

Grape seed extract kills head and neck cancer cells, leaves healthy cells unharmed

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Nearly 12,000 people will die of head and neck cancer in the United States this year and worldwide cases will exceed half a million.

A study published this week in the journal *Carcinogenesis* shows that in both cell lines and mouse models, grape seed extract (GSE) kills head and neck squamous cell [carcinoma cells](#), while leaving healthy cells unharmed.

"It's a rather dramatic effect," says Rajesh Agarwal, PhD, investigator at the University of Colorado Cancer Center and professor at the Skaggs School of Pharmaceutical Sciences.

It depends in large part, says Agarwal, on a healthy cell's ability to wait out damage.

"Cancer cells are fast-growing cells," Agarwal says. "Not only that, but they are necessarily fast growing. When conditions exist in which they can't grow, they die."

Grape seed extract creates these conditions that are unfavorable to growth. Specifically, the paper shows that grape seed extract both damages cancer cells' DNA (via increased reactive oxygen species) and stops the pathways that allow repair (as seen by decreased levels of the DNA repair molecules Brca1 and Rad51 and DNA repair foci).

"Yet we saw absolutely no toxicity to the mice, themselves," Agarwal

says.

Again, the grape seed extract killed the cancer cells but not the healthy cells.

"I think the whole point is that [cancer cells](#) have a lot of defective pathways and they are very vulnerable if you target those pathways. The same is not true of healthy cells," Agarwal says.

The Agarwal Lab hopes to move in the direction of clinical trials of [grape seed extract](#), potentially as an addition to second-line therapies that target head and neck [squamous cell carcinoma](#) that has failed a first treatment.

Provided by University of Colorado Denver

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