TIMES ARE CHANGING _
CLINICIANS AND
RESEARCHERS
NEED TO CHANGE AS WELL

MONTREAL, APRIL 2018
**PRESENTER DISCLOSURES**

**PRESENTER:** OLIVIER BEAUCHET

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GAIT DISORDERS ARE AN IMPORTANT TOPIC FOR RESEARCHERS, CLINICIANS AND HEALTHCARE DECISION MAKERS BECAUSE...

High prevalence in older population: Up to 30% > 65 (…50% > 80)

Associated with several adverse outcomes: Falls and fall-related injuries, hospitalization, institutionalization, disability and death

Huge financial burden: Cost of falls estimated CA$ 2billion annually in Canada, 3.7 times greater in older compared to younger individuals

PARADOXAL SITUATION: ACCUMULATION OF INFORMATION ON AGE-RELATED GAIT DISORDERS BUT THEIR MECHANISMS REMAIN POORLY UNDERSTOOD, WHICH LIMIT IMPACT OF EXITING INTERVENTIONS
WHAT’S NEW?

RECENT ADVANCES IN WORK METHODS TO IMPROVE OUR UNDERSTANDING OF AGE-RELATED GAIT DISORDERS

3 “big” changes in work methods:

- Action-research
- Advances in technology: Accessibility of spatio-temporal gait analysis
- Networking

Related challenges:

- Bottom-up effect (knowledge transfer from clinic to research)
- Huge volume of data... Are we drowning in an ocean of data?
- Relationship with colleague: Collaborator/partner but also competitor/reviewer and definitively not a chief but a facilitator!
_ SO… HUSTON HAVE WE A PROBLEM?

Houston, we have a problem.
_ WHY THESE CHANGES?

LIMITATIONS AND CONTRAINTS OF CLINICAL PRACTICE AND RESEARCH

Challenging context:
- Rapid advances of knowledge and technology... High level of competency, skills and knowledge
- Huge volume of data but excessive fragmentation, dispersion and confinement of data
- Successive funding cuts (e.g., pilot results required to grant application)

As a result:
- Increased difficulties in transforming an idea into a project, a project into a study, a study into a publication, and a result in useful information for clinicians and patients

IT IS TIME FOR INNOVATIVE WORK METHODS
ACTION-RESEARCH

FROM BEDSIDE TO BENCH AND BACK

Health has no price… but its cost is high. We need to be more effective and efficient if we want to preserve our health system, quality of work of health professionals and quality of life of patients.

Classical way: Clinical research (Top down)
Alternative: Action-Research (Bottom up - Doing clinical research while doing clinical practice, and vice versa)

Action-Research has 2 main advantages:
- Allows clinicians to adopt and practice evidence based medicine.
- Provides a standardization of practices and raises a common language which facilitate teamwork and exchange.

HOWEVER, “ACTION-RESEARCH” SHOWS ITS LIMITS: PILOT STUDY, LOW NUMBER OF PARTICIPANTS, DESIGN...
HIGH TECH: CONSTANT EVOLUTION OF MEASUREMENT CAPABILITIES

- Eyes of clinicians: limitations and subjective!

- Gait laboratory: Precise, comprehensive but expensive and not ecological…

- User-friendly portable gait analysis systems:
  - Simple and objective gait measurements
  - Less technical equipment and low costs

TIMES ARE CHANGING_ CLINICIANS AND RESEARCHERS NEED TO CHANGE AS WELL

Growing number of data

... How to deal with it?
A NEW OPERATING MODE FOR RESEARCH

Interaction with other individuals to exchange information and develop contacts

Researchers are prepared to share their data and work together. Communicating with Information Communication Technology is easy… The distance is no more an obstacle. Accessibility to information has increased knowledge and contacts between members of research community.

BUT relationships were too often limited to a project and based on grant.

We needed a complementary medium… An independent, perennial administrative and legal support between researchers, clinician and their organizations

CONSORTIUM HAS EMERGED AS A SOLUTION.
A FORMAL ORGANIZATION OF NETWORKING

A group of individuals and/or organizations with the same goal and working together to achieve a consensual objective.

Successful scientific and medical research in the field of gait depending on sharing and/or pooling resources and databases.

Emergence of consortia with a common interest to provide mutual assistance and useful information: “win-win cooperation”.

> HELP CLINICIANS AND RESEARCHERS IMPROVING THEIR KNOWLEDGE IN THE FIELD OF AGE-RELATED GAIT DISORDERS BY SHARING INSIGHTS AND DATA SETS...
> PARTICIPATE TO AN EFFICIENT KNOWLEDGE TRANSLATION AND DISSEMINATION PLAN

DOES IT WORK?
A BETTER UNDERSTANDING OF GAIT DISORDERS

ISSUES & RELATED CLINICAL RESEARCH QUESTIONS

GAIT: Medical term describing bipedal human locomotion

Clinical research questions

Age-related decline in performance

Are there thresholds associated with abnormal aging? Specific to a disease (e.g., Alzheimer disease)?

Relationship between gait control and cognition

May gait performance predict dementia?

Abnormal performance = instability = falls and related injuries

Which gait characteristic is associated with falls?

Worst gait performance = loss of independence, poor quality of life

Which is the best rehabilitation program?
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**A BETTER UNDERSTANDING OF GAIT DISORDERS**

**ISSUES & RELATED CLINICAL RESEARCH QUESTIONS**

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→ Need: objective and standardized gait assessment
A BETTER UNDERSTANDING OF GAIT DISORDERS

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| Visual observation      | − Subjective (background and experience of the clinician)  
− Poor inter-rater reliability  
− Limited amount of information |
| Standardized clinical test (e.g., Timed up and Go test) | − No assessment of highest levels impairment of gait control |
| Spatio-temporal gait analysis based on footfalls recording | − No guidelines  
− What are the referent values? |
## A Better Understanding of Gait Disorders

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THANKS FOR YOUR ATTENTION

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