SALIVARY GLAND CANCER IN RUBBER AND PLASTICS WORKERS

BACKGROUND

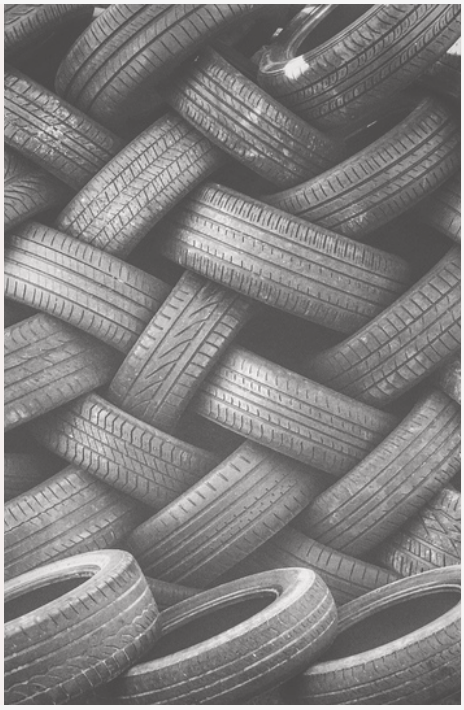
The salivary glands produce saliva and are part of the head and neck [1]. Salivary gland cancer is rare, with 2.1 cases diagnosed per 100,000 people in Ontario [2]. This represents 0.3% of all cancers diagnosed in Ontario, although the rate of new cases has been increasing since 1981.

Not much is known about what causes salivary gland cancer, which is often grouped with other head and neck cancers. The only known causes are exposure to acetaldehyde from consumption of alcoholic beverages [3], and exposure to ionizing radiation, especially during radiation therapy or x-rays to the head and neck [4]. There is limited evidence that exposure to radioiodines, primarily iodine-131 when use to treat thyroid cancer, may also increase the risk of salivary gland cancer [4].

The role of workplace exposure in the development of salivary gland cancer is not fully understood. Studies have investigated possible associations with a range of occupational risk factors, though more research is necessary to understand whether workplace exposures contribute to the development of salivary gland cancer [5-13].

Rubber and Plastics Workers

A few previous studies have found an increased risk of salivary gland cancer among workers in plastic and rubber product manufacturing [10-13]. However, these studies were based on few cases of salivary gland cancer making it challenging to interpret the findings. Rubber and plastics workers may be exposed to a wide range of chemicals when fabricating rubber and plastic products, including dusts and fumes, solvents (e.g., benzene, styrene), formaldehyde, N-nitrosamines, diisocyanates, phthalates, and polycyclic aromatic hydrocarbons (PAHs) [14-16]. More research is needed to understand whether these exposures may contribute to risk of salivary gland cancer.



FINDINGS FROM THE ODSS

The following results show the percent increase in risk among rubber and plastics workers by industry or occupation compared to all other workers in the Occupational Disease Surveillance System (ODSS). This analysis looked at 55,232 rubber and plastics workers in the ODSS, under the age of 85.

Elevated risks of salivary gland cancer were identified in rubber and plastic products industry workers, and specifically among plastics fabricating workers. A stronger association was identified for male workers in plastics fabricating. There were not enough cases among female workers to assess their risk separately. These results demonstrate the challenge that lies with identifying a rare cancer across specific occupation and industry groups.

INDUSTRY OR OCCUPATION	INCREASED RISK †	
	ALL WORKERS	MALE WORKERS
Rubber and Plastics Products Industries	↑ 34%	↑ 45%
Plastics Fabricating Industry	↑ 44%	↑ 73%*
Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations	↑ 27%	↑ 57%

† Compared to all other workers in the ODSS
* Statistically significant (α=0.05)

Other groups of workers in the ODSS that have shown elevated risks of salivary gland cancer are discussed in the **salivary gland cancer disease page**.

More information on cancer risks among plastics and rubber workers in the ODSS is available in a scientific publication: **Cancer surveillance among workers in plastics and rubber manufacturing in Ontario, Canada** (Occup Environ Med, 2020;77(12):847-856).

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RISK RECOGNITION & PREVENTION

Given that so little is known about what causes salivary gland cancer, and how rare it is, prevention strategies are limited. Implementing control strategies to reduce occupational exposures may help reduce the risk of salivary gland cancer, as well as reducing the risk of many other workplace diseases. According to the hierarchy of controls, strategies that eliminate the hazard, substitute a less hazardous exposure, or isolate the exposure from the workers (engineering controls) are the most effective [17]. Although the findings for rubber and plastics workers in the ODSS were limited, this may be due in part to the rarity of salivary gland cancer and there should be continued work to explore the risk among working populations.

Reducing alcohol consumption and following medical advice when receiving treatments or tests involving ionizing radiation or radioiodines may also help decrease the risk of salivary gland cancer. As with any cancer, early detection is key to more treatment options and better odds of survival. Symptoms of salivary gland cancer include: a usually painless lump in the ear, cheek, jaw or lip area or inside the mouth; fluid draining from the ear; trouble swallowing or opening the mouth widely; and numbness, weakness or pain in the face [1].

*The **Occupational Disease Surveillance System (ODSS)** Surveillance Alerts provide brief summaries of occupational exposures and disease risks across different industries and occupational groups. The aim of these alerts is to highlight new or emerging issues detected through occupational disease surveillance. At this time the ODSS includes workers from 1983-2014 and follows their health outcomes until 2016. This alert reflects only the diseases currently tracked within the ODSS. The system is updated and expanded on an ongoing basis.*

*More information about the ODSS including data sources, methods and the most recent results can be found at **odsp-ocrc.ca** and **occdiseasestats.ca**.*

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