FACT SHEET — METABOLIC / SYSTEMIC

Back Pain and Diabetes

How diabetes affects the spine, why back pain is more common in people with diabetes, and what it means for your care

Diabetes is one of the most significant systemic contributors to back pain that is routinely overlooked in clinical assessment. People with diabetes are more likely to develop back pain, more likely to have severe and persistent back pain, and more likely to have a complex clinical picture involving multiple contributing mechanisms. Understanding how diabetes affects the spine — and how it affects pain itself — is an important part of managing back pain effectively in this population.

■ Tell your back pain practitioner if you have diabetes, because:

- Diabetic neuropathy can cause back and leg symptoms that mimic disc herniation or sciatica
- Poor blood sugar control slows tissue healing and affects treatment outcomes
- Diabetes increases the risk of spinal infection, which must always be considered
- Some manual therapy techniques and exercise programmes need to be adapted
- Foot and leg sensation changes affect how neurological symptoms are interpreted

How diabetes affects the spine and back pain

Diabetes affects the spine and back pain through several distinct mechanisms. Understanding which mechanism is predominant in your case is important because each requires a different approach to management.

Diabetic neuropathy	High blood glucose over time damages the peripheral nerves. This can cause pain, burning, tingling, and numbness in the legs and feet — symptoms that closely mimic spinal nerve root compression (sciatica). Distinguishing diabetic neuropathy from true spinal nerve root compression is clinically important as the management is very different. Neuropathic pain from diabetes tends to be bilateral, stocking-distribution, and associated with other diabetic complications.
Advanced glycation end-products (AGEs)	Chronic high blood sugar causes the cross-linking of collagen through a process called glycation. This makes the structural proteins of the disc, ligaments, and facet joint capsules stiffer and more brittle. The result is accelerated disc degeneration, reduced spinal flexibility, and increased vulnerability to injury.
Increased disc degeneration	People with diabetes have significantly higher rates of lumbar disc degeneration and disc herniation than the non-diabetic population. Impaired blood supply to the already avascular disc further compromises disc nutrition and repair.

Impaired tissue healing	Chronic hyperglycaemia impairs the function of fibroblasts (the cells that repair connective tissue) and reduces local circulation. This means that when musculoskeletal injuries occur — disc injuries, muscle strains, ligament sprains — they take longer to heal and are more likely to become chronic.
Central sensitisation	Chronic pain from diabetic neuropathy can contribute to central sensitisation, amplifying pain from spinal structures and making the overall clinical picture more complex.
Increased infection risk	Diabetes significantly increases the risk of spinal infection (discitis and vertebral osteomyelitis). Any person with diabetes who develops back pain with fever or systemic illness should be assessed urgently to exclude spinal infection.

Diabetic neuropathy versus spinal sciatica — telling them apart

This distinction is one of the most clinically important in back pain assessment for people with diabetes. Both conditions can cause leg pain, tingling, and numbness, but the management is entirely different.

Feature	Characteristics
Diabetic peripheral neuropathy	Typically bilateral and symmetrical. Stocking distribution — feet and lower legs affected equally on both sides. Burning, tingling, and numbness. Often worse at night. No back pain necessarily. Neurological examination may show reduced vibration sense, reduced ankle reflexes, and impaired sensation in a stocking pattern. Associated with other diabetic complications.
Spinal nerve root compression (sciatica)	Typically unilateral. Follows a specific dermatomal pattern — pain tracks along the distribution of L4, L5, or S1. Often associated with back pain. Aggravated by coughing, sneezing, or prolonged sitting. Straight leg raise may reproduce leg pain. Neurological changes follow the affected nerve root level rather than a stocking distribution.

When both are present

It is entirely possible — and clinically common — for a person with diabetes to have both diabetic neuropathy and spinal nerve root compression simultaneously. When the clinical picture is mixed or unclear, nerve conduction studies can help distinguish peripheral neuropathy from nerve root compression. An MRI of the lumbar spine assesses the structural picture. Both investigations together provide the clearest picture.

Blood sugar control and back pain outcomes

This is perhaps the most important practical point in this fact sheet: blood sugar control directly affects back pain outcomes. Poor glycaemic control is associated with:

- **Slower recovery** from acute muscle and disc injuries
- **Higher rates of chronicity** — acute back pain is more likely to become chronic
- **Poorer outcomes from manual therapy** — impaired tissue response to treatment

- **Greater post-exercise soreness** and slower adaptation to rehabilitation
- **Higher risk of spinal infection** following any spinal procedure or injection

Conversely, improving glycaemic control — alongside back pain treatment — has been shown to reduce neuropathic pain scores, improve healing, and enhance rehabilitation outcomes. If your blood sugar is poorly controlled, addressing this with your GP or diabetologist is a direct part of managing your back pain.

Exercise, diabetes, and back pain

Exercise is beneficial for both diabetes and back pain — but the combination requires some practical considerations:

Blood sugar monitoring	Exercise lowers blood glucose. People on insulin or sulphonylureas should monitor blood sugar before and after exercise to avoid hypoglycaemia. Carry fast-acting glucose.
Foot care	Diabetic peripheral neuropathy reduces sensation in the feet, making foot injuries more likely to go unnoticed. Appropriate footwear, daily foot inspection, and avoiding barefoot exercise are important.
Exercise type	Low-impact exercise — swimming, cycling, walking, water aerobics — minimises joint loading while providing cardiovascular and metabolic benefit. Pilates and yoga are excellent for core stability without high impact.
Progression	Diabetic connective tissue changes mean slower adaptation to new exercise loads. Progress more gradually than a non-diabetic patient with the same back pain presentation. More rest between sessions initially.

Spinal injections in diabetes

Corticosteroid injections for back pain — including epidurals and facet joint injections — can cause a significant temporary rise in blood glucose, sometimes lasting several days. If you have diabetes and are considering a spinal injection, discuss this with both your back pain specialist and your GP or diabetologist beforehand. More frequent blood sugar monitoring will be needed around the time of the injection.

When to see your GP about your back pain and diabetes

- Back pain with fever, feeling systemically unwell, or raised temperature — always assess urgently to exclude spinal infection
- Worsening leg symptoms not responding to treatment within 4–6 weeks
- New bladder or bowel changes alongside back pain — go to A&E;
- Back pain after a steroid injection with significantly elevated blood sugars
- Any back pain in a person with poorly controlled diabetes that is not improving

Related fact sheets

Sciatica	Spinal nerve root compression — how to distinguish from diabetic neuropathy.
Spinal infection	Discitis and osteomyelitis — significantly more common in people with diabetes.
Central sensitisation and chronic pain	Amplified pain from chronic neuropathy.
Degenerative disc disease	Accelerated disc degeneration in diabetes.
Pilates and yoga for back pain	Low-impact exercise approaches appropriate for people with diabetes.
Why self-management produces better long-term outcomes	Active rehabilitation and glycaemic control as parallel goals.

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