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Pain and diabetes:

diabetes hurts

Chronic pain is a frequent but often underestimated complication in people with diabetes mellitus. This type of pain, which persists for more than 3 months, no longer serves solely as a warning signal but becomes a health problem per se. In diabetes, chronic pain is mainly associated with diabetic neuropathy, resulting from progressive damage to peripheral nerves caused by sustained hyperglycemia. However, other factors also contribute, including musculoskeletal disorders, circulatory problems, and alterations in pain sensitivity.

The presence of pain not only affects mobility and sleep but also has a direct impact on psychological well-being and quality of life. Understanding its origin, prevalence, and available management options is essential for moving toward a more comprehensive approach to diabetes care—one that addresses both metabolic control and the reduction of associated suffering. The most common causes of pain in diabetes are shown in ***Table 1***.

In Spain, 32% of the adult population experiences pain, and 11–17% suffer from chronic pain.

Chronic pain is the second most common reason for consultation in Primary Care, with 50% of visits related to non-oncological chronic pain.

PHARMACOLOGICAL TREATMENT OF CHRONIC PAIN IN DIABETES

Managing chronic pain in people with diabetes requires a personalized strategy that considers the origin of pain, its intensity, and its impact on daily life. In this context, pharmacological therapy remains one of the main available tools.

Pain management in diabetes typically includes different types of medications depending on pain severity and etiology:

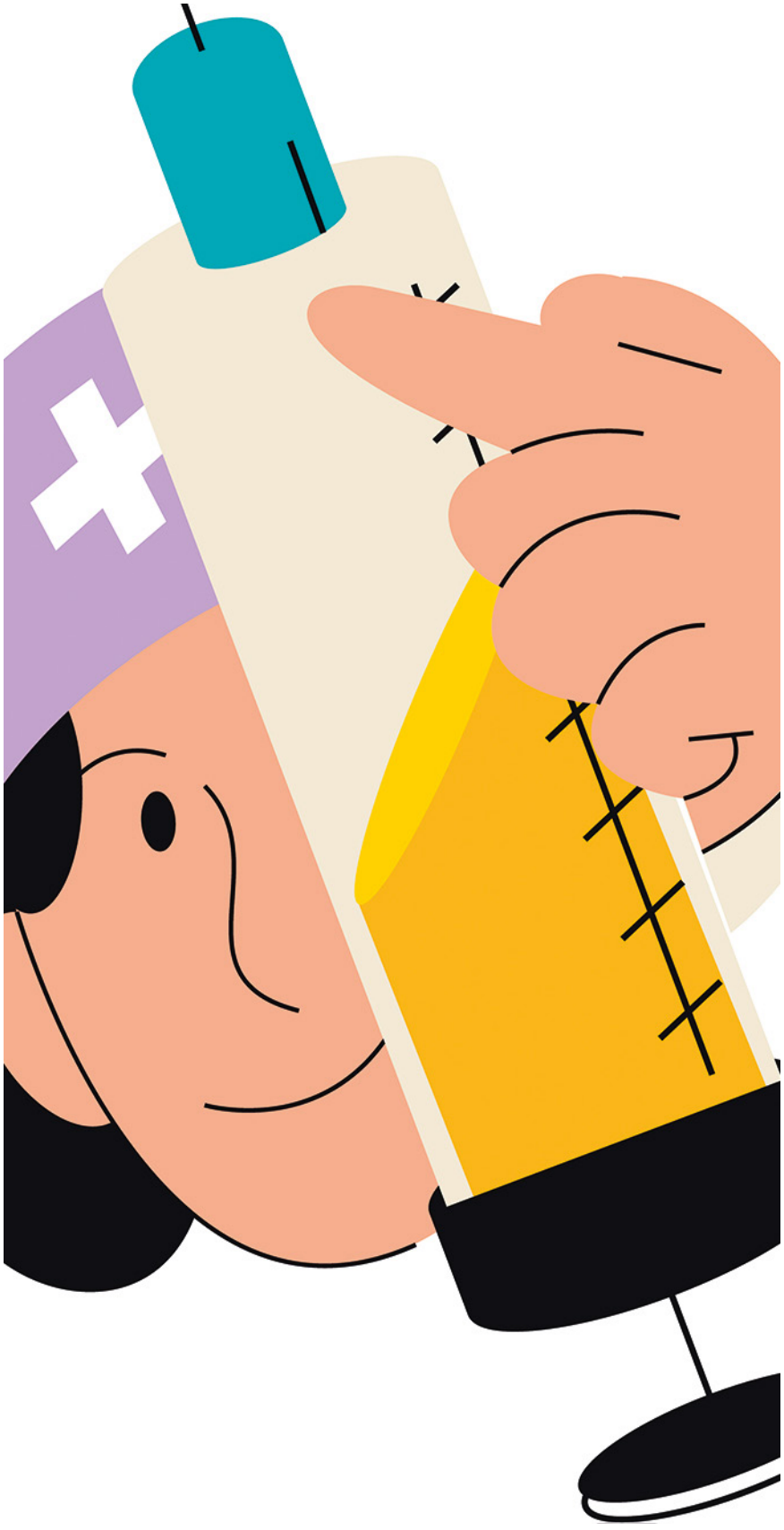
Basic analgesia: paracetamol or nonsteroidal anti-inflammatory drugs (NSAIDs), although with limited effectiveness for neuropathic pain.

