

# **Quick wins: the short-term benefits of stopping smoking**

Full report

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## Executive Summary

- This briefing summarises evidence relating to short-term positive consequences of smoking cessation, covering *quick gains* within the first year of stopping smoking related to physical and mental health, financial as well as psychosocial, behavioural and cosmetic improvements
- Within 12 months, stopping smoking quickly reduces the risk of death from cardiovascular disease and from chronic obstructive pulmonary disease (COPD) exacerbations. These are 'quick wins' in terms of reduced mortality and healthcare costs
- While people who smoke do struggle to maintain abstinence in the face of acute and unpleasant withdrawal symptoms it is important to stress the immediate benefits of smoking cessation to increase motivation to remain abstinent
- Within three months of stopping smoking there is improvement in lung function and for those with COPD and asthma there is a reduction in symptoms
- Within two months of stopping smoking there will be less constriction of blood vessels and lower heart rate. By 12 months there is a significant decrease in the risk of coronary heart disease
- Erectile dysfunction shows an improvement within one month of quitting and by three months sperm quality can be improved
- Smoking cessation before, or during, pregnancy reduces the risk of low birth weight babies, perinatal death and preterm delivery
- Wound healing is improved by stopping smoking and post-operative complications are reduced within two months of quitting
- Within a year of stopping smoking the level at which people who no longer smoke enjoy life nears the enjoyment reported by people who have never smoked. The majority of people who have recently stopped report feeling happier than when they smoked
- Anxiety levels start to decrease from one week after quitting and people who used to smoke suffer less from anxiety and depression than those who continue to smoke
- People who have stopped smoking save an average weekly spend on cigarettes of £23.70 and £26.30 for hand-rolled and manufactured cigarettes respectively, or £1,232.40 and £1,367.60 per year
- Bad breath, stained teeth and periodontal disease all improve quickly following smoking cessation. Skin disorders and the general appearance of the skin also improve quickly
- People also appear to become more self-confident and to engage in other healthy life choices after quitting smoking

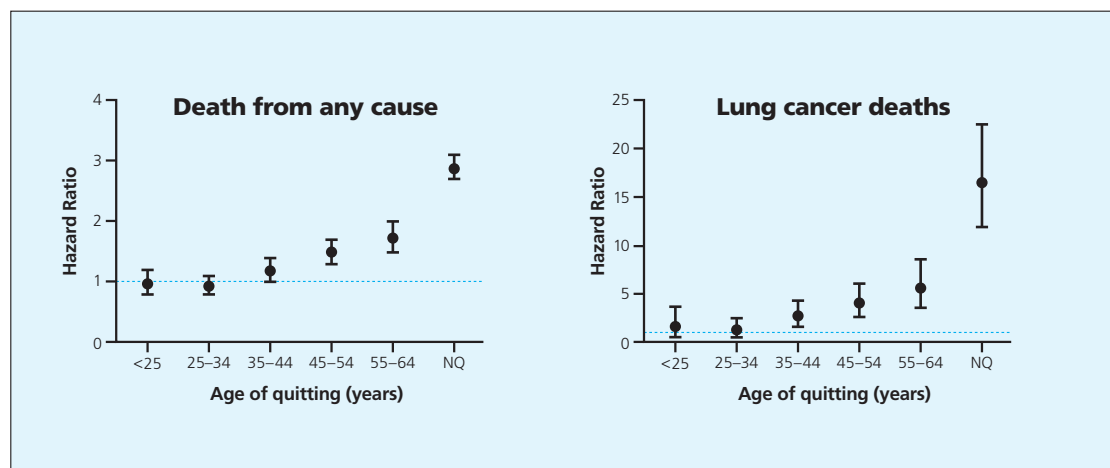
# 1. Background

The benefits of smoking cessation are self-evident. Stopping smoking is possibly the single most important step a person can take to improve their well-being, whatever their age. Quitting smoking can prevent tobacco-related diseases within only a few years of cessation; it halves the risk of contracting lung cancer,<sup>1</sup> attenuates lung function decline,<sup>2</sup> improves reproductive health<sup>3, 4</sup> and reduces the risk of various cardiovascular diseases.<sup>5</sup>

The positive effects of smoking cessation also extend to people who don't smoke through the reduction of environmental tobacco smoke;<sup>6–8</sup> which is the reason for the increasing introduction of smoking bans worldwide. Altogether, it is estimated that up to 90% of excess mortality caused by smoking can be prevented if people stop smoking before they reach middle age<sup>1</sup> but even people who have smoked most of their lives can still expect substantial health benefits when they stop smoking.<sup>9</sup>

Large epidemiological studies have shown that stopping smoking before age 34 reverts life expectancy close to that of someone who has never smoked and stopping smoking at 40, 50 and 60 years leads to gains of 9, 6 and 3–4 years compared with those who continue to smoke.<sup>10</sup> As shown in Figure 1, excess risk from smoking tends to be attenuated even if smoking cessation occurs at later stages in life, suggesting relatively fast benefits.

