TO THE EDITOR: As the son of a radiologist and currently an undergraduate at Ohio State University, I have become accustomed to the occasional "interesting case" my father shows me. When he presented me for the first time with an abstract, it was from a paper at this summer's SNM annual meeting: "Treadmill exercise does not affect image quality on subsequent whole body FDG PET scan" (*1*). I read this abstract with interest, as it pertained to the topic of the high school science fair project I had conducted 3 y earlier.

My project evaluated glucose utilization in resting, actively exercising, and recovering muscle in 2 nondiabetic, fasting volunteers. A 49-y-old woman and a 47-y-old man performed biceps curls and leg extensions. They exercised only one arm and the contralateral leg. The exercise routine consisted of 8 sets of 10 repetitions of a challenging load. The female volunteer (exercise active) exercised immediately after the intravenous injection of ^{18}F-FDG. The male volunteer (exercise recovery) exercised 12 h before the intravenous injection of ^{18}F-FDG. PET was performed on an Allegro scanner (Philips) 1 h after the administration of ^{18}F-FDG (370 MBq [10 mCi]). Maximum standardized uptake values (SUVs) from the biceps brachii muscle of both arms and rectus femoris muscle of both legs were recorded.

The SUVs of the rectus femoris for the exercise-active and exercise-recovery volunteers were 3.2 and 1.4, respectively, and the SUVs of the biceps brachii were 7.1 and 2.7, respectively. The SUV of resting muscle was either 0.6 or 0.7 in both muscle groups (Fig. 1).

Muscle actively exercising showed the highest SUV, likely because it used the circulating ^{18}F-FDG as an immediate energy source. Muscle recovering from exercise performed 12 h earlier also showed an SUV that was still considerably higher than that of resting muscle, presumably because the circulating ^{18}F-FDG was being used to replenish glycogen stores.

Although this simplistic science fair project does not advance the frontiers of nuclear medicine discovery, the results may be noteworthy. ^{18}F-FDG is used by muscle whether actively exercising or recovering from exercise that had occurred as much as 12 h earlier. Conceivably, the muscle steal of circulating ^{18}F-FDG may alter the appearance of small metastases. And this alteration may theoretically affect patient management.

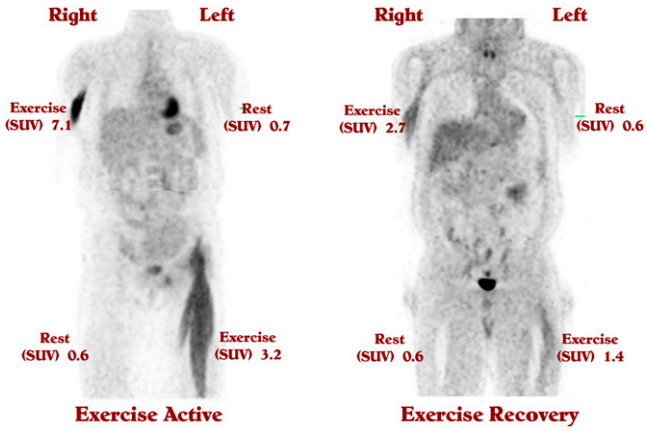

FIGURE 1. ^{18}F-FDG PET images of exercise-active and exercise-recovery volunteers, with SUV results indicated for left and right sides.

REFERENCE

1. Lyall A, Capobianco J, Strauss HW, Gonen M, Schoder H. Treadmill exercise does not affect image quality on subsequent whole body FDG pet scan [abstract]. *J Nucl Med.* 2011;52(suppl):174P.

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