Simple exercise improves lung function in children with cystic fibrosis

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A small Johns Hopkins Children's Center study of children and teens with cystic fibrosis (CF) shows that simple exercise, individually tailored to each patient's preference and lifestyle, can help improve lung function and overall fitness.

Frequent lung infections, breathing problems and decreased lung function are the hallmark symptoms of CF, a genetic disorder marked by a disruption in the body's ability to transport chloride in and out of cells that leads to the buildup of thick mucus in the lungs and other organs.

Because rigidly structured high-intensity exercise routines are hard to sustain over time, the Johns Hopkins team designed exercise regimens that fit easily into each patient's daily life. The researchers asked 58 children with CF, ages 6 to 16, to describe their daily routine and preferred physical activities. Based on their answers, the patients received individual exercise recommendations, including going for a stroll, taking a dance class, playing basketball in the driveway or playing with a Wii.

Researchers compared the patients' lung function and exercise tolerance before and after the two-month program. The exercise tolerance test consisted of walking multiple 10-meter (roughly 33 feet) intervals. After completing the exercise programs, patients were able to perform seven more 10-meter walking intervals, on average, than they were before completing the exercise regimen.

All children showed small bumps in pulmonary function tests, but children who increased their exercise capacity by 10 or more walking intervals showed even more noticeable improvement (5 percent or more) in lung function scores.

On average, patients also reported improved self-image, the researchers say.

Patients with CF follow complex treatment regimens including daily medication, breathing exercises and therapy with special devices to help break up mucus in their lungs. While the benefits of exercise on overall health are well-known, many pulmonologists have shied away from formally prescribing exercise as part of the treatment plan, the investigators say.

The new Johns Hopkins Children's study may change that. Albeit preliminary, the findings suggest that patient-tailored exercise regimens can be easily incorporated into the treatment plan for patients with CF, the researchers say.

"Exercise, even when informal and unstructured, not only appears to improve lung status in children with CF, but goes a long way toward benefiting their overall health, self-perception and emotional well-being," said lead investigator Shruti Paranjape, M.D., a pediatric pulmonary specialist at Johns Hopkins.

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