

How Your Body Heals

A Guide to Musculoskeletal Recovery

1 The Three Phases of Healing

Healing works through three overlapping phases — each with a different job. Understanding them explains your symptoms, your treatment, and why recovery takes the time it does.

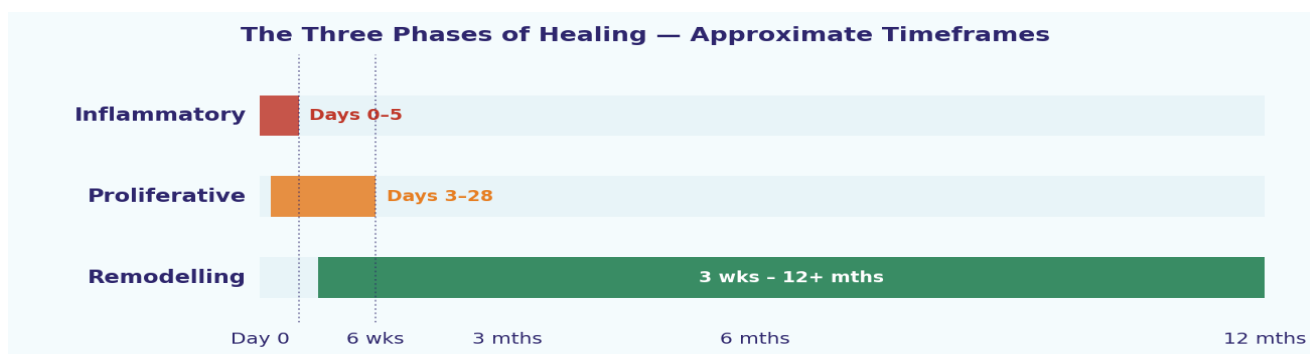


Figure 1 — Phases 2 and 3 begin before Phase 1 has fully resolved.

Phase	Timeframe	What is happening	Your role
Inflammatory	Days 0-5	Immune response; clears damaged tissue; causes redness, swelling, heat, pain	Gentle protection; avoid sharp aggravation
Proliferative	Days 3-28	Fibroblasts lay new collagen; early repair scaffolding; tissue weaker than original	Begin graduated movement to organise new collagen
Remodelling	3 wks - 12+ mths	Collagen reorganises into aligned, stronger fibres driven by mechanical load	Progressive loading; continue exercises even when pain-free

2 Different Tissues Heal at Different Rates

Recovery speed depends heavily on which tissue is injured — the key factor is blood supply: tissues with richer blood supply heal faster.

Tissue	Typical Timeframe	Key note
Muscle	2-6 weeks	Excellent blood supply; fastest-healing MSK tissue
Bone	6-12 weeks	Forms callus then remodels; full strength recovery takes longer

Ligament	10 wks – 12+ mths	Limited blood supply; remodelling activity detected up to 2 years post-injury
Tendon	4 mths – 1 year+	Limited blood supply; healed tendons may reach only 48–80% original strength
Cartilage	Very slow — often incomplete	Avascular; nutrients diffuse slowly; often managed rather than fully cured

Pain ≠ Healing

For tendons, ligaments, and cartilage, pain can resolve well before tissue is fully healed. Returning to full load too soon is one of the most common causes of re-injury — allow the tissue time even after symptoms settle.

3 What Helps — and What Slows — Healing

Factor	Effect on Healing
Graduated movement	↑ Helps — increases blood flow, organises new collagen (mechanotransduction); complete rest beyond day 3 slows repair
7–9 hrs quality sleep	↑ Helps — growth hormone released during deep sleep drives tissue repair; poor sleep increases pain sensitivity and slows all phases
Adequate protein + vitamins C & D	↑ Helps — protein (~1.5–2 g/kg/day) is raw material for repair; Vitamin C essential for collagen synthesis; Vitamin D supports bone and immunity
Smoking	↓ Slows — nicotine reduces blood supply to healing tissue, impairs bone-forming cells, reduces calcium absorption; smokers heal fractures and tendons more slowly
High chronic stress	↓ Slows — sustained stress elevates cortisol, suppresses immune function, amplifies pain signals, and disrupts sleep — all impair healing
Overloading too soon	↓ Slows — excessive load before tissue matures disrupts collagen organisation and is the most common cause of re-injury

Why Recovery Is Not a Straight Line

- Symptoms can spike without re-injury — a bad day from stress, poor sleep, or higher activity does not erase your progress.
- Pain is not a perfect map of damage — the nervous system amplifies signals beyond actual tissue state; track trends over weeks, not daily fluctuations.
- Pain can persist after tissue heals — graded movement helps a sensitised nervous system; rest alone does not.

Disclaimer: This resource is for patient education only. It does not replace personalised advice from your healthcare professional. Always follow the specific guidance provided by your clinician.