

## **Role of adapted physical activity to prevent the adverse effects of the sarcopenia. A pilot study.**

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### SUMMARY

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Sarcopenia is the physiological age related decline in muscle mass and strength. It is a main cause of muscle weakness and reduced locomotory ability and its adverse effects contributes to a reduction in physical function and performance with decreased independence and quality of life. In fact, sarcopenia has been associated with disability and morbidity in the elderly population. Therefore, prevention and treatment of sarcopenia are areas of intense interest. The studies suggest that the pathogenesis of sarcopenia is multifactorial, but the decreased physical activity with aging appears to be a key factor involved in producing this pathology. We investigated the role of adapted physical activity on the adverse effects of the sarcopenia: we examined the effect of a specific resistance training program in twenty sedentary older men, 60-80 years old, with sarcopenia. The program was performed three days a week for 18 total weeks with isotonic machines; in particular the exercises effected with leg press, chest press and vertical row were monitored using a Globus-Tesys dynamometer with Real Power. The maximum repetition test (1RM) was used to calculate the percentage of work and formulate the methodology. Our results demonstrated that the proposed training can improve the dynamic characteristics of muscle strength. In particular, we showed that a medium-low intensity training, structured in series and repetitions with gradual increased workload, produced a time-dependent improvement of strength. Our training increased the muscle strength mainly in the lower limbs reducing the risk of falls which frequently occurs in the elderly. Therefore, a planned resistance training could be an effective countermeasure to prevent or reduce the adverse effects of the sarcopenia improving the quality of life. The physical activity should be personalized and adapted to subject's age and/or disability.