Exercise Device Would Exert Selectable Constant Resistance

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An apparatus called the resistive exercise device (RED) has been proposed to satisfy a requirement for exercise equipment aboard the International Space Station (ISS) that could passively exert a selectable constant load on both the outward and return strokes. The RED could be used alone; alternatively, the RED could be used in combination with another apparatus called the treadmill with vibration isolation and stabilization (TVIS), in which case the combination would be called the subject load device (SLD). The basic RED would be a passive device, but it could incorporate an electric motor to provide eccentric augmentation (augmentation to make the load during inward movement greater than the load during outward movement). The RED concept represents a unique approach to providing a constant but selectable resistive load for exercise for the maintenance and development of muscles. Going beyond the original ISS application, the RED could be used on Earth as resistive weight training equipment. The advantage of the RED over conventional weight-lifting equipment is that it could be made portable and lightweight.

This work was done by Damon C. Smith of Lockheed Martin for **Johnson Space Center.**

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