**Figure 1: Adjusted hazard ratio for deaths as function of age of quitting among people who used to smoke versus people who have never smoked (adjusted for age, gender, education, alcohol use and adiposity). NQ=Never quit. Data come from<sup>11</sup>**



Because of the long time horizon of benefits generally associated with smoking cessation, more acute gains from stopping smoking may be more motivating, especially for younger demographics.<sup>12</sup> This briefing summarises the main *quick gains* – those that occur within the first year of stopping smoking.

## 2. Methods

Electronic research databases (PubMed, Web of Science and Google Scholar) were reviewed using the terms "benefit", "advantage", "improvement", "amelioration" or "gain" and the terms "short-term", "immediate", "acute", "rapid", "instant" or "quick" in addition to terms for smoking cessation. Where existing reviews were found these were used. Otherwise, primary research findings were analysed and summarised.

### 3. Physical health gains

A surprising number of physical health benefits occur early on into the quitting process. These range from benefits with regards to reproductive health, pulmonary and cardiovascular function through to wound healing and gastro-intestinal problems as detailed in Table 1.

**Table 1: Expected physical health benefits within 12 months of smoking cessation**

Time since quit	System				
	Respiratory	Vascular*	Re-productive	Gastro-intestinal	General
<1 months	Improvement in pulmonary CO diffusing capacity <sup>13,14</sup> and pulmonary epithelial permeability <sup>15</sup>	Improvement in coronary vaso-constriction, lipid and fibrinolytic profile and oxidative injury <sup>16–18</sup>	Improvement in hemodynamics, rigidity and tumescence in men with erectile dysfunction <sup>8, 9</sup>	Reduction in daily gastro-esophageal reflux, <sup>21</sup> faster gastric ulcer healing <sup>22</sup>	Metabolites of tobacco constituents are eliminated within days <sup>23</sup>
<2 months	Improvement in FEV1, decreased sputum neutrophils in asthmatics <sup>24</sup>	Lowered arterial pressure and heart rate <sup>25, 26</sup>			Reduced post-operative complications and improved wound healing <sup>27, 28</sup>
<3 months	Decrease in COPD/respiratory disease symptoms (wheeziness, expectoration, cough) and reduced severity <sup>29–31</sup>		Possible improvement in sperm quality <sup>20</sup>		
<4 months	Improved airway hyper-activity and respiratory symptoms in asthmatics <sup>33</sup>				
<6 months		Improved airway hyper-activity and respiratory symptoms in asthmatics <sup>34</sup>	Excess risk of low birth weight and associated complications eliminated <sup>23–25</sup>	Faster healing of duodenal ulcers, <sup>38</sup> reduced recurrence of gastric ulcer <sup>39</sup>	
<9 months			Perinatal death and preterm delivery likely to be reduced <sup>11</sup>		
<12 months	Improved FEV1 and reduced airway inflammation in healthy individuals or individuals with mild COPD; <sup>40–42</sup> improved airway hyper-reactivity and decreased epithelial remodelling in COPD patients <sup>42, 43</sup>	Decreased risk of primary as well as secondary CHD <sup>22, 44, 45</sup> including MI; <sup>46, 47</sup> improved survival following surgery for PAD <sup>22</sup>		Reduction in duodenal ulcer relapse and Crohn's disease flare-up <sup>48, 49</sup>	Improved olfaction <sup>50</sup>

Table 1: Rapid health gains from stopping smoking; \*Generally, most pronounced benefits are seen in those with pre-existing conditions; CO: carbon monoxide, COPD: Chronic obstructive pulmonary disease, FEV1: Forced-expiratory volume in one second; CHD: Coronary heart disease, PAD: Peripheral arterial disease

The only group of diseases that carry no short-term benefits following cessation are neoplastic diseases in general, and lung cancer in particular. For most of these, risk following cessation remains elevated for the rest of a person's life and does not decrease substantially until at least two-to-five years following cessation,<sup>22</sup> possibly due to reverse causation (those with more severe disease symptoms are more likely to stop but are, therefore, also more likely to die soon after stopping).

