TB-500 (Thymosin Beta-4)

History and Background
TB-500 is a synthetic peptide derived from thymosin beta-4, a naturally occurring protein in the human body. Thymosin beta-4 was first identified in the 1970s and plays a role in tissue repair, immune function, and inflammation regulation. TB-500 is the acetylated synthetic version used in research. It gained attention in sports medicine and recovery circles for its potential wound healing and tissue regeneration properties.

Primary Uses
TB-500 targets tissue repair and regeneration. Research suggests it promotes angiogenesis (new blood vessel formation), reduces inflammation, and accelerates healing of damaged muscle, tendon, and connective tissue. It's primarily investigated for recovery from injury, athletic performance optimization, and general tissue maintenance.

How It Works
TB-500 operates through multiple pathways. It increases actin expression, a protein critical for cell movement and tissue repair. It promotes the expression of healing factors and reduces inflammatory markers. The peptide appears to work systemically rather than locally, making it effective regardless of injection site.

Standard Protocol
Loading Phase: 5-10 mg weekly for 4-6 weeks. Most users start with 5 mg weekly.
Maintenance Phase: 2-5 mg weekly after loading, or 2 mg every other week for extended use.
Administration: Subcutaneous or intramuscular injection. Subcutaneous is more convenient for most users.
Frequency: Once weekly is standard during loading. Maintenance can be weekly or adjusted based on response.
Timeline: Minimum 8-12 weeks to assess effects. Effects typically appear by week 2-3.

What to Expect

Positive Effects (Week 2-4)

Users commonly report improved joint comfort and reduced stiffness, particularly in knees and shoulders. Tendon sensitivity or minor aches often diminish. Recovery time between workouts typically improves. Some report enhanced skin quality and improved wound healing. General sense of improved mobility and reduced inflammation.

Timeline to Results
Most notice subtle improvements by week 2. Noticeable effects typically emerge by week 3-4. Significant changes in recovery capacity appear around week 6-8.

Long-Term Use
TB-500 can be run for extended periods. Many users run 12-16 week cycles. Some run maintenance doses indefinitely with periodic breaks.

Pros
Well-researched with multiple animal and early human studies supporting safety and efficacy
Systemic action means it works throughout the body, not just at injection site
Low side effect profile in most users
Synergizes well with other peptides, particularly BPC-157
Measurable improvements in recovery and mobility for many users
Can address multiple tissue types simultaneously
Inexpensive relative to other peptides
Long shelf life when stored properly

Cons
Effects are gradual; not an immediate performance enhancer
Individual response varies significantly; some users see minimal benefit
Requires consistent weekly injection schedule
Can increase inflammation initially in some users before improvement
May suppress immune function slightly at higher doses
Limited long-term human data beyond 12-16 weeks
Stacking with multiple peptides complicates tracking which compound provides benefit
Not suitable for users with active cancer or autoimmune conditions flaring
Potential for tolerance if used continuously without breaks

Who Should Consider It

Serious athletes, individuals recovering from injury, those with chronic joint or tendon issues, and people focused on long-term tissue maintenance and repair.

Who Should Avoid It
People with active malignancies, severe autoimmune conditions, or those already running complex supplement protocols without medical oversight.