APPENDIX A

**Steering Committee Membership List**

**Name:** John Muscedere

**Discipline/content expertise:** Frailty, Aging, Knowledge Synthesis, Knowledge Translation

**Institution:** Queen’s University

**Geographical location:** Kinston, ON, Canada

**Description of member’s role in guideline development:** Chaired the Steering Committee; Conceptualized the guidelines; Contributed to the design of the work; Contributed to interpretation of evidence and development of recommendations; Contributed to manuscript draft; Reviewed the final recommendations; Revised and approved manuscript.

**Name:** Danielle Bouchard

**Discipline/content expertise:** Clinical exercise physiology, Aging

**Institution:** University of New Brunswick

**Geographical location:** Fredericton, NB, Canada

**Description of member’s role in guideline development:** Contributed to the conception and design of the work; Contributed to interpretation of evidence and development of recommendations; Reviewed the final recommendations; Revised and approved manuscript.

**Name:** Anik Giguere

**Discipline/content expertise:** Knowledge translation, Frailty, Shared decision-making

**Institution:** Laval University

**Geographical location:** Quebec City, QC, Canada

**Description of member’s role in guideline development:** Contributed to the conception and design of the work; Contributed to interpretation of evidence and development of recommendations; Reviewed the final recommendations; Revised and approved manuscript.

**Name:** Leah Gramlich

**Discipline/content expertise:** Nutrition, Aging

**Institution:** University of Alberta; Alberta Health Services

**Geographical location:** Edmonton, AB, Canada

**Description of member’s role in guideline development:** Contributed to the conception and design of the work; Contributed to interpretation of evidence and development of recommendations; Reviewed the final recommendations; Revised and approved manuscript.

**Name:** Jayna Holroyd-Leduc

**Discipline/content expertise:** Frailty, Aging, Knowledge translation

**Institution:** University of Calgary; Alberta Health Services

**Geographical location:** Calgary, AB, Canada

**Description of member’s role in guideline development:** Contributed to the conception and design of the work; Contributed to interpretation of evidence and development of recommendations; Reviewed the final recommendations; Contributed to manuscript draft; revised and approved final manuscript.

**Name:** Heather Keller

**Discipline/content expertise:** Nutrition, Frailty, Knowledge Translation

**Institution:** Schlegel University of Waterloo Research Institute for Aging; University of Waterloo

**Geographical location:** Waterloo, ON, Canada

**Description of member’s role in guideline development:** Contributed to the conception and design of the work; Contributed to interpretation of evidence and development of recommendations; Reviewed the final recommendations; Revised and approved manuscript.

**Name:** Ada Tang

**Discipline/content expertise:** Rehabilitation, Exercise, Aging

**Institution:** McMaster University

**Geographical location:** Hamilton, ON, Canada

**Description of member’s role in guideline development:** Contributed to the conception and design of the work; Contributed to interpretation of evidence and development of recommendations; Reviewed the final recommendations; Revised and approved manuscript.

APPENDIX B

**i) Broad categories of outcomes for the systematic review and meta-analysis of nutrition and combined nutrition plus physical activity interventions in older adults living with frailty or pre-frailty.**

**1. Health (and mortality)**

- Mortality (all-cause)

- Body weight and body mass index

**2. Physical**

- Activities of daily living

- Muscle strength (grip and non-grip)

- Appendicular lean mass

**3. Quality of life**

**4. Frailty**

**5. Mobility**

- Gait speed

- Timed up and go test

- Sit to stand test

- Balance

- Short physical performance battery test

* 1. **7. Diet quality**

**8. Health service use**

- Hospital admissions/re-admissions

- Hospital length of stay

**9. Social and caregiver**

- Caregiver burden

**9. Harms** (qualitative reporting)

**ii) Broad categories of outcomes for the systematic review and meta-analysis of the effectiveness of physical activity interventions in older adults living with frailty or pre-frailty.**

