

 Well - Tara Parker-Pope on Health

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For Some, Exercise May Increase Heart Risk

By [GINA KOLATA](#)

Michael Zamora/Corpus Christi Caller-Times, via Associated Press

Could exercise actually be bad for some healthy people? A well-known group of researchers, including one who helped write the scientific paper justifying national guidelines that promote exercise for all, say the answer may be a qualified yes.

By analyzing data from six rigorous exercise studies involving 1,687 people, the group found that about 10 percent actually got worse on at least one of the measures related to heart disease: blood pressure and levels of insulin, HDL cholesterol or triglycerides. About 7 percent got worse on at least two measures. And the researchers say they do not know why.

“It is bizarre,” said Claude Bouchard, lead author of the paper, published on Wednesday in the journal [PLoS One](#), and a professor of genetics and nutrition at the [Pennington Biomedical Research Center](#), part of the Louisiana State University system.

Marie Constantin
Claude Bouchard

Dr. Michael Lauer, director of the Division of Cardiovascular Sciences at the National Heart, Lung, and Blood Institute, the lead federal research institute on heart disease and strokes, was among the experts not involved in the provocative study who applauded it. “It is an interesting and well-done study,” he said.

Others worried about its consequences.

“There are a lot of people out there looking for any excuse not to exercise,” said William Haskell, emeritus professor of medicine at the [Stanford Prevention Research Center](#). “This might be an excuse for them to say, ‘Oh, I must be one of those 10 percent.’ ”

But counterbalancing the 10 percent who got worse were about the same proportion who had an exaggeratedly good response on at least one measure. Others had responses ranging from little or no change up to big changes, seen in about 10 percent, where risk factor measurements improved anywhere from 20 percent to 50 percent.

“That should make folks happy,” said Dr. William E. Kraus, a co-author of the study who is a professor of medicine and director of clinical research at Duke. He was a member of the committee providing the scientific overview for the Department of Health and Human Services’ [national exercise guidelines](#), which advise moderate exercise for at least 150 minutes a week.

The problem with studies of exercise and health, researchers point out, is that while they often measure things like blood pressure or insulin levels, they do not follow people long enough to see if improvements translate into fewer heart attacks or longer lives. Instead, researchers infer that such changes lead to better outcomes — something that may or may not be true.

Some critics have noted that there is no indication that those who had what Dr. Bouchard is calling an adverse response to exercise actually had more heart attacks or other bad health outcomes. But Dr. Bouchard said if people wanted to use changes in risk factors to infer that those who exercise are healthier, they could not then turn around and say there is no evidence of harm when the risk factor changes go in the wrong direction.

“You can’t have it both ways,” Dr. Bouchard said.

The national guidelines for exercise are based on such inferences and also on studies that compared the health of people who exercised with that of people who did not, a weak form of evidence often said to be hypothesis-generating rather than proof.

“We do not know whether implementing exercise programs for unfit people assures better outcomes,” said Dr. Lauer of the heart institute. “That has not been established.” And so, he said, “there is a lot of debate over how strong the guidelines should be in light of weak evidence.”

Authors of the study say people should continue to exercise as before, but might also consider getting their heart disease risk factors checked on a regular basis. No intervention, including drugs, works for everyone, Dr. Kraus said. So it should not be surprising that exercise does not work for some.

“I am an exercise guy; I believe in exercise for health,” Dr. Kraus said. “I would rather have everyone exercise. But you can’t ignore the data.”

Still, he added, even if someone does not get the expected benefit in some heart risk factors, there are other reasons to exercise: for mental health and to improve physical functioning.

And while the researchers would like to spare people from adverse exercise effects, Dr. Bouchard said, “It is not possible yet to make more specific recommendations because we do not understand why this is happening.”

Dr. Bouchard stumbled upon the adverse exercise effects when he looked at data from his own study that examined genetics and responses to exercise. He noticed that about 8 percent seemed to be getting worse on at least one measure of heart disease risk. “I thought that was potentially explosive,” he said.

He then looked for other clinical trials that also examined exercise under controlled conditions, making sure that participants actually exercised and did not change their

diets, and carefully measuring heart risk factors and how they changed with an exercise program. He found five studies in addition to his own. In all the studies, a proportion of people, about 10 percent, had at least one measurement of heart disease risk that went in the wrong direction.

Then the researchers asked if there was some way of predicting who would have an adverse effect.

They found it was not related to how fit the people were at the start of the study, nor to how much their fitness improved with exercise. Age had nothing to do with it, nor did race or gender. In some studies subjects were allowed to take medications to control their blood pressure or cholesterol levels. In others they were not.

Medication use did not matter. The study subjects exercised at a range of intensities from very moderate to fairly intense. But intensity of effort was not related to the likelihood of an untoward effect. Nothing predicted who would have an adverse response.

Some experts, like Dr. Benjamin Levine, a cardiologist and professor of exercise sciences at the University of Texas Southwestern Medical Center, asked whether the adverse responses represented just random fluctuations in heart risk measures. Would the same proportion of people who did not exercise also get worse over the same periods of time? Or what about seasonal variations in things like cholesterol? Maybe the adverse effects just reflected the time of year when people entered the study.

But the investigators examined those hypotheses and found that they did not hold up.

Dr. Kraus said researchers needed to figure out how to tailor exercise prescriptions to individual needs. For example, people with good cholesterol and insulin levels but worrisome blood pressure would want to know if exercise made their blood pressure rise. A rise in blood pressure would not be compensated by improvements in already good cholesterol or insulin levels.

Dr. Lauer said that if nothing else, the study pointed out the need to know more about what exercise actually does. "If we are going to think of exercise as a therapeutic intervention, like all interventions there will be adverse effects," he said.

He said, "There is a price for everything."