

# Effects of resistance training towards the aging process



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The aging process is unpreventable, it is accompanied by significant changes in body composition, poor physical performance, changes in gait speed, and impaired mobility which leads to frailty, increased risk of accident, and lastly, all-cause mortality (Landi et al., 2014). This essay is going to outline the effects of resistance training towards the aging process. Most of the conducted studies show the positive outcomes of resistance training for the aging process and lack the negative aspect of it. Though aging is unstoppable, resistance exercise training is presented and resulted as effective and beneficial in preventing all if not most the significant changes that come with the aging process for individuals.

The progressive decline in skeletal muscle mass is one of the most severe consequences of human aging leading towards reduced strength and functionality in physical performance which is commonly characterized by the term Sarcopenia (Landi et al., 2014). Sarcopenia is stressed on and presented as a major public health concern that is highly correlated to the aging population (Hunter et al. 2004).

Leenders et al.'s (2013) study concluded that a generic resistance-type exercise training program can be applied for both men and women to effectively counteract the loss of muscle mass and strength with aging (Leenders et al., 2013). Assessments regarding muscle mass, strength, functional capacity, muscle fibre capacity, and metabolic profile were done prior to the 6 months of resistance-training (Leenders et al., 2013). It is evident that leg lean mass and type II muscle fibre size had increased (Leenders et al., 2013). Glycemic control and blood lipid profiles improved to similar extent resulting in training as well (Leenders et al., 2013). ). No

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differences between the genders were revealed following the training, but rather, the factors assessed had increased and improved similarly in both groups (Leenders et al., 2013).

While effectiveness in resistance training were assessed between genders regarding physiological benefits and muscular fitness, psychological effects were looked upon as well. A 12-week resistance training intervention was proposed by Tsutsumi et al. (1997) in which subjects were randomly distributed into high intensity and low volume, vice versa, or no exercise control programs underwent both physiological and psychological evaluations (Tsutsumi et al., 1997). Positive results were shown for both high and low intensity strength programs towards physiological factors such as blood pressure, heart rate, arm and leg muscle strength, body composition, and oxygen consumption (Tsutsumi et al., 1997). More significantly, psychological measures including mood, anxiety, physical self-efficacy, and psychological functioning improved overall (Tsutsumi et al., 1997). Whether resistance training is high or low in intensity and volume, psychological effects such as the mood, self-efficacy improved and cognitive functioning remained constant (Tsutsumi et al., 1997).

In addition, resistance training has an influence on the sleep patterns of elderly people. Viana et al.'s (2012) study was conducted to evaluate the difference between two control groups; with and without resistance training (Viana et al., 2012). Many changes occur in the elderly regarding the duration of time spent in each stage of sleep, their rapid eye movements, and total amount of sleep time (Viana et al., 2012). It is said that changes include an increase in time spent in stage-1 and stage-2 sleep, a decrease in <https://assignbuster.com/effects-of-resistance-training-towards-the-aging-process/>

stage-3 and stage-4 sleep, a reduction in rapid eye movement sleep, increased sleep fragmentation, a shorter total sleep time, a decrease in sleep efficiency, which declines from approximately 86% at age 45 years to 79% at age 70 years, and an increase in the incidence of sleep disorders, including obstructive sleep apnea, insomnia, and periodic leg movements (Viana et al., 2012). Non-pharmacological therapies, such as continuous positive air way pressure, variations in light exposure, changes in sleep hygiene were experimented as part of the investigation to minimize these sleeping alterations as aging occurs (Viana et al., 2012). It was concluded that physical exercise; in particular resistance training, which was originally proposed as a drug alternative, had a modest influence on sleep consolidation (Viana et al., 2012).

Sleep consolidation may be influenced by resistance training, but as a matter of fact, postural responses are effected positively as well. Decreased muscle strength due to aging in the elderly has led to increased postural sway in comparison with younger adults (Nascimento de Sousa et al., 2013). Failure to deal with unpredictable perturbations in activities of daily living, requiring fast postural responses are correlated with risk in falling (Nascimento de Sousa et al., 2013). In the elderly, neuromuscular adaptation from resistance training benefits late phases of postural responses to perturbation of body balance (Nascimento de Sousa et al., 2013). Postural control is improved and sustained from resistance training (Nascimento de Sousa et al., 2013). After an unexpected perturbation, muscle strengthening through resistance training for the elderly helps in body-balance stabilization which contributes to the prevention of falls (Nascimento de Sousa et al., 2013).

As for obesity and diabetes, they are known to be correlated with sarcopenia. As loss of muscle mass and strength takes place, such risk factors may be more likely to occur. Physical disability is accelerated with obesity and diabetes (Anton et al., 2013). Resistance training improves insulin resistance and contributes to the likelihood of preventing and treating type 2 diabetes (Willey et al., 2003). While counteracting age and disease-related muscle wasting, progressive resistance training promotes favourable energy balance and reduced visceral fat deposition through enhanced basal metabolism (Willey et al., 2003). Insulin sensitivity, glycemic control, increase in muscle mass, strength, endurance, bone density, osteoarthritic symptoms, mobility impairment, self-efficacy, hypertension, and lipid profiles are all effected positively through progressive resistance training (Willey et al., 2003). Other aspects that are relevant to the care of diabetic elders such as symptoms of anxiety, depression, and insomnia in individuals are eased through this type of training (Willey et al., 2003). Lastly, exercise tolerance is improved for individuals with cardiovascular diseases and congestive heart failure (Willey et al., 2003).

Furthermore, cardiovascular adaptations to resistance training in elderly postmenopausal women is still proven to improve muscular strength and reduce systolic blood pressure without affecting diastolic blood pressure and heart rate variability in elderly postmenopausal women (Gerage et al., 2013).

Resistive exercise can provide important benefits to the health of the elderly, such as increased muscle strength and maintenance of muscle mass, among other factors that decline throughout life (Viana et al., 2012). Prolongation of life involving preservation of the capacity to live independently is a <https://assignbuster.com/effects-of-resistance-training-towards-the-aging-process/>

significant public health aim (Landi et al., 2014). Though research reveals more information on the positive uses, outcomes and effects of resistance training to sustain healthy living as the aging process occurs, it is important that awareness is raised towards the level of extensiveness resistance training is used and under what circumstances it is used for.