## 4. Well being

There are a number of other positive corollaries of smoking cessation which occur within a relatively short amount of time:

### Aesthetic improvements

- Smoking cessation is associated with a number of oral conditions such as bad breath, stained teeth and periodontal disease and these tend to be quickly reversible in the early stages after smoking cessation<sup>65, 66</sup>
- Smoking also has dermatological consequences, and there are a number of rapid improvements following smoking cessation. These include a reduction in the recurrence of psoriasis, palmoplantar pustulosis and skin ulcers,<sup>67</sup> an improvement to the appearance of skin and nails in the absence of nicotine staining, and a halting in the precocious aging of skin and the formation of wrinkles, which are enhanced in people who smoke<sup>68</sup>

### Psychosocial improvements

- There is evidence that smoking cessation is not only a consequence of higher self-confidence (or self-efficacy) and greater internal locus of control but that this relationship is bidirectional and that smoking cessation also causes improvements in both these cognitions within a short timeframe<sup>22, 69–71</sup>
- Studies increasingly suggest that as people who used to smoke play an active role in structuring social interactions and support, so as to maintain abstinence and remain at the centre of social networks, those who continue to smoke become pushed to the periphery and socially isolated<sup>22, 72</sup>

### Improvements in other health behaviours

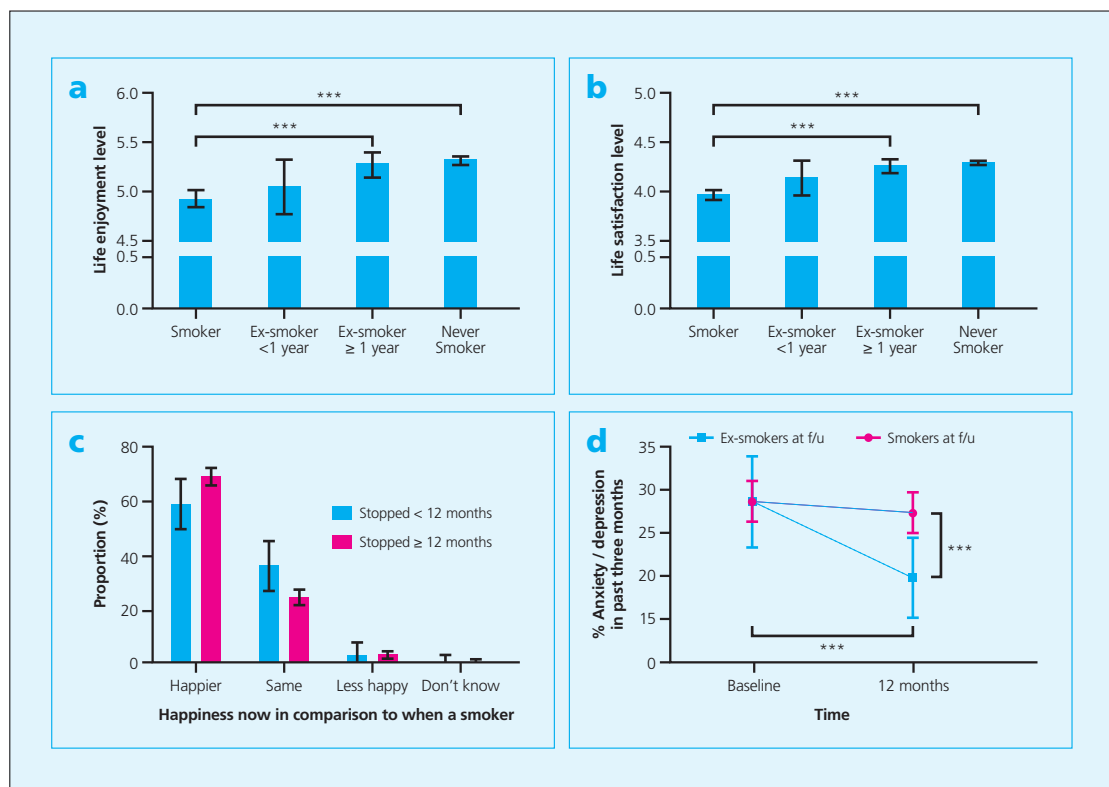
- Smoking cessation appears to go hand in hand with fairly rapid improvements and orientation towards other healthy life choices, including increases in exercise, healthy dieting, reduction in alcohol consumption and taking part in health screening programs<sup>22, 73–77</sup>



## 5. Mental health gains

There is increasing evidence that stopping smoking yields improvement in psychological well-being and that this occurs relatively soon after the quit date. Whilst low mood, anxiety and dysphoria are common withdrawal symptoms, they are relatively short-lived.<sup>51</sup> In fact, as shown in Figure 2a and b, even within a year of stopping smoking, peoples' life enjoyment and satisfaction levels start to increase towards the levels of someone who has never smoked.<sup>52</sup> Moreover, as shown in Figure 2c, the majority of people who recently stopped report feeling happier than when they smoked.<sup>53</sup>

**Figure 2: Changes in mental health and well-being as a function of smoking status and length of abstinence. Data come from<sup>52–54</sup>**



