

1st
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Exercise as a countermeasure to sarcopenia, functional decline and falls

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Physiology of normal ageing

- ↓ Muscle mass and muscle strength
 - 25% ↓ in muscle cross-sectional area
 - 50% ↓ in muscle strength and 75% ↓ in muscle power
- ↓ Physical performance

Sarcopenia

Table 3. EWGSOP conceptual stages of sarcopenia

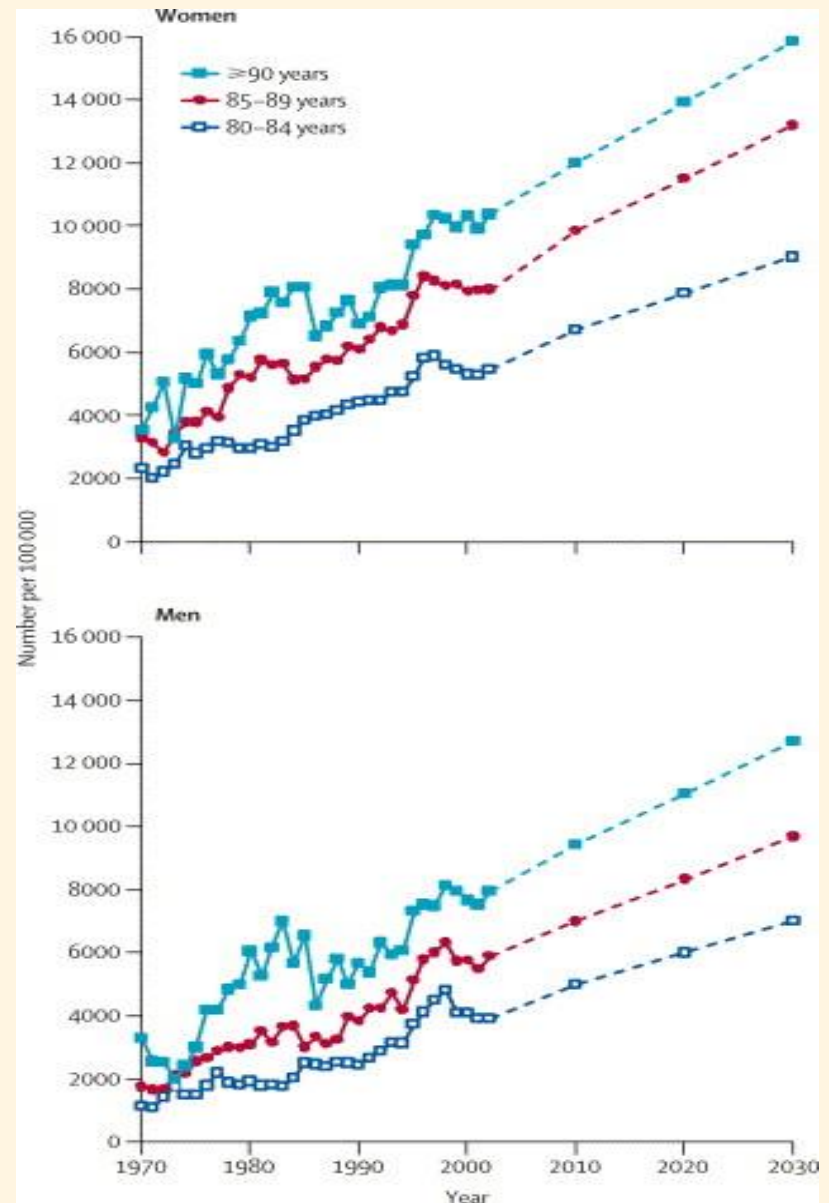
Stage	Muscle mass	Muscle strength	Performance
Presarcopenia	↓		
Sarcopenia	↓	↓	Or ↓
Severe sarcopenia	↓	↓	↓

- European working Group on Sarcopenia in Older People (EWGSOP) Cruz-Jentoft *et al.* 2010 *Age Ageing* 39:412-423