NSAIDs should be used with caution due to potential renal damage and only for short-term treatment.

First-line drugs for diabetic neuropathy: antidepressants such as amitriptyline or duloxetine, and anticonvulsants such as gabapentin or pregabalin. These treatments can be very useful for neuropathic pain but may cause drowsiness, dizziness, increased fall risk, and have dependency potential. They should be started at low doses, titrated slowly, and periodically reassessed for effectiveness. The lowest effective dose should be used for the shortest possible time. »

TYPE OF PAIN	MAIN CAUSE	HOW IT MANIFESTS	COMMON EXAMPLES	USUAL MEDICAL TREATMENT	WHAT YOU CAN DO
Procedure-related	Local irritation from repeated punctures	Brief, sharp pain	Insulin injections, sensors, finger-stick tests	Fine needles, rotation of injection sites, protective patches	Change injectionsite and check your skin daily
Peripheral neuropathic	Nerve damage from prolonged high glucose	Burning, tingling, cramps, nocturnal pain ("glove and stocking" pattern)	Symmetric distal neuropathy	Pregabalin, duloxetine, glycemic control	Maintain good glucose control and regular physical activity
Focal neuropathies	Reduced blood supply or compression of a specific nerve	Localized pain with loss of strength or sensation	Third cranial nerve palsy, carpal tunnel syndrome	Splints, physical therapy, surgery if necessary	Avoid forced postures and seek care if weakness appears
Lumbosacral radiculoplexopathy	Inflammation of the lumbar nerve plexus	Hip or groin pain, leg weakness	Diabetic amyotrophy	Analgesics, physiotherapy	Supervised rehabilitation and weight control
Autonomic neuropathy	Damage to nerves controlling internal organs	Abdominal pain, lack of warning signs of heart pain	Gastroparesis, silent myocardial infarction	Prokinetic agents, postural management	Eat slowly and avoid heavy meals
Musculoskeletal	Glucose accumulation in tendons and joints	Joint pain and stiffness	Frozen shoulder, Dupuytren contracture	Physical therapy, local injections	Stretch daily and avoid sedentary behavior
Charcot arthropathy	Nerve damage with repeated microtrauma	Initial pain, progressive foot deformity	Deformed diabetic foot	Offloading, orthoses, surgery	Wear orthopedic footwear and inspect feet daily
Vascular	Reduced blood flow due to atherosclerosis	Pain when walking or at rest	Claudication, leg pain	Revascularization, antiplatelet therapy	Do not smoke and perform moderate exercise
Diabetic foot pain	Combination of nerve damage, ischemia, and infection	Pain in ulcers or wounds	Plantar ulcers, gangrene	Local wound care, antibiotics	Daily hygiene, wide footwear, regular checkups
Visceral	Internal nerve dysfunction and motility disorders	Abdominal or lower back pain	Gastroparesis, nephropathy	Prokinetic agents, kidney-protective therapy	Eat small portions and control fluid intake
Comorbidity-related	Osteoarthritis, obesity, hypertension	Low back or joint pain	Knee pain, chronic low back pain	Exercise, weight loss	Maintain active habits and monitor posture

TABLE 1. Causes of pain in people with diabetes



» **Topical treatments:** lidocaine or capsaicin patches, useful for localized pain.

Opioid drugs: reserved for refractory cases and always under strict medical supervision (1).

Opioids (such as morphine, tramadol, or oxycodone) relieve pain by acting directly on the central nervous system. They are highly effective in severe acute pain or pain associated with advanced disease, but their role in non-oncological chronic pain—including diabetes-related pain—is limited and requires very careful use.

In recent years, opioid consumption in Spain has increased by 27%, especially among older adults and women, according to data from the Spanish Agency of Medicines. However, this increase has not always been accompanied by better pain control and has instead led to a higher risk of adverse effects.

Common side effects include drowsiness, constipation, dizziness, reduced reflexes, and risk of dependence with long-term or high-dose use.

