

## The University of Utah Studies: Rebounding vs. Jogging

It seems like every book on exercise has one or two chapters on injury, everything from dog bites to shin splints. This is probably what prompted Craig McQueen, M.D., to ask **A. W. Daniels, Ph.D., Adjunct Professor, Material Science and Engineering and Orthopedic Surgery of the University of Utah to analyze the comparison of the impact loads transmitted by rebounding and more conventional exercise surfaces.**

In this report, they compared rebounding to jogging. Briefly, they accomplished the following:

Determined the approximate spring constant of the rebounder by measuring the deflection of the surface when various persons of known weight stood on it. It was found that the constant was 770 lb/ft.

Calculated the length of time of impulse load contact for a "typical" 165 lb. person running on a rebounder, and on a wooden board track where the constant was 33,000 Lb./ft. The time of contact is inversely proportional to the impact force. The calculated times of contact were .13 seconds for the rebounder and .02 seconds on the wooden board track.

Since .02 is only about 15% of the .13, the maximum impact force on the rebounder would be only 1/6th that of the wooden board track.

One of the major problems runners have is structural damage caused by the constant pounding of the skeleton against unforgiving surfaces.

Peter Daetwiler of Hong Kong, an executive of a hotel chain, was a runner who needed weekly cortisone shots in his knee to combat the pain and swelling before he was turned on to rebound exercise. He was then able to maintain his level of cardiovascular endurance in the safety and convenience of his home in less time, and without the expensive and painful medication.