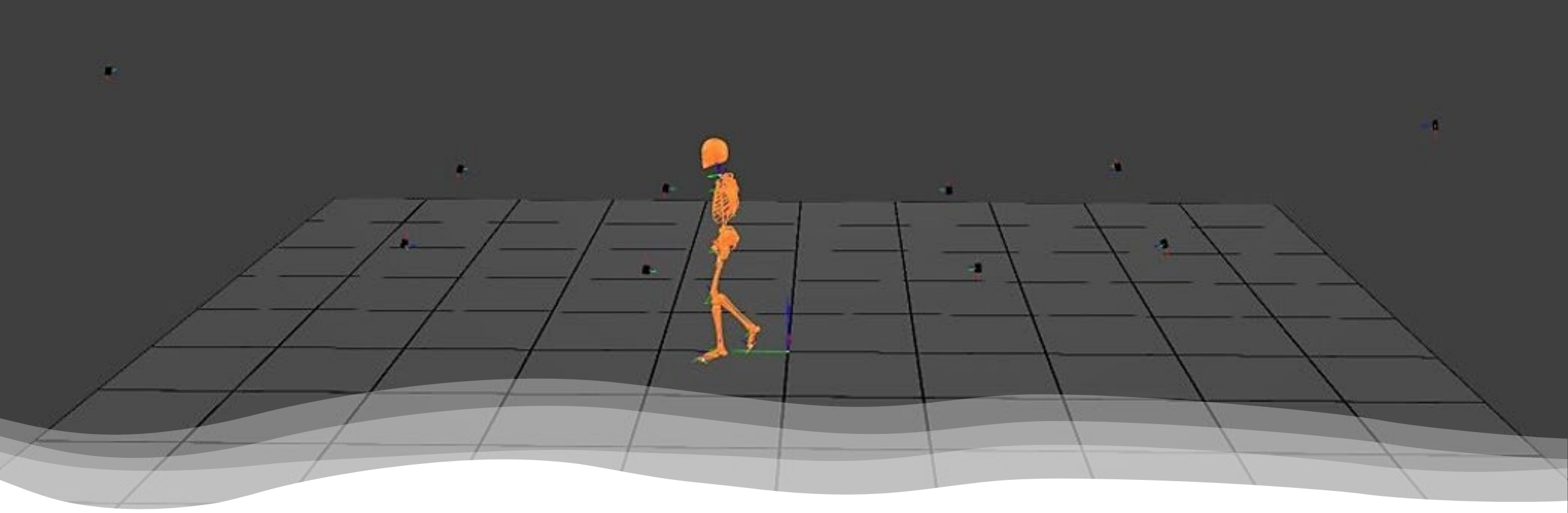


GaitNET OA Canada

Canadian MSK Rehab Research Network **Update**

Janie Wilson PhD

Professor, School of Biomedical Engineering and Department of Surgery, Dalhousie University, Halifax

Affiliate Scientist, Nova Scotia Health

DALHOUSIE UNIVERSITY

nova scotia health

June 12, 2024

coa CORS | CORA ANNUAL MEETING

GaitNET OA Canada

Attendees at the inaugural GaitNET OA Canada meeting in Halifax, NS, 2017

GaitNET OA Pilot Cohort Catalyst Studies

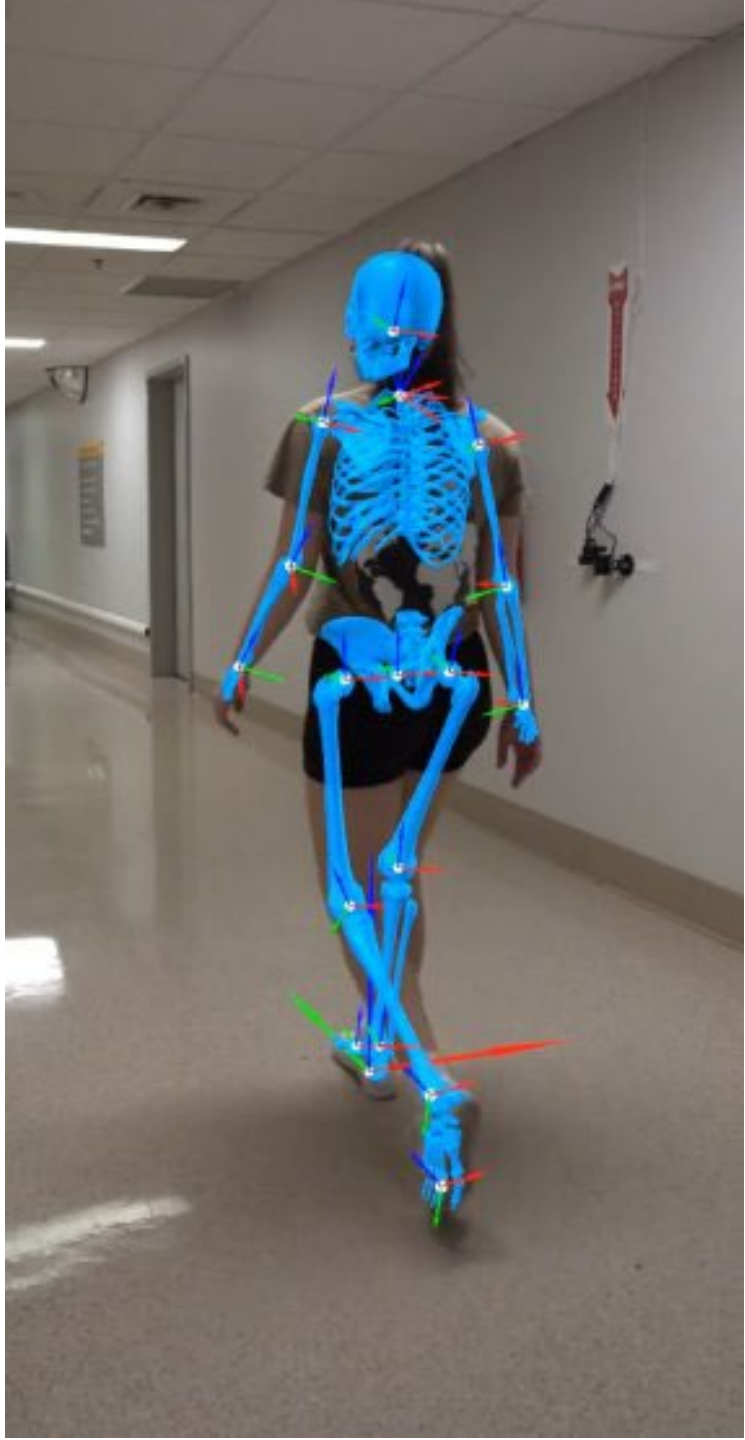
Exploring multi-center data sharing and protocol standardization for knee OA through **markerless motion capture** technology.

