

## BroadcastMed | Exercise and Depression in Cardiac Patients

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- BERNARD** I'm Bernard Gersh from the Mayo Clinic, and with me today is Dr. Randy Thomas, who's director of our cardiovascular health clinic and preventive cardiology at Mayo. And we're going to talk about a very interesting topic, and one we haven't discussed before, and that is the role of exercise in depression, particularly in cardiac patients. Randy, as someone like myself who exercises a lot and enjoys it, and it makes me feel good, and I don't think I'm depressed, it doesn't come as a surprise that exercise is good medicine for depression.
- GERSH:**
- RANDY** That's exactly right. You know there's been long known that exercise helps us feel better. There's this concept of the runner's high-- in fact, even all the way back to Hippocrates depression was treated with exercise. So it's been known for many years that there's an elevation in our mood as we exercise more.
- THOMAS:**
- BERNARD** I'd love to go back to the Hippocrates part, but we don't have the time. But depression is very common in patients with coronary disease, very common post-myocardial infarction. And what's the objective data depression really benefits these patients? And then if you'd go on for a heart failure?
- GERSH:**
- RANDY** Just a couple of main points. Somewhere around 15% to 20% of people post-MI I have severe depression.
- THOMAS:** Another 15% to 20% have some depressive symptoms on top of that. Studies have been mixed on what's the best way to treat these patients. Medication therapy may be helpful in alleviating symptoms, but probably doesn't help improve outcomes very much.
- BERNARD** The randomized trial data on medications for depression in post-MI patients was not really very impressive, was it?
- GERSH:**
- RANDY** No.
- THOMAS:**
- BERNARD** I mean there was no difference in outcomes, and maybe just some difference in symptoms.
- GERSH:**
- RANDY** Modest improvement in symptoms. In heart failure patients it doesn't look like the medication helps improve their depression at all. So what's been thought help is exercise, and until now, there's not really been a very well-done randomized study comparing exercise, placebo, and medication therapy. But recently a study was done to look at this.
- THOMAS:**
- BERNARD** This was a study done in post-MI patients?
- GERSH:**
- RANDY** Patients with known coronary disease were eligible for this study. It could have been post-MI, it could have been post-PCI, but they had known coronary disease and known depressive symptoms.
- THOMAS:**
- BERNARD** And randomized exercise versus what?
- GERSH:**
- RANDY** Half the patients had severe depression. The other half had depressive symptoms. This was in the UPBEAT study.
- THOMAS:** Jim Blumenthal was the primary investigator in the study.

**BERNARD** He was from Duke.

**GERSH:**

**RANDY** Yes. And what they found was very interesting. They found that the depressive symptoms improved about the same in the medication and the exercise groups, but in the severely depressed patients the exercise group actually did much better. Their depressive symptoms improved much better. About 40% of those patients in exercise had remission of their severe depression, and only about 10% of those with medication therapy did.

**THOMAS:**

**BERNARD** And so there's the added advantage, because not only are you improving symptoms, but you're improving physical fitness.

**GERSH:**

**RANDY** Exactly right.

**THOMAS:**

**BERNARD** Which medications are not going to do for you.

**GERSH:**

**RANDY** It's one of the several reasons why exercise probably helps benefit patients with cardiac disease.

**THOMAS:**

**BERNARD** So Randy, the other group, not the Blumenthal study was multi-center, but Jim Blumenthal is from Duke University.

**GERSH:**

**RANDY** Multi-center in CAD patients. There was another study, the HF-ACTION study, that actually was with heart failure patients. We were part of that project. And what was found in that study was that exercise did improve depressive symptoms in heart-failure patients. Whereas, the medications in other studies have not been very impressive in the heart-failure patients.

**THOMAS:**

**BERNARD** So here again it's sort of beneficial to not any improving symptoms, but I presume you're improving exercise tolerance.

**GERSH:**

**RANDY** Exactly.

**THOMAS:**

**BERNARD** Which in turn is going to result in an improvement in symptoms.

**GERSH:**

**RANDY** It's as close as we can get to the fountain of youth, I think, is exercise. And so many multiple benefits. And you think about exercise, why is it causing these symptoms? Why is it helping the symptoms? And of course there are biochemical reasons-- endorphins and Keflins, serotonin-- improve with higher-intensity activity. But probably there is something to the fact that there is some socialization, there's movement, there's a number of things that may lead to improvement in mood as well.

**THOMAS:**

**BERNARD** In fact, one of the criticisms, I think there was a German study of exercise rehabilitation versus none in post-MI patients, and one of the criticisms was that they didn't prove the point that exercise, per se, was beneficial. It was the whole experience of being part of a rehab group, socialization, eliminating social isolation, which is a prominent cause of depression.

**GERSH:**

**RANDY** There is a big part to that definitely.

**THOMAS:**

**BERNARD** So do you think that if you take up some of the ancillary effects of exercise, do you think that there is a  
**GERSH:** physiologic biochemical response, per se, that could improve depression?

**RANDY** Yeah. And this has been shown pretty well now, I think. Serotonin, in particular, which is one of the major  
**THOMAS:** components that we're looking at. Serotonin does increase with aerobic exercise. That's been shown. There's an increase in release of serotonin, and an increase in production of serotonin both.

**BERNARD** Which certainly is antidepressant. Any evidence of exercise and arrhythmias post-MI?  
**GERSH:**

**RANDY** There is some evidence to suggest that exercise may improve ventricular ectopy control. There's some evidence  
**THOMAS:** that may actually reduce the risk of severe cardiac events and cardiac arrest. But those mechanisms are more or less clear. Atrial fibrillation and exercise is still kind of uncertain. There is, as you probably know, atrial fibrillation increases if you have long endurance activity over a long period of time. The runner's heart, so to speak, may actually increase risk of atrial fibrillation.

**BERNARD** But I think there's epidemiologic data-- I don't know whether it was the Physicians' Health Study, or which study it  
**GERSH:** was-- but I think there's some epidemiologic data that regular exercise reduces the incidence of atrial fibrillation.

**RANDY** For the average person that's going to be true. It's going to reduce the risk. For those who are the marathon  
**THOMAS:** runners and the high-endurance athletes, that's where you may run into more of a risk.

**BERNARD** And I suppose in terms of regular exercise, not a marathon runner, but one of the other benefits in terms of atrial  
**GERSH:** fib, it probably ends up reducing blood pressure, hypertension, a major cause of atrial fibrillation.

**RANDY** Yeah, there are over 100 benefits that are purported to come from exercise. And so it's again, closest thing we  
**THOMAS:** can get to the fountain of youth.

**BERNARD** Sound like exercise and moderate alcohol consumption always points in the right direction.  
**GERSH:**

**RANDY** There are simple solutions to problems, aren't there, sometimes?  
**THOMAS:**

**BERNARD** Randy, just a closing message for us in terms of our coronary patients. Should we be entering all of them into  
**GERSH:** cardiovascular rehab and exercise as an integral part of cardiovascular rehab?

**RANDY** I think so. And I think it's important for us to remember that depression and depressive symptoms are very  
**THOMAS:** common in our patients, that we should look for them, that we should encourage exercise as one of the components to treating depressive symptoms. And even in the absence of depression, there are so many benefits that we should be encouraging all of our cardiac patients to consider a program of rehabilitation and exercise.

**BERNARD** Randy, thank you very much. I think there is nothing that we would disagree about at all. Thank you.  
**GERSH:**

**RANDY**

Thanks.

**THOMAS:**