Moderate intensity exercise delays development of hypertension through beneficial effects at functional, cellular level

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Credit: Louisiana State University

Cardiovascular diseases are the leading cause of death worldwide. Recently, hypertension (high blood pressure) has been recognized as a major prevalent cardiovascular risk factor by WHO and American Heart Association. Unfortunately, less than 45% of the patients respond favorably to currently available anti-hypertensive medications. There is an urgent need to find more effective medicines for hypertensive patients.

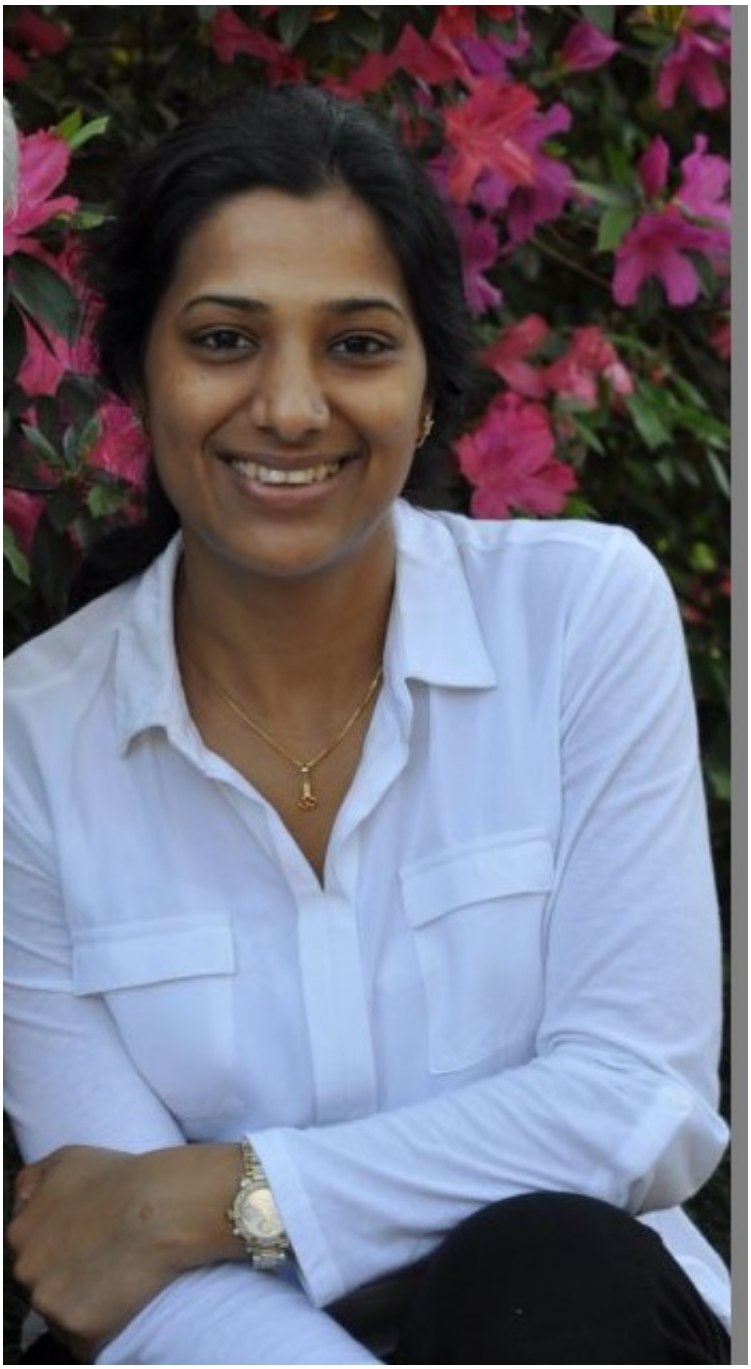
"Current guidelines for the treatment of hypertension in the USA recommend 30 minutes of exercise per day for all hypertensive patients. However, it is still unclear just how much exercise is safe yet effective for patients who have compromised hearts due to disease or aging. Indeed, the basic cellular effects of varying the intensities of exercise are unknown." Said Dr Deepmala Agarwal, a researcher at Louisiana State University whose research sheds light on what happens at the cellular level among hypertensive subjects while exercising.

"Although beneficial effects of exercise have been known for many decades, the effects of long-term exercise in the progression of hypertension remained unclear. More importantly, the molecular mechanisms by which exercise exerts its effects were still lacking." said Dr Agarwal, whose work at on hypertension was published in journal *Hypertension*. Due to its novelty and high significance, her manuscript was selected for Editorial Commentary in the journal *Hypertension*.

Dr. Agarwal and her coworkers at Louisiana State University performed long-term exercise studies in an animal model of human essential hypertension. Their group revealed for the first time that regular moderate-intensity exercise delays the progression of hypertens.ion and when initiated in the early stages of hypertension, can maximize its own cardio-protective effects.

Using highly sophisticated and state of the art radio-telemetry and

molecular biology tools, she was able to conclude that moderate intensity exercise beneficially affects the inflammatory process associated with hypertension. "We have also discovered that these beneficial effects of exercise are mediated by reduction in pro-inflammatory cytokines and oxidative stress leading to an increase in levels of nitric oxide within the heart." Dr. Agarwal said.



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Dr Agarwal's cutting edge research has yielded novel discoveries which will lead to the development of newer non-pharmacological therapies for

the treatment of hypertension and other cardiovascular diseases. Furthermore, her research will certainly lead to evidenced-based modifications to treatment guidelines for cardiac patients.

Provided by Louisiana State University