In terms of psychiatric comorbidities, there is also good evidence that benefits from smoking cessation accrue relatively rapidly. Thus, it has been shown that anxiety levels may decrease from one week post cessation<sup>55</sup> and that this is maintained at six months, leading also to a reduction in the prevalence of anxiety disorders.<sup>56</sup>

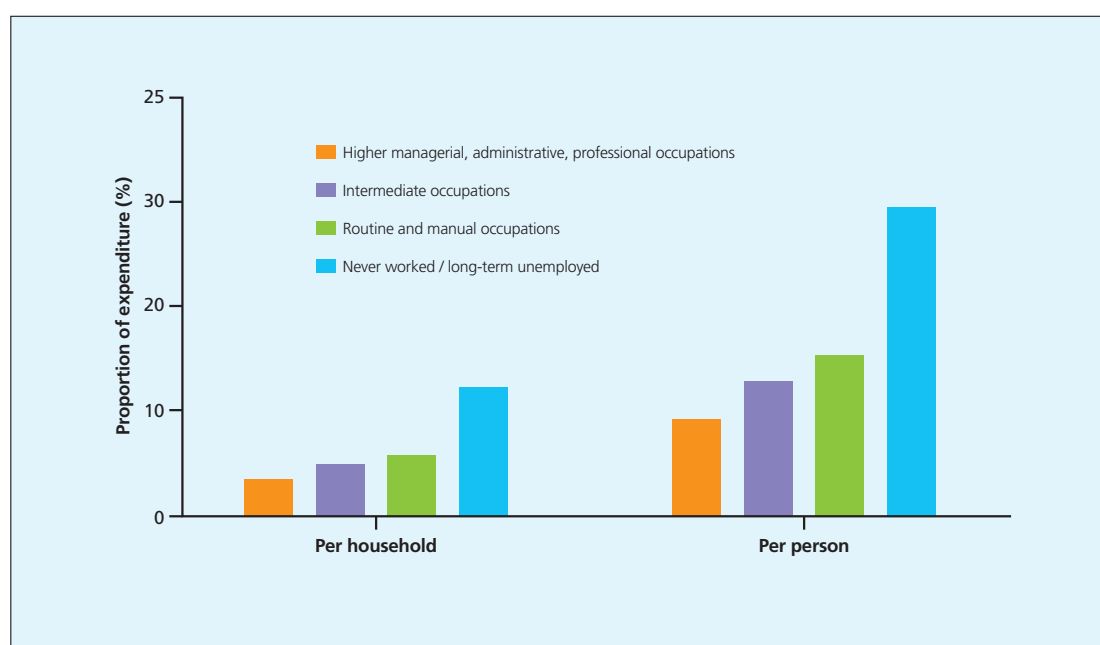
Likewise, there is evidence (as shown in Figure 2d.) that the prevalence of anxiety and depression decreases within 12 months of stopping smoking in the general population and is not associated with any exacerbation of symptoms following smoking cessation, among those with a history of mental health problems.<sup>54, 57, 58</sup>

## 6. Financial gains

Stopping smoking results in obvious financial gains. Recent data from the UK show that on average smokers spent £5.45 for twenty hand-rolled cigarettes and £6.06 for twenty manufactured cigarettes.<sup>59</sup> Given that the latest figures show that smokers on average consume 12.4 cigarettes a day,<sup>60</sup> this means a weekly spend on tobacco of £23.70 and £26.30 for those that consume hand-rolled and manufactured cigarettes, respectively, or £1,232.40 and £1,367.60 per year.

Taken the mean of hand-rolled and manufactured cigarettes, the cost of cigarettes that one person spends is equivalent to 5.2% of the average UK household spend.<sup>61</sup> However, as Figure 3 shows, money spent on cigarettes is proportionally much higher in lowest income groups and can make up a substantial proportion of an individual's expenditure.

**Figure 3: Spent on cigarettes (manufactured or hand-rolled) as a function of socio-economic classification and household expenditure (assumes equal spent on cigarettes across groups). Data come from <sup>59, 61</sup>**



In fact, it has been argued that at an individual level, the costs associated with buying cigarettes may lead to an increase in poverty.<sup>62</sup> There is evidence that smoking can lead to financial hardship, irrespective of household income.<sup>63</sup> Unfortunately, it also appears that financial hardship in itself is a barrier to quitting smoking, creating a vicious cycle.<sup>64</sup> Breaking this cycle by stopping smoking will have an immediate positive effect by improving a household's financial position.

## 7. Conclusion

There are many immediate benefits or “quick gains” from stopping smoking: ranging from improvements in physical and mental health, general well-being and appearance, plus substantial financial savings.

Making those struggling to quit aware of these acute and rapid positive effects of smoking cessation, and asking them to self-monitor to observe these improvements for themselves, may strengthen their motivation to remain abstinent and provide further reasons to stick with a quit attempt.

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