In an AHS analysis of exposure to chlorpyrifos, one of the most widely used insecticides in the US, researchers found an association between the use of specific pesticides and an increased risk of specific cancers. It is important to note that discovering these associations does not mean a causal relationship has been found. The AHS employs a rigorous strategy of criteria for causal inference.

**Chlorpyrifos and Lung Cancer**

In an AHS analysis of exposure to chlorpyrifos, one of the most widely used insecticides in the US, researchers found an association between the use of this pesticide and the incidence of lung cancer, but not with any other cancer. In the highest exposure group, the incidence of lung cancer was lower. However, early findings do suggest an association between the use of specific pesticides and an increased risk of specific cancers. It is important to note that discovering these associations does not mean a causal relationship has been found. The AHS employs a rigorous strategy of criteria for causal inference.

**Understanding Pesticide Risk**

The AHS is now at the stage at which disease rates can be assessed, and the study is producing some important cancer findings. These findings reflect about five years of follow-up, following several years of cohort enrollment and data collection. The two ways in which cancer rates are analyzed in the AHS are 1) the comparison of cancer rates amongst enrollees with those of the general population, and 2) the comparison of cancer rates of those using specific pesticides with those who do not.

A major finding—one that correlates with previous existing data—is that this population of farmers experiences lower overall cancer rates than the general population.

In 1995, 20 years before the study began, researchers reported a high pesticide exposure event included repairing pesticide application equipment oneself and having first used pesticides more than 10 years ago.

**New Insights Regarding Pesticide Exposure**

One of the major challenges in studying the effects of pesticide exposure on human health is the difficulty in precisely assessing real-life exposures. Pesticides are widely used without a detailed understanding of all of the various ways they might enter the body and in what quantities they do so. As part of its study of the Iowa and North Carolina farming populations, the AHS has prioritized the improvement of scientific methods to better understand pesticide exposure. This work has revealed much information that enables scientists to more accurately determine potential health effects of pesticide exposure, and also assists in the development of better controls and practices to decrease exposure.

For example, early on in the study members of the research team looked closely at the characteristics of people who self-reported a “high pesticide exposure event.” Closely examining this 14% of the study population enabled the epidemiologists to determine what home and farm features or practices are associated with incidents or experiences leading to unusually high personal exposures. These characteristics ranged from how, when and where clothing was laundered and the types of pesticides used, to whether the family was experiencing financial stress. After taking into account education and the total number of lifetime applications made, the researchers saw that women had significantly fewer events than men who applied pesticides.

Job characteristics more common among those who reported a high pesticide exposure event included repairing pesticide application equipment oneself and having first used pesticides more than 10 years ago. As traction increases—either through improved field quality or more aggressively treaded footwear—the risk of ACL injury increases. Interestingly, the authors published a separate paper evaluating player perception of fields and looking at both traction and hardness, and concluded that the high traction and hard fields that players prefer to play on are the ones on which they are most likely to incur an ACL injury.