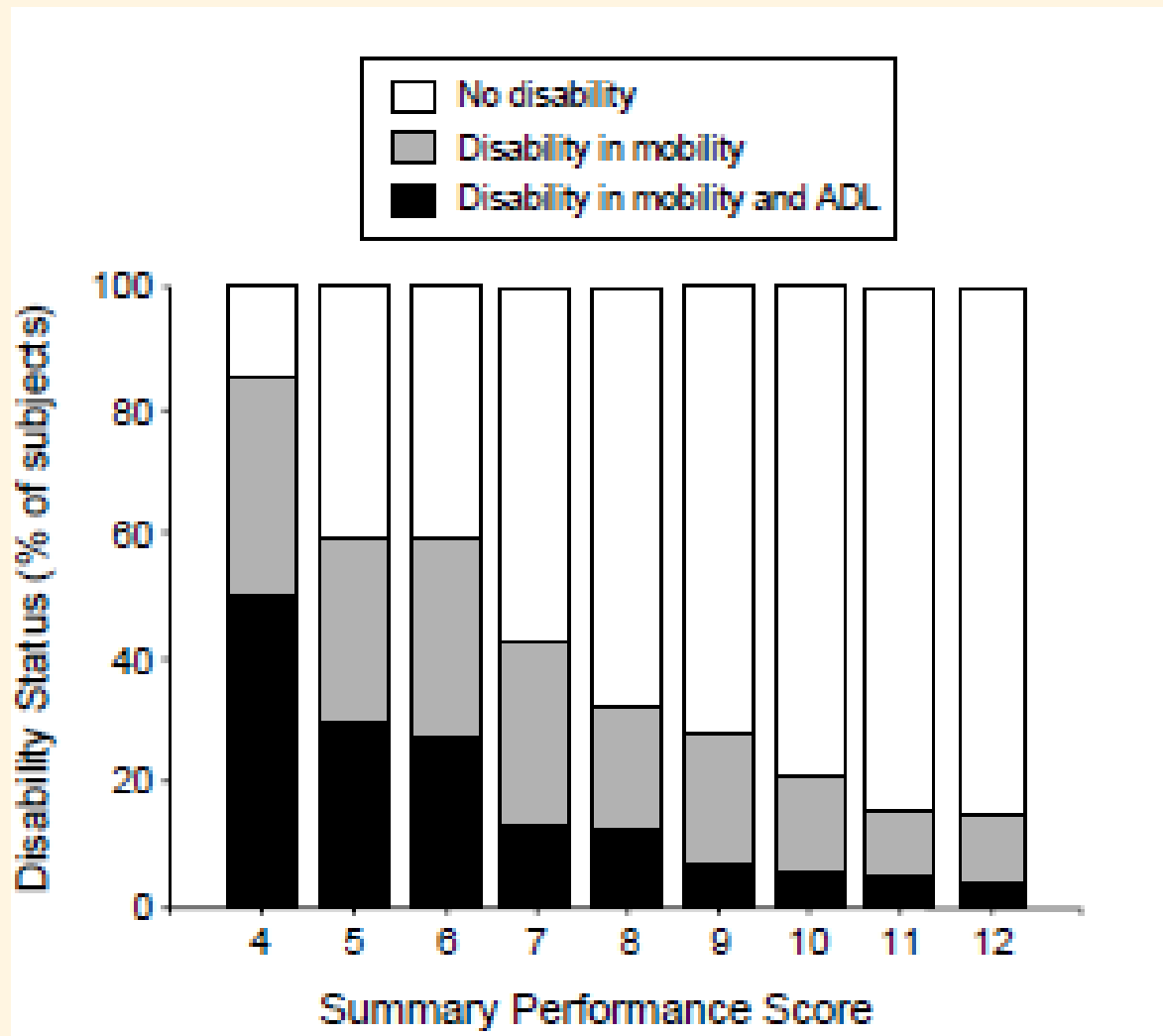
Falls and Injuries

↑ Risk with

↑ Ageing of the population

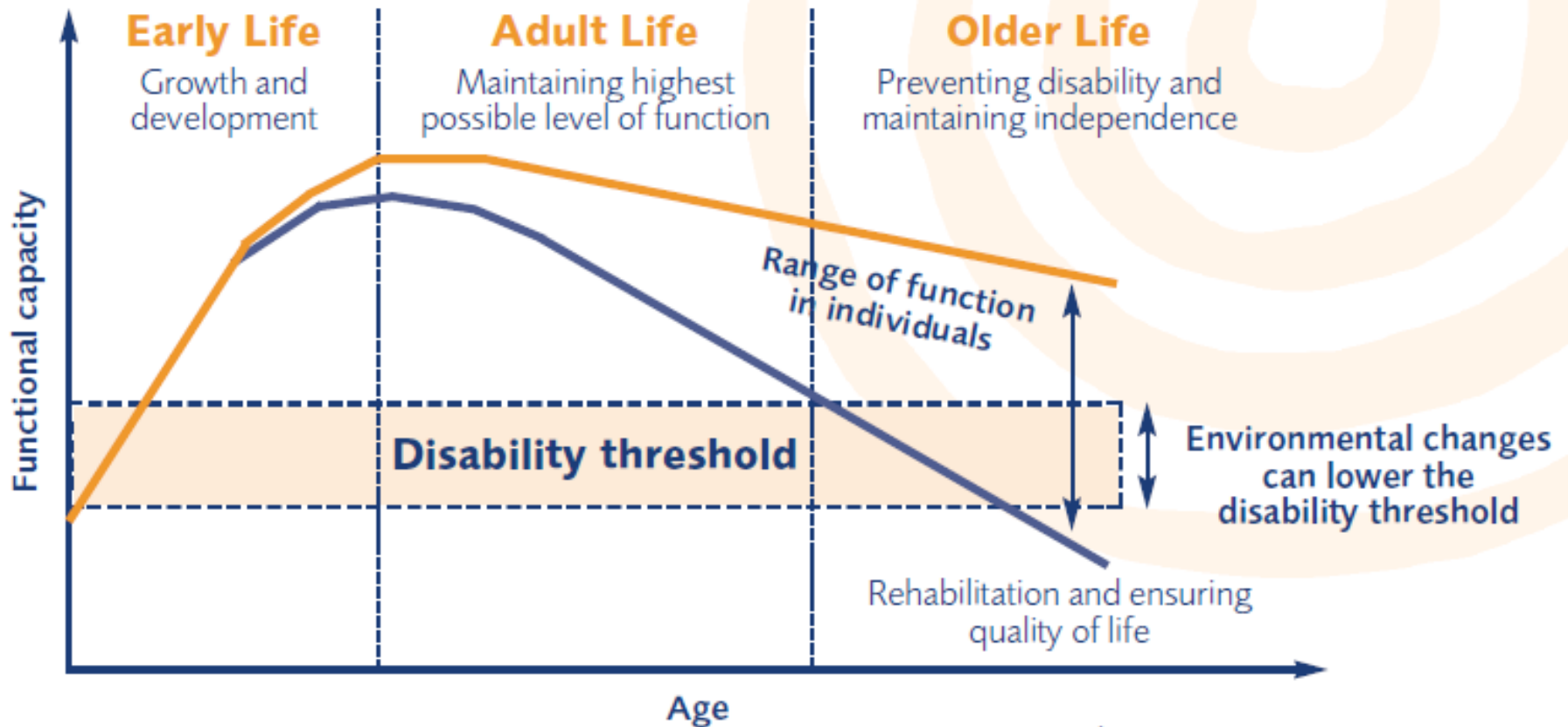


Kannus et al. Lancet 2006;366:1885-1893



Guralnik et al. N Engl J Med 1995, 332, 556-561

A life course perspective for maintenance of the highest possible level of functional capacity



