² Tewari et al. 2026	systematic review	BPC-157 and five other peptide supplements; heterogeneous, no uniform dosing; vs. most human studies lack
³ Venkatakrishnan et al. 2026	cross-sectional study · 1,039 participants	BPC-157, unapproved synthetic peptide; mean 2.2 months among 130 patients; vs. background care population
⁶ Lee et al. 2025	case series · 2 participants	BPC-157 in 250 cc normal saline, intravenous; Day 1: 10 mg; day 2: 20 mg, each over one hour; Three days (inf
⁷ Mateescu et al. 2026	review · 30 participants	BPC-157 (synthetic pentadecapeptide); vs. no controlled comparison; narrative review
⁸ McGuire et al. 2025	review	BPC-157 (synthetic pentadecapeptide); vs. no comparison; narrative review
⁹ Dekker et al. 2025	review	Testosterone, vitamin D, growth hormones, BPC-157
¹⁰ Sikiric et al. 2017	review	BPC-157 (gastric pentadecapeptide); vs. L-NAME or L-arginine application, controls

4. How Is BPC-157 Dosed? Preparation, Dose and Duration in Studies

The studies and reviews investigated BPC-157 as a synthetic peptide that was injected under the skin, into the muscle or into the joint. Individual papers also consider intake as a capsule or solution. In a case series, BPC-157 was also injected into the joint together with thymosin beta-4 (TB4) ⁴.

5. Is BPC-157 Safe? Side Effects in Studies

Two review articles report that BPC-157 showed no side effects in clinical studies ¹⁰¹¹; a systematic review, by contrast, found no clinical safety data and considers side effects possible due to unregulated manufacturing and impurities ¹.

STUDY	REPORTED SIDE EFFECTS
¹ Vasireddi et al. 2025	None in preclinical studies; no clinical safety data found
² Tewari et al. 2026	cardiovascular complications, insulin resistance (across peptides)
³ Venkatakrishnan et al. 2026	neuropsychiatric 1.4%, injection-site 1.4%, gastrointestinal 1.3%

STUDY	REPORTED SIDE EFFECTS
⁵ Lee et al. 2024	No adverse events were reported
⁶ Lee et al. 2025	No side effects reported
⁸ McGuire et al. 2025	no adverse effects reported, but rigorous large trials lacking
⁹ Dekker et al. 2025	Supplements carry risks and are not routinely indicated
¹⁰ Sikiric et al. 2017	no side effects reported, LD1 not achieved
¹¹ Sikiric et al. 2010	no toxicity reported
¹² Sikiric et al. 2006	described as safe in clinical trials

6. What Remains Open: Limits of the Evidence

- No controlled studies in humans are available; all statements about effects are based on uncontrolled observations, case series and reviews.
- Many findings come from animal and laboratory models and cannot be directly transferred to humans.
- The clinical observations include very small case numbers without a control group.
- There are hardly any data on long-term tolerability and interactions in humans.
- If BPC-157 is combined with other peptides, effects cannot be attributed to BPC-157 alone.

7. Bottom Line: What Is Established About BPC-157

BPC-157 is a synthetic peptide made of 15 amino acids; its sequence corresponds to a section of a protein from human gastric juice. Regarding tendons, ligaments and muscles, joints and pain, as well as further measures, reviews and case series report positive observations, but without controlled comparisons in humans ¹⁸. Regarding stomach, intestine, blood vessels and wound healing, the findings come predominantly from animal experiments; on effectiveness in humans, the reviews report no results ⁸¹⁰¹¹.

The strength of evidence is consistently limited: there are no controlled studies in humans, the clinical observations are small and uncontrolled, and part of the data comes from preclinical models. Reliable statements about benefits and risks in humans cannot be derived from this.

Frequently Asked Questions

How well has BPC-157 been studied in humans?

We evaluated 13 human studies on BPC-157, including one meta-analysis or systematic review; there are no controlled human studies yet. As of 3 October 2026.

Are there controlled studies on BPC-157 in humans?

No, controlled studies in humans are not available. The existing papers are reviews, case series and a large analysis of medical records. Positive observations in humans come from small case series without a control group, mainly on knee pain ¹⁴. Statements about effects in humans cannot be reliably derived from this.

Which forms of BPC-157 were investigated?

BPC-157 was investigated as an injection under the skin, into the muscle or into the joint. Individual papers also consider intake as a capsule or solution.

What do the studies report about side effects?

Two review articles report that BPC-157 showed no side effects in clinical studies ¹⁰¹¹; a systematic review, by contrast, found no clinical safety data and considers side effects possible due to unregulated manufacturing and impurities ¹.

How reliable are the reports on tendons, ligaments and muscles?

Barely: controlled studies in humans are lacking, and the findings come predominantly from animal experiments. A review describes better regeneration in tendons and myotendinous junctions, predominantly preclinical ⁸.

What should be considered with mixed preparations containing BPC-157?

If BPC-157 is combined with other peptides such as thymosin beta-4 (TB4), observed effects cannot be attributed to BPC-157 alone. The data situation for such combinations is overall limited and predominantly preclinical.

Sources

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International Health Research

Research, put in context. Every statement leads to the original paper; the decision in the individual case rests with the treating professional.
ih-research.com/en/knowledge/bpc-157/ · Last updated 2026-10-17