1. Informing patient-specific robotic-assisted knee arthroplasty

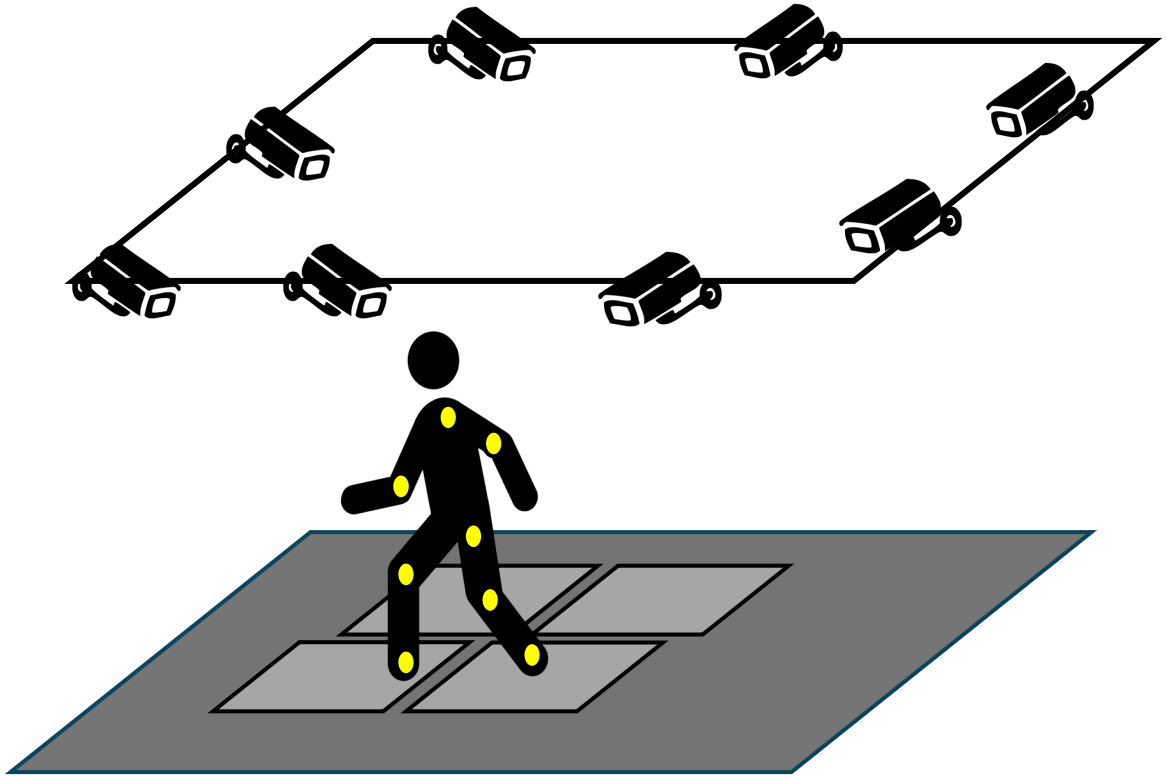
- Primary site: Dalhousie, PI: J Wilson
- other sites: Halifax, other de-centralized Nova Scotia sites, Hamilton