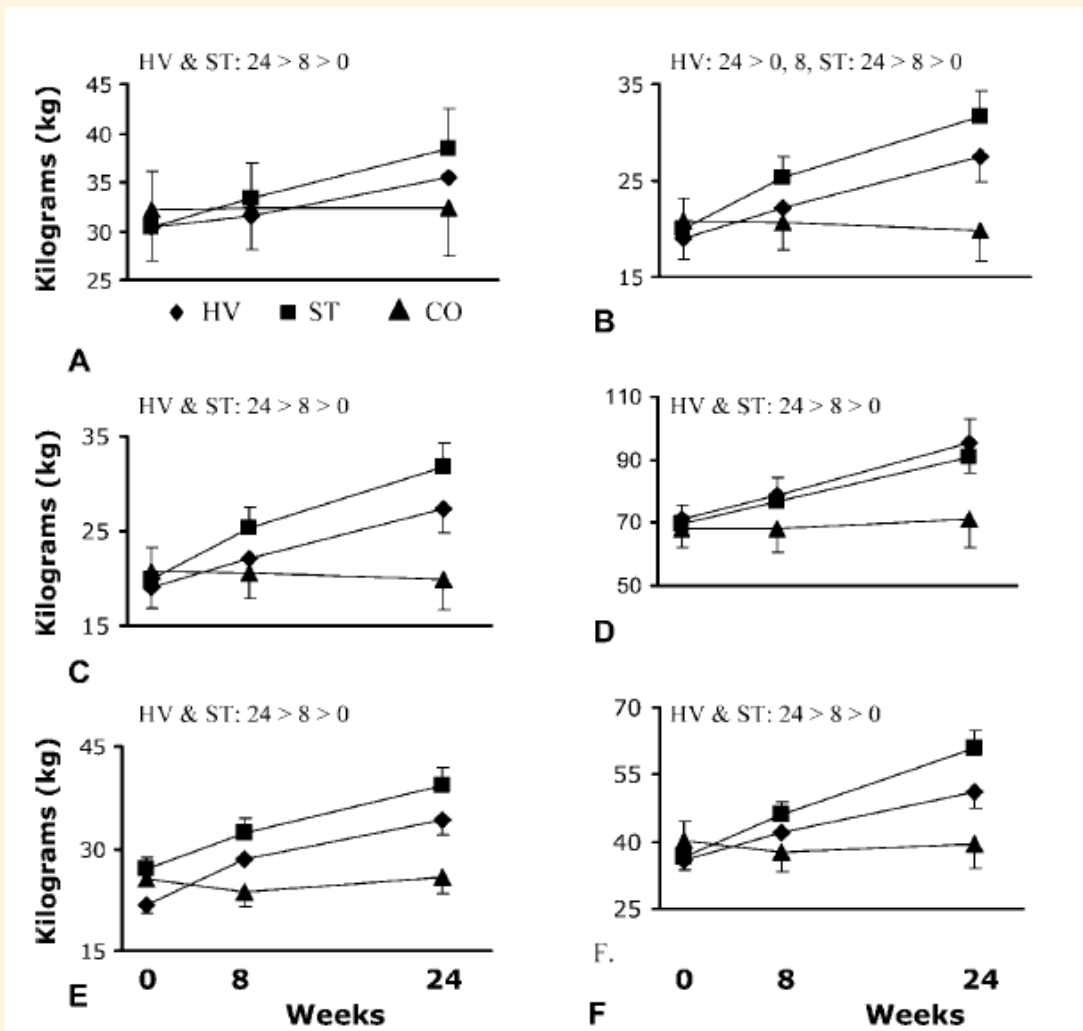
Source: WHO/HPS, Geneva 2000