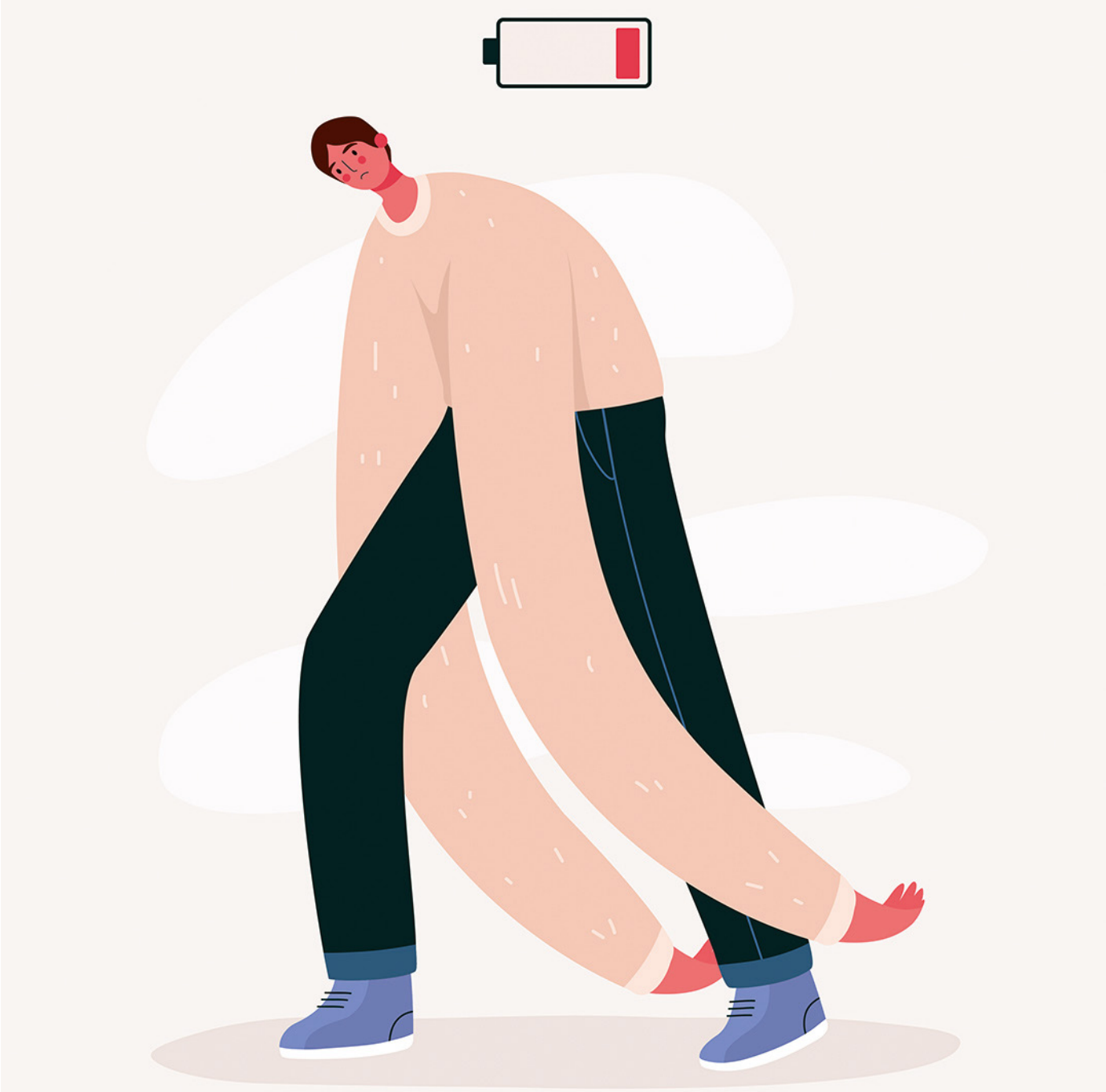
Therefore, European and Spanish clinical practice guidelines recommend opioid use only in carefully selected cases when:

- Pain is severe and unresponsive to other treatments;
- The benefit–risk balance has been thoroughly evaluated;
- A clear medical follow-up plan with defined goals and limited duration is established, with the possibility of deprescribing if ineffective.

Before initiating opioid therapy, it is essential to assess pain type, overall health status, and the presence of risk factors (e. g., renal failure, frailty, history of substance misuse).

Treatment should begin with the lowest effective dose, be reviewed regularly, and if objectives are not met, be tapered and discontinued safely.

Current practice emphasizes using opioids as part of a multimodal strategy, together with neuropathic pain medications, physiotherapy, exercise, and psychological support. »



» The goal is not only to reduce pain but to improve functionality and quality of life without creating new health problems.

NON-PHARMACOLOGICAL TREATMENT OF CHRONIC PAIN IN DIABETES

In addition to drugs, non-pharmacological measures play a key role in reducing pain and improving quality of life.