**1. Mobility**

- Gait speed

- Timed up and go test

- Sit to stand test

- Balance

- Short physical performance battery test

**2. Activities of daily living**

**3. Cognitive function**

- Loewenstein Occupational Therapy Cognitive Assessment

- Mini Mental State Examination

**4. Quality of life**

**5. Frailty**

* 1. **6. Falls**
  2. - Fall incidence
  3. - Fall rate
  4. - Total falls

**7. Energy/fatigue level**

**8. Health services use**

- Hospital admissions/re-admissions

- Hospital length of stay

**9. Harms** (qualitative reporting)

APPENDIX C

**FRAILTY AND NUTRITION SEARCH STRATEGIES**

**JUNE 2019**

**MEDLINE**

1951 refs

Database: OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid

MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present

|  |  |
| --- | --- |
| 1 | Frail Elderly/ or Frailty/ |
| 2 | frailty.tw. |
| 3 | (frail adj3 (person? or people or elderly or patient? or individual? or adult? or  outpatient?)).tw. |
| 4 | or/1-3 |
| 5 | exp nutrition therapy/ |
| 6 | nutrition$.tw. |
| 7 | exp diet/ |
| 8 | (.eat or eating).tw |
| 9 | (diet? or dietary).tw. |
| 10 | (meals or mealtime or meal time).tw. |
| 11 | or/5-10 |
| 12 | 4 and 11 |
| 13 | animals/ not (animals/ and human/) |
| 14 | 12 not 13 |

**EMBASE**

3351 refs

Database: Embase <1974 to 2019 June 10>

Search Strategy:

--------------------------------------------------------------------------------

1 frail elderly/ (9392)

2 frailty/ (6812)

3 (frail adj3 (person? or people or elderly or patient? or individual? or adult? or outpatient?)).tw. (10767)

4 frailty.tw. (16350)

5 or/1-4 (28736)

6 nutrition/ or exp diet/ or exp dietary intake/ or geriatric nutrition/ or nutrition education/ or nutritional assessment/ or nutritional counseling/ or nutritional health/ (808869)

7 nutrition$.tw. (328534)

8 (eat or eating).tw. (108746)

9 (diet? or dietary).tw. (582389)

10 or/6-9 (1255505)

11 5 and 10 (3514)

12 limit 11 to human (3351)

**COCHRANE**

81 reviews

444 trials

ID Search Hits

#1 MeSH descriptor: [Nutrition Therapy] explode all trees 8720

#2 MeSH descriptor: [Diet] explode all trees 17123

#3 nutrition or eat or eating or diet\* or meal\* 121080

#4 #1 or #2 or #3 122560

#5 MeSH descriptor: [Frailty] explode all trees 29

#6 MeSH descriptor: [Frail Elderly] explode all trees 659

#7 frail NEAR/3 (person? or people or elderly or patient? or individual? or adult? or outpatient?) 1907

#8 frail\* 3135

#9 #5 or #6 or #7 or #8 3135

#10 #4 and #9 537

**CINAHL**

882 refs

S12 S4 AND S11

S11 S5 OR S6 OR S7 OR S8 OR S9

OR S10

S10 TI ( meals or mealtime or meal

time ) OR AB ( meals or mealtime or

meal time )

S9 TI nutrition\* OR AB nutrition\*

S8 TI ( diet# or dietary ) OR AB (

diet# or dietary )

S7 TI ( eat or eating ) OR AB ( eat

or eating )

S6 (MH "Diet Therapy+") Search modes - Boolean/Phrase

S5 (MH "Nutrition") OR (MH

"Diet+") OR (MH "Geriatric

Nutrition")

S4 S1 OR S2 OR S3

S3 TI ( frail N3 (person# or people

or elderly or patient# or individual#

or adult# or outpatient#) ) OR AB (

frail N3 (person# or people or

elderly or patient# or individual# or

adult# or outpatient#) )

S2 (MH "Frail Elderly")

S1 (MH "Frailty Syndrome")

**FRAILTY AND PHYSICAL ACTIVITY SEARCH STRATEGIES**

**JUNE 2019**

**MEDLINE**

3298 refs

Database: OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid

MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present

Search Strategy:

