



Aging & Chronic Diseases

Elastic band exercises for elderly people

...can they help in reducing or even preventing frailty?

Author : Gregory Guyot

Frailty is a very common geriatric syndrome which is defined as a clinical state with increased vulnerability when facing unpredicted or undesirable stimulations. It is the consequence of a progressive and multi-factorial age-related physiologic decline affecting several body systems and leading to higher economic burdens, risks of dependency, cognitive issues, falls, hospitalisation or death.

Exercises and physical activity are key interventions to prevent and manage frailty according to literature. Several modes of exercise are recommended, such as balance, aerobic or flexibility. Resistance training seems to be an important aspect to consider and the authors focused here specifically on the effects of elastic band resistance training.

Such intervention indeed shows several advantages for pre-frail elderly people fighting against frailty: enough

time to recover, less risk of injuries (safe tool), involvement of multiple muscle groups, improvement of strength but also gait function, balance, flexibility, quality of life, risk of falls...

The authors found that elastic band training improves frailty states in pre-frail elderly people, allowing them to break away from pre-frailty and restoring them to non-frailty through improvement of frailty symptoms.

Based on the following five symptoms, it is possible to divide frailty into three possible stages: unintentional weight loss, self-reported exhaustion, low physical activity, slow walking speed, and weak grip strength. A person suffering from more than three symptoms is considered as frail, while the presence of one or two criteria indicates a pre-frailty state. The absence of symptoms confirms no frailty.



Pre-frailty represents the early stage of frailty and, as such, could be an optimal time to set interventions in order to prevent frailty, limit or even stop the decline towards frailty. It is indeed acknowledged that frailty is reversible, particularly in pre-frailty stage when elderly people are more likely to return back to a non-frail state compared to those already in frailty.

A total of 70 pre-frail elderly people were enrolled in the present randomised controlled study and randomly assigned to one of the following groups after meeting detailed inclusion and exclusion criteria:

- Control group: no specific intervention provided except normal daily activity;
- Elastic band group: an resistance training performed by the participants.

The intervention consisted on an eight-week programme (three sessions a week during 45-60 minutes each). Each session started with a warm-up followed by resistance exercises before relaxed activities at the end. Six elastic band exercises (yellow elastic band) and two lower limb exercises without elastic band (fully detailed in the article) were performed by the participants under supervision of a qualified professional.

The main outcome measured by the authors were the frailty states, grip strength, walking speed and physical activity through the Fried Frailty Phenotype pre-intervention, at four and eight weeks post intervention. Further outcomes (balance, fear of falling, timed up and go, functional reach, sit-to-stand and quality of life) were also assessed.

Significant differences between the control group and the intervention group were found in terms of frailty states, as seventeen and twenty seven participants returned from pre-frailty to non-frailty in the elastic band group respectively after four and eight weeks. In the control group, only three participants followed the same improvement after eight weeks, while one participant even entered to frailty.

Results also showed significant differences of grip strength, walking speed and physical activity between groups at eight week after intervention.

The authors therefore concluded that elastic band exercise improves frailty states in pre-frail elderly people, make them broke away from pre-frailty and restore them to non-frailty through improving the grip strength, walking speed and physical activity, with effects after eight weeks even better than after four weeks. These results are consistent with earlier studies

Expert opinion

As interventions in pre-frailty can delay or postpone the development of frailty, it is critical for clinicians to have effective techniques in their toolbox. The present study brings strong evidence in favour of the use of elastic band training to prevent frailty. The earlier, the better!

Such intervention shows several advantages: easy to use, safe, inexpensive, no external load to handle, easy to increase intensity (elastic length) or change trained muscles (elastic direction and intensity), no need for long training and easily accessible to anyone, especially elderly people.

Furthermore, it is worth noticing that participants with low physical activity before intervention significantly decreased (from thirteen to two) after eight weeks. This may lead to collateral positive effects for elderly people as physical activity is known to improve many health dimensions in this population. However, it is interesting to note that no significant improvement of physical activity was found after four weeks, which means that a four-week intervention may not be enough to reach beneficial results.

We must bear in mind that these results, although highly positive and encouraging, may not be fully generalisable as samples remain small and limited to older people without serious disease nor visual or hearing issues. Moreover, they have been observed within a limited period of time (eight weeks). Further studies would be necessary in order to gather additional evidence of the long-term effects of elastic band training on frailty states in elderly people.

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