



Chronic Pain

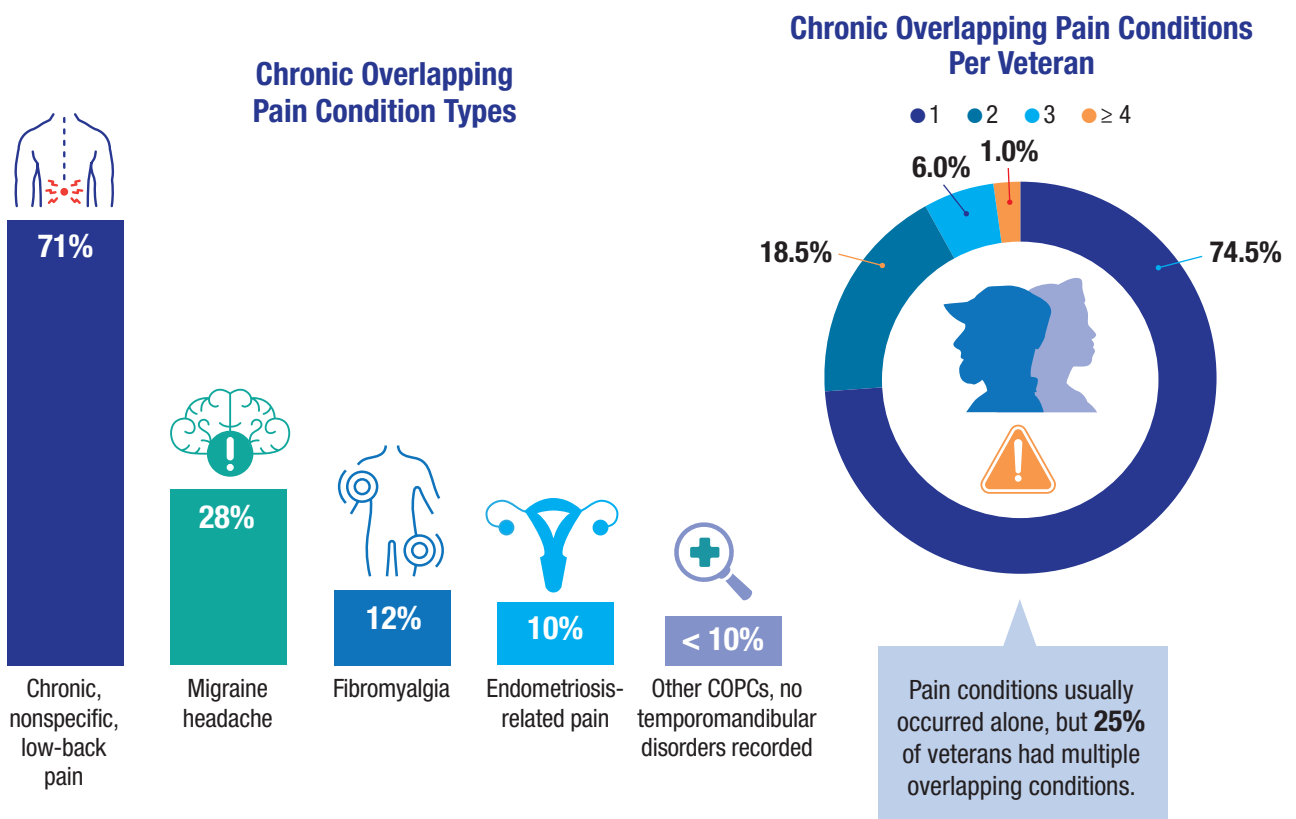
Chronic overlapping pain conditions and chronic back pain are highly prevalent, complex, and biologically distinct problems among US veterans. The LAMP (Learning to Apply Mindfulness to Pain) trial baseline analysis recently demonstrated that veterans with overlapping pain conditions carry a heavier burden of mental health problems, more severe and disruptive pain, and greater use of both medications and nonpharmacologic treatments than veterans with chronic pain who do not have these overlapping conditions.¹

A genetic study in the Million Veteran Program also revealed that chronic back pain has a polygenic architecture, with many genomic regions—some newly discovered—contributing to risk. These variants largely act through brain- and pituitary-related pathways and overlap with other pain and psychiatric traits.² Together, these studies underscore that veterans' chronic pain is driven by intertwined biological and psychosocial factors.

