

Nutrition and MSK Recovery

Eating to Heal

1 Why Nutrition Matters for Recovery

- What you eat directly affects how quickly your body repairs tendons, bones, cartilage, and muscle.
- Healing is an active biological process that requires specific raw materials — particularly protein, collagen precursors, and anti-inflammatory nutrients.
- Poor nutrition slows healing, increases pain sensitivity, and reduces the benefit from exercise.

"You can't out-exercise a poor diet when recovering from injury — but the right nutritional approach can meaningfully accelerate tissue repair and reduce the time you spend in pain."

Tissue Type	Main Nutritional Need	Why
Tendon	Protein + Vitamin C + collagen supplements	Collagen is the primary structural protein in tendons; Vit C is essential for collagen synthesis
Bone	Calcium + Vitamin D + Protein	Calcium is the mineral scaffold; Vit D enables absorption; protein provides the matrix
Cartilage	Collagen + omega-3s + Vitamin C	Cartilage has no blood supply — nutrition must reach it via synovial fluid
Muscle	Protein (especially leucine) + carbohydrates	Muscle repair requires amino acids; carbs restore glycogen for exercise energy
Ligament	Protein + Vitamin C + zinc	Similar to tendon — slow healing tissue heavily dependent on collagen quality

2 Protein: The Foundation of Repair

- Protein is the most important macronutrient for musculoskeletal recovery.
- Most people undereat protein, especially older adults and those reducing calories to manage weight.

Situation	Recommended Daily Protein	Notes
Healthy adult (no injury)	0.8g per kg body weight	70 kg person = 56 g/day
Active / exercising adult	1.2–1.6g per kg	70 kg person = 84–112 g/day
Recovering from injury	1.6–2.0g per kg	70 kg person = 112–140 g/day

Situation	Recommended Daily Protein	Notes
Older adult (60+)	1.2–1.6g per kg (minimum)	Higher need due to reduced muscle protein synthesis efficiency

Food Source	Protein per Serving
Chicken breast (150 g)	45 g
Tinned tuna (1 can)	30 g
Greek yoghurt (200 g)	17 g
Eggs (2 large)	13 g
Lentils (200 g cooked)	18 g
Cottage cheese (150 g)	19 g
Whey protein shake	20–25 g

3 Collagen and Connective Tissue Recovery

- Tendons, ligaments, and cartilage are made largely of collagen — and they heal slowly because they have limited blood supply.
- Targeted nutritional support can speed this up.

Nutrient	Role	Best Sources	Practical Tip
Collagen peptides (10–15g)	Provides amino acids directly used in tendon/ligament repair	Supplement powder (hydrolysed collagen)	Take 30–60 min before exercise for best uptake
Vitamin C (200–500mg)	Essential cofactor for collagen synthesis — without it collagen cannot form properly	Citrus fruit, kiwi, peppers, broccoli	A glass of orange juice with your collagen supplement
Glycine	Key amino acid in collagen structure	Bone broth, skin-on chicken, gelatine	Bone broth is a good natural collagen source
Zinc	Required for collagen cross-linking and wound healing	Meat, shellfish, pumpkin seeds, legumes	Most people get enough through a balanced diet

4 Anti-Inflammatory Eating

"Chronic low-grade inflammation slows tissue healing and increases pain sensitivity. An anti-inflammatory diet doesn't mean eliminating foods — it means consistently favouring foods that calm the immune system over those that activate it."

Anti-Inflammatory Foods (favour these)	Pro-Inflammatory Foods (limit these)
Oily fish (salmon, mackerel, sardines) 2–3×/week	Processed/ultra-processed foods (crisps, ready meals, pastries)
Colourful vegetables (especially dark leafy greens)	Sugar-sweetened drinks and high-sugar foods
Olive oil as primary fat	Refined vegetable oils (sunflower, corn oil) in large amounts
Berries and cherries	Alcohol (especially in excess)
Nuts and seeds (walnuts, flaxseeds especially)	Trans fats (partially hydrogenated oils)
Turmeric and ginger	Excessive red and processed meat
Green tea	Refined carbohydrates (white bread, white rice in excess)

5 Vitamin D and Bone Health

Issue	What It Means	What to Do
UK population	Most UK adults are deficient in Vitamin D, especially Oct–April	Supplement 1000–2000 IU daily throughout winter; year-round if low sun exposure
Bone stress injuries	Vitamin D deficiency significantly increases stress fracture risk	Check levels via GP if you have had a stress fracture; supplement accordingly
Muscle function	Vitamin D is essential for muscle contraction and balance — deficiency increases fall risk	Important for older adults and those with MSK conditions
Calcium with Vit D	Calcium absorption requires Vit D — supplementing calcium without Vit D is much less effective	Take together; dairy, fortified foods, leafy greens for calcium

6 Practical Eating for Recovery

Meal / Habit	Why It Supports Recovery	Simple Example
Protein at every meal	Maintains steady amino acid availability for repair	Eggs at breakfast, chicken at lunch, fish at dinner
Pre-exercise snack (if using collagen)	Collagen + Vit C 30–60 min before exercise maximises connective tissue uptake	Collagen powder + orange juice before your rehab session
Post-exercise protein within 2 hours	Window for muscle protein synthesis is elevated after loading	Protein shake, Greek yoghurt, or a chicken wrap
Stay hydrated	Cartilage is 70% water — dehydration impairs its function and increases pain	2 L/day minimum; more in hot weather or high activity

Meal / Habit	Why It Supports Recovery	Simple Example
Don't crash diet during recovery	Calorie restriction impairs healing even if protein is adequate	Focus on food quality rather than restriction

3 Key Takeaways

KEY TAKEAWAY 1

Protein is the single most important nutritional factor in MSK recovery. Most people need significantly more than they currently eat — aim for 1.6–2.0g per kg of body weight daily when recovering from injury.

KEY TAKEAWAY 2

Collagen peptides (10–15g) taken with vitamin C 30–60 minutes before exercise have strong evidence for improving tendon and ligament healing. This is one of the most practical, low-cost nutritional interventions you can make.

KEY TAKEAWAY 3

An anti-inflammatory approach to eating — more oily fish, colourful vegetables, olive oil and less ultra-processed food and sugar — doesn't require perfection. Consistent small improvements in diet quality compound meaningfully over a recovery period.