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Sentinel reporter gets a high-tech checkup

By Patrick Bahr
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The Monfort Family Human Performance Lab at Mesa State College is scientist's dream.

The new facility is equipped with devices to study the human body and human performance, including an altitude chamber and infrared cameras.

"We study human performance in all aspects, from biochemistry to gravity," lab director Bill Sands said. "Asking what we do here is like asking someone to describe what Cirque Du Soleil is. Nothing quite fits. But if it has anything to do with humans and humans that move, we can study it."

Curious about what can be tested at the lab, I took it upon myself to try it out.

We began with a body composition test, which calculates body fat levels. Body fat has been measured in numerous ways, including underwater weighing, which is considered highly accurate, but is time consuming.

Body fat can also be tested by skinfold calipers, which is more time efficient but less accurate. The Monfort lab uses something that is both accurate and efficient: The Bod Pod.

You sit inside a machine that looks like a giant egg. The pod measures the body composition with air displacement plethysmography, which means changes in volume. The interior volume of the empty Bod Pod is measured, then measured again when the subject is seated inside.

The Bod Pod is a foolproof way to find out what you may or may not want to know. I came in at 17.5 percent body fat, which puts me in the moderately lean category.

The fat level for elite athletes is 5-8 percent.

A thermal imaging test was next, which is used to find "medical mysteries."

Sands looks for spots of discoloration, which usually is an area of pain or weakness.

“With thermal we can see where the injuries are, and sometimes that will lead us into a direction of what we do next,” Sands said. “For example, we had a cross country runner who was describing her problem as a hip problem, so I was thinking I was going to be looking at her hip, but it turned out to be her low back, and the hip wasn’t the source.”

The thermal imaging not only makes you feel like you are looking at yourself though the eyes of the Predator, but also points out very interesting points on the body.

Most people will have dark-colored noses and ears on the thermal test because of the lack of blood going to those areas.

Then came the running test on the lab’s oversized treadmill. Sands films the person being tested as they run or walk, filming the movement of the hips all the way down to their foot placement. He then studies the film in super-slow motion.

“I can shoot something at 300 frames a second and can see things that you can’t see with the naked eye,” Sands said. “We had a guy come in and video him from behind and you could see his hip drop. So he found out he had to strengthen his hip muscles.”

By slowing the film down, Sands was able to point out unusual things in my walking and running motion, including an uneven hip swing when I run. I also land on the outside of my left foot.

Sands said the hip swing is likely the result of a knee injury during my football career at Mesa State.

Sands can show the video to a doctor or physical therapist, who can determine a course of treatment.

Sands has worked for and visited some of the top human performance labs in the nation while he was with the U.S. Olympic Training Center. He said the Monfort Lab is one of the best he’s ever seen.

“We have technology and capabilities that nobody in the area has,” Sands said.

GRETEL DAUGHERTY/The Daily Sentinel

DR. GIG LEADBETTER goes over a printout of the data on Daily Sentinel sports reporter Pat Bahr after a physical analysis in the Bod Pod at the Monfort Family Human Performance Lab at Mesa State.

Sentinel reporter gets a high-tech checkup

By PATRICK BAHR
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CHECKUP: Thermal imaging is used for 'medical mysteries'

GRETEL DAUGHERTY/The Daily Sentinel

THIS VIDEO STILL shows sports reporter Pat Bahr during a thermal imaging test. His ears and nose reflect a lack of blood flow.

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