



### Kidney patients should avoid star fruit

Star fruit is a decorative and refreshing treat and, for most of us, a healthy delicacy. But for some people with impaired kidney function, the star fruit (also known as carambola) can be deadly.

Researchers from Brazil and Taiwan are studying why star fruit causes serious life-threatening reactions to some kidney patients.

**Question:** What are the symptoms of star fruit intoxication?

**Answer:** Typical symptoms occur within one to five hours and include persistent hiccups, nausea, vomiting, agitation, insomnia, mental confusion and convulsions. Death sometimes results. A study conducted at the University of Sao Paulo found that hiccups were experienced in 30 of 32 cases, and vomiting in about two-thirds. Even though mental confusion and convulsions were less common, these symptoms are more likely to be associated with death.

**Q:** Does star fruit cause kidney problems?

**A:** No. Star fruit intoxication only occurred if some degree of kidney failure already existed. For most of those affected, kidney decline was extensive enough that they were being treated by blood dialysis, although in four cases kidney problems had not reached that severity. There is no evidence of any problem for people with normal kidney function.

**Q:** What substance in star fruit causes this problem?

**A:** The tangy tartness in star fruit comes from high levels of oxalic acid (or oxalate). Weakened kidneys can be damaged if high levels of oxalate accumulate in the organ. But it is likely that another toxin in star fruit is also problematic since common foods such as spinach contain even greater levels of oxalic acid and do not seem to be associated with this severe problem.

The Brazilian researchers think that star fruit contains a substance toxic to nerves (a

neurotoxin). People with healthy kidneys probably clear this toxin from the blood quickly and experience no problem. Without efficient kidney function, the combined effect of oxalate and a neurotoxin may deliver a double whammy.

**Q:** How much star fruit needs to be consumed to produce toxic effects in kidney patients?

**A:** As little as one half of a fruit and less than eight ounces of star fruit juice has caused serious symptoms. One person died from eating just one fruit.

Current medical treatment for star fruit intoxication is prompt kidney dialysis. Anyone who experiences hiccups, vomiting or other unusual symptoms after eating star fruit should seek medical attention as soon as possible.

On the positive side, star fruit lovers with normal kidneys should be able to continue enjoying the delectable treat without concern.

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