Canadian Longitudinal Study on Aging: Update

Presentation at the CIMA Q Scientific Day
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Canadian Longitudinal Study on Aging: A Platform for Interdisciplinary Research

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and the CLSA Research Team
Canadian Longitudinal Study on Aging (CLSA)

- Following 50,000+ Canadians aged 45-85 at baseline for 20 years
- Largest research platform of its kind in Canada for breadth and depth
- Multidisciplinary: biology, genetics, medicine, psychology, sociology, demography, economics, epidemiology, nutrition, health services
- Strategic initiative of CIHR; on Canadian research agenda since 2001
- More than 160 researchers and collaborators from 26 institutions across Canada
CLSA Infrastructure

11 Data Collection Sites

- SFU Simon Fraser University
- UBC University of British Columbia
- Dalhousie University
- University of Manitoba
- McMaster University
- University of Calgary
- McGill University
- Institute de Recherche de l'Université de Montréal
- Research Institute McGill University Health Centre
- Bruyère Continuing Care
- uOttawa
- Université de Sherbrooke
- University of Victoria
CLSA Infrastructure
4 Telephone Interview Centres
CLSA Infrastructure

Enabling Units

National Coordinating Centre (NCC)
Director: Parminder Raina

Biorepository and Bioanalysis Centre (BBC)
Director: Cynthia Balion

Genetics and Epigenetics Centre (GEC)
Director: Michael Kobor

Statistical Analysis Centre (SAC)
Director: Christina Wolfson
The CLSA platform collects data and biospecimens from:

51,338 Canadian women and men aged 45 - 85 at baseline

Questionnaires by telephone interview (~150 min) on 21,241 participants

Randomly selected 10 provinces

Questionnaires by in-person interviews (~60 min) and physical assessments (~180 min) on 30,097 participants

Randomly selected 25-50 km of 11 sites in 7 provinces

20 year study: Follow up every 3 years, maintaining contact in between

Data Linkage with health care, mortality and disease registries
National Scope

- Winnipeg
- Vancouver
- Victoria
- Surrey
- Calgary
- Hamilton
- Ottawa
- Montreal
- Sherbrooke
- Halifax
- St. John's

- Home Interviews & Data Collection Site Visits
- Telephone Interviews
Participants: (51,338)

Enrolled

- Questionnaire Data (telephone and in person interviews) (>50,000)
- Physical Exam and Biological Specimen (>30,000)

2010-2015

2015

2018

 Participants

Time

20 Years

Active Follow-up (F) Every 3 years
- Questionnaire
- Physical exam
- Biological samples

Maintaining Contact (MC) mid-wave
- Update contact information & implement Retention strategies

Active Follow-up Every 3 years
- Questionnaires
- Physical exams
- Biological samples
- Implement sub-studies

Data Linkage

Data and Biological Sample Repositories

Researchers
Depth and Breadth of Baseline CLSA

**PHYSICAL & COGNITIVE MEASUREMENTS**
- Height & weight
- Waist and hip measurements
- Blood Pressure
- Grip strength, timed up-and-go, chair raise, 4-m walk
  Standing balance
- Vision (retinal imaging, Tonometer & visual acuity)
- Hearing (audiometer)
- Spirometry
- Body composition (DEXA)
- Bone density (DEXA)
- Aortic calcification (DEXA)
- ECG
- Carotid Plaque sweep (ultrasound) (Only at baseline)
- Carotid intima-media thickness (ultrasound)
- **Cognitive assessment (30 min. battery)**
- **Neuroimaging (Pilot sub-study) (Follow-up 2)**

**HEALTH INFORMATION**
- Chronic disease symptoms (*disease algorithm*)
- Medication and supplements intake
- Women's health
- Self-reported health service use
- Oral health
- Preventative health
- Administrative data linkage health services & drugs & other administrative databases

**PSYCHOSOCIAL**
- Social participation
- Social networks and support
- Caregiving and care receiving
- Mood, psychological distress
- Veteran's Identifier & PTSD
- Coping, adaptation
- Injuries and consumer products
- Work-to-retirement transitions
- Retirement planning
- Social inequalities
- Mobility-life space
- Transportation
- Built environments & Contextual Factors
- Air Pollution
- Income, Wealth and Assets

**LIFESTYLE & SOCIODEMOGRAPHIC**
- Smoking
- Alcohol consumption
- Physical activity (PASE)
- Nutrition (nutritional risk and food frequency)
- Birth location
- Ethnicity/race/gender
- Marital status
- Education
Current use of the CLSA Research Platform

- To date 100+ research projects approved and ongoing using CLSA data (less than 2 years)
- 50+ partnerships/collaborations with federal and provincial governments, research organizations, associations, charities and industry to expand and enrich the CLSA Research Platform
- Over 50 HQP have been or are being trained
- CLSA information about the biological, medical, social, psychological, lifestyle and economic aspects of people's lives is available to approved Canadian public-sector researchers
Cognitive ability for Canadians aged 45-85 years is gradually worse from youngest age group to oldest age group

Same findings for men or women and both English- or French-speaking Canadians

Based on raw data, test scores and meta data from 21,241 CLSA tracking cohort participants indicating quality of the recording, and any anomalies noted for Rey I and Rey II Auditory Verbal Learning Test, Animal Fluency Test, and Mental Alternation Test
### Cognitive Measures in the CLSA

<table>
<thead>
<tr>
<th>Neuropsychological Assessments Completed in the CLSA</th>
<th>CLSA</th>
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<th>CLSA</th>
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<tbody>
<tr>
<td></td>
<td>CLSA</td>
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<td>CLSA</td>
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<tr>
<td><strong>Memory</strong></td>
<td></td>
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<tr>
<td>Rey Auditory Verbal Learning Test (trial 1 recall and 5 minutes delayed recall)</td>
<td>✓</td>
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<td>✓</td>
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<td><strong>Executive Function</strong></td>
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<tr>
<td>Mental Alternation Test</td>
<td>✓</td>
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<td>✓</td>
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<tr>
<td>Prospective Memory Test (event-based and time-based)</td>
<td>✓</td>
<td></td>
<td>Not conducted</td>
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<tr>
<td>Stroop Neuropsychological Screening Test</td>
<td>✓</td>
<td></td>
<td>Not conducted</td>
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<tr>
<td>Controlled Oral Word Association Test (FAS)</td>
<td>✓</td>
<td></td>
<td>Not conducted</td>
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<tr>
<td>Animal Fluency</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<tr>
<td><strong>Psychomotor Speed</strong></td>
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<tr>
<td>Choice Reaction Time</td>
<td>✓</td>
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<td>Not conducted</td>
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</table>
Holly’s team is examining detailed information about cognitive performance in CLSA

Characterizing typical performances of neurologically healthy people on cognitive measures in CLSA for use as standards when identifying a cognitive impairment

Developing easily-accessed, plain language tools (e.g. derived variables, on-line tools for generating cognitive classification) for use by clinicians and researchers regarding cognitive functions as measured in CLSA
Spring 2018 CLSA Report

- CLSA Report on findings from baseline data will be released in Spring 2018
- Chapter topics include:
  - Work & Retirement
  - Social Activity & Social Isolation
  - Caregiving & Care Receiving
  - Health
  - Physical Function
  - Psychological Health – including cognition, depression, PTSD, etc.
  - Lifestyle & Behaviour
  - Transportation & Aging
  - LGBTQ2 & Aging
One Minute Paper

1) What did we cover today?

2) Do you want to know more?

3) What was the muddiest point?
Thank You

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