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Smoking and Surgery

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Introduction

In addition to the general health risks associated with smoking, research has shown that smokers are more likely to suffer complications during and following surgery.^{1 2 3} The Royal College of Anaesthetists advises smokers undergoing surgery to quit as far in advance of their surgery as possible, preferably a minimum of six weeks, or, if this is not possible, to not smoke on the day of the operation. However, stopping smoking at any time prior to surgery is likely to be beneficial.⁴

Risks associated with smoking and surgery

Some surgeons will not perform surgery on a patient who is a smoker^{5 6} and the RCOA considers quitting smoking to be essential before undergoing heart surgery. There is strong evidence that smokers who undergo surgery:

-  have a higher risk of lung and heart complications^{7 8}
-  have higher risk of post-operative infection^{3 9}
-  have impaired wound healing^{10 11}
-  are more likely to be admitted to an intensive care unit¹²
-  have an increased risk of dying in hospital¹³
-  remain in hospital longer.¹³





Smokers have a one in three risk of post-operative breathing problems.¹³ A function of anaesthesia is to reduce coughing and spasms during surgery but because smokers' lungs are aggravated by tobacco, these patients need a higher dose of anaesthesia than non-smokers. Tobacco smoke damages the cilia in the lungs, responsible for clearing mucus, which can increase the risk of post-operative pneumonia.¹⁴

Smoking is the single most important risk factor for the development of serious post-operative complications in patients undergoing elective hip and knee replacement.^{15 12} Smoking has also been shown to be the single most important factor for the development of post-operative cardiopulmonary and wound-related complications in elective orthopaedic surgery.⁷ Smoking has pronounced effects in foot and ankle surgery, resulting in higher rates of complications, particularly non-union.⁶

Also, smokers have decreased blood oxygenation, leading to decreased oxygen delivery to their tissues¹⁶ and are consequently more likely to need oxygen therapy. Depriving vital organs of oxygen for even a short period of time can lead to serious complications.

Benefits of quitting before surgery

There is evidence to suggest that quitting smoking before having surgery

-  reduces lung, heart and wound-related complications ⁷
-  decreases wound healing time ¹⁷
-  reduces bone fusion time after fracture repair ⁶
-  reduces length of stay in hospital. ¹³

This is in addition to the long-term benefits of quitting smoking such as reduced risk of lung cancer and heart disease.

There is no official guidance about the optimum time to quit before surgery. However research indicates that a minimum of six to eight weeks is needed to achieve a significant reduction in risk. ^{18 3}

Risks versus benefits

There is some conflicting opinion about the risks associated with quitting before surgery. Older evidence suggests that stopping smoking immediately before surgery may increase lung complications. However the Royal College of Anaesthetists states that quitting smoking at any time prior to surgery is beneficial and, furthermore, that smokers should definitely refrain from smoking on the day of surgery to help avoid breathing problems during the procedure. ⁴ Independent research investigating this question found no increased risk in pulmonary complications amongst smokers who quit within two months of surgery. ¹⁹

Smokers who are concerned should seek advice from their surgeon or preferably the anaesthetist who will be with them during surgery.

Costs to the NHS

The health problems associated with smoking have been estimated to cost the NHS around £2.7 billion every year. ²⁰ This does not include the cost of work days lost, sickness benefits and other indirect costs.

It has been estimated that, in London alone, savings of around £2,650,000 a year could be made if between 8 and 17% of smokers quit before having surgery. ¹³ The Welsh government has estimated that supporting smokers to quit before having surgery smokers could save as much as £2.3 million more every year. ²¹ These savings are derived from “bed days” saved and the reduced cost of treating post-operative complications.

Stop Smoking Advice for smokers undergoing elective surgery.

The National Institute for Health and Clinical Excellence recommends that “patients referred for elective surgery should be encouraged to stop smoking before an operation” and that services should be developed to assist them. ^{22 23}

Evidence suggests that smoking cessation programmes aimed at assisting smokers undergoing surgery to quit are effective at reducing post-operative complications ^{24 8} and intensive interventions which begin during the hospital admission are especially effective. ²⁵ A hospital admission may boost a person’s receptivity to smoking cessation interventions and increase their motivation to stop smoking.

Provision of Stop Smoking Services for prospective surgical patients in the UK is limited at present. Some hospitals offer brief intervention counselling for smokers during surgical pre-admission checks, ²⁶ while others write to all prospective surgical candidates about the risks associated with smoking and surgery with contact details for local stop smoking services ²⁷ and a number have produced leaflets for patients. ^{28 14}

Examples of “Stop Before the Op” programmes

Rotherham PCT “Stop before your op” leaflet. [[Download leaflet](#)]
West Suffolk PCT leaflet [[Download leaflet](#)]
Chesterfield Royal Hospital NHS Foundation Trust leaflet [[Download leaflet](#)]
[Reduce my risk](#) – A powerpoint presentation about a Stop Before the Op programme in Edmonton, Canada.

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