**Does Cooking Cause Lung Cancer?**

Author: Maddison K. Henry
Major: Biology
Department of Microbiology and Molecular Genetics, Oklahoma State University, Stillwater, OK 74078, USA

**In two studies, long term cooking was tested in correlation to lung cancer. It is not a common known study for those who cook long term may be more susceptible to lung cancer than those who don’t, especially with those who have never touched a cigarette. It was found in both studies that habitual cooking in some Asian countries was a leading cause for females getting lung cancer.** 

**Introduction**

Lung cancer is the number one cancer for all deaths. Everyday items such as burning incense, candles or cooking could be the leading cause of cancer, along with any previous known smoking habits. Those who may have never smoked a day in their lives could be getting lung cancer from daily life tasks.There is not nearly enough research in indoor pollutants but has been found to be a leading cause for lung cancer for women in China (Chen et al. 2022). Indoor cooking releases fumes that can be toxic for the lungs (Wang et al. 2019).This has been an ongoing problem in Taiwan and China since 1986 (Ko et al. 2000).

**Recent Progress**

A study has been done by both Chen et al. (2022) and Wang et al. (2019) that showed how cooking can be a cause for lung cancer. Chen tested both a control group and a case group. All the subjects had stage IV lung cancer and were not heavy smokers. It was found that the case group had a higher amount of habitual cooking and indoor incense burning. Among those in the case study, females were at higher risk than males. Using a random forest model, it was found that habitual cooking was the important factor for the lung cancer group. In Wang et al. (2019) study, They were able to find that in 33k participants, 20% of them spent less than an hour a day cooking, 36% cooked 1-2 hours a day, 30% cooked for over 2 hours a day and 13% did not spend any time cooking per day. 94% of them were found to be retired women. There are only 300 million male smokers but there are 20 million female smokers. Chen (2022) states that only 6% smoked for the control in their study and 16.8% were in the female lung cancer cases.

**Discussion**

Both studies found that cooking at home had an increased risk factor for lung cancer in women. The cooking style that is used for those who have lung cancer and cook often are not like the American electric ovens. They are most likely using woks that make oil fumes that can be toxic for the lungs. These oil fumes include but are not excluded too: PAH, heterocyclic aromatic amines, benzene, and formaldehyde. Another often used source of cooking is petroleum gas stoves which release toxins that can also cause lung cancer and the use of coal consumption when cooking. It is beneficial for those who are using these cooking styles and equipment to make sure that proper ventilation is used when cooking. Smoking in China is so common that they have the highest tobacco consumption in the world. With such high rates of lung cancer in women, compared to their avage smoking intake, the numbers don’t quite add up. With only 20 million females smoking in these areas, the number of lung cancer cases is really high. Especially since most claim to not smoke. Smoking was only explaining 17% of the lung cancer cases in these female studies. The other 83% unexplained cases have to correlate to something. Since women in China spend so much time cooking, and the toxins that are exposed with their cooking methods, the only explanation could be that the cooking is a carcinoma for lung cancer.

**References**

Chen, K.-C.; Tsai, S.-W.; Shie, R.-H.; Zeng, C.; Yang, H.-Y. Indoor Air Pollution Increases the Risk of Lung Cancer. Int. J. Environ. Res. PublicHealth 19:1164 (2022). <https://doi.org/10.3390/ijerph19031164>

Wang, Gege, Yansen Bai, Wenshan Fu, Yue Feng, Weilin Chen, Guyanan Li, Xiulong Wu et al. "Daily cooking duration and its joint effects with genetic polymorphisms on lung cancer incidence: Results from a Chinese prospective cohort study." Environmental research. 179 (2019): 108747.