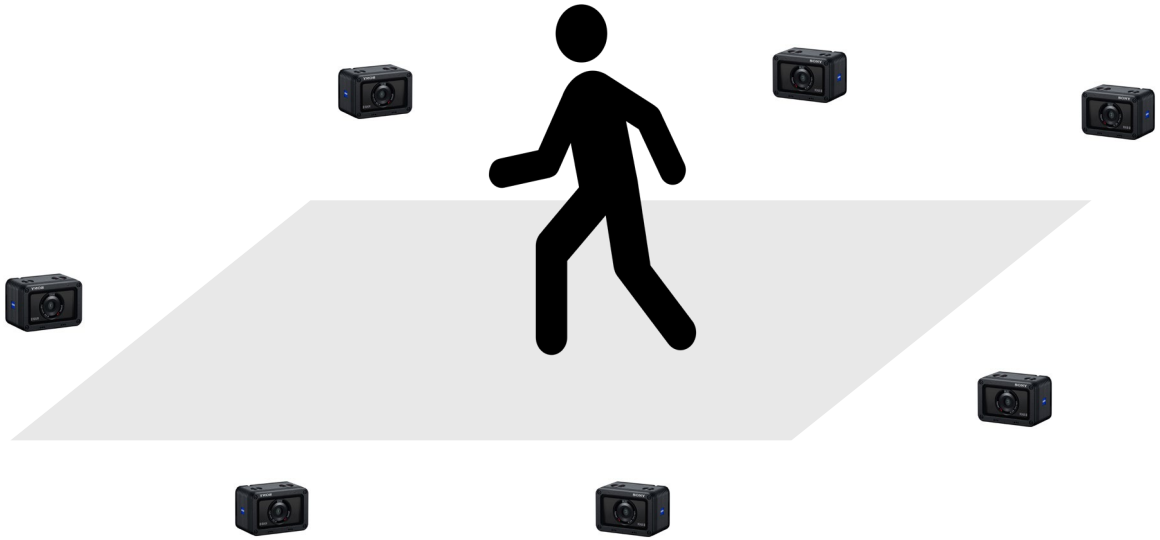
2. Severe knee OA patient cohort study

- Primary site: Queen's University, PI: K Deluzio
- other sites: Dalhousie, McMaster