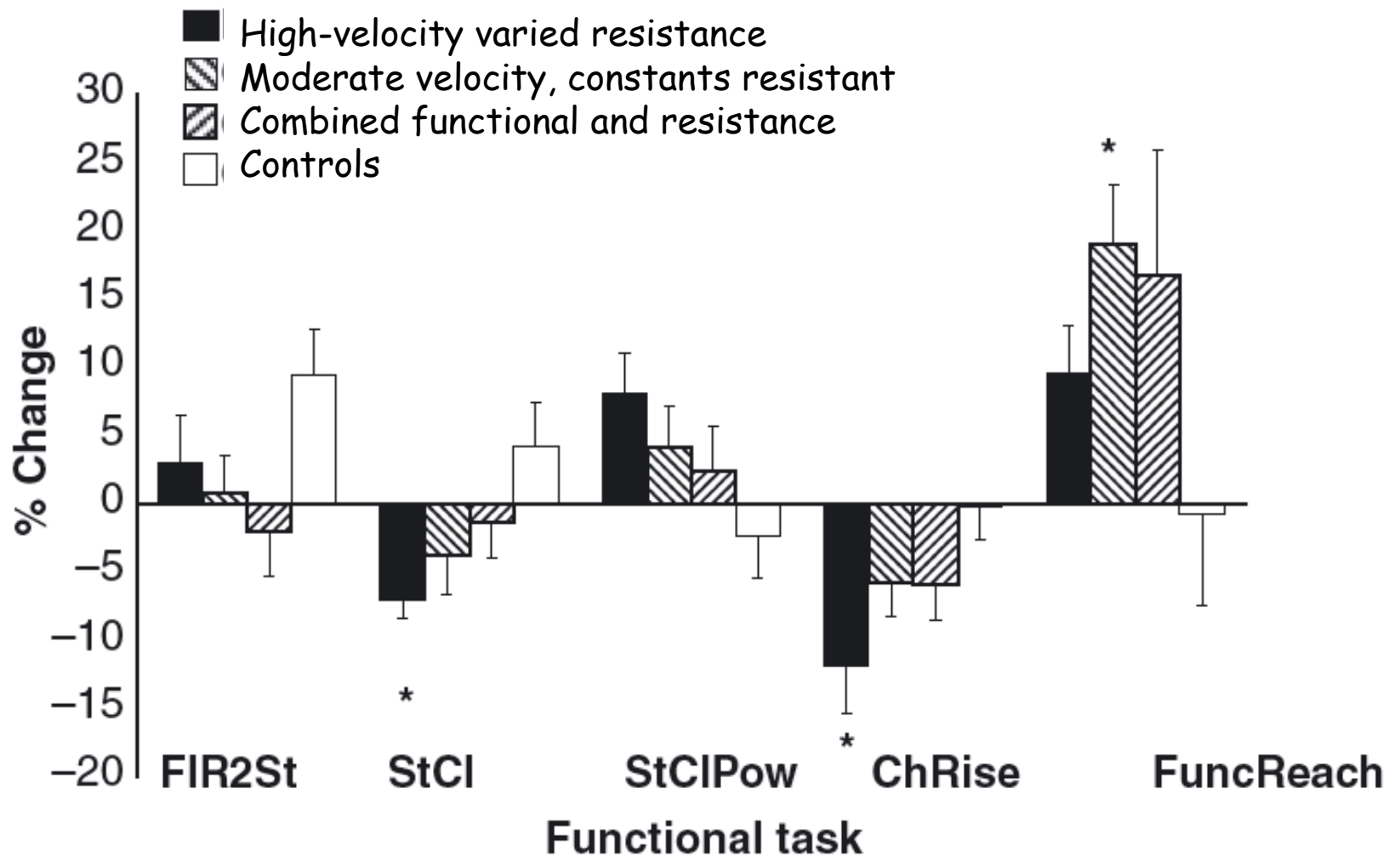
Resistance training and weight bearing exercise



