

I Read the Paper; Turmeric Still Doesn't Work



By Julianna LeMieux — April 3, 2017



I recently wrote [an article](#) ^[1] about a young, healthy woman who went to a healer (likely a naturopath), received an IV of turmeric as a treatment for eczema, and died as a result of it.

Although some of the details of this case remain under investigation, the information comes from the medical examiner's report which stated that the woman died from, "anoxic encephalopathy due to prolonged resuscitated cardiopulmonary arrest due to adverse reaction to infused turmeric solution."

In response to my article of a tragic tale of people practicing dangerous methods of pseudo-medicine, and healthy people ending up dead, I received an email both very supportive of using turmeric and also highly critical of my ability as a scientist.

Some of the quotes in the email about me were

"As a molecular biologist the author of this article should be ashamed. She has failed the test of scientific due diligence in every regard."

And

"The profound ignorance of the public and lack of due diligence by news sources and authors such as LeMieux constitutes a scientific and moral failure. A scientist should be dedicated to truth and fair representation of the available scientific literature. This is the moral duty of a scientist. Julianna LeMieux fails this duty in every way."

Well, I am nothing if not a "dedicted" (see above misspelling in the quote) scientist. Which is why I took the next part of the email on as a challenge. The email author sent me a reference to a paper

that, he feels, is a strong example of the science behind curcumin's benefits.

"Below is an illustration of actual scientific evidence on curcumin presenting both positive effects of curcumin on endothelial function while showing the limitations of the drug as well. There are hundreds of such articles available at PubMed. Despite her scientific training Juliana LeMieux clearly has no interest in actually evaluating real scientific literature."

OH - quite the contrary! I LOVE evaluating real scientific literature. It is not only my job - it is one of my favorite things to do.

So, as any dedicated scientist would, I printed out the article and went to work.

The study tested whether curcumin, the active compound found in turmeric, would have an effect on the function in the arteries of adults. The study consists of 44 people. Ok - that's not a lot since they need two groups - each of which received pills of either curcumin (23 people) or a placebo (21 people.) The actual numbers were even smaller (12 people in each group) "due to difficulty placing intra-arterial lines in all participants both before and after the intervention period." On another note, 11 participants missed pills, five of whom were in the test group.

Well... whatever. It's a group of some small number of people who may or may not have taken their pills. I'm a scientist - there is no need to get bogged down in the details.... it's not like this is a matter of life and death, after all.

They gave the test and placebo groups injections of acetylcholine in one of their arms to assess the ability of the blood vessels to dilate and constrict. (1) The inflow of arterial blood in the forearm can be determined by measuring the changing volume of the forearm in a technique known as plethysmography. (2)

However, one factor that they did not account for (or even mention) is that forearm blood flow is affected by the length of the forearm. So, if all of the subjects in the placebo group had shorter forearms than those in the test group (or vice versa), the results could have easily been skewed.

The other problem is their control. A robust study would control for certain factors by using the person's other forearm (the one that did not receive the acetylcholine.) In this study, they did not do that, conflating the results even more.

That notwithstanding, they report a 37% increase in forearm blood flow, in the study participants taking curcumin, because of improved endothelial release of nitric oxide in response to a pharmaceutical challenge. The baseline blood flow was not increased, just the ability to respond to a challenge.

Moreover, they report a 1.3% increase in the ability of the forearm's blood vessels to dilate when chemically challenged in those individuals taking curcumin. Does that mean that curcumin protects against atherosclerosis? No. Does curcumin protect against heart attacks? Absolutely not. Does 1.3% mean anything? Most likely - no.

Lastly, curcumin is not turmeric. And, pills are not an IV. In fact, the authors point out that even

curcumin is not always curcumin. (3)

"To a literate scientific community claiming curcumin lacks physiological action on the human body with benefits on human health and disease is like claiming the earth is flat. It just will not hold up and is a blatant distortion of truth."

If this paper is what you are using to make that claim, then feel free to insult me. We will just have to agree to disagree. Not on the flat Earth part, though. Hopefully, you are not *that* anti-science. Anti-science or not, anyone who can analyze data and draw conclusions would see the flaws in this paper from a mile away.

To be clear, I am not critical of the scientists who did the work. I know that scientific experimentation is not perfect and the challenges of data collection that lead to imperfect results. What I am doing is being highly critical of the people who stuck an IV into a woman who is now dead, and every person who, since that day, who has defended that action.

Footnotes:

(1) The ability to dilate and constrict are gradually lost with atherosclerosis. The ability of the arteries to dilate and constrict are two essential components of local blood flow. When the smaller arteries cannot dilate, they might not provide enough blood flow (and more importantly, oxygen) to the tissue.

(2) The technique is known as plethysmography and involves measuring the circumference of the forearm while a blood pressure cuff further upstream (in the upper arm) is lightly inflated to stop blood from leaving the arm through the veins. The resulting increase in forearm size is a measure of how much arterial blood is entering the forearm. Oh and not to worry, these changes in size/volume are small, so we do not create hugely swollen forearms. Of course, that also means that with small numbers measurement error may be easier to introduce.

(3) "Caution should be taken in generalizing the present findings to other supplements containing curcumin or dietary consumption of curcumin, due to the differences in formulations between supplements and the varying absorption/bioavailability of curcumin from other sources."

References:

Santos-Parker JR, Strahler TR, Bassett CJ, Bispham NZ, Chonchol, MB, Seals DR
Curcumin supplementation improves vascular endothelial function in healthy middle-aged and older adults by increasing nitric oxide bioavailability and reducing oxidative stress. Aging 2017 Jan 3; 9(1): 187-208

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[1] <http://www.acsh.org/news/2017/03/23/naturopaths-human-experiment-ends-death-11039>