

smoking with stroke is believed to be mediated by the mechanisms responsible for atherosclerosis (narrowing and hardening of the arteries), thrombosis, and decreased cerebral blood flow in smokers.<sup>71</sup> Female smokers who use oral contraceptives are at an increased risk of having a stroke.<sup>72</sup>

Cigarette smoking is the leading cause of chronic obstructive pulmonary disease (COPD) in the United States. Approximately 84 percent of the COPD deaths in men and 79 percent of the COPD deaths in women are attributable to cigarette smoking.<sup>73</sup> The risk of death from COPD may depend on how many cigarettes a person smokes daily, how deeply the person inhales, and the age when the person began smoking.<sup>74</sup> The number of cigarettes smoked per day is a strong indicator for the presence of the principal symptoms of chronic respiratory illness, including chronic cough, phlegm production, wheezing, and shortness of breath.<sup>75</sup>

Smoking's effects on lung structure and function appear within a few years after cigarette smoking begins.<sup>76</sup> Children who smoke suffer from respiratory illnesses more than children who do not smoke. Adolescents who smoke may experience inflammatory changes in the lung, reduced lung growth, and may not achieve normal lung function as an adult.<sup>77</sup>

Cigarette smoking is a probable cause of peptic ulcer disease.<sup>78</sup> Peptic ulcer disease is more likely to occur in smokers than in nonsmokers, and the disease is less likely to heal, and more likely to cause death in smokers than nonsmokers.<sup>79</sup> Quitting smoking reduces the chances of getting peptic ulcer disease and is an important component of effective peptic ulcer treatment.<sup>80</sup>

Studies also show that women who smoke have reduced fertility.<sup>81</sup> One study showed that smokers were 3.4 times more likely than nonsmokers to take more than 1 year to conceive.<sup>82</sup>

Smoking's severe detrimental effects during pregnancy are well documented.<sup>83</sup> Women who smoke are twice as likely to have low birth weight infants as women who do not smoke.<sup>84</sup> Smoking also causes intrauterine growth retardation of the fetus.<sup>85</sup> Mothers who smoke also have increased rates of premature delivery.<sup>86</sup>

Smoking may lead to premature infant death. Babies of mothers who smoke are more likely to die than babies born to nonsmoking mothers.<sup>87</sup> A recent meta-analysis reported that use of tobacco products by pregnant women results in 19,000 to 141,000 miscarriages per year, and 3,100 to 7,000 infant deaths per

year. In addition, the meta-analysis attributed approximately two-thirds of deaths from sudden infant death syndrome to maternal smoking during pregnancy.<sup>88</sup> By another estimate, if all pregnant women stopped smoking, there would be 4,000 fewer infant deaths per year in the United States.<sup>89</sup>

## 2. Health Effects of Smokeless Tobacco Products

Smokeless tobacco use can cause oral cancer.<sup>90</sup> The risk of oral cancer increases with increased exposure to smokeless tobacco products, particularly in those areas of the mouth where smokeless tobacco products are used.<sup>91</sup> The risk of cheek and gum cancers is nearly 50 times greater in long-term snuff users than in nonusers.<sup>92</sup> Snuff and chewing tobacco contain potent carcinogens, including nitrosamines, polynuclear aromatic hydrocarbons, and radioactive polonium.<sup>93</sup>

Smokeless tobacco use can cause oral leukoplakia, a precancerous lesion of the soft tissue that consists of a white patch or plaque that cannot be scraped off.<sup>94</sup> One study of 117 high school students who were smokeless tobacco users revealed that nearly 50 percent of these students had oral tissue alterations.<sup>95</sup> There is a 5 percent chance that oral leukoplakias will transform into malignancies in 5 years.<sup>96</sup> The leukoplakia appears to decrease or resolve upon cessation of smokeless tobacco use.<sup>97</sup>

Smokeless tobacco use causes oral cancer and oral leukoplakia and may be associated with an increased risk of cancer of the esophagus. Smokeless tobacco use has been implicated in cancers of the gum, mouth, pharynx, and larynx. Snuff use also causes gum recession and is associated with discoloration of teeth and fillings, dental caries, and abrasion of the teeth.<sup>98</sup>

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