



Clinical trials examine mushrooms' cancer-fighting properties

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The role of mushrooms in reducing the risk of breast and prostate cancers and in stunting the growth of these cancers will be tested shortly with the start of human clinical trials at the City of Hope research centre in California.

Earlier laboratory studies successfully used a mushroom extract to slow breast cancer growth in mice and lower the level of male hormones involved in prostate cancer, opening the door for clinical studies to determine the impact of eating mushrooms on these cancers.

Australian Mushroom Growers Association General Manager, Greg Seymour and US Mushroom Council President, Bart Minor met recently with the US based researchers to present them with a cheque for \$560,000 to fund the pilot clinical trials.

The trials also have the backing of the California Breast Cancer Research Program, the American Institute for Cancer Research and the US National Institutes of Health.

Mr Seymour said the clinical trials were an important step in confirming the impact in human of mushrooms as a natural, whole food, cancer fighter.

"When you consider that laboratory research with mice showed an impact from the equivalent of just five button mushrooms a day, the potential health benefits are significant."

Mr Seymour said mushroom consumption in Australia had grown five fold over the past thirty years and growers were naturally excited that they could potentially play a role in reducing the impact of cancer in Australia.

"Cancer is still the leading cause of death in Australia and while the survival rate for many common cancers has increased by more than 30 per cent over the last twenty years, our objective is to determine if the regular addition of mushrooms to the diet can further assist in reducing cancer risk and help recovery."

Shiuan Chen, Ph.D., director of the Department of Surgical Research and leader of the mushroom project said laboratory studies found that mushrooms suppressed the effects of a natural substance in the body called aromatase. With 75 percent of postmenopausal women with breast cancer having tumors that depend on estrogen to grow, blocking aromatase is a key way that physicians reduce circulating estrogen levels among their postmenopausal patients.



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The clinical trial will consist of 24 postmenopausal breast cancer survivors who will be randomly assigned to take between five and 13 grams of freeze-dried white button mushrooms in tablet form daily for 12 weeks. Researchers will monitor aromatase activity and female hormones in participants, as well as levels of conjugated linoleic acids, a group of compounds in the mushrooms that appear to be responsible for their anticancer properties. They also will study effects on the immune system, cholesterol and bone health.

A second trial will investigate mushrooms' potential in prostate cancer, with a specific focus on men who were treated for cancer and appear to be cancer-free on imaging scans, but whose prostate-specific antigen (PSA) levels have begun to rise. Cancer usually returns in these patients.

Laboratory research has shown that mushroom extract can lower levels of 5-alpha reductase, an enzyme linked to male hormones involved in prostate cancer. For their clinical trial, the researchers plan to monitor patients for aromatase activity, male hormone levels, levels of conjugated linoleic acids and other substances, as well as effects on the immune system.

Dr Chen said eating mushrooms would be an easy intervention and could provide a cost-effective, whole food option for cancer risk reduction.

Mr Seymour said the decision by industry to invest their hard earned dollars in the research was made easier by the practical nature of the trials.

"What we have here is the potential to provide consumers with access to a natural way of fighting cancer through the addition of just a few mushrooms to the daily diet," he said.

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