

# Smoking and Musculoskeletal Healing

## What you're feeling

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Smoking changes how your body heals. It increases your risk of medical and surgical complications. This applies to joint replacements and soft tissue repairs. You may notice poorer functional outcomes. This means your shoulder, knee, or hip may not feel as strong or stable as expected.

Pain often lingers longer for active smokers. You might experience higher residual pain after procedures like cartilage repair or shoulder replacement. This pain can persist even if you quit smoking. The negative effects on healing may stay with you for months. Your recovery trajectory is different. Early healing is slower.

Daily tasks become harder to manage. Reaching behind your back to fasten a bra may cause sharp pain. Tucking in a shirt might strain your shoulder. Sleeping on the affected side can be difficult due to discomfort. You may find lifting objects more challenging than before. These limitations affect your routine activities.

Heated tobacco and smokeless tobacco also cause harm. Heated tobacco users have worse rotator cuff healing than nonsmokers. This effect is similar to cigarette smoking. Smokeless tobacco is linked to higher rates of complications after hip and knee replacements. It also increases the risk of emergency visits and further procedures after knee ligament surgery.

Nicotine itself impacts healing. Even without tobacco, nicotine dependence raises the risk of infection and hardware loosening after wrist fracture repair. It can also lead to nonunion, where the bone fails to heal. However, it may lower the risk of wrist stiffness. The impact on meniscus repair outcomes varies and is not consistent across all cases.

Your doctor considers these factors carefully. Smoking is a modifiable risk factor. Addressing it can improve your outcomes and reduce costs. Pack-years of smoking and how long you have ceased are key predictors of tendon healing. Your doctor will ask about all tobacco use to identify risks for nonunion or poor healing.

## What's actually happening

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Smoking changes how your body heals. It restricts blood flow, which means less oxygen and fewer nutrients reach your bones, tendons, and joints. Think of your blood vessels as delivery trucks. Smoking narrows the roads, so the supplies needed for repair cannot get through efficiently.

This lack of resources causes several problems. Your doctor may see higher rates of infection because your immune system is weaker. Wounds may not close properly, leading to disruption. Bones may fail to knit together, a problem called nonunion. Tendons, which are like strong ropes of fibers, may not heal back to the bone securely.

This happens across many surgeries. Whether you are having knee or hip replacement, shoulder surgery, or fracture fixation, the effect is similar. Heated tobacco products and smokeless tobacco cause damage just like conventional cigarettes. Even if you quit, the number of years you smoked and how long ago you stopped still affect your healing.

Former smokers who quit more than 6 months prior to rotator cuff repair are not at a detectably elevated risk of infection or revision surgery compared with those who have never smoked. However, current smokers face significant risks. Nicotine dependence prior to surgical fixation of humeral shaft fractures is associated with a 60-110% increased risk for surgical complications, including postoperative infection, wound disruption, nonunion, and reoperation.

Your doctor wants you to succeed. Addressing smoking is a modifiable risk factor that improves outcomes and reduces costs. It helps your joint capsule, cartilage, and bone heal as intended. By stopping tobacco use, you give your body the best chance to recover fully and return to your daily activities.

## What we can do about it

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Smoking affects how your body heals. Nicotine has a dose-dependent effect on bone healing, bone growth, and implant integration. This means the more you smoke, the harder it is for your bones and tissues to repair themselves. Heated tobacco users have worse clinical outcomes with respect to rotator cuff healing than nonsmokers, similar to conventional cigarette smokers. Smokeless tobacco use is associated with worse medical and surgical outcomes following total knee arthroplasty. It is also linked to higher rates of medical- and joint-related complications following primary total hip arthroplasty.

You can improve your chances of healing by quitting. Pack-years and duration of smoking cessation serve as independent predictors of tendon healing after arthroscopic rotator cuff repair. Former smokers who quit >6 months prior to rotator cuff repair are not at a detectably elevated risk of infection or revision surgery compared with those who have never smoked. This shows that stopping early helps. Active smokers are at an increased risk of both medical and surgical complications compared to nonsmokers. Your doctor may consider evaluating non-tobacco nicotine dependence within your surgical optimization protocol to help you stop.

If you continue to smoke, you may face poorer functional outcomes after procedures like reverse total shoulder arthroplasty compared to former smokers and nonsmokers. Smoking is also associated with inferior postoperative outcomes after autologous osteochondral transplantation for osteochondral lesions of the talus. This includes higher residual pain and poorer functional outcomes at midterm follow-up. Patient factors influencing lesser tuberosity healing in stemmed and stemless anatomic shoulder arthroplasty include greater BMI and tobacco use. Contemporary techniques and biologic augmentation may mitigate the adverse effects of smoking on radiographic fusion after combined TLIF and posterolateral lumbar (270°) arthrodesis. However, quitting remains the most effective step you can take.

## When to see someone

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See your GP if you have persistent pain that does not improve with rest, or weakness and instability in your joints. Ask for a specialist review if you experience locking or giving way, or if symptoms interfere with your sleep or work. Sudden worsening of pain is also a reason to seek care. Smoking increases your risk of medical and surgical complications, including infection, nonunion, and poorer healing after procedures like joint replacement or rotator cuff repair. Smokeless tobacco and nicotine dependence also raise these risks. Quitting more than six months before surgery may reduce infection and revision risks for some procedures. Your doctor can help you manage these risks to improve your recovery.