# Study busts myth about facial hair on pilots

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A study conducted in Simon Fraser University's hypobaric chamber has sealed Air Canada's decision to allow pilots to sport facial hair.

Until last year, Air Canada and several other airlines required pilots to have a clean-shaven face. Air Canada reasoned that in the case of in-

flight emergency, a clean-shaven face was necessary to ensure a proper seal on an oral-nasal face mask.

In fall 2016, however, the airline retained Sherri Ferguson, director of SFU's Environmental Medicine and Physiology Unit, and her team to research the efficacy of face masks on different beard lengths.

"We had two objectives," says Ferguson. "First, we had to determine if present-day equipment used in the Canadian commercial airline industry delivers sufficient oxygen to protect a bearded pilot from hypoxia during an emergency cabin depressurization scenario."

Hypoxia occurs when the body does not receive enough oxygen and can cause damage to the brain and other organs minutes after symptoms appear and render a pilot incapacitated or unconscious.

"Secondly, we had to find out whether the mask provides sufficient protection against carbon monoxide and toxic fumes should the cabin become smoke-filled from fire."

The researchers divided research participants into three groups: those with a small amount of facial hair such as stubble (less than 0.5 cm in length), those with medium sized-beards and those with long beards (up to 40 cm).

Wearing masks supplied by Air Canada, the participants were put into a hypobaric chamber, which simulated altitudes from 10,000 to 25,000 ft above sea level. The researchers measured the participants' oxygen saturation levels at every altitude change, because a drop in the oxygen saturation levels would indicate the masks are leaky and unable to maintain a proper seal.

For the second test, the researchers used stannic chloride, which causes

watery eyes as well as a burning sensation in the lungs, in order to create conditions similar to fire smoke.

The researchers found no adverse effects on bearded subjects within the two parameters of the study, and that the masks maintained protection, irrespective of varying amounts of facial hair.

The study provided the basis for Air Canada to change its facial hair policy for aircrew and now permits a maximum length of 1.25 cm and neatly trimmed.

Provided by Simon Fraser University