The Mystery of Fibromyalgia

Understanding the Biology Behind the Pain

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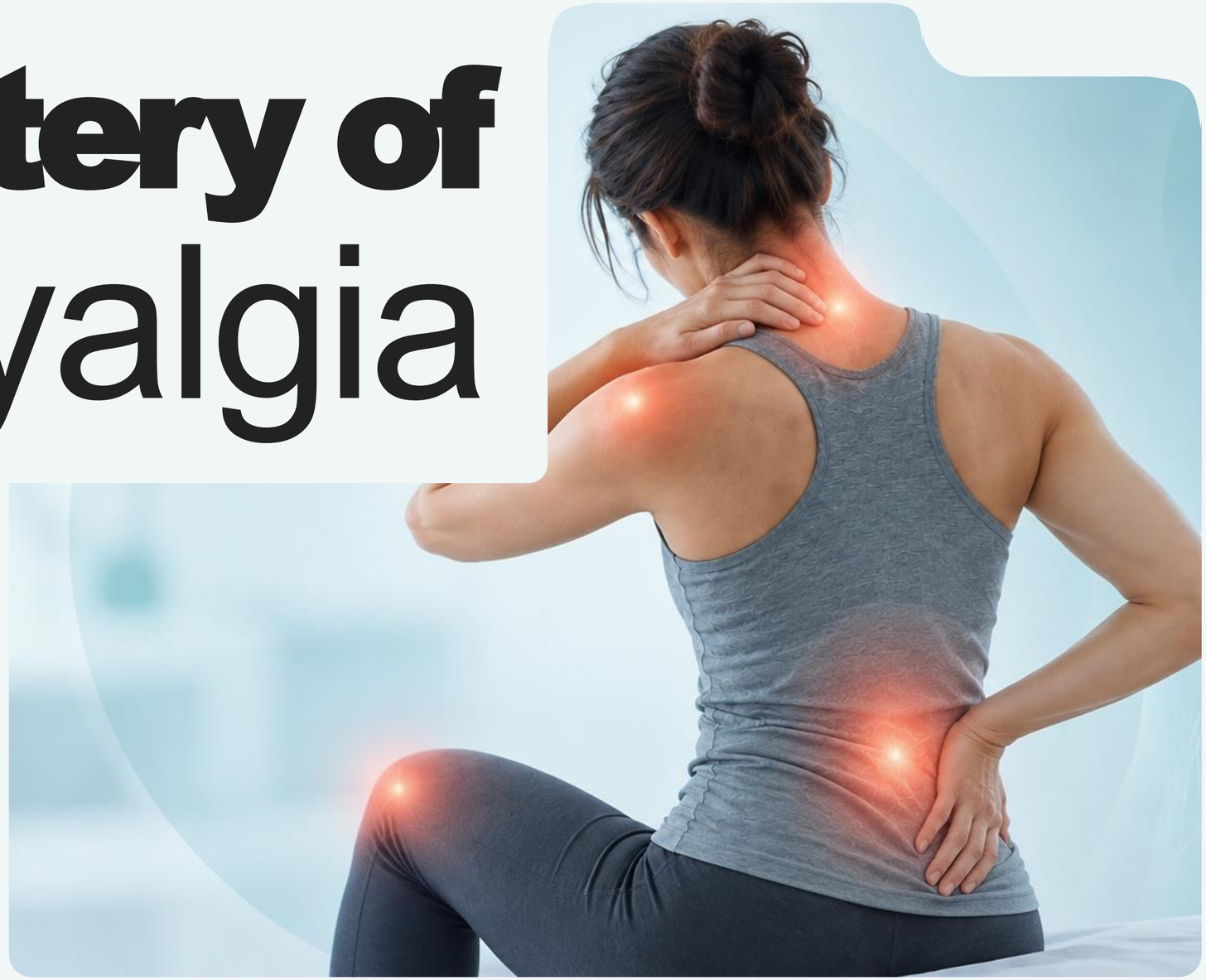


EPIDEMIOLOGY

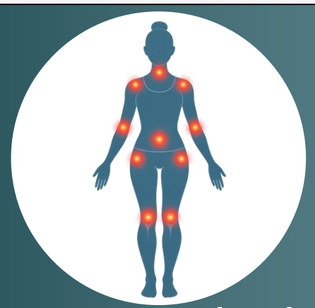
~2%

Estimated prevalence

♀ > ♂

More common in women

Widespread Pain



Pain across the body

Yet no identifiable pathology at painful muscle and joint sites

Where is the problem?

