

# Western



Canadian Centre for  
Activity and Aging



## **“Strong for Life”**

### **Strength Training for Older Adults**

**Objective:** Increase our understanding of how to safely and effectively introduce strength challenges into group fitness

**Building Strength, Balance, and Confidence**



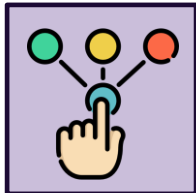
# Agenda



**Introduction** 👉 Myths and Barriers to Strength Training



**Why** 👉 Importance of Strength Training for Aging Adults



**How** 👉 Specific to the Goal



**What** 👉 Form and Function



**Take Home** 👉 How do we start on Monday

# Myths And Misconceptions

It's dangerous to start strength training after age **65**.



Individuals with Osteoporosis should never lifting **heavy** weights.



Strength training can improve **joint pain** for those with OA.



**Cardio** is more important than strength training for seniors.



Increases in muscle mass can occur into our **80s**.



"I walk a lot and work in the garden which is enough for me."





# Barriers

## Why are Participants Hesitant ?



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“Confidence”

“Understanding”

“Proper Guidance”

“Social Norms /  
Expectations”

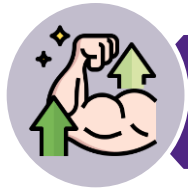
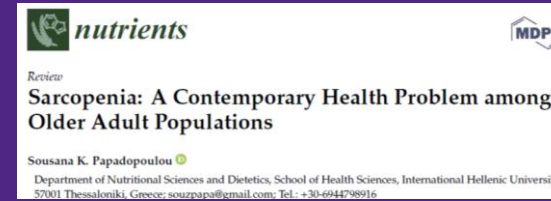


“Fear”

- Injury
- Overexertion / Fatigue
- Worsening Existing Conditions
- Heart Attack or Stroke



# Why Strength Training



Preserves Muscle Mass



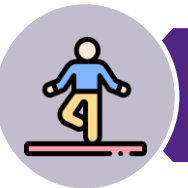
Functional Strength for Daily Life



Increases Bone Density



Enhances Independence



↑ Coordination & Balance



↓ Risk of Falls and Injuries



Supports Metabolic Health



Boosts Confidence & Energy

# Are We Doing Enough?

## Strength-training and balance activities in Canada: historical trends and current prevalence.

Prince SA <sup>1</sup>, Lang JJ <sup>1</sup>, Colley RC <sup>2</sup>, Giangregorio LM <sup>3</sup>, El-Kotob R <sup>3</sup>, Butler GP <sup>1</sup>, Roberts KC <sup>1</sup>

### Author information ▶

Health Promotion and Chronic Disease Prevention in Canada : Research, Policy and Practice, 01 May 2023, 43(5):209-221

> Health Rep. 2016 Oct 19;27(10):11-17.

## Reduced muscular strength among Canadians aged 60 to 79: Canadian Health Measures Survey, 2007 to 2013

Suzy L Wong <sup>1</sup>

▶ Clin Interv Aging. 2014 Feb 14;9:323-331. doi: [10.2147/CIA.S54644](https://doi.org/10.2147/CIA.S54644)

## Adherence of older women with strength training and aerobic exercise

Alexandra Miranda Assumpção Picorelli <sup>1</sup>, Daniele Sirineu Pereira <sup>1</sup>, Diogo Carvalho Felício <sup>1</sup>, Daniela Maria Dos Anjos <sup>1</sup>, Danielle Aparecida Gomes Pereira <sup>1</sup>, Rosângela Corrêa Dias <sup>1</sup>, Marcella Guimarães Assis <sup>1</sup>, Leani Souza Máximo Pereira <sup>1</sup>

> Can J Public Health. 2016 Oct 20;107(3):e272-e277. doi: 10.17269/cjph.107.5365.

## Correlates and preferences of resistance training among older adults in Alberta, Canada

Erin A Bampton <sup>1</sup>, Steven T Johnson, Jeff K Vallance

## Exercise Habits of Community Dwelling Seniors

Dr Christina Ziebert PhD (Western / CCAA)

**Purpose:** Examine exercise habits of older adults in the community vs 24-hour movement guidelines.

### How:

- 65 adults over 65years
- ActiGraph + activity diary

### Results:

- All exceeding 150 minutes of moderate activity in the week.
- Strength - ave 1.4x/week
- Balance - ave 1.3x/week



