

FACT SHEET: TOBACCO AND MUSCULOSKELETAL PAIN

Smoking and back pain:

1. Positive associations have been noted in both men and women between smokeless tobacco and low back pain,¹ current smoking and nonspecific back pain, sciatica and herniated discs, and also between past smoking and nonspecific back pain.²
2. Regular inhalation of tobacco smoke has been suggested as leading to reduced perfusion and malnutrition of intervertebral discs. Serious cases may involve disc pathology in the form of herniated discs or internal disc disruptions.³
3. Nicotine is a psychostimulant that affects both cortical and autonomic arousal leading to a pharmacological effect on pain perception.⁴
4. Tobacco smoking may cause tissue damage or a prolonged resetting of the threshold for pain tolerance, which is more probable than transient pharmacological effects alone.⁴
5. Smoking might also provoke disc herniation through coughing, or lead to pathological changes in the intervertebral disc through alterations in its nutrition, pH, or mineral content.⁵

Tobacco & osteoporosis:

1. Cigarette smoking⁶ and smokeless tobacco use⁷ are both recognized risk factors for low bone mineral density (BMD) and osteoporosis.
2. Early exposure to smoke may decrease peak bone mass.⁶
3. Replacement hormone therapy may be ineffective in preventing hip fractures in postmenopausal women who smoke.⁷
4. Direct toxic effects of smoking have some detrimental effect on bone metabolism.⁸
5. The effect of smoking on bone is mainly mediated by an adverse influence on sex-steroid metabolism, and in particular by an oestrogen-lowering effect.⁸
6. Serum 25-hydroxyvitamin D levels are lower in smokers than in nonsmokers.⁸
7. Smoking also seems to dampen the bone protective effects of nutritional calcium in postmenopausal women.⁸
8. Smoking is a major cause of hip fracture. Of all hip fractures, one in eight is attributable to smoking.⁹
9. Risk of hip fracture was lower in former smokers, and in current smokers there was a dose response relation with the number of cigarettes smoked.¹⁰
10. It has also been estimated that smoking increases the lifetime risk of developing a vertebral fracture by 13% in women and 32% in men.⁹
11. The effect of smoking on bone mineral density increases cumulatively with age.¹⁰
12. Smoking also appears to have an independent, dose-dependent effect on bone loss, which increases fracture risk, and may be partially reversed by smoking cessation⁹ but the reversibility is slower in post-menopausal women smokers.^{10,11}

Other Musculoskeletal conditions:

1. Other musculoskeletal conditions associated with smoking are osteonecrosis of the femoral head, rheumatoid arthritis, Dupuytren's contracture and reflex sympathetic dystrophy.¹²
2. Smoking also delays and adversely affects bone healing and arthrodesis.¹²

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