

Low Intensity Resistance Workouts Enhance Lower Limb Endurance in Adults

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DESCRIPTION

Lower limb endurance is an essential component of functional capacity, enabling individuals to perform daily activities such as walking long distances, climbing stairs, carrying household objects, and maintaining upright posture during prolonged standing. In many adult populations, especially those with sedentary routines, endurance in the muscles of the hips, thighs, and calves gradually declines. This reduction may not always present as pain initially but often appears as early fatigue during routine movement tasks. Physical therapy interventions frequently focus on restoring strength and endurance through structured exercise protocols. Among these, low intensity resistance workouts have been widely explored for their suitability in improving lower limb endurance without placing excessive strain on joints or connective tissues.

Low intensity resistance training involves controlled muscular contractions performed against light external load or body weight. Unlike high load training methods, this approach emphasizes repetition, control, and gradual progression. It is particularly appropriate for individuals who may not tolerate vigorous exercise due to age-related changes, deconditioning, or previous musculoskeletal discomfort. The aim is not rapid strength gain but gradual improvement in muscular stamina and functional performance. Lower limb muscles, including quadriceps, hamstrings, gluteal muscles, and calf muscles, play a critical role in stabilizing the body during movement. These muscles support activities such as rising from a seated position, maintaining balance during walking, and absorbing impact during stepping actions. When endurance in these muscle groups declines, individuals may experience early fatigue, reduced walking speed, and difficulty performing repetitive movements. Low intensity resistance exercise helps stimulate these muscles in a controlled manner, allowing gradual adaptation to increased activity demands.

One of the key advantages of low intensity resistance workouts is their accessibility. Exercises such as seated leg extensions, slow squats with support, heel raises, and step-based movements can be performed with minimal equipment. This allows individuals to engage in training within home environments, rehabilitation clinics, or community centers. The simplicity of the exercises

also encourages adherence, particularly among individuals who may feel intimidated by more demanding fitness programs. Joint safety is an important consideration in any exercise program. Low intensity resistance training reduces mechanical stress on joints while still stimulating muscular activity. This makes it suitable for individuals with mild joint stiffness or those recovering from inactivity. Controlled movement patterns also reduce the likelihood of sudden strain, making exercises safer when performed with proper guidance.

Balance and stability are closely related to lower limb endurance. Weak or fatigued muscles may reduce the ability to maintain stable posture during standing or walking. Resistance exercises that involve weight shifting and controlled movement help improve coordination between muscle groups. Over time, this contributes to better balance control and reduced risk of instability during everyday activities.

Progression in low intensity resistance training should be gradual. Increasing repetitions or duration slowly allows muscles to adapt without excessive soreness. Sudden increases in workload may discourage continued participation. Consistency is more important than intensity, as regular practice leads to cumulative improvements in muscular endurance and functional capacity. Sedentary behavior is a major contributing factor to reduced lower limb endurance in modern populations. Extended sitting reduces muscular activation in the legs, leading to gradual weakening over time. Introducing structured resistance exercises into daily routines helps counteract these effects by re-engaging inactive muscle groups. Even short exercise sessions performed several times per week can produce noticeable improvements in mobility.

Older adults particularly benefit from low intensity resistance training due to age-related declines in muscle mass and strength. However, adults of all ages who lead inactive lifestyles may also experience significant improvements. The adaptability of these exercises allows customization based on individual ability levels, making them suitable across a wide population range. Recovery time between exercise sessions is an important factor in training effectiveness. Muscles require adequate rest to adapt and strengthen. Low intensity programs typically allow shorter recovery periods compared to high intensity training, making

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them more sustainable for regular participation. However, adequate rest remains essential to prevent fatigue accumulation. Group-based exercise sessions may improve motivation and adherence. Participants often feel encouraged when exercising alongside others with similar goals. Social interaction during training sessions can contribute to a more positive experience and may increase long-term participation rates. Monitoring progress can be achieved through simple functional assessments such as walking duration, stair climbing ability, or repeated sit-to-stand tests. Improvements in these tasks often reflect increased lower limb endurance and overall functional capacity.

CONCLUSION

Low intensity resistance workouts represent an effective and accessible method for improving lower limb endurance in adults. Through consistent practice, gradual progression, and functional movement patterns, individuals may experience improved mobility, reduced fatigue, and enhanced independence in daily life. When integrated into broader physical activity routines, these exercises contribute meaningfully to overall physical health and functional well-being.