The Clinical Mystery

Two questions guide the evidence:

01 Is the pain real?

02 What might cause the pain?

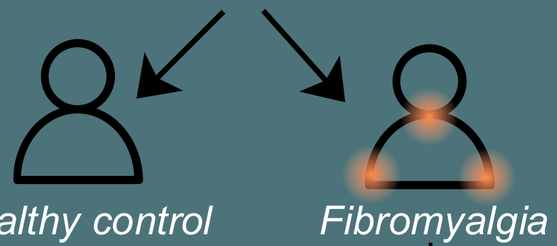
The pain is real

Pain processing is amplified in fibromyalgia.

Here's what the evidence shows:

01 | HYPERALGESIA

Same Stimulus



Greater perceived pain

02 | WIND-UP PAIN

Repeated stimulus

Progressively greater perceived pain

Greater wind-up vs healthy controls

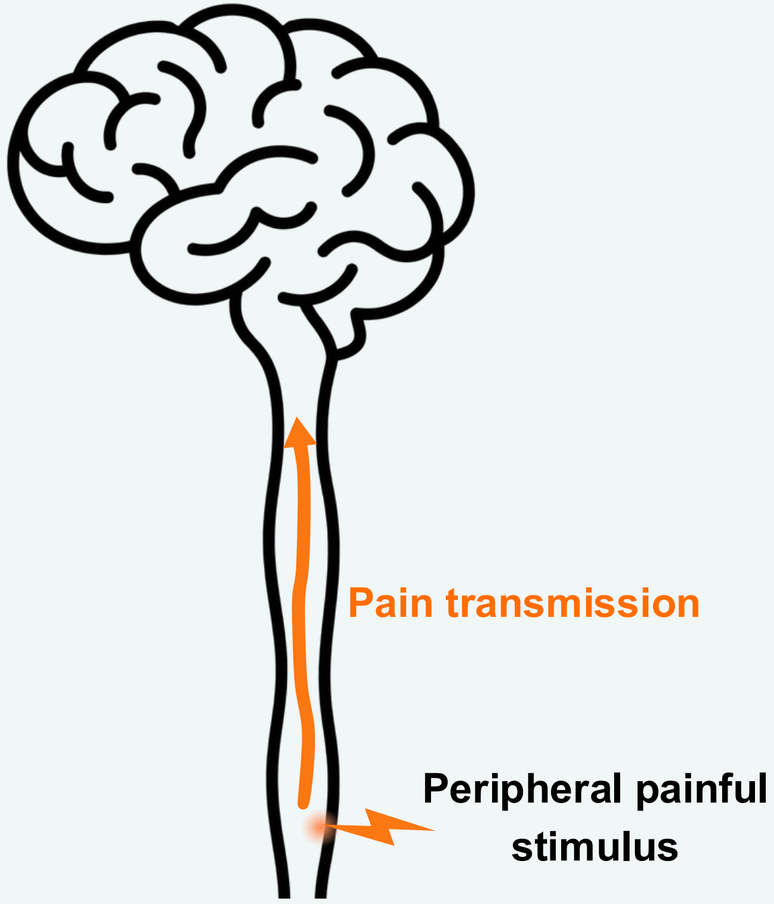
03 | IMAGING

Same Stimulus

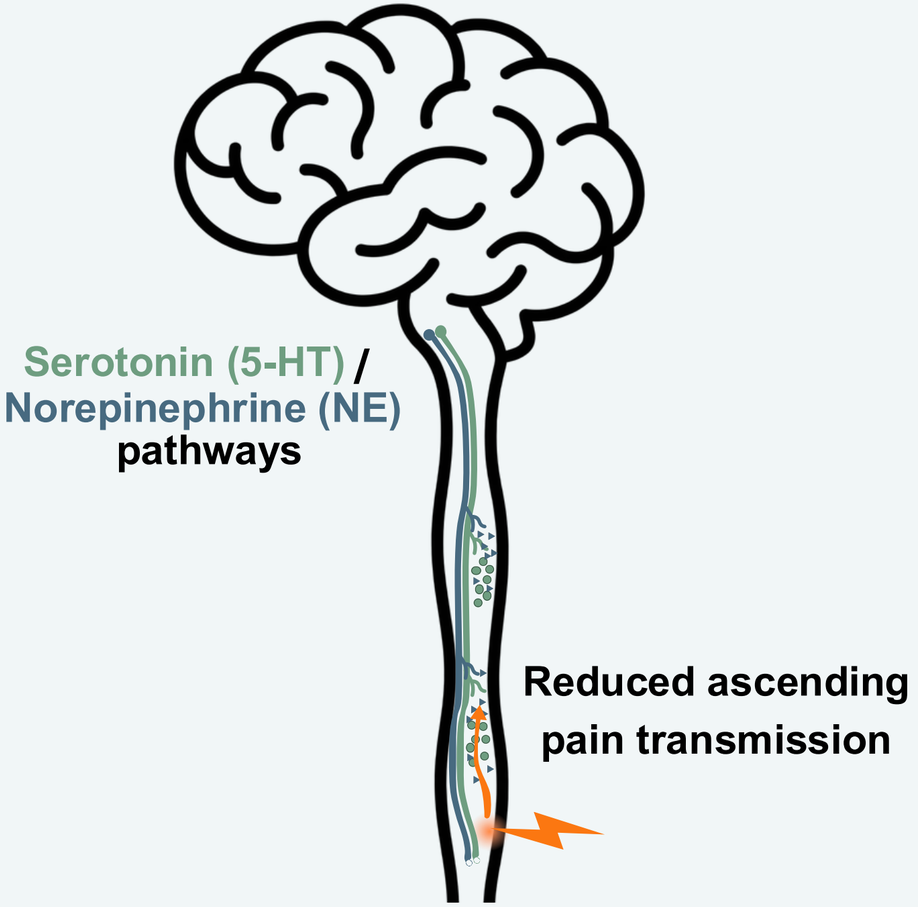
Greater activity in pain-processing brain regions

Pain processing has a “brake”

ASCENDING PAIN TRANSMISSION



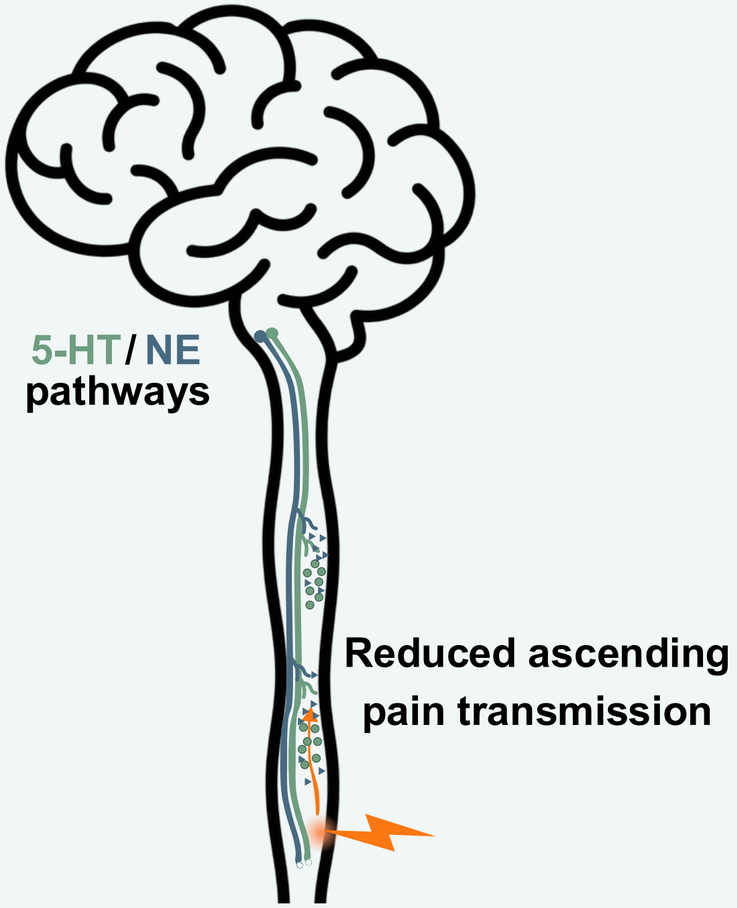
DESCENDING PAIN INHIBITION



Descending 5-HT and NE pathways help regulate pain transmission at the spinal cord.

