



Craig Hospital

Redefining Possible for People with Spinal Cord and Brain Injuries

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Smoking: Lungs, Skin, and Bladder

You already know that a spinal cord injury causes an impairment of the muscles involved in breathing – the higher the injury, the greater the impairment. That’s strike one. The fact that smoking is harmful to your lungs is hardly news. Still, that’s strike two. How smoking affects your lungs – just what happens when you smoke – and what this means when you have a spinal cord injury and an already compromised respiratory system is what’s important to know.

Do any of these stories apply to you?

Russell uses everything he learned in rehabilitation to take better care of his body. However, he still keeps on smoking. He feels that he has a right to hang on to that, since everything else is so hard...

When Doug’s friends offer him a cigarette, he accepts. He wants to “get back in the swing of things” since his injury...

Tobacco

Nicotine, the addictive ingredient in tobacco, is an extremely toxic drug that permanently damages vital body organs. It is just as addictive as heroin and cocaine.

Smoking tobacco:

- Makes breathing difficult
- Cuts your body’s supply of vitamin C, so skin wounds heal more slowly
- Makes it more likely you’ll get pressure sores
- Increases your chance of having a stomach ulcer

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You've heard this all before...

You most likely have heard all the reasons to stop smoking – lung cancer, heart disease, emphysema, shorter life expectancy – yet, it's a pleasure, a stress reliever or an old friend you are unwilling to give up following your spinal cord injury. Or, you simply may be willing to take your chances despite all the evidence of how harmful smoking is. Besides, quitting can be pretty difficult. For SCI survivors who smoke, however, there's even more bad news and more ill health effects than those cited for the general population.

Specifically, there is an increased incidence of skin sores, a decreased ability to heal following skin surgeries, and a greater likelihood of atelectasis (collapsed lung). Additionally, smoking further reduces the total lung capacity already decreased by SCI and diminishes the amount of oxygen in the bloodstream used to nourish tissues and power muscles. Finally, smoking can further increase an already heightened risk for bladder cancer.

It's not just breathing in, but also breathing out!

When we think of breathing, we usually think about getting air *in*. Often times with SCI, and especially with SCI and cigarette smoking, getting air *out* can be even more important. Why? Because a buildup of mucus and various secretions in the lungs – which are increased by smoking – can lead to problems. Normally, this buildup is coughed out. However, the muscles responsible for coughing are affected with cervical injuries, and to a varying degree with thoracic injuries as well. An impaired ability to cough can frequently lead to atelectasis, which is a collapse of the honeycomb-like air sacs that often causes secretions to become trapped in the lungs. The secretions build up and may lead to pneumonia, one of the more common causes of both sickness and death with SCI. Smoking increases the production of this mucus and contributes to congestion.

What's more, smoking further impairs the ability to cough or expel these secretions. A study of 165 SCI survivors found that smokers tested significantly lower in both the *amount* of air they were able to cough out, as well as the *force* with which they were able to expel it. Survivors are already at risk of congestion and infection due to their injury; smoking raises the stakes, *placing them at even higher risk*.

SCI Risks

As people age, both breathing capacity and lung volume decrease. This is due to a loss of elasticity of the lungs and muscles of the chest wall. These changes decrease the ability to fight off infections.

Smoking: Lungs, Skin, and Bladder

With SCI comes other potential concerns, such as:

- Increased weight can make breathing more difficult
- General decrease in exercise can lead to decreased breathing capacity
- Posture problems: rounded shoulders or slouching can lead to smaller lung capacity
- A change in the type or severity of spasticity can affect the chest or breathing muscles
- Increased number and severity of respiratory infections due to diminished ability to cough

All these changes place SCI survivors at higher risk for respiratory problems as they age. Smoking not only multiplies the problems but also increases the risks.

My skin can be affected too?

Congestion and lung infection aren't the only problems associated with smoking. Studies have also linked smoking to an *increased incidence* of pressure sores as well as *longer healing time* for both sores and the skin surgery which is sometimes necessary to repair them. Specifically, a study of 38 SCI survivors found smokers to have both a higher incidence and more extensive pressure sores than nonsmokers. After ruling out various other factors which might contribute to skin problems — diabetes, type of cushion, completeness of injury, spasticity, body weight, and the availability of help with skin care — the conclusion was that smoking contributed to the development of pressure sores more than any of the above mentioned factors. Why? Read on....

Poor circulation can lead to skin breakdown...

Healthy skin depends on the good circulation of highly oxygenated blood to carry nutrients to the skin and remove waste products from it. Smoking in general, and nicotine in particular, cause a decreased blood flow to the extremities. In addition, smoking produces carbon monoxide, which severely impairs oxygen from even entering the blood. In other words, not only does smoking cause less blood to get to the skin, but the blood that does get there has far less oxygen. A decrease of oxygenated blood and nutrients to the skin, as well as insufficient removal of waste products from it are good ways to develop pressure sores. Actually, that's exactly what happens when you don't do weight shifts, use a bad cushion or wear shoes that are too tight.

...and slower healing

Once skin sores develop, this same impaired circulation of less oxygenated blood slows down healing. In fact, this decreased concentration of oxygen in the blood is the greatest threat to wound healing. The relationship between smoking and poor healing has been noted by many surgeons, and several studies have shown the increased risk of skin flap necrosis – the death of skin tissue following surgery – due to smoking. It appears that smoking not only helps you *get* pressure sores, it also seems to help you *keep* them.

Skin changes with age

The risk of skin problems for the survivor increases with both age and number of years post injury. The skin becomes thinner, less elastic, and more susceptible to shearing and tearing, which increases the possibility of skin breakdown during transfers. Sitting and turning tolerances may also diminish. As circulation decreases, the body ages and the skin is less able to clear waste products. These factors result in the increased susceptibility to skin infections and slower healing of wounds. Just as with respiratory complications, smoking raises the risks and increases the odds of serious skin problems.

Parting thoughts

The links between smoking and various health problems seem to grow stronger every day. If all you've read so far isn't enough, the risk of bladder cancer is also higher among those with SCI: about 3% compared to less than 1/10% for the general population. Indwelling catheters have been found to increase the risk of bladder cancer 3.8 times, compared to SCI survivors who do not use an indwelling catheter. And of course, the risk of *that* problem also goes up with smoking, as cancer-causing agents may be carried in the urine.

Living with a spinal cord injury is risky business. The chances of developing skin or respiratory problems are quite high – far greater than before injury. Combining SCI and smoking is like playing against a stacked deck – the chances of losing are very high.

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