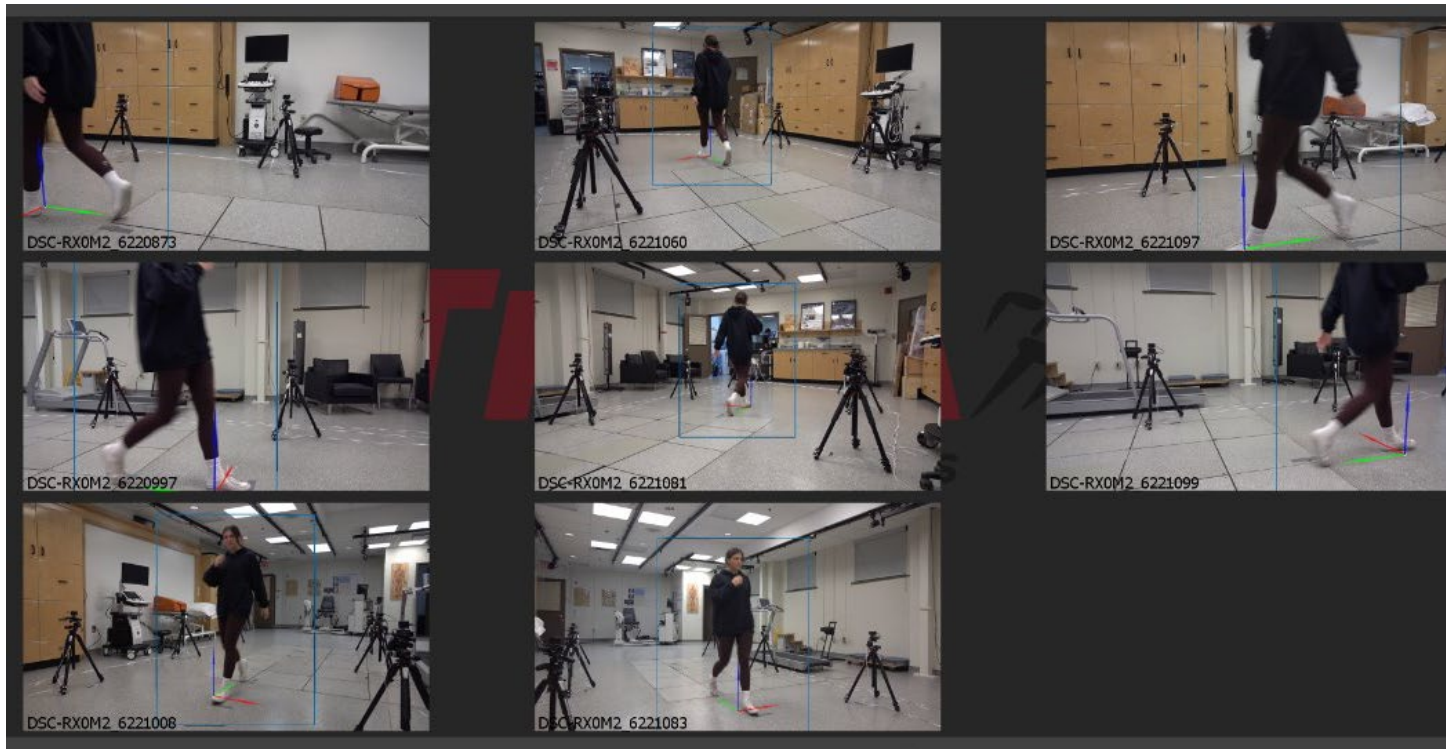


Markerless Motion Capture

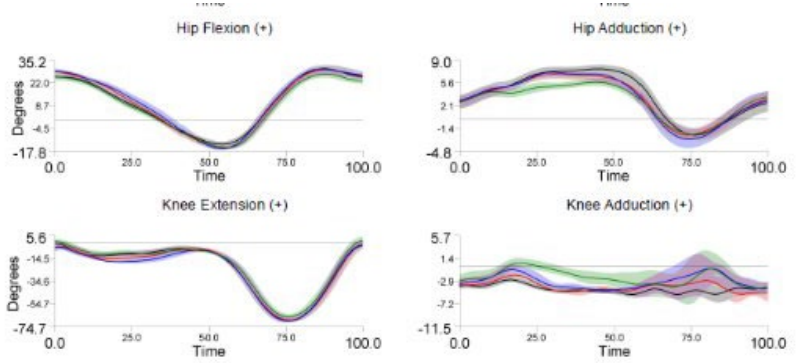




Markerless Motion Capture

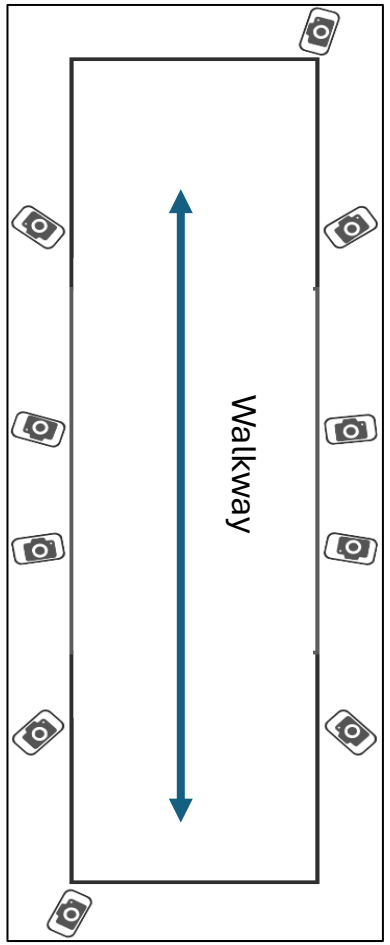


- Trained feature recognition software; Theia Markerless
- Repeatability demonstrated and comparison to lab-based optoelectronics

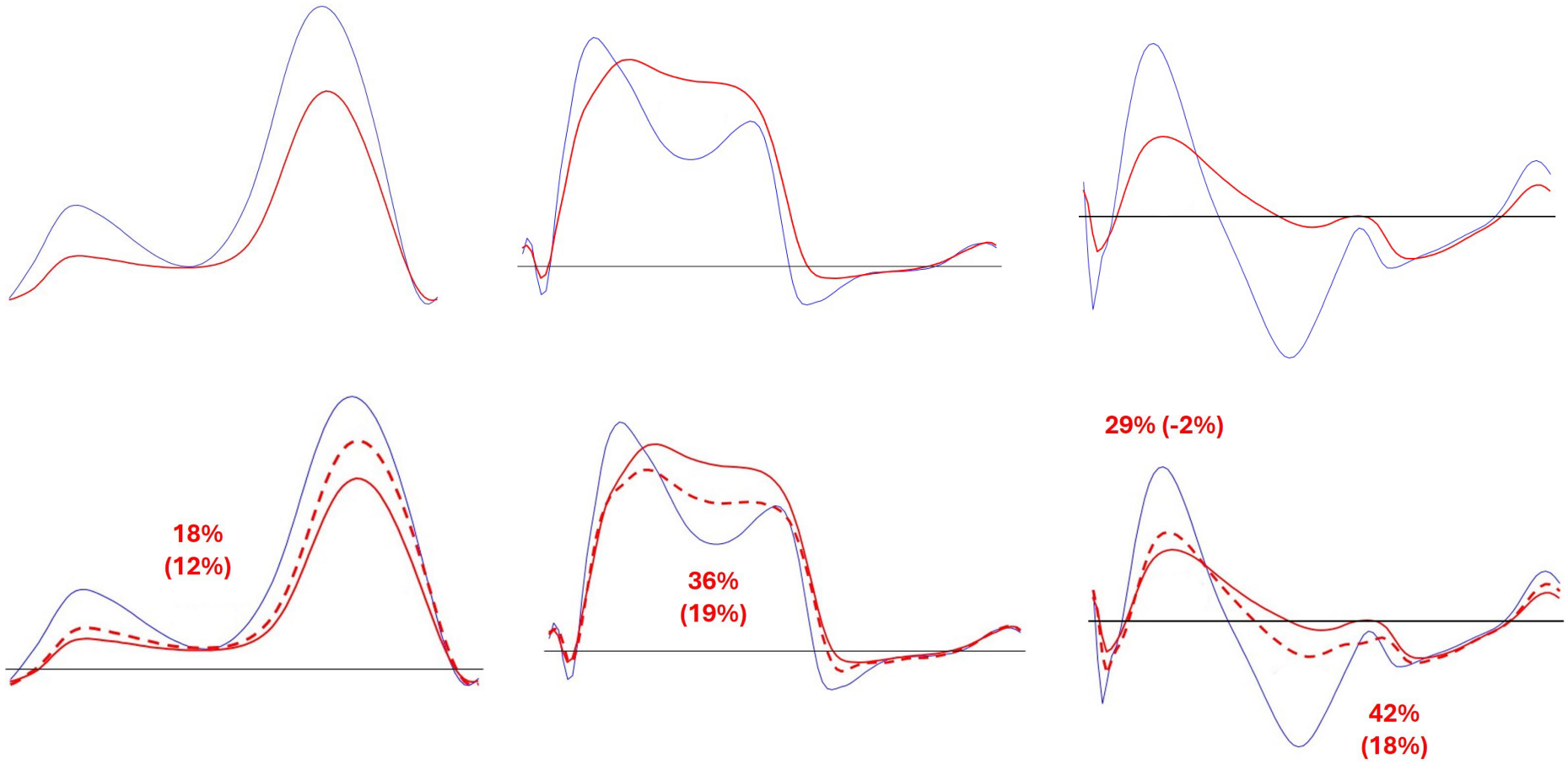


Relevant References: L. Wade et al., 2022, R. M. Kanko et al., May 2021, R. M. Kanko et al., Oct. 2021, N. Ito et al., 2022, V. T. Keller et al., 2022, B. K. Lahkar et al., 2022

