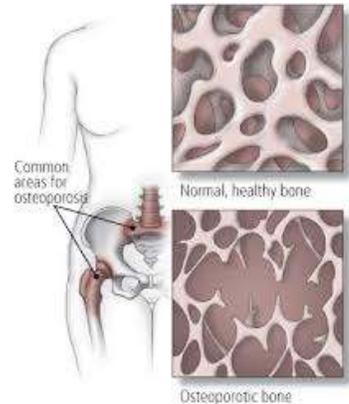


## WHAT SMOKING DOES TO YOUR MUSCULOSKELETAL SYSTEM

By Dr. John A. Papa, DC, FCCP(C)

The musculoskeletal (MSK) system includes the muscles, tendons, joints, and bones of the body. Cigarettes contain many harmful chemicals, including nicotine and carbon monoxide which negatively affect the physical health and integrity of the MSK system. Included below is a summary of those affects:

**1. Smoking decreases bone mineral density (BMD) and increases the risk of osteoporosis and future fractures.** Studies have shown that nicotine reduces the blood supply to bones, slows the production of bone forming cells, and decreases the absorption of calcium. Post-menopausal women who smoke have greater spinal osteoporosis than non-smoking counterparts. Among men, a consistently lower BMD at all bony sites is observed regardless of when in their life they smoked. In addition, a relationship between cigarette smoking and low BMD in adolescence and early adulthood has been identified.



**2. Smoking delays healing times for bony fractures and soft tissue injuries such as rotator cuff tears.** Nicotine has been shown to decrease the production of fibroblasts (the main cells responsible for tissue repair). In addition, the carbon monoxide found in tobacco smoke reduces oxygen levels in the body which is critical for all tissue healing.

**3. Smoking contributes to an increase in spinal problems.** The reduced blood circulation found in smokers deprives spinal discs of vital nutrients which can lead to premature degeneration. Smoking may also provoke disc herniation through coughing. Studies demonstrate a definite link between smoking and low back pain that increases with the duration and frequency of the smoking. Exposure to secondhand smoke during childhood may also increase the risk of developing neck and back problems later in life.

**4. Smoking increases pain levels.** Smokers complain more often of MSK pain than non-smokers. Studies indicate that smoking makes individuals more susceptible to sensing pain at lower thresholds. In addition, smoking causes general damage to the MSK system through direct chemical irritation, chronic inflammation, and restricting blood and nutrient flow.

**5. Smoking causes stress and de-conditioning in the body.** For optimal functioning, your muscles and joints need a steady supply of oxygen-rich blood. Smoking not only stiffens your arteries, it also decreases the rate at which oxygen and carbon dioxide are exchanged in the blood. Other side effects of smoking include fatigue, lung disorders, impaired healing, and chronic pain. Impaired healing means that injuries affect you for longer than usual, and healing from surgeries or infections can be problematic. These side effects can lead to inactivity, which causes deconditioning.



Scientific evidence has established links between cigarette smoking and its detrimental impact on the MSK system. However, it is never too late to try and quit smoking. Some of the negative health aspects of smoking start to reverse after a smoker quits. Those looking for help in trying to quit should speak to a medical professional. Valuable resources can also be found on the Health Canada and Canadian Lung Association websites. For additional information on health and wellness, visit [www.nhwc.ca](http://www.nhwc.ca).

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