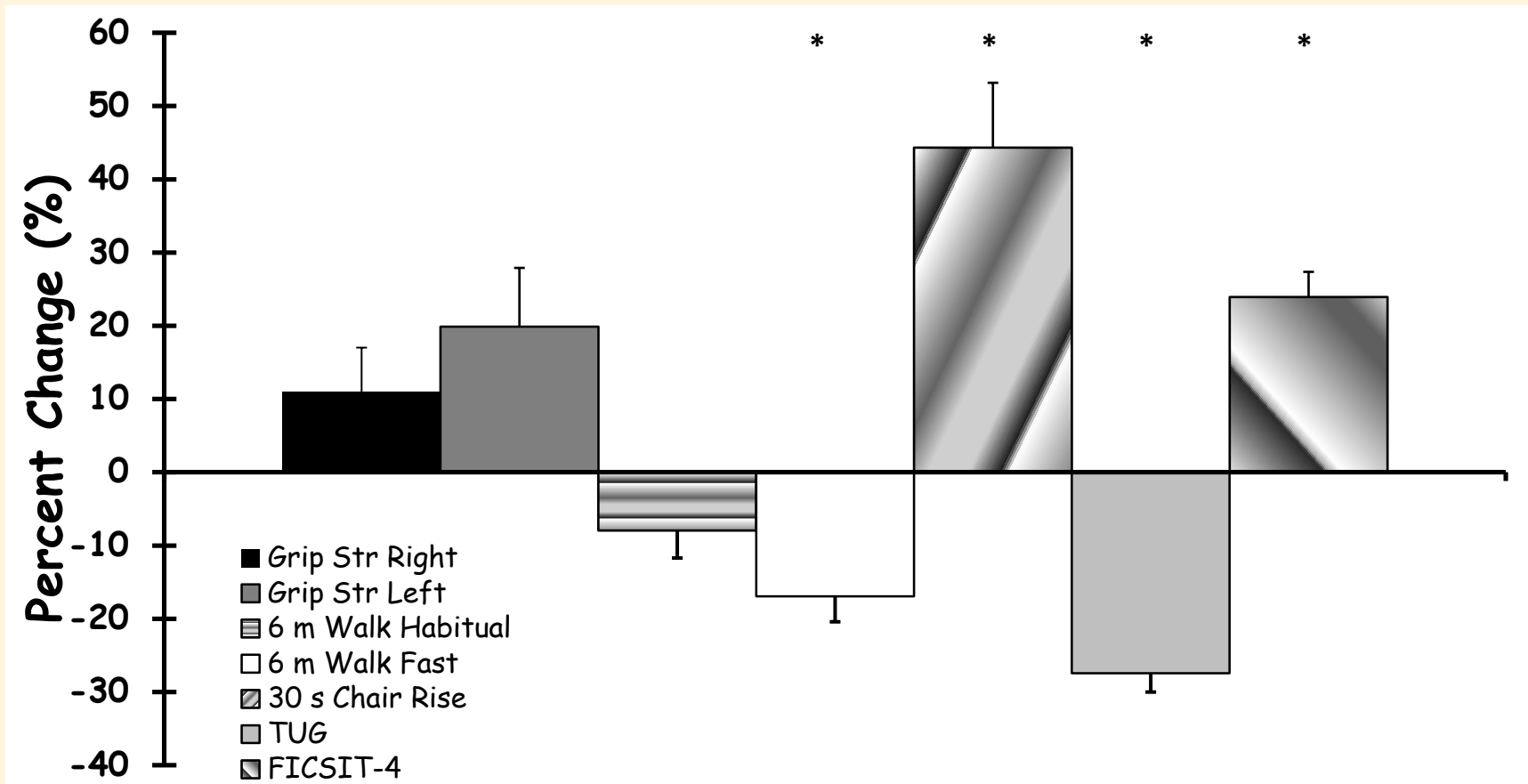
HV- High velocity varied resistance
ST-moderate velocity constant resistance
CO - Control

Henwood et al. *J Gerontol: Med Sci*
 2008, 63, 83-91.

