

SCSU research may help skiers improve muscle use

2 professors
to present findings
at international
congress in Aspen

By Michelle Tan
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Lindsey Seifert looked like any other skier zipping down the slopes at Powder Ridge Ski Area in Kimball.

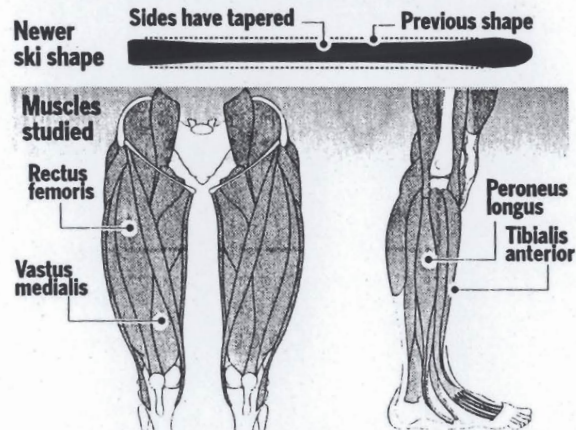
But the 19-year-old actually was hooked to sensors, wires and a transmitter pack that sent information on the movement of her muscles to her dad's computer in the ski area's lodge.

Her dad, John Seifert, is an associate professor in St. Cloud State University's department of health, physical education, recreation and sport science. He and professor David Bacharach have spent almost two years working on a portable, biomechanical system to track the movement of a skier's joints.

"It will define the input of muscles, not only the strength of contractions, but it can help define training programs," John Seifert said. "It's teaching

Research on muscles used in skiing

St. Cloud State University faculty members John Seifert and David Bacharach have studied the use of certain leg muscles while skiing. With the change in ski shapes and lengths, the way a person skis has changed. They hope their research will improve skiing techniques.



Sources: St. Cloud State University faculty members John Seifert and David Bacharach, Times research

Times graphic by Mark Marshall, mmarshall@stcloudtimes.com

people a new skill. How to control these muscles that you've never fired up."

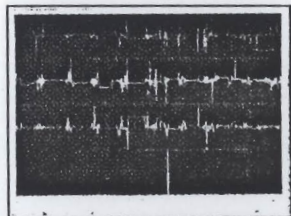
The research was largely spurred by changes in skiing equipment and advances in the science of skiing, he said.

The findings, which are expected to change the way people learn to ski and enhance the use of en-

ergy while skiing, will be presented at the Third Congress of the International Congress of Skiing and Science in late March 2004 in Aspen, Colo. Bacharach is co-chairman and Seifert is a member of the committee that is organizing the congress, which takes place every four years.