# Strength & Longevity

## Prediction and Prolonging



### Balance

- <10s associated with higher mortality risk
- Fall prevention



### Sit to Stand

- Balance/coordination
- Lower extremity strength
- Longevity



### Gait Speed

- Associated with increased survival rates
- Functional Mobility



### Grip Strength



- Upper extremity & overall strength
- BMD, ↓ Risk of falls and fractures
- Malnutrition, cognitive impairment, depression, sleep issues, diabetes, morbidity and Quality of Life



### Muscle Strength

- Reduced **mortality**
- Maintenance of **Functional Independence**
- Reduced **falls risk**
- ↑ **metabolism (RMR)** / weight maintenance
- ↑ **Bone density**
- ↓ Risk factors for **Chronic illnesses**

### Physical Testing Protocols

- CCAA's FFax or Senior Fitness Test (SFT)
- Normative and Functional Standard score
- Battery of test better predictor



# Form – Strength / Power– Specificity






## Specificity

## Functional / Task Specific

- Mobility
- Changing positions
- Maintain positions (Trunk Control)
- Change of elevation
- Carrying
- Pushing
- Pulling
- Lifting off the floor
- Lifting overhead
- Varied surfaces

Challenge

	Reps	Sets
	2-6	2-3
	8-12	3-4
	15+	2-3

Power

- Relative speed
- Coordination/Reaction

Strength

- Capacity
- Hypertrophy
- Endurance

Stability

- Pattern
- Skill

Quality


















# How Hard should it be?

## .....Controlled Challenge



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	Exertion	RPE	Activity Examples	"In the Tank"
	None	0		
	Very Light	5	Could likely do <b>20+ repetitions</b> with good form (warm up)	
	Light	6	Could do <b>5-10 reps</b> more with good form	
	Moderate/ Somewhat Hard	7	Could maybe do <b>3-5 reps more</b> with good form	
	Hard	8	Could maybe do <b>2-3 reps more</b> with good form	
	Very Hard	9	Could maybe do <b>1-2 reps more</b> with good form	
	Maximum Effort	10	Could <b>not lift</b> one more time without very poor form	

# Build A Solid Foundation

## Shoulders

- Relaxed
- Slightly drawn together

## Spine

- Maintain natural curves

## Pelvic

- Level
- Abdominals engaged
- “Bowl of water”

## Head

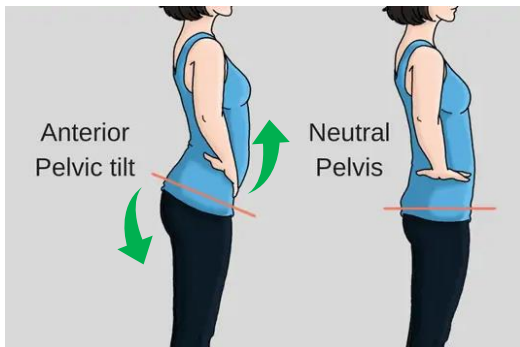
- Ear directly over your shoulder
- Imagine a string pulling your head upwards
- Avoid leading with chin
- Slight chin tuck – “double chin”

## Rib Cage

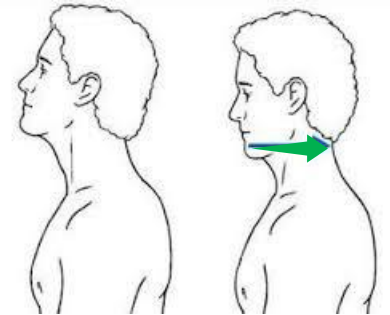
- Keep rib cage down
- No arch if lying flat