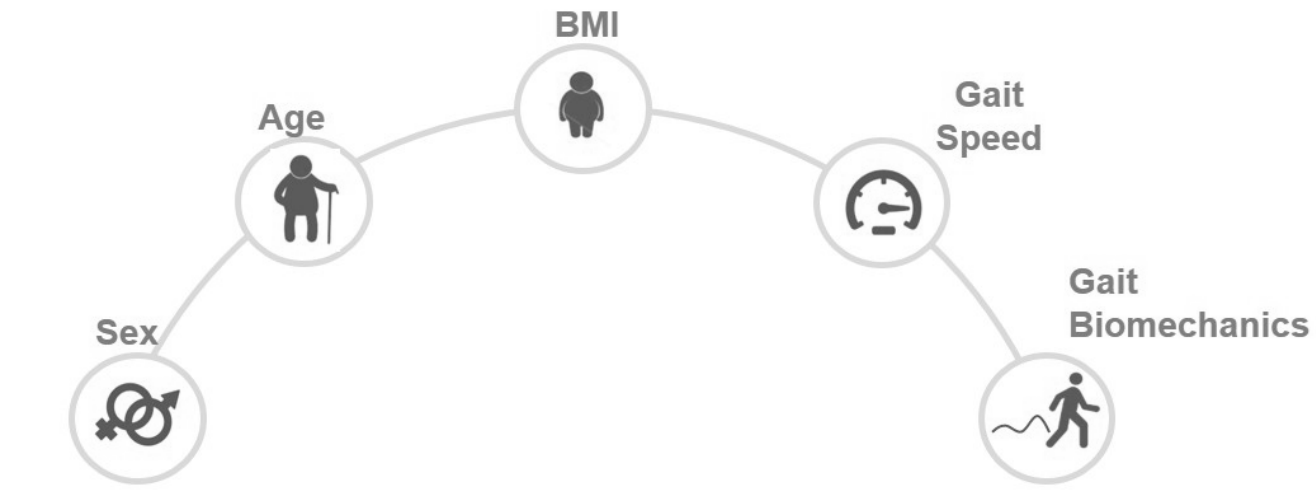
Efficient, Standardized Gait Analysis In-Clinic