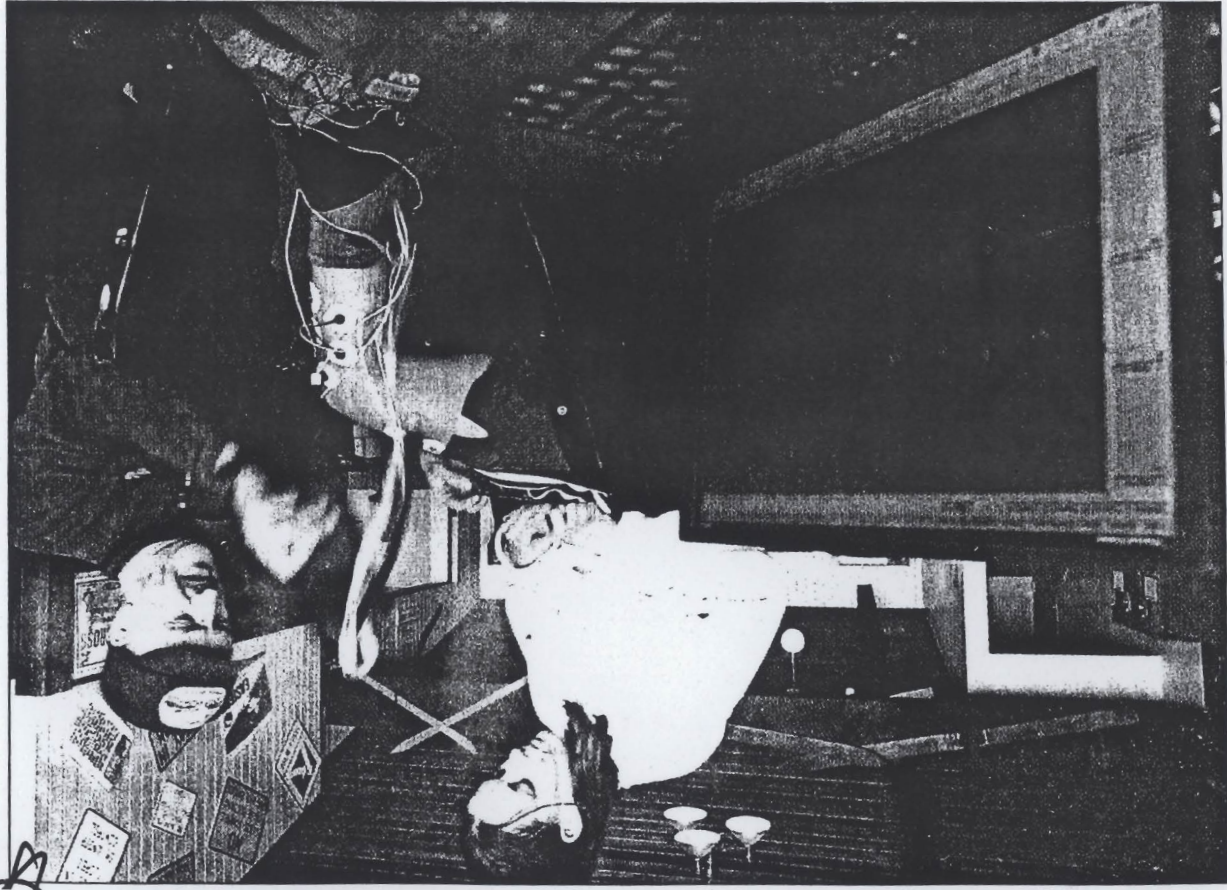
Lindsey Seifert skis down a hill at Powder Ridge wearing sensors under her ski pants. Her muscle movements are transmitted to a computer.



The sensors send the activity of individual muscles to a computer.

Up to 500 people from countries such as Germany, Austria, Switzerland, France and Japan

See SKI, 3B ►



Times photos by Jason Wachter, jwachter@stcloudtimes.com

St. Cloud State University associate professor John Seifert hooks up his daughter, Lindsey, 19, to a set of sensors attached to the muscles in her leg and a transmitter pack that sends information on muscle movement to a computer at the bottom of the ski hill at Powder Ridge Ski Area as part of his research project.

Becky Steiger

Ski and snowboard director

"... someday compare the way people of different skill levels ski. The near completion of the pair's St. Cloud State-based research is just in time for the meeting in Aspen, which focuses on work to advance the sport of skiing, Bacharach said. He also hopes to build a reputation for the work that takes place at St. Cloud State.

"St. Cloud State has probably

"The less work it is, the more enjoyable it is," Steiger said. "For racers, the more they can work those skis, the faster those times are going to be."

Making a mark

Skiing has changed a lot, especially in the past five years, John Seifert said. The introduction and popularity of hour-glass shaped skis have given skiers more movement, and made balance a critical part of skiing, John Seifert said.

"From that standpoint alone, skiing has undergone a radical

er it'll be to ski, she said.

"It's exciting how the sport has changed in the last few years, and now we're starting to catch up," John Seifert said. "It's fun to be at the ground-breaking level of it."

The research by Seifert and Bacharach can help skiing instructors and skiers alike, said Becky Steiger, ski and snowboard school director at Powder Ridge. "It helps the average person, but definitely the elite skiers, how to work the," Steiger said.

"The more people understand how their muscles work the

published more on Alpine skiing than any institution in the country, at least in the last six years," Bacharach said. "(But) the connection with ski racing and the international community is our biggest hope, and being recognized as reputable individuals in the sport of Alpine skiing."

The meeting in Aspen is great because "not only do we all love skiing, but ... everyone in the world will be there," John Seifert said.

"Research is really that drives us," he said.