

## Station A: Chronic Low Back Pain (CLBP)

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### What is Chronic Low Back Pain?

- Chronic low back pain (CLBP) is persistent or recurrent pain in the lumbar region lasting 12 weeks or more
- It is a symptom complex, not a structural diagnosis. In 85 to 90% of cases, no specific anatomical cause can be identified ('non-specific low back pain')
- It is the single leading cause of disability worldwide (WHO), affecting 570 million people globally
- Chronicity is driven not just by structural factors but by psychosocial factors: fear-avoidance beliefs, catastrophising, low mood, work dissatisfaction, and social isolation ('yellow flags')
- The biopsychosocial model (biological, psychological, social factors interacting) is the appropriate framework for understanding and managing CLBP

### Prevalence and Incidence

#### Global

- 570 million people affected (WHO)
- Single leading cause of disability in 160 countries
- Annual incidence of a new episode: 10 to 15% of the general adult population
- Recurrence is common: 33 to 73% of people who have one episode will have a recurrence within 12 months

#### UK

- 9.5 million people report low back pain in any given year
- 951,935 years lived with disability (highest of all MSK conditions)
- Third most common reason for working days lost (23.4 million days in 2022)
- Leading cause of YLDs: 10% of all YLDs in the UK

#### Wales

- No Wales-specific prevalence data available; UK figures apply
- Spinal pain prevalence study (University of South Wales, Byfield et al. 2024) established current prevalence and determinants using National Survey for Wales data

- The deprivation gradient applies: manual labour, occupational loading, and socioeconomic disadvantage increase risk, all of which are relevant to Welsh communities

## Aetiology

- CLBP is multifactorial. In most cases, no single structural cause is identifiable
- Structural/biological contributors (present in some cases): disc degeneration, facet joint changes, ligament strain, muscle deconditioning, nerve root irritation
- Central sensitisation: in chronic pain, the nervous system itself changes. Pain signals are amplified, pain thresholds drop, and the brain processes pain differently. The pain becomes 'real' even when the original tissue damage has healed.
- Psychosocial drivers of chronicity (the critical factor): fear-avoidance, catastrophising, depression, anxiety, work dissatisfaction, social isolation, compensation and litigation
- The transition from acute to chronic is driven more by psychosocial factors than by structural pathology

## Signs and Symptoms

- Persistent or recurrent pain in the lumbar region, often radiating to the buttocks or thighs
- Pain may be constant, intermittent, or provoked by specific movements or positions
- Morning stiffness that improves with movement (but not as prolonged as RA)
- Reduced range of motion in the lumbar spine
- Muscle tension and guarding in the paraspinal muscles
- Functional limitations: difficulty sitting for prolonged periods, bending, lifting, walking
- In chronic cases: deconditioning, reduced fitness, weight gain, sleep disturbance
- Psychological features: anxiety about movement (kinesiophobia), low mood, frustration, catastrophic thinking about pain

## Red flags (require immediate referral, rule these out first)

- Cauda equina syndrome: loss of bladder or bowel function, saddle anaesthesia, bilateral leg weakness
- Unexplained weight loss, fever, history of cancer (possible malignancy)
- Progressive neurological deficit
- Severe trauma (possible fracture)

### **Yellow flags (psychosocial risk factors predicting chronicity)**

- Belief that pain is harmful or severely disabling
- Fear-avoidance behaviour: avoiding movement because of pain
- Tendency to low mood and social withdrawal
- Expectation that passive treatment (medication, surgery) is more helpful than active participation
- Social or financial problems
- Work dissatisfaction or disputes with employers
- These are stronger predictors of chronic disability than anything visible on an MRI scan

### **Risk Factors**

#### **Non-modifiable**

- Age (prevalence peaks between 40 and 80)
- Female sex (higher prevalence in women, possibly related to hormonal factors, pain processing differences, and occupational patterns)
- Genetics (some evidence for familial clustering, particularly for disc degeneration)

#### **Modifiable**

- Physical inactivity and sedentary behaviour (deconditioning weakens spinal support muscles)
- Obesity (increased mechanical loading on the spine; systemic inflammation)
- Smoking (impairs disc nutrition via reduced blood supply; associated with chronic pain)
- Occupational factors: heavy manual work, prolonged sitting, repetitive bending and lifting, whole-body vibration
- Psychosocial factors: depression, anxiety, stress, low job satisfaction, poor social support
- Sleep disturbance (bidirectional: pain disrupts sleep; poor sleep amplifies pain perception)

## The Fear-Avoidance Model

This is a key concept for understanding why CLBP persists:

1. Injury or pain episode occurs
2. Pain is interpreted catastrophically ('my back is damaged,' 'I will never get better')
3. Fear of movement (kinesiophobia) develops
4. Person avoids activity and becomes hypervigilant about pain
5. Disuse leads to deconditioning: muscles weaken, fitness declines, weight increases
6. Deconditioning increases pain and disability
7. Increased pain reinforces catastrophic beliefs, and the cycle continues

Breaking this cycle through graded exposure to movement (not rest) is a key treatment principle. This is where exercise professionals have a direct therapeutic role.

## Quality of Life

- Chronic pain affects every dimension of life: physical function, employment, relationships, mental health, sleep, and social participation
- Depression and anxiety are common comorbidities: approximately 50% of people with chronic back pain have clinically significant depression
- Employment impact: CLBP is one of the leading causes of long-term sickness absence and early retirement
- Social isolation: people withdraw from activities, hobbies, and social contact due to pain
- Treatment is multimodal: exercise (the single most effective intervention), psychological support (CBT for pain management), education, and self-management. Passive treatments (injections, surgery) have limited evidence for non-specific CLBP.
- NICE guideline NG59 recommends exercise and not to offer imaging (X-ray or MRI) for non-specific low back pain, because imaging findings often do not correlate with symptoms and can increase fear-avoidance behaviour

## Sources

- WHO Musculoskeletal Health Fact Sheet (2022)
- Versus Arthritis State of MSK Health 2025
- GBD 2019: Low back pain
- NICE NG59: Low back pain and sciatica in over 16s (2016, updated 2020)
- Vlaeyen JWS et al. (2016) Fear-avoidance model of chronic musculoskeletal pain. The Lancet, 391: 2431 to 2440
- Byfield DC et al. (2024) Spinal pain prevalence and determinants in Wales. Physiol Rep, 12(21): e70101