## Feet

- Feet under hips
- Solid base of support



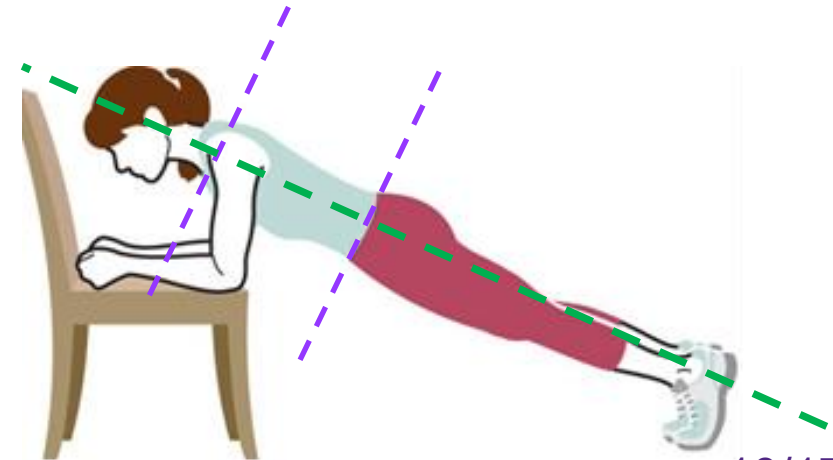
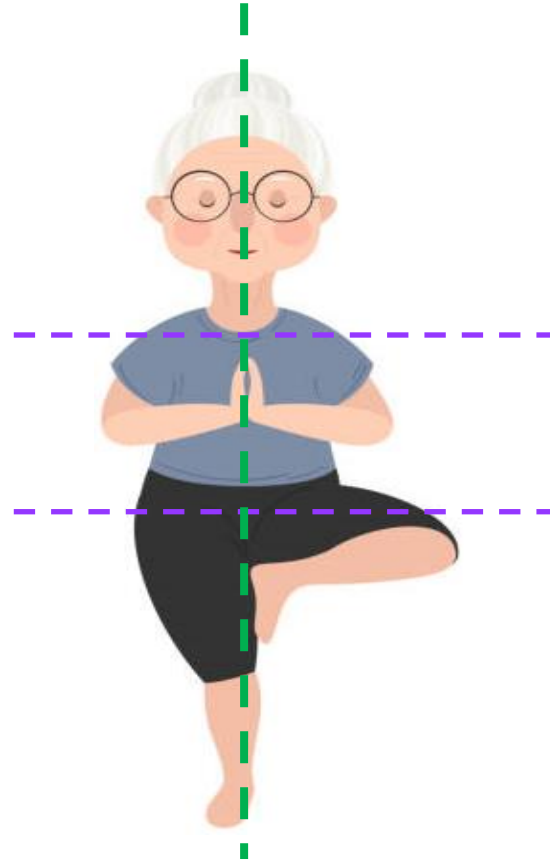
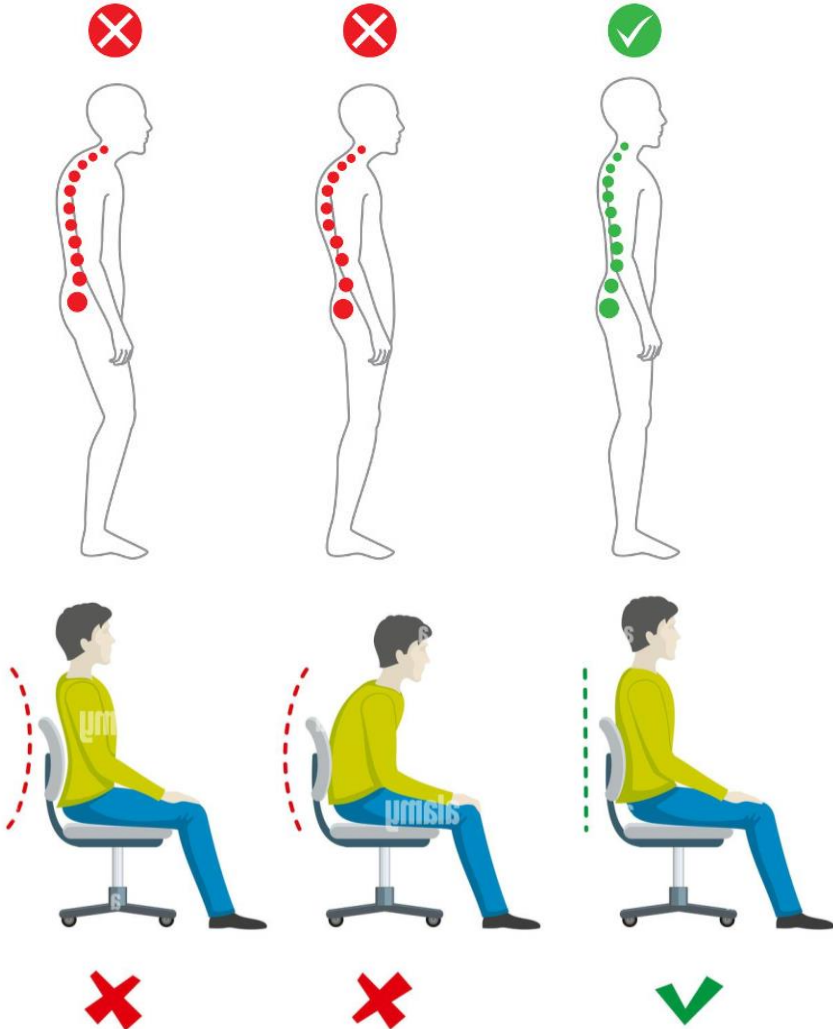
Pelvic Neutral