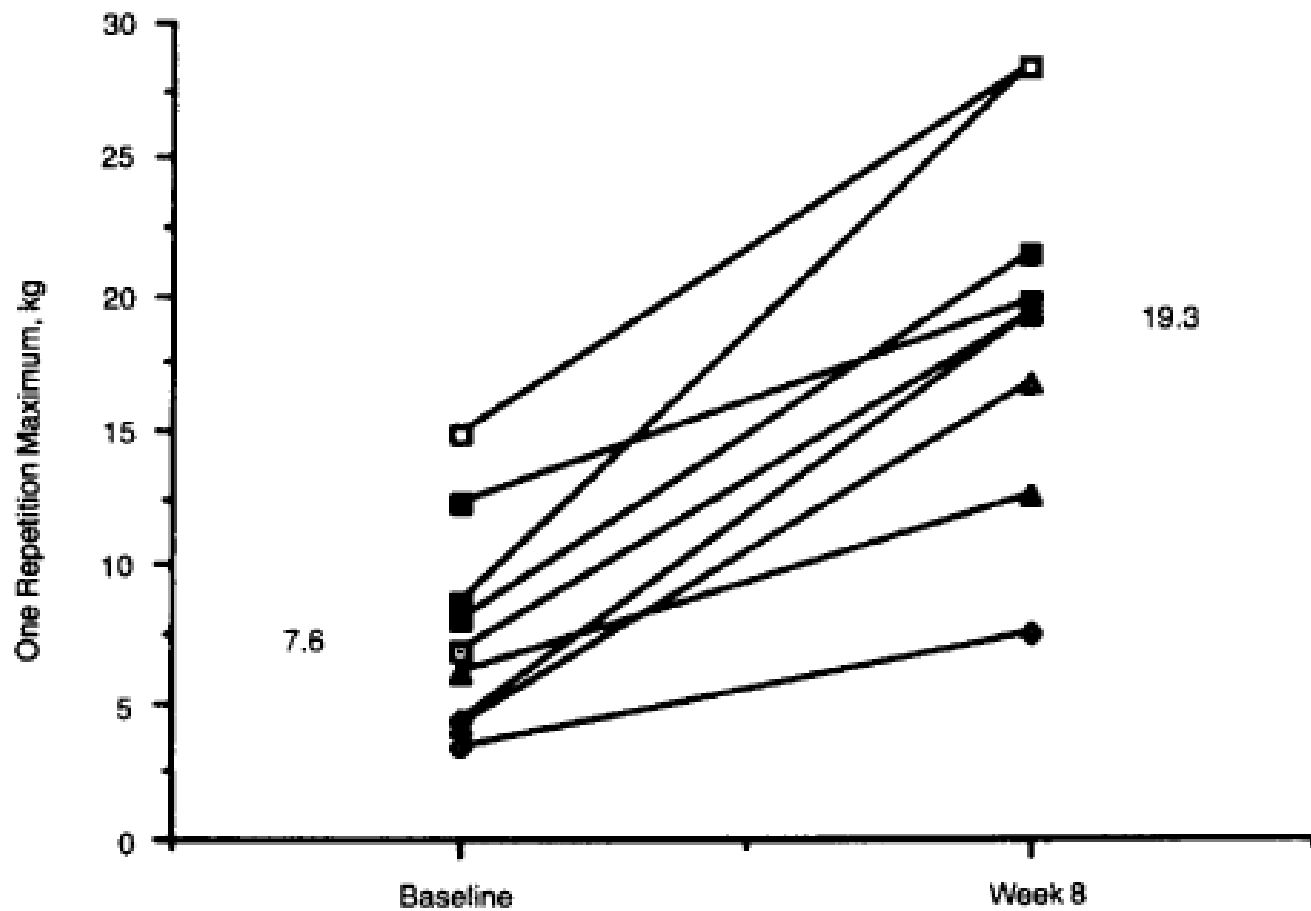




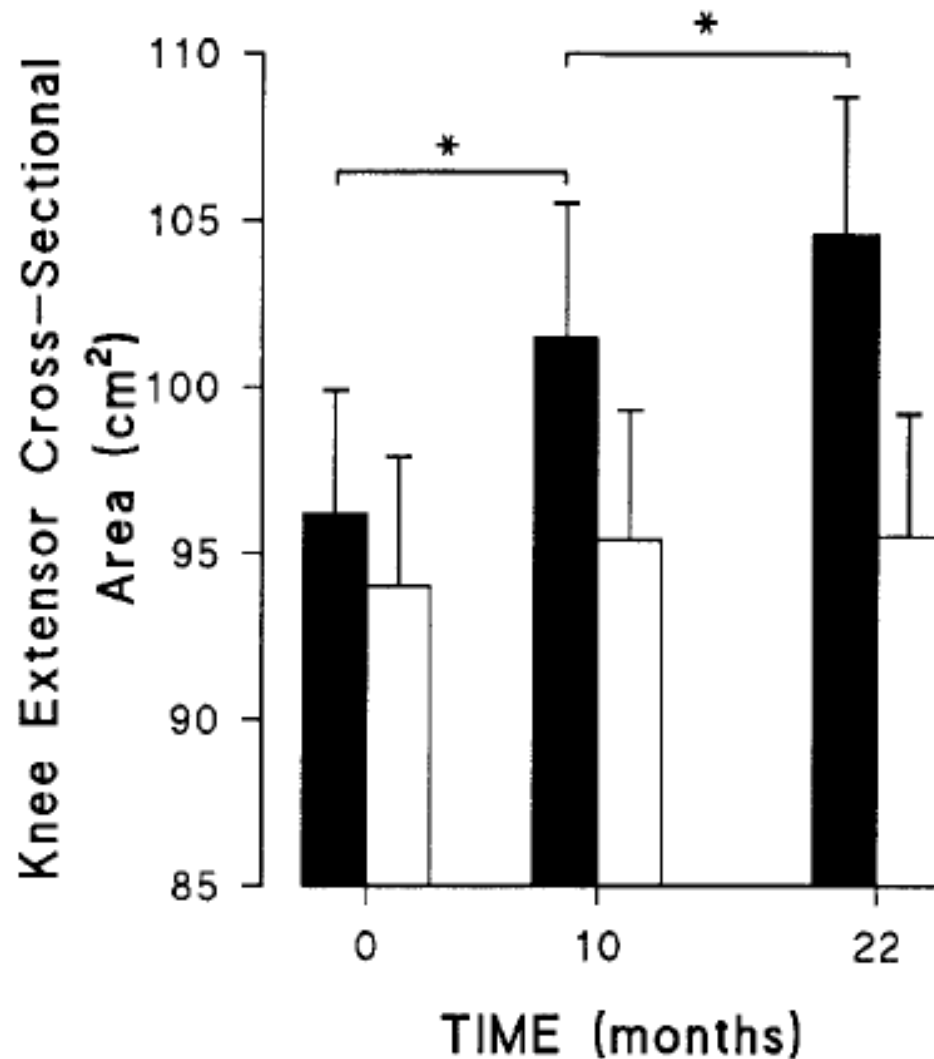
Henwood, et al. Clin Physiol Funct Imaging 2006, 26, 305-313.



Henwood et al. Unpublished, 2011. * $p < 0.05$.



Fiatarone et al. JAMA 1990, 263, 3029 - 34.



Resistance Training
 Control

McCartney et al. *J Gerontol A Biol Sci Med Sci* 1996, 51, 425-433.

Exercise for the prevention of falls: a systematic review and meta-analysis

Sherrington, et al. *J Am Geriatr Soc* 2008; 56(12): 2234-2243.

44 RCT's with 9,603 participants

Greatest outcomes related too:

- higher total dose of exercise
- challenging balance exercises
- didn't include a walking program.

