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CONTACT: Jane Steger
Performance Health
jsteger@performancehealth.com
330-634-2281

Study Shows Elastic Resistance Exercise as Effective as Expensive Machine Exercise

Thera-Band® knee extension exercises provide similar levels of thigh muscle activation.

Akron, Ohio – February 20, 2013 – A recent study showed knee extension exercises performed with Thera-Band® elastic resistance tubing produce beneficial muscle activation equal to or better than exercises performed on expensive and bulky isotonic machines. Thera-Band® product’s affordability, availability and portability make it ideal for worksite training, rehabilitation in hospitals, or in-home use.

Researchers in Denmark were interested in comparing the activation patterns and levels of multiple muscles during knee extension with an isotonic machine and Thera-Band elastic resistance tubing. They tested 16 untrained adults using a 10RM resistance, the amount of resistance the subjects could move only 10 times. The 10RM level was determined a week prior to testing and with a combination of different colors of Thera-Band tubing.

Surface electromyography (EMG) of ten leg, abdominal and lower back muscles were assessed. EMG was measured during both the concentric and eccentric phases of knee extension. The study authors found increased activation during elastic-resistance knee extension and suggested it was due to greater elastic elongation near end range, stating, “Greater quadriceps muscle activity during extended knee positions, as observed using elastic resistance compared with machines, may be particularly beneficial for rehabilitation of knee pathologies such as ACL injury and following total knee arthroplasty where strength deficits have been observed to be present during the most extended knee angles.”

“We are grateful to the researchers for their work on this study, just one more among many that prove elastic resistance exercise is as effective, or more effective, than expensive machine exercise,” stated Dr. Phil Page, Director of Clinical Education and Research for Performance Health and author of Strength Band Training.

In conclusion, the authors stated, “The knee extension exercise performed with elastic resistance seems to be a feasible and simple method, regardless of age and gender, for achieving high muscle activity potentially stimulating muscular hypertrophy and strength gains in the quadriceps muscles. Its portability makes it ideal for work site training, rehabilitation in hospitals, at home or in training fields where there may be few resources for large training equipment.”
About the Academy
The Thera-Band® Academy was formed to scientifically document the benefits of resistance exercise and pain relief, guide the company in its development of new products and exercise programs, and to promote therapeutic exercise and pain management through professional and consumer education. The Academy web site is a unique resource that connects healthcare professionals and consumers to the ever growing body of knowledge on exercise. Registration is free and provides access to the largest database of rehab exercises, protocols, research and education in the world.

About Performance Health
Featuring leading brands like Thera-Band®, Biofreeze® and Pedigenix®, Performance Health offers a broad portfolio of products for the therapy, rehabilitation, wellness, massage, podiatric and performance markets. In addition to market-leading products, Performance Health provides practice building support, evidence-based protocols, clinical and product education, turn-key dispensing and pain management solutions.


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