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Getting a move on

Technology that tracks a patient's motion comes to Ocala

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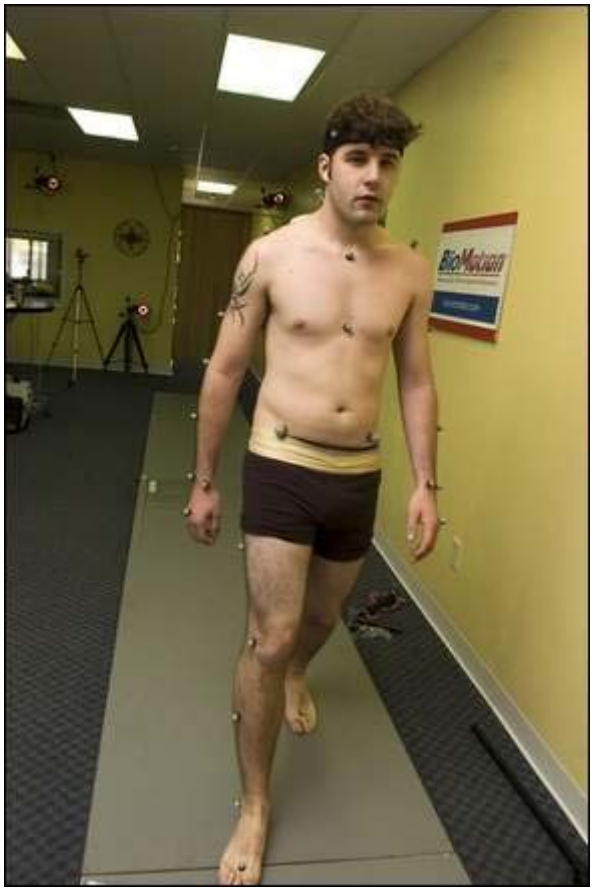
STAR-BANNER

At first look, the room is quite bland, a typical physical therapy office. White walls. A couple of examination tables. A couple of laptops.

But then the patient comes out.
He wears nothing but a pair of shorts.
A technician walks up to him and sticks more than a dozen reflective white dots on different parts of his body.

The patient then steps on a long walkway that's carpeted with grayish squares.



Zoom

The technician goes to his laptop.
And the process begins.
The patient is asked to walk up and down the walkway, say certain things, pick up objects, and do mundane movements over and over again.

On the laptop, the reflective dots create a stick-figure that imitates the patient's movements. The dots talk with the laptop through six infrared cameras installed at different corners of the room.

This is motion analysis technology, the same technology used in creating popular animations like the movie "Polar Express."

But while using motion analysis technology in health care is not new, Adam Geril, a physical therapist at Geril Therapy in Ocala, is one of the first in the area to use the technology in his office.

The technology has been used since the 1940s in clinical settings to diagnose and treat various orthopedic problems from limb deficiencies to cerebral palsy, explained Edward Quigley, director of Motion Analysis Laboratories at Tampa Shriners Hospital. The technology is now mainly available at children's hospitals.

"It lets us measure a lot of things that we can't see with the naked eye," he said. The results help physicians draw up treatment plans.

There are more than 100 motion analysis laboratories in the country in various children's hospitals. And there are hundreds of other companies that use the technology for other purposes.

The technology also has been applied to sports to analyze athletes' movements and help them reach their optimal level of performance.

It also has been incorporated into the film and animation industry.

But Geril and his team are using the technology in worker's compensation cases to perform functional capacity evaluation (FCE), and help physicians decide whether the employee can go back to work in the same capacity.

Compared to traditional FCE, motion analysis technology "captures the information much more objectively," said Bill Gilmour, CEO of BioMotion of America, the company that has furnished the technology to Geril.

Motion Lab Technician Nick Gilmour demonstrates how a subject would walk on the platform as part of the BioMotion 3D imaging process that allows study of a patients movement April 16 at Geril's clinic in Silver Springs.
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Biomotion Lab

HOW IT WORKS

- Reflective dots are placed on key body parts.
- The subject then performs a pre-determined series of tasks and movements while six high-speed cameras capture the movement of the dots.
- Sophisticated computer programs create a three-dimensional image of musculoskeletal function.
- The data is synchronized with information from force plates, which the patient walks on.
- The resulting 3D Motionprint imaging report is an objective guide to the patient's true physical abilities. It addresses the underlying cause of injury and provides an accurate measure of performance reliability during the evaluation.

Source: BioMotion of America

In addition, the three-dimensional results of motion analysis do not have the limitations of static imaging like MRI, according to BioMotion, "because the

snapshots fail to capture a whole range of vital functional data relation to human motion during activities."

According to experts, motion analysis is a complement to static imaging and has the potential to grow further.

BioMotion estimated the market for 3D motion capture medical diagnostic and functional evaluation services will grow to a $300 million industry within a decade.

Gilmour, who has several years of experience in insurance and risk management, said that he came up with the idea after witnessing employers and employees running into problems with some medical claims.

"The technology helps doctors understand what the employees need," he said.

The results can prove that the patient won't be able to perform certain jobs.

Or, it can be used for pre-employment screening for high-risk jobs.

"It certainly helps speed diagnosis of an injury and identify some of the inconsistencies," said James Dalke, risk manager for the City of Ocala and other local government groups.

Dalke said he's gotten a fairly positive response from the handful of employees referred to Geril Therapy for motion analysis, following their worker's compensation claims.

"It's kind of like an X-ray in the old days. It's another piece of information for medical providers," Dalke said. "We're enouraged by it ... It has the potential to be widely used."

There are a series of pre-determined tasks that therapists and technicians ask the subject of the study to perform during the two- to three-hour session.

For instance, they're asked to pace the walkway 10 times, sometimes naming random colors or counting backward.

Geril explained that the process distracts the patients from their activity and helps create an accurate image of the physical problem.

Gilmour started BioMotion of America in 2003 and hopes to create a statewide network.

"We've been in discussion with many labs. We've gone through the incubation

period, and we're ready to grow," he said.

He said he hopes that he can eventually use the technology for diagnostic purposes and operate the way imaging centers do today.

The headquarters of his company is in Lake Mary.

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