In recent years, active pain coping strategies based on non-pharmacological therapies have been increasingly implemented, supported by growing scientific evidence.

Current recommendations emphasize introducing non-pharmacological options from the beginning of treatment, rather than relying solely on drugs.

The NICE guideline (April 2021) on chronic pain proposes a comprehensive evaluation of patients with chronic pain and the early incorporation of exercise »

programs, psychological therapy, and acupuncture alongside pharmacological management (2).

Spanish clinical practice guidelines on the management of chronic pain—including the Navarra Therapeutic Information Bulletin and the National Plan for Optimization of Opioid Use in Chronic Pain—stress that pain management must reflect its biopsychosocial nature and requires a multidimensional approach, highlighting patient education as a crucial component (3).

Therefore, non-pharmacological therapies should be optimized, as evidence of long-term benefit from opioids is limited and associated with dose-dependent risk of serious adverse effects.

Non-Pharmacological Treatment Options

- Regular physical exercise: improves circulation, strengthens muscles, and enhances nerve sensitivity.
- Physical therapy and rehabilitation: mobilization techniques, massage, and electrotherapy to relieve pain and preserve mobility.
- Diabetic foot care: prevention of ulcers and injuries that may generate additional pain.
- Psychological support: cognitive-behavioral therapy and relaxation techniques to address the emotional impact of chronic pain.
- Pain neuroscience education: structured educational intervention providing knowledge about pain processing and representation, helping patients understand the neurophysiological mechanisms underlying pain, thereby reducing pain and disability (4).
- Healthy habits: strict glycemic control, balanced diet, and smoking cessation to prevent progression of neuropathy.

These interventions, combined with pharmacological treatment, allow for a comprehensive and more effective approach to chronic pain in diabetes. A global summary of pain management is presented in *Table 2*. D

TYPE OF TREATMENT	PRIMARY GOAL	EXAMPLES / DRUGS	CONSIDERATIONS AND PRE-CAUTIONS	PRACTICAL COMMENT
Basic analgesia	Relieve mild or musculoskeletal pain	Paracetamol, ibuprofen, naproxen (NSAIDs)	Limited use; avoid in renal or gastrointestinal disease	Suitable for occasional or exertion-related pain
Antidepressants	Modulate neuropathic pain transmission	Amitriptyline, duloxetine, venlafaxine	May cause drowsiness, dry mouth, or dizziness	Useful for persistent neuropathic pain; start with low doses
Anticonvulsants	Reduce nerve hyperexcitability	Pregabalin, gabapentin	Monitor balance and sedation; adjust in renal failure	First-line therapy for painful diabetic neuropathy
Topical treatments	Relieve localized pain	Lidocaine patches, capsaicin	Avoid on irritated skin or open wounds	Effective adjunct for focal painful areas
Opioids	Control severe pain resistant to other therapies	Tramadol, tapentadol, morphine, oxycodone	Restricted use; risk of dependence and long-term adverse effects	Only for selected cases under close medical supervision
Adjuvant drugs	Improve associated symptoms	Prokinetic agents (gastroparesis), antidepressants, anxiolytics	Individualized dosing; assess interactions	Complement comprehensive pain management
Physical exercise	Improve circulation, strength, and overall well-being	Walking, swimming, stretching	Adapt to functional status and glycemic control	Reduces pain and improves mobility
Physical therapy and rehabilitation	Retrain movement and prevent stiffness	Massage, stretching, electrical stimulation	Requires professional follow-up	Essential for frozen shoulder, low back pain, or Charcot foot
Psychological support	Address emotional impact of chronic pain	Cognitive behavioral therapy, mindfulness	Enhances adherence and resilience	Reduces pain perceptio and anxiety
Pain neuroscience education	Understand how pain works	Structured educational sessions	Growing evidence in fibromyalgia and neuropathic pain	Promotes active coping and improves quality of life
Healthy lifestyle	Prevent progression and improve metabolic control	Glycemic control, balanced diet, smoking cessation	Direct impact on neuropathy and vascular pain	Stable glucose reduces risk of worsening

TABLE 2. Pain management in diabetes.

CONCLUSIONS

- Chronic pain in diabetes represents a complex challenge that affects not only physical health but also emotional and social well-being.
- Its origin—primarily linked to diabetic neuropathy—requires a comprehensive approach combining pharmacological and non-pharmacological strategies.
- While drugs help control symptoms and improve nerve function, interventions such as exercise, physical therapy, preventive care, and psychological support reinforce treatment and reduce its impact on daily life.
- Recognizing the importance of this problem and providing personalized solutions is essential for advancing toward more humane and comprehensive diabetes care.

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