# Biomechanical and Physiological Responses to LifeGlider3000 Clinical Research

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This study evaluated the efficacy of the exercise chair LifeGlider3000 to improve strength and endurance. This study was based on the rationale that elderly individuals could improve their strength and endurance by utilizing a low resistance and high repetition training protocol afforded by the LifeGlider3000 design. Specifically the reseach was designed to quantify and differentiate energy expenditures/muscle activities associated with 20 minutes of LifeGlider 3000 exercise and 20 minutes of natural walking.

In this clinical study, metabolic energy expenditure while walking and exercising on LifeGlider 3000 was assessed utilizing the Oxylog System. A total of 20 subjects participated and all were healthy older individuals 70 years and over.

For the walking condition, subjects walked at their natural cadences for 20 minutes. During this time period, respiratory and cardiovascular responses were assessed by the Oxylog system – oxygen used by the muscles while walking was converted to energy expenditure.

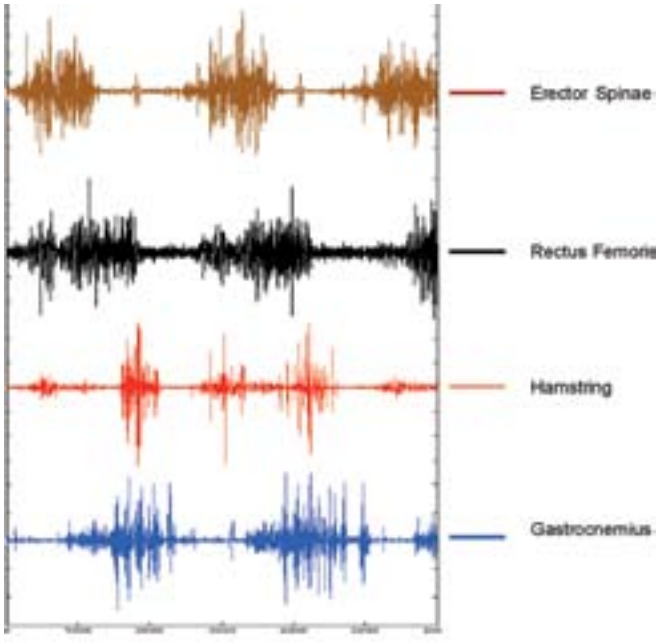
Similarly, metabolic energy demand while exercising on LifeGlider 3000 for 20 minutes at a set pace was evaluated. To assess the lower extremity muscle responses to both walking and exercising on the LifeGlider 3000, EMG data was collected and analyzed.

Results indicated that lower extremity muscle activities were not significantly different between walking and exercising on LifeGlider 3000. The data showed that 20 minutes of LifeGlider 3000 exercise at a moderate level (60 rep/min) was equivalent to 12 minutes of walking at a preferred intensity.

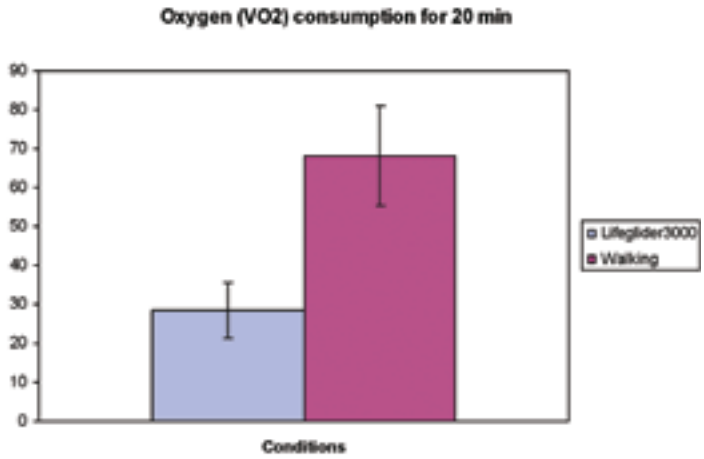
## Conclusion

This clinical research demonstrated that exercising on LifeGlider 3000 is equivalent to walking in cardiac performance as well as muscle performance. The muscle activities of all the muscles (leg and trunk) while walking and while using LifeGlider 3000 exercise were the same. LifeGlider 3000 exercise can offer an adequate level of physical activity for the healthy elderly, especially, for those who are chair-bound.

The results indicate that the LifeGlider 3000 can be used by a variety of the population. Firstly, the LifeGlider 3000 with its simple design is beneficial for the elderly population who do not want to go out for a workout and prefer an in house equipment to serve their purpose. Because of less variations in the activity of the muscles, the LifeGlider 3000 promises a healthy workout for stroke patients. Also, with the adjustability of the resistance in the chair it can be used by the physiotherapists to strength train their patients. The LifeGlider 3000 can also be used by people with a history of hip and knee replacement for their rehabilitation.




EMG pattern while rocking on LifeGlider 3000




Calories consumed for walking and LifeGlider 3000 exercising for 20 minutes.

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LIFEGLIDER™ 3000