--------------------------------------------------------------------------------

1 Frail Elderly/ or Frailty/ (10949)

2 frailty.tw. (10731)

3 (frail adj3 (person? or people or elderly or patient? or individual? or adult? or outpatient?)).tw. (7141)

4 or/1-3 (20608)

5 exp exercise/ or exercis$.tw. or physical activit$.tw. (422109)

6 physical activity/ or cycling/ or jogging/ or running/ or stretching/ or swimming/ or walking/ or weight

bearing/ or weight lifting/ (178998)

7 walking/ or swimming/ or exp running/ or tai ji/ or yoga/ (67608)

8 (Walking or jogging or running or Resistance training or strength training or Aerobic training or

Swimming or aquafit or aquacise or Tai Chi or Yoga or rehabilitation or Balance training or flexibility

training Standing or Whole-body vibration).tw. (298369)

9 or/5-8 (650135)

10 4 and 9 (3322)

11 animals/ not (animals/ and human/) (4554892)

12 10 not 11 (3298)

**EMBASE**

5133 refs

Database: Embase <1974 to 2019 June 10>

Search Strategy:

--------------------------------------------------------------------------------

1 frail elderly/ (9392)

2 frailty/ (6812)

3 (frail adj3 (person? or people or elderly or patient? or individual? or adult? Or outpatient?)).tw. (10767)

4 frailty.tw. (16350)

5 or/1-4 (28736)

6 exp exercise/ or exercis$.tw. or physical activit$.tw. (554109)

7 physical activity/ or cycling/ or jogging/ or running/ or stretching/ or swimming/ or walking/ or weight bearing/ or weight lifting/ (280303)

8 (Walking or jogging or running or Resistance training or strength training or Aerobic training or Swimming or aquafit or aquacise or Tai Chi or Yoga or rehabilitation or Balance training or flexibility training Standing or Whole-body vibration).tw. (397805)

9 yoga/ (6638)

10 Tai Chi/ (2653)

11 or/6-10 (947114)

12 5 and 11 (5350)

13 limit 12 to human (5133)

**COCHRANE**

103 reviews

947 trials

Search Name: Frailty & exercise

Date Run: 11/06/2019 16:24:33

Comment:

ID Search Hits

#1 MeSH descriptor: [Frailty] explode all trees 29

#2 MeSH descriptor: [Frail Elderly] explode all trees 659

#3 frail NEAR/3 (person? or people or elderly or patient? or individual? or adult? or outpatient?) 1907

#4 frail\* 3135

#5 #1 or #2 or #3 or #4 3135

#6 MeSH descriptor: [Exercise Therapy] explode all trees 11989

#7 MeSH descriptor: [Exercise] explode all trees 21923

#8 MeSH descriptor: [Walking] explode all trees 5132

#9 MeSH descriptor: [Running] explode all trees 1872

#10 MeSH descriptor: [Yoga] this term only 583

#11 MeSH descriptor: [Tai Ji] this term only 312

#12 Walking or jogging or running or Resistance training or strength training or Aerobic training or Swimming or aquafit or aquacise or Tai Chi or Yoga or rehabilitation or Balance training or flexibility training Standing or Whole-body vibration 90631

#13 #6 or #7 or #8 or #9 or #10 or #11 or #12 102188

#14 #5 and #13 1073

**CINAHL**

1596 refs

S12 S4 AND S11 S11 S5 OR S6 OR S7 OR S8 OR S9

OR S10

S10 (MH "Tai Chi")

S9 (MH “Yoga")

S8 TI ( Walking or jogging or

running or Resistance training or

strength training or Aerobic training

or Swimming or aquafit or aquacise

or Tai Chi or Yoga or rehabilitation

or Balance training or flexibility

training Standing or Whole-body

vibration ) OR AB ( Walking or

jogging or running or Resistance

training or strength training or

Aerobic training or Swimming or

aquafit or aquacise or Tai Chi or

Yoga or rehabilitation or Balance

training or flexibility training

Standing or Whole-body vibration ...

