

Surgery and Smoking

Cigarette smoking is recognized as one of the major causes of preventable disease. Most people know that smoking is linked to heart and respiratory diseases, as well as to several cancers. However, many people are not aware that smoking has a serious negative effect on bones, muscles, and joints, and that smoking often leads to poorer outcomes from orthopaedic surgery.

Smoking has a negative effect on fracture and wound healing after surgery.

- Broken bones take longer to heal in smokers because of the harmful effects of nicotine on the production of bone-forming cells.

Smokers also have a higher rate of complications after surgery than nonsmokers - in fact, smoking may be the single most important factor in postoperative complications. The most common complications caused by smoking include:

- Poor wound healing
- Infection
- Less satisfactory final outcomes of surgery

Researchers have noted that patients who quit smoking have improved outcomes for surgical treatments of musculoskeletal conditions and injuries.

Research on Smoking and Orthopaedic Procedures

In two specific types of surgeries (spinal fusion and rotator cuff repairs), results were significantly better for people who never smoked and for those who stopped smoking than for smokers.

Smoking and Spinal Fusion Surgery

Spinal fusion surgery is often used to treat disk disorders in the neck and the lower back. Two or more of the small bones in the spinal column (vertebrae) are "welded" together with bone grafts and internal devices, such as metal rods.

The success of the surgery depends on how well the bones heal into a solid unit. A successful spinal fusion can reduce pain and improve the patient's ability to perform activities of daily living.

In a study on spinal fusions in the lower back, the success rate was 80% to 85% for patients who never smoked or who quit smoking after their surgery. The success rate dropped to under 73% for smokers. More than 70% of nonsmokers and previous smokers were able to return to work. But only about half of the smokers were able to resume working. Another study on spinal fusions in the neck showed successful fusion in 81% of nonsmokers, but in only 62% of smokers.

Smoking and Rotator Cuff Surgery

Smoking also has a negative impact on surgeries that focus on muscles, such as rotator cuff repairs. One study compared the results of 235 patients treated at two different medical institutions. Results in nonsmokers were significantly better than results in smokers. Nonsmokers experienced less pain and a higher degree of function after surgery than smokers. Good or excellent results were seen in 84% of nonsmokers, but in only 35% of smokers.

Evidence like this continues to indicate that smoking is harmful, not only to your lungs, but also to your bones and muscles.

Quit Smoking Now

You can improve your chances for a successful outcome after surgery if you are a nonsmoker or have stopped smoking, according to researchers.

Before you plan your orthopaedic surgery, be sure to talk to your surgeon about your tobacco use. Find out about support programs to help you quit. There are many low-cost smoking cessation programs available. The American Lung Association is a great place to start: [American Lung Association](http://www.lung.org/)(<http://www.lung.org/>).

Last Reviewed

April 2019

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS [Find an Orthopaedist](#) program on this website.