

# Asthma and Lung Cancer

Subjects: Oncology | Allergy

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A large gap still exists in our knowledge of the effects of dietary supplements on lung cancer risk/mortality in asthmatic smokers and nonsmokers. There is a lack of reliable studies for detecting such an effect says a researcher in the journal *Nutrients* [1]. The researcher undertook a comprehensive review of studies on the topic, and is now calling for trials and studies of these supplements to detect their benefits and harms. The best way to reduce lung cancer risk is to get those at greatest risk of lung cancer (active and passive smokers, particularly those with asthma) to stop smoking or reduce exposure to tobacco smoke. In industrial societies, airborne environmental pollutants are also risk factors.

[1] Alsharairi, N. The effects of dietary supplements on Asthma and Lung Cancer risk in smokers and non-smokers: A review of the literature. *Nutrients*, 2019, 11, 725.

Keywords: Lung Cancer ; Asthma ; Smokers ; Non-Smokers ; Supplements

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## 1. Introduction

It has been estimated that around 7 million of global deaths per year were caused by smoking [1][2][3]. Reviews of published systematic reviews and meta-analysis have confirmed that the risk of lung cancer and asthma has increased in current and former smokers [4][5][6][7][8]. In fact, tobacco smoke is the largest contributor to the most common histological types of lung cancer such as adenocarcinoma and small-cell and squamous cell carcinoma, with over 76% of lung cancer deaths in men and 37-42% of lung cancer deaths in women aged  $\geq 50$  years are attributable to tobacco use [9]. Tobacco smoke provokes asthma exacerbations and causes other allergy symptoms to worsen in adults. There is also unequivocal evidence that secondhand smoke exposure is the main contributor to asthma and lung cancer risk in nonsmokers, disproportionately affecting women [4]. The researcher claims that "people with asthma are generally at higher risk of lung cancer than the general population, whether they smoke or are exposed to tobacco smoke".

There is controversy over the role of dietary supplements in reducing or treating lung cancer in smokers and nonsmokers. There is also much uncertainty about its effectiveness and the consequences in asthmatic smokers and nonsmokers, and our understanding of whether dietary supplements can reduce lung cancer risk in asthmatic smokers and nonsmokers remains unclear in the absence of clinical trials . The researcher claims that "in order to evaluate the safety and effectiveness of dietary supplement use by asthmatic smokers and nonsmokers before, during, and after lung cancer treatment, we need realistic and reliable studies worldwide".

## 2. Data, Applications and Influences

Dietary supplements use has increased globally [10], and have become of particular interest to consumer and the pharmaceutical companies [11][12], in addition to be significant part of complementary medicines to maintain or improve health [13][14]. The most common dietary supplements used by cancer and asthmatic patients were multivitamins and antioxidants [15][16][17].

There is strong belief that taking dietary supplements prevents occurrence of cancers [18]. To the contrary, these supplements are not safe for cancer patients and have increased risk of mortality in Westernized adult populations [19]. Indeed, studies have been contradictory regarding the effects of dietary supplements on lung cancer risk and mortality in smokers and nonsmokers . However, there is now scientific evidence that urged caution in recommending long-term, high-dose supplements that contain  $\beta$ -carotene, retinyl palmitate, B vitamins and vitamin E for lung cancer patients, particularly current and former smokers [20].

Given that long-term supplements use can have adverse effects, why do companies still claim of anticancer benefits for marketing of these supplements? Pharmaceutical companies have not adequately complied with dietary supplement manufacturing standards. These supplements contain harmful ingredients which continue to be sold to cancer patients for economic reasons [21]. Sales of dietary supplements could represent harm, rather than health benefits, if national

standards and regulations do not rigorously apply. Despite the efforts of the Western countries to improve supplements safety and quality in the marketplace, many challenges still exist. These include inadequate assurance of safety/efficacy, inaccuracy of product labeling, misleading health claims and lack of conceptual clarity concerning a regulatory framework for marketing and assessing the quality of supplements [22][23][24][25].

RCTs revealed that dietary supplements including methyl donor nutrients and antioxidant vitamins were found not to improve pulmonary function in patients with asthma [26]. Pharmaceutical companies are involved in manufacturing supplements purported for use in asthma such as Quercetin and Pycnogenol [27]. A need remains for more efforts to provide regulatory guidelines about using dietary supplements to reduce asthma risk. Few RCTs to date have sought to examine the effects of dietary supplements on asthma risk in smokers. Although vitamin D supplementation alone has proven beneficial in reducing asthma risk in current/former smokers, the intake of vitamin D supplements together with calcium/other supplements may not be advocated. Further RCTs to examine the efficacy of dietary supplements in improving asthma symptoms are needed [28]. More studies are also needed to clarify the effects of dietary supplements on asthma risk in both smokers and nonsmokers.

### 3. Conclusion

Dietary supplements use in lung cancer prevention elicits considerable controversy. Long-term use of specific dietary supplements appears to increase lung cancer risk. The naturopathy sector makes millions of dollars by making claims about cancer-fighting supplements- this should be backed up with empirical research, and if it's false, those companies should not be profiting from misleading people. Dietary supplements might actually reduce other cancers risk because some studies have made very grand claims. Given active and passive smoking are the main risk factors for asthma and lung cancer, the researcher is therefore suggesting future trials and prospective studies of these supplements to detect their benefits and harms for lung cancer prevention in asthmatic smokers and non-smokers.

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