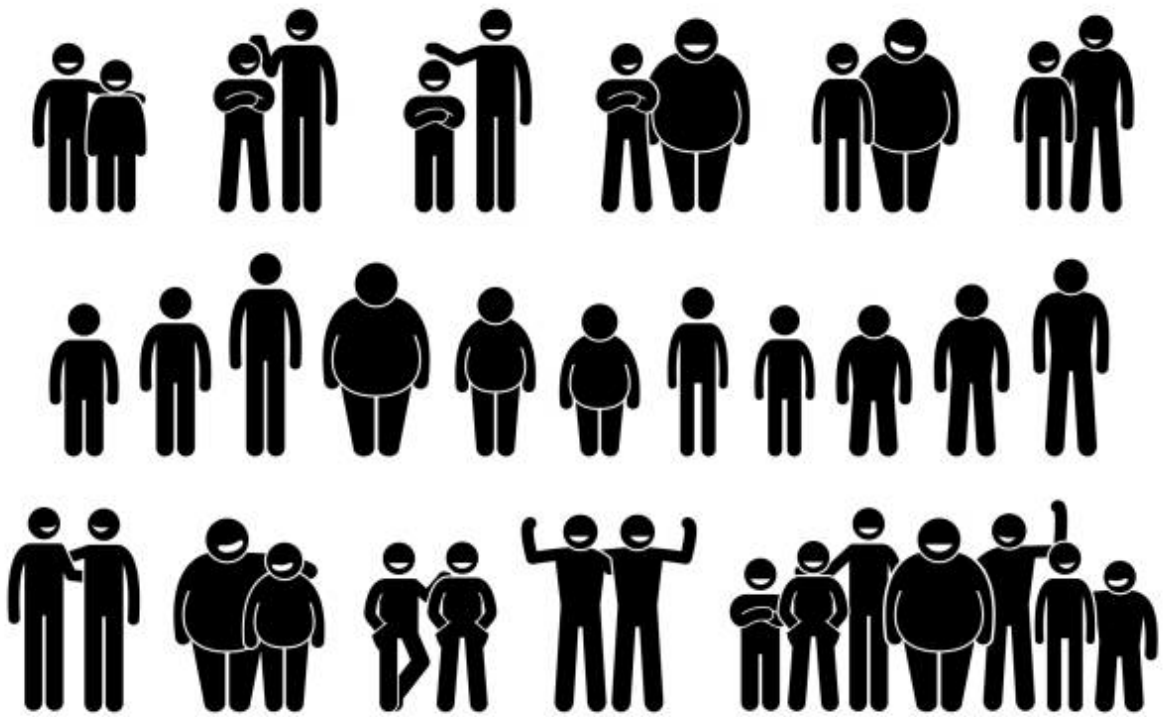

Walkway

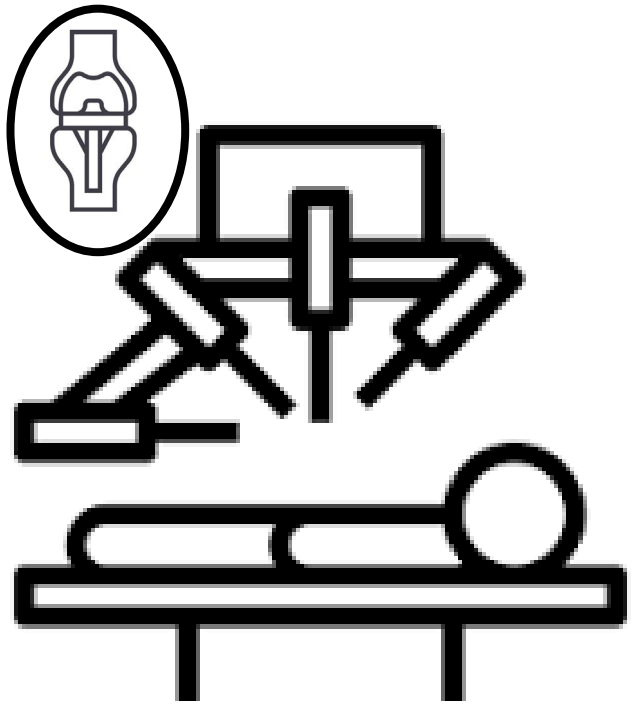
End Stage Knee OA & Robotic Arthroplasty
Multi-site Cohort Studies



