Zinc linked to development of kidney stones

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by Chuck Bednar

In an attempt to find the root causes of kidney stones, a common urinary condition that can cause severe pain, a team led by scientists from the University of California, San Francisco have found that zinc levels could contribute to the formation of these small, hard deposits.

The study, which was published this week in the journal *PLOS One*, was designed to discover how the formation of urinary stones begins, and to pinpoint the cause of this and related ailments in order to discover new ways to prevent and/or treat these conditions.

?The ultimate goal of our research team is to prevent kidney stones from happening in the first place and to understand the mechanisms by which they form a part of that effort,? explained lead author, Dr. Thomas Chi, an assistant professor of medicine in the UCSF Department of Urology who has worked extensively on developing model of kidney stones using fruit flies.

**Using fruit fly models to examine mineral interaction**

Kidney stones are hard masses of crystalized minerals that form in a person?s kidney. While they can be small, they are often jagged in shape, and passing them can cause excruciating pain. Since fruit flies produce stones that are similar in nature to kidney stones, they have turned out to be an excellent model to explore potential risk factors in humans.

Dr. Chi and his UCSF colleagues, in collaboration with researchers from the Buck Institute on Aging and the Children's Hospital of Oakland Research Institute, examined both humans and flies to investigate how zinc interacts with the other minerals that comprise kidney stones, which include oxalate and calcium.

?The idea made sense, because our most recent research demonstrates that zinc is important for the mineralization and calcification processes that lead to urinary stones,? Dr. Chi explained in a statement. His team found a link between changes in oxalate levels in the urine (an established risk factor for kidney stones) and dietary zinc intake. A decrease in zinc intake caused dramatic changes in urinary oxalate content, they discovered. Better cut down on that zinc intake!
Kidney stone prevalence has risen steadily over the past 30 years, forcing more than 500,000 people to go to the emergency room each year, according to the National Kidney Foundation [3]. The lifetime risk of developing kidney stones is about 19 percent in men and nine percent in women, and up to half of those who develop one will have another within five years.


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