S7 TI physical activit\* OR AB

physical activit\*

S6 TI exercis\* OR AB exercis\*

S5 (MH "Exercise+")

S4 S1 OR S2 OR S3

S3 TI ( frail N3 (person# or people

or elderly or patient# or individual#

or adult# or outpatient#) ) OR AB (

frail N3 (person# or people or

elderly or patient# or individual# or

adult# or outpatient#) )

S2 (MH "Frail Elderly")

S1 (MH "Frailty Syndrome")

APPENDIX D

**Stakeholders Meeting Participants and Affiliations**

|  |  |  |
| --- | --- | --- |
| **Name of Participant** | **Discipline/Content Expertise** | **Institution** |
| Muhammad Usman Ali | Epidemiologist | MERST, McMaster University |
| Kyla Alsbury | PT, PhD Student | Rehabilitation Sciences Institute, University of Toronto |
| Marlis Atkins | Nutrition Services Director | Provincial Strategy, Standards and Practice, Alberta Health Services |
| Carlota Basualdo-Hammond | Executive Director, Nutrition Services | Provincial Strategy, Standards and Practice, Alberta Health Services |
| Stéphanie Chevalier | Associate Professor | School of Human Nutrition, McGill University |
| Jennifer Copeland | Professor | Dept. of Kinesiology & Physical Education, University of Lethbridge |
| Donna Fitzpatrick-Lewis | Research Methodology Coordinator | MERST, McMaster University |
| Chelsia Gillis | RD, PhD Candidate | Cumming School of Medicine, Department of Community Health Sciences, University of Calgary |
| Lillian Hung | Director of Education | Canadian Gerontological Nursing Associate |
| Susan Hunter | Associate Professor | School of Physical Therapy, University of Western Ontario |
| Scott Kehler | Assistant Professor | School of Physiotherapy, Dalhousie University |
| Michelle Kho | Associate Professor | School of Rehabilitation Science, McMaster University |
| Perry Kim | Assistant Scientific Director | Canadian Frailty Network |
| Julie Lapointe | Director of Knowledge Translation Programs | Canadian Association of Occupational Therapists |
| Linda Lee | Family Physician and Schlegel Chair in Primary Care for Elders | Schlegel-UW Research Institute for Aging  Center for Family Medicine Family Health Team; |
| Andrea Mayo | PhD Student | Faculty of Health, Dalhousie University |
| Brad Meisner | Board Director Representative | Canadian Association on Gerontology |
| **Name of Participant** | **Discipline/Content Expertise** | **Institution** |
| Manuel Montero-Odasso | Geriatrician and Professor | Departments of Medicine, and Epidemiology and Biostatistics, University of Western Ontario |
| José Morais | Physician and Professor | Department of Medicine, School of Dietetics and Human Nutrition, McGill University |
| Kate Morissette | Senior Epidemiologist | Public Health Agency of Canada |
| John Muscedere | Scientific Director | Canadian Frailty Network |
| Alexandra Papaioannou | Geriatrician and Professor | McMaster University, Hamilton Health Sciences and GERAS Centre for Aging Research |
| Carla Prado | Professor and CAIP Chair in Nutrition, Food and Health | Human Nutrition Research Unit, University of Alberta |
| Janet Pritchard | Assistant Professor | School of Interdisciplinary Science, McMaster University |
| Jeanette Prorok | Interim Manager, Research and KT | Canadian Frailty Network |
| Megan Racey | Post-doctoral Fellow | MERST, McMaster University |
| Hetesh Ranchod | Geriatrician | Division of Geriatric Medicine, Providence Health Care |
| Diana Sherifali | Lead Methodologist | MERST, McMaster University |
| Liza Stathokostas | Research Director | Active Aging Canada |
| Olga Theou | Assistant Professor and Canada Research Chair, Physical Activity, Mobility, and Health Aging | Department of Medicine, Dalhousie University |
| Emma Tittonel | Policy Analyst | Division of Aging, Seniors and Dementia, Public Health Agency of Canada |