Reference: Astephen Wilson 2019 J Ortho Res

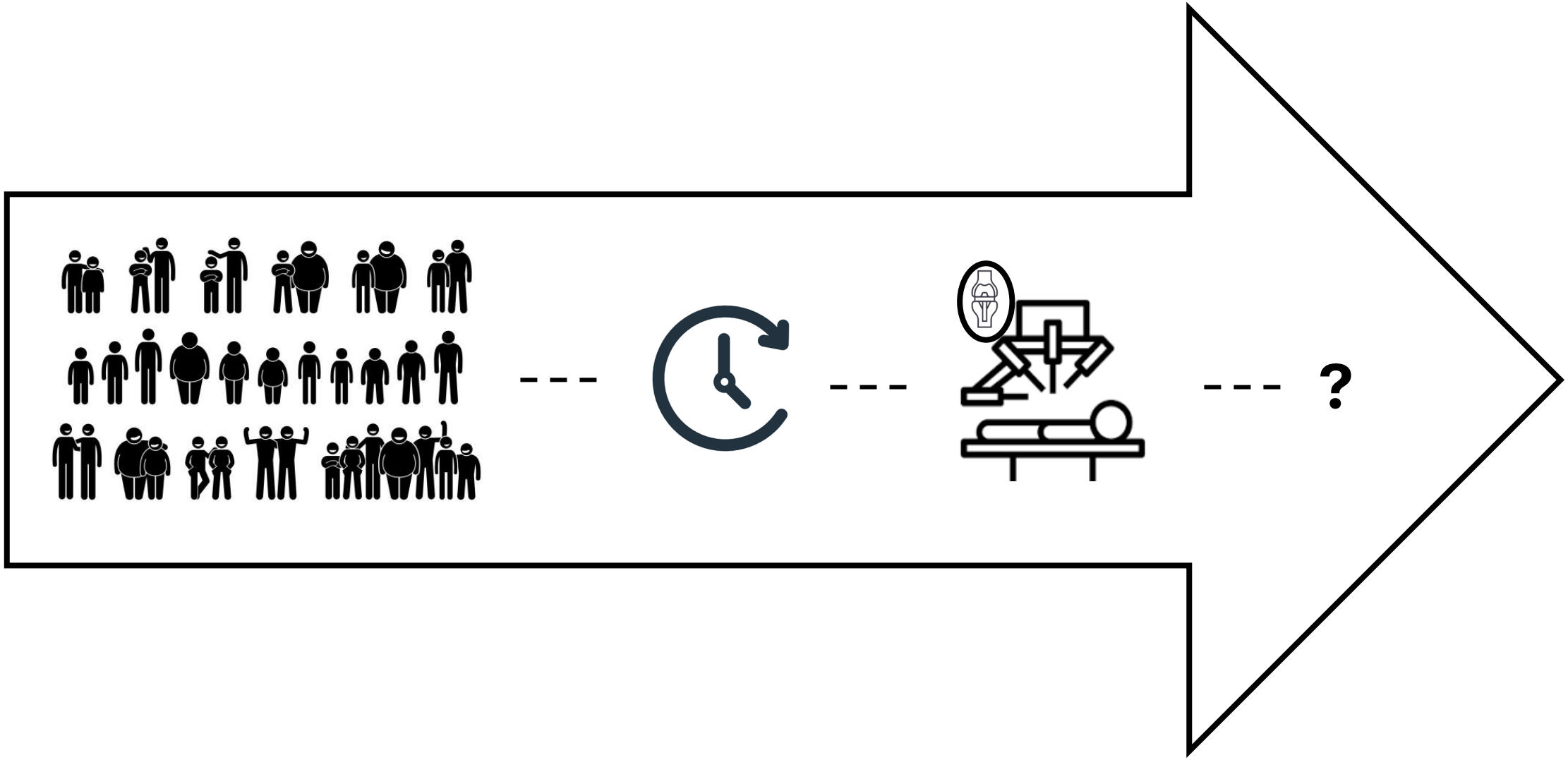


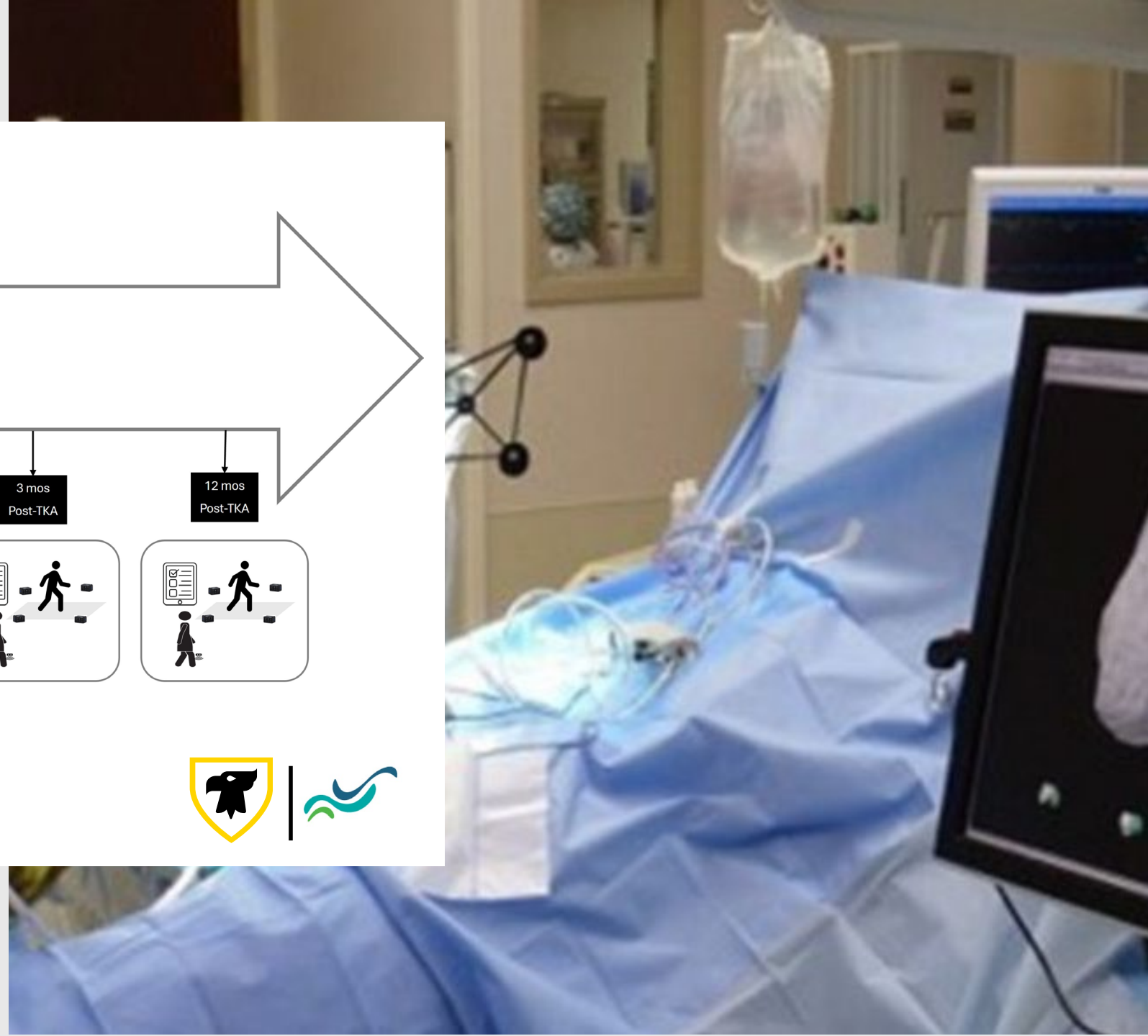


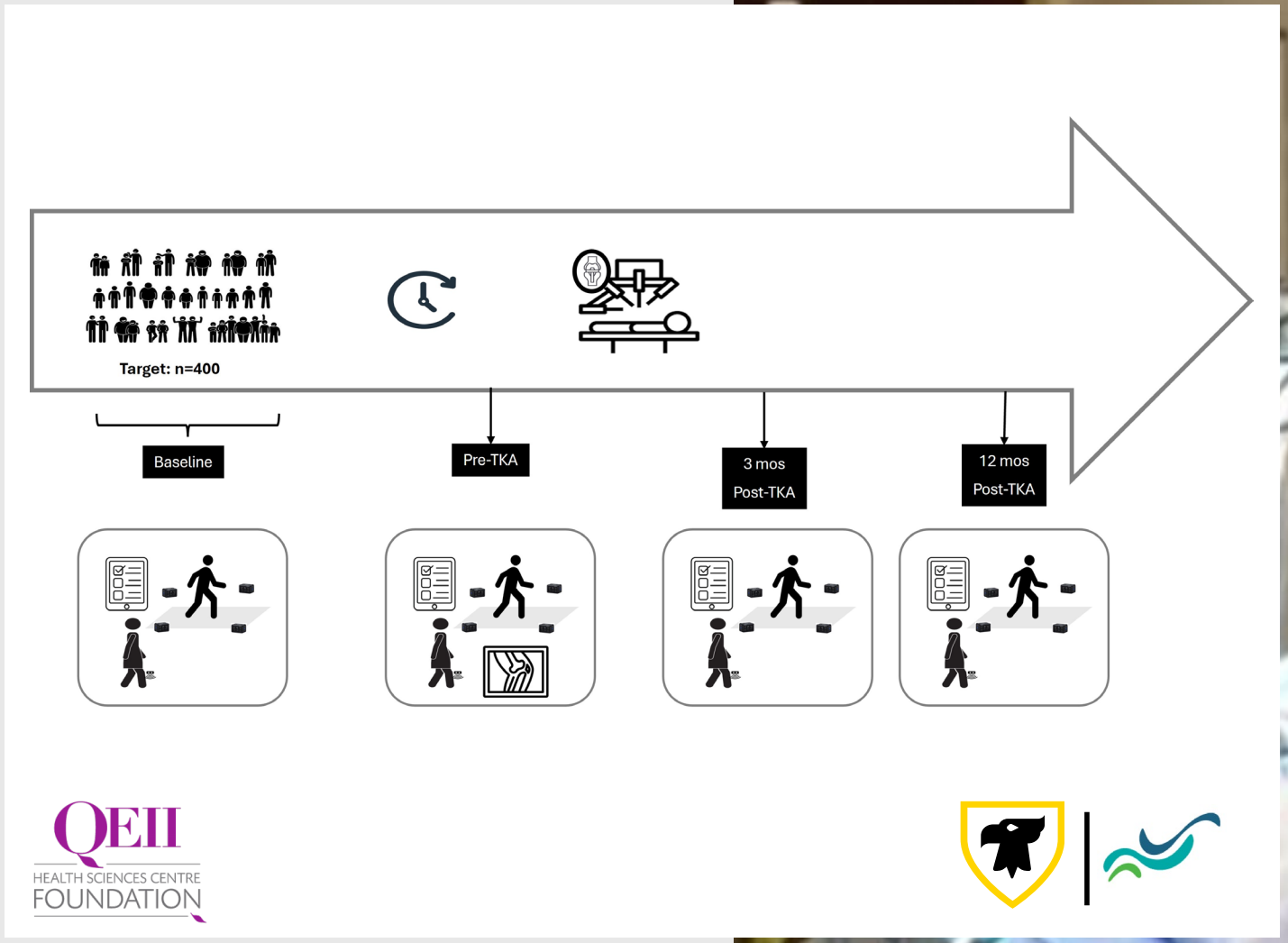


Customized Surgery through Robotic-assisted Arthroplasty