Chin Tuck

# If it doesn't look correct.....

# .....Fix it!



# Compound Exercises - We Should Be Including Lower Body

- Squats
- Lunges
- Step-Ups
- Bridging
- Heel Raises



## “Google Search” - Activities that become difficult with a lack of lower body strength

<b>Mobility and Movement</b>	Walking Climbing stairs Standing up from a chair or toilet Getting in and out of a car Getting in and out of bed
<b>Maintaining balance</b>	Recovering from a trip or stumble Standing for prolonged periods
<b>Personal Care</b>	Bathing or showering Dressing Toileting (sitting down and standing up)
<b>Household Activities</b>	Carrying groceries or laundry Vacuuming, sweeping, or mopping Reaching for items on lower shelves or drawers Gardening or yard work
<b>Recreational &amp; Social Activities</b>	Dancing or participating in group exercise Playing with grandchildren Traveling
<b>Emergency Response</b>	Getting up after a fall Moving quickly in an emergency (e.g., fire, intruder, or medical emergency)



# Compound Exercises - We Should Be Including Upper Body / Trunk

- **Pushing**

- Push ups



- **Pulling**

- Bent over rows



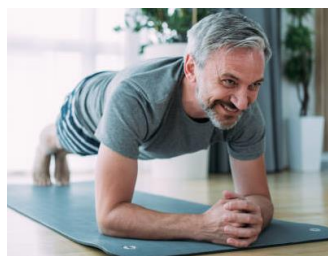
- **Pressing**

- Overhead



- **Trunk**

- (Planks and crunches)



## “Google Search” - Activities that become difficult with a lack of upper body strength

### Daily Living Activities

Lifting objects (e.g., groceries, laundry baskets)  
Carrying bags or packages  
Opening jars, bottles, or cans  
Pushing or pulling doors open  
Getting up from bed (using arms for leverage)

### Personal Care

Brushing or combing hair  
Washing upper body in the shower  
Dressing (e.g., putting on shirts, bras, or jackets)  
Reaching overhead (e.g., into cabinets or closets)  
Feeding oneself (if grip strength is very weak)

### Mobility Support

Using a walker or cane properly  
Transferring in and out of a wheelchair  
Using arms to push off a chair or toilet seat

### Household Tasks

Vacuuming or sweeping  
Cooking (e.g., stirring, lifting pots or pans)  
Making the bed or folding laundry  
Cleaning (e.g., wiping counters or windows)

### Recreational and Social Activities

Playing with grandchildren or pets  
Gardening (digging, pulling weeds, using tools)  
Participating in hobbies (e.g., painting, crafting, woodworking)

### Emergency Response

Catching oneself during a fall  
Using a phone in an emergency  
Holding on to railings or grab bars for support

# “Functional” Exercises - We Should Be Considering



Marching Variations



Carrying Things



Lifting Stuff off the Ground



Getting off the floor



Quick / Reactionary  
Activity Specific

# Safe Practices



## Progressive Challenges



Environment



Form 1<sup>st</sup>



Practice



Individualized



Slow progression



Breathing



Pain free



Monitor & Adjust



## “Cues”

- “Stand tall” — posture
- “Brace your core” — spine support
- “Slow and controlled” — safety
- “Breathe” — don’t hold your breath
- “Feet and knees under” — for alignment
- “Technique first – weight second”





## Too Difficult

### Regress

- **Intensity** ↓ RPE ie) 5
- **Pacing** – slower/ ↓ # of reps
- **On/Off Ratio:** ↓ On time or ↑ Off time
- **Resistance** - ↓
- **Volume** - ↓
- Adjust **exercise** (Basic)



## Too Easy

### Progress

- **Intensity** ↑ RPE ie) 8
- **Pacing** – faster/ ↑ # of reps
- **On/Off Ratio:** ↑ On time or ↓ Off time
- **Resistance** - ↑
- **Volume** - ↑
- Adjust **exercise** (More Complex)



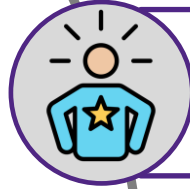
# Monday.....



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**Things Change.....it's OK!**



**Focus on the Person**



**Consistent Progressive  
Challenges**



**"No limits"**



**Good Leaders "Support"**

# Educate!





# Thank You!