

Anabolic-androgenic steroid use associated with decreased heart function in weightlifters

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Illicit performance-enhancing steroids can cause the heart to thicken and reduce its ability to function, according to research presented today at ESC Congress 2019 together with the World Congress of Cardiology.

Use of anabolic-androgenic steroids (AAS) has long been feared to have hazardous cardiovascular effects, but only recently has this been demonstrated in studies.

The study presented today examined the effects of long-term AAS use on left ventricular systolic function by assessing the size, thickness, mass and function of the heart in male weightlifters.

"Our study found that illicit steroid use is associated with a number of worrying effects on the heart. We demonstrated that AAS-using weightlifters have a thicker heart muscle and reduced ability to contract the ventricular chambers of the heart during a cardiac cycle," said Rang Abdullah, a third-year medical student at the University of Oslo, Norway.

"Having a heart that doesn't contract the way it should is associated with higher mortality," he added.

The study is part of a large multidisciplinary study on AAS use, which includes studies on brain imaging, cognitive, psychological, and other cardiovascular functions.

Study authors recruited 100 male weightlifters—58 with more than a year of cumulative AAS use and 42 who do not use [steroids](#)—with no difference in age or BMI between the two groups.

The size, thickness, mass and function of the heart were measured with echocardiography, which uses [sound waves](#) to monitor heart and valve function, and ejection fraction, which measures how much blood the left ventricle pumps out with each contraction.

AAS-using weightlifters had a thicker heart muscle—on average, a 2 mm thicker interventricular septum, which is the wall separating the lower chambers of the heart. The left ventricular posterior wall was also, on average, 1.2 mm thicker in the steroid group.

The steroid group also showed reduced ability to contract the ventricular chambers of the heart during a cardiac cycle. Both [ejection fraction](#) and ventricular global strain, a new method to assess systolic function, were decreased in AAS-exposed weightlifters as compared to the non-steroid group, 49% vs. 53%, on average, and -15.6% vs. -18.3%.

Abdullah said, surprisingly, only a minority of steroid users in the sample had experienced cardiovascular symptoms related to their AAS use.

"Continuous, long-term use of AAS might prove to be a 'silent killer' but it is too early to tell," he said.

"There are many case-studies out there on AAS-using weightlifters who end up dead or hospitalised from a [heart](#) attack or life-threatening cardiac arrhythmias. This is why prospective observational trials on this subject are so desperately needed," he concluded.

More information: The abstract "Long-term use of anabolic

androgenic steroids in male weightlifters is associated with left ventricular systolic dysfunction" will be presented during Poster Session 3: Neuro and psychiatric on Sunday 1 September at 14:00 to 18:00 CEST in the Poster Area.

Provided by European Society of Cardiology

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