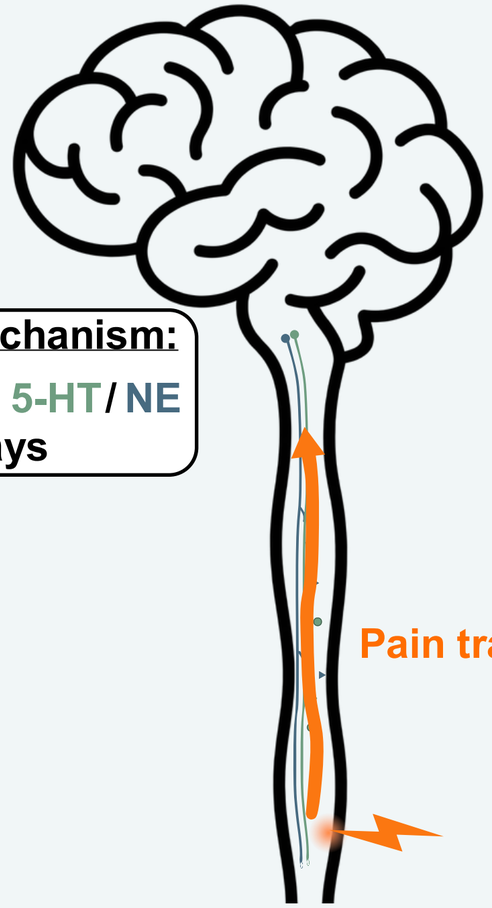
What happens when the “brake” is weakened?

NORMAL



FIBROMYALGIA

Proposed mechanism:
↓ Descending 5-HT / NE pathways



Reduced pain inhibition, a weaker “brake,” may amplify pain.

Fibromyalgia extends beyond pain

ONGOING PAIN

↓

Sleep • Mood • Anxiety

SHARED 5-HT / NE SIGNALING

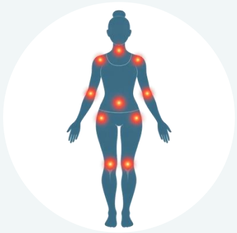
↓

Pain • Sleep • Mood • Anxiety

RECIPROCAL INTERACTIONS

↔

Pain ↔ Sleep ↔ Mood ↔ Anxiety



These mechanisms may overlap.

95% of patients with fibromyalgia are women.

→

Suggesting a possible *sex-related* predisposition

Reframing fibromyalgia

From a misunderstood condition to a biologically grounded explanation

1 NOT SIMPLY

“Pain without pathology”

Pain can be real even without identifiable pathology at painful muscle and joint sites.

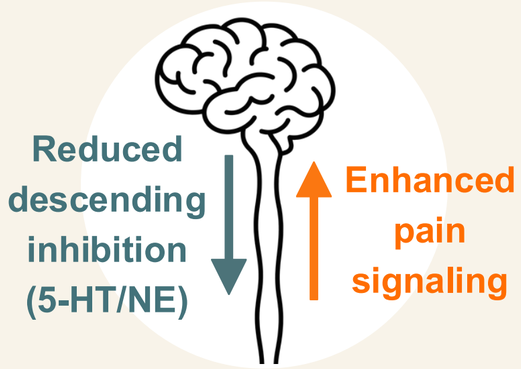
2 EVIDENCE SHOWS

Pain processing is amplified

- **Hyperalgesia**
- **Wind-up pain**
- **Altered brain activity**

3 CURRENT EVIDENCE SUGGESTS

Reduced inhibition may amplify pain signals



4 THIS MAY HELP EXPLAIN

Symptoms beyond pain

- **Pain**
- **Sleep disturbances**
- **Mood symptoms**
- **Anxiety symptoms**

Shared pathways may connect these symptoms.

KEY TAKEAWAY

Fibromyalgia pain is real, and the problem may lie in how pain is processed, not where it is felt.