



GROPING THE ELEPHANT

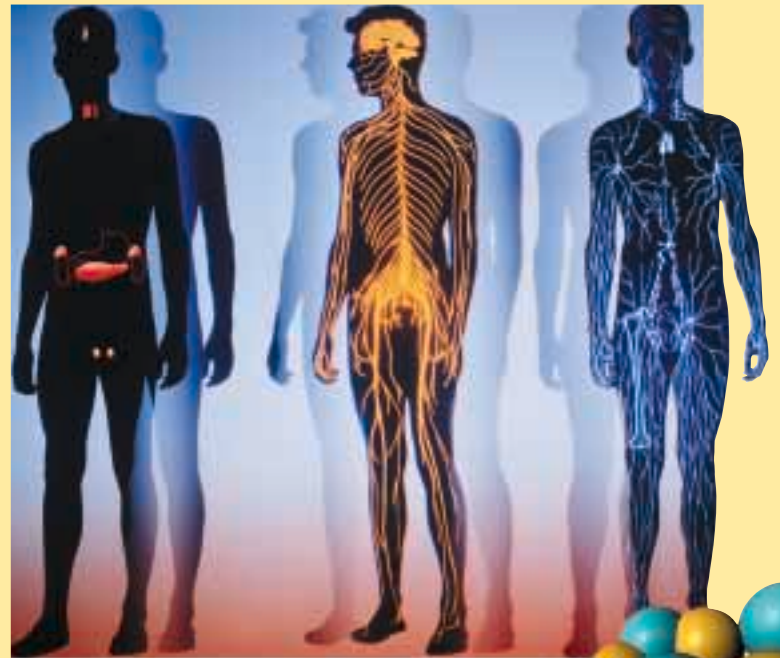
► We've all heard the parable of the blind men and the elephant. Each gropes a different part, and by the limits of what he can reach each concludes the elephant is something different. It's a wall, a rope, a snake. John Godfrey Saxe summed up the story's moral this way, "The disputants... rail on in utter ignorance... and prate about an elephant not one of them has seen!"

Hoping to diagnose human response more than elephants, Jerry Saidel is tackling ignorance on the biological front. Saidel leads a team of nine researchers from Case Western Reserve University, Cleveland State University, University Hospitals of Cleveland, and Rainbow Babies and Children's Hospital who will develop computer analyses of cellular metabolism, the processes by which food is converted into energy.

"Unlike research that's already out there – study-

ing drug and exercise effect on one organ like the heart, liver, brain or muscle – we're bringing together specialists in each of those four areas to predict the integrated effects of each organ or tissue on the other organs and whole body metabolisms. It's the whole elephant of metabolism and stress testing," says Saidel. The National Institutes of Health were so impressed with the team's holistic approach that they recently awarded him with an \$11.8 million grant. The grant will establish the Center for Modeling Integrated Metabolic Systems (MIMS) at Case.

"Think of the liver as the body's factory," says Marco Cabrera, associate director of MIMS. "That's where most metabolism takes place. One mechanism we will analyze is how a diet rich in carbohydrates or fat can affect liver metabolism at rest and during exercise." Said in simple English, they're



building a better way to burn fat. Examples of other mechanisms include regulating oxygen consumption in muscle during exercise of varying intensities, allowing the brain to function optimally with intense exercise and reduced oxygen delivery, and protecting the heart with certain drugs when cardiac blood flow and oxygen are reduced. ◀

Dr. Gerald M. Saidel is a professor in the Department of Biomedical Engineering and director of the MIMS Center. Contact Dr. Saidel at gms3@po.cwru.edu.

Dr. Jerry Saidel



Dr. Marco Cabrera



Fast Fact Clip

**STRENGTH ACROSS DISCIPLINES
THE NATIONAL RESEARCH COUNCIL
PLACES CASE IN THE TOP ONE-THIRD IN
THE NATION RATING ALL ENGINEERING
PH.D. PROGRAMS COMBINED.**

Photos by Mike Sands