

Potential Mechanisms of Chronic Pain in Smokers

Altered Pain Processing

- nAChR desensitization
- nAChR upregulation
- Neuroplasticity in pain pathways
- Nicotine withdrawal
- Pain-induced reinforcement of smoking behavior
- Neuroendocrine changes (downregulation of stress response)

Interaction with opioids

- Increased opioid use
- Use of illicit substances
- Cross-tolerance
- Altered opioid pharmacokinetics (downregulation of stress response)

Structural Damage of Other Systems

- Osteoporosis
- Spinal degenerative disc disease
- Impaired bone healing
- Impaired wound healing

Psychosocial Factors

- Socioeconomic status
- Education
- Employment status

Depression

"Self-medication"

SMOKING

Other effects

Hemoxygenase (CO production)



CO = carbon monoxide • nAChR = nicotine acetylcholine receptor