Refs: Astephen Wilson et al 2015; Paterson et al 2018; Young-Shand et al;. 2022







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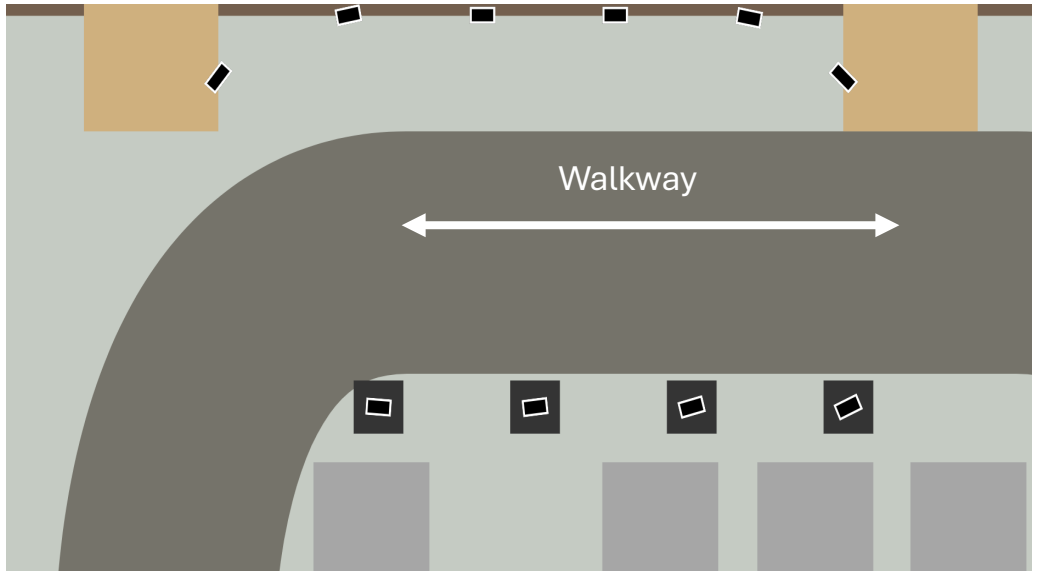
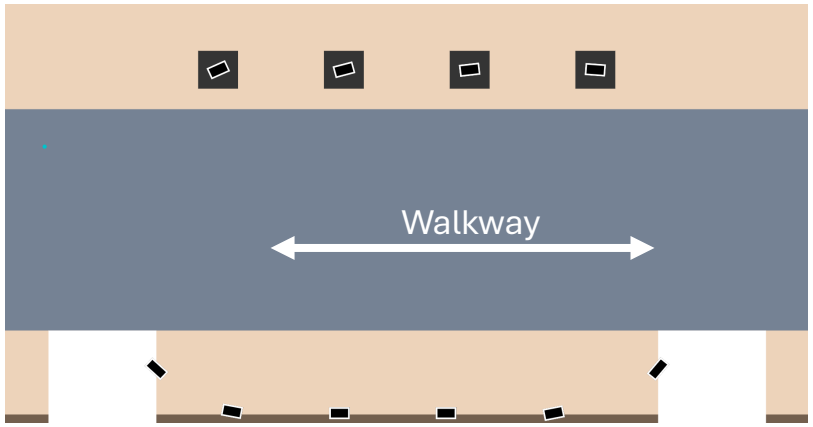