Chronic Overlapping Pain Conditions in Veterans¹



About 800 veterans with chronic pain took place in a pragmatic telehealth trial (LAMP). More than half (54%) had chronic overlapping pain conditions, a nociplastic pain cluster linked to greater mental health burden, worse pain and functioning, and higher treatment use.



Veterans with chronic overlapping pain conditions experienced a more complex and burdensome pain profile — marked by greater mental health comorbidity, higher stress and pain-related distress, and greater use of both medications and integrative therapies.

Sociodemographics of Veterans With Chronic Overlapping Pain Conditions¹



Younger (~ 5 years on average) than veterans without chronic overlapping pain conditions

More common in:



Women



Those with a disability



Those with documented military sexual trauma

No differences observed in race, ethnicity, or rurality.

Those with chronic overlapping pain conditions also have...

1 Higher Mental Health Burden



More mental health diagnoses (any)



Higher risk of PTSD



Higher risk of depressive disorder



Higher risk of sleep disorder

Differences for these diagnoses remained significant after adjusting for age and sex.

2 Different Pain-Related Thought Patterns



Greater pain catastrophizing



Higher perceived stress (especially with multiple COPCs)



Lower pain self efficacy



Similar use of mindfulness skills between groups

3 Different Treatment Patterns



More likely to receive medication



- ✓ Opioid prescriptions
- ✓ Benzodiazepines and concurrent opioid + benzodiazepine therapy



More likely to use nonpharmacologic treatment in the past 3 months

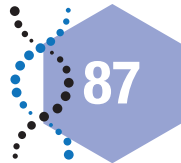


- ✓ Treatments included acupuncture, manipulation, massage, yoga, spinal injections, and opioid medication.
- ✓ Those with 2+ COPCs showed even stronger differences and higher use of Tai Chi/Qigong, exercise, and psychotherapy.

Genetic Architecture of Chronic Back Pain in Veterans²



This large VA genetic study of ~ 550,000, ancestrally diverse veterans in the Million Veteran Program examined inherited contributors to chronic back pain. Many new and previously known DNA regions were linked to chronic back pain, including a prominent signal in the *Forkhead box protein P2 (FOXP2)* gene, with several variants acting through brain and pituitary pathways and some mapping to genes already targeted by existing drugs.

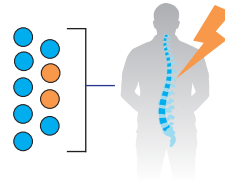


genetic regions (loci) found linked to chronic back pain

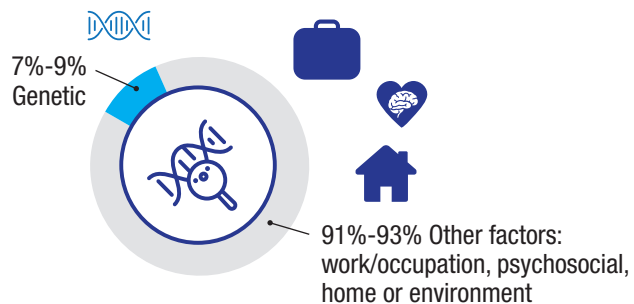


Genetic Findings

Many small-effect variants; risk is spread across many genes rather than a single back pain gene.



What are contributors to chronic back pain?



What biology does this point to?

Key new signal: *FOXP2* gene, active in brain pathways



Signals cluster in brain and pituitary pathways



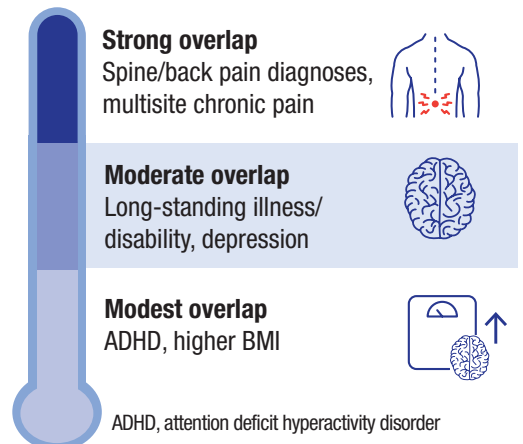
Risk variants affect gene expression (eg, expression quantitative trait loci)



Some implicated genes already have drug targets



Factors sharing genetic risk with chronic back pain



Takeaways



Chronic back pain has an inherited component spread across many genes.



Findings do not yet support routine genetic testing for back pain.



Findings support a biologically grounded, multifactorial model and point to brain-centered pathways for future therapies.