# Working out for Watts

## UO students now can convert enthusiasm for fitness into energy

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It often has been said that if some way were found to harness the energy of young people, we'd have an endless source of clean power.

That's moved a step closer to reality at the University of Oregon, where more than a dozen fitness machines in the Student Recreation Center have been outfitted with devices that allow exercising students to generate electricity and feed it back to the grid. It is, literally, student power.

"We're providing electricity," said Dennis Munroe, director of the UO's physical education and recreation program, during an inaugural tour of the system Monday.

Not a lot, to be sure. An average half-hour workout on one of the 15 retrofitted elliptical trainers would produce enough juice to run a laptop computer for an hour or compact fluorescent light for 2½ hours; generating enough to recoup the almost $22,000 cost of the system probably would take something on the order of decades of use.

But that's not the real idea behind the exercise. Instead, the system offers a real-world lesson in energy use and sustainability with the bonus of letting students invest some of their own sweat in an issue that's generating buzz on campuses across the country.

"It's amazing how excited students are about sustainability issues," Munroe said. "And that really bodes well for our future, because they are the ones who will be out there educating and designing and building."

To help introduce the system, UO officials demonstrated it by attaching one of the fitness machines to a standard-issue, three-bulb pole lamp. As each lamp was lit, drawing power from the elliptical machine, the person on the pedals felt the resistance increasing.

The electronics come from a new company in St. Petersburg, Fla., called ReRev, which specializes in systems that capture kinetic energy and convert it into electricity. The product, known as ReCardio, is catching on particularly well in the Northwest, where it was installed earlier this year at Oregon State University and also is being rolled out at Portland State University.

Coincidentally, the first-ever commercial elliptical trainer underwent testing at the UO's human physiology lab in the early 1990s, said Chad May of Commercial Fitness Equipment, the Eugene company that services the machines and helped install the systems.

ReCardio works through a proprietary system currently in the patenting process that captures and diverts the kinetic energy normally produced by exercise and given off as heat. But the energy is in the form of direct current, so it's routed into a device called an inverter that changes it to the alternating current that's used in the electrical grid.

That's fed back into the recreation center's electrical supply, lowering the building's overall use by a small amount. Because each of the elliptical machines normally would dissipate the generated heat in little radiators that can reach 180 degrees, warming the room, the system also means slightly lower air-conditioning costs.

That's all well and good, but the real value is both in showing how much work it takes to make electricity as well as the lesson in making buildings more sustainable, officials said.

“I think this is an exciting way to get people who ordinarily aren’t interested in environmental issues to see how easy it is to incorporate sustainability into their daily lives,” said Wen Lee, a master’s student in environmental studies who stopped to watch the demonstration and take a turn on the elliptical. “These aren’t going to save the world, but they make a bold statement.”

The system just went online Monday, and by late afternoon students already had pumped 2.4 kilowatt hours of electricity back into the grid. The university plans to add another five elliptical trainers equipped with the ReCardio system so students, faculty and staff will have 20 machines able to generate power.

Twenty machines each used six to eight hours a day should crank out about 6,000 kilowatt hours annually, about enough to run a small and very energy-efficient house for a year.

“I think it’s really cool,” senior Caitlin Maguire said after finishing a workout on one of the machines. “Good for them getting something like that.”

The idea for the program came from a group of students in the business school and a graduate student in the university’s energy management office. Funding came from a $7,000 Partners in Education grant from the Eugene Water and Electric Board, $12,000 from the UO Office of Sustainability and $2,880 from the rec center’s budget.

Steve Mital, director of the sustainability office, also gave due credit to OSU, which pioneered the system in Oregon and offered its experience and expertise to help get the UO on board.

But it may also have generated a new rivalry. Mital said the two schools already have agreed to square off before next year’s Civil War football game to see whose team of 20 can crank out the most electricity on the retrofitted ellipticals.

“We’re getting our 20 against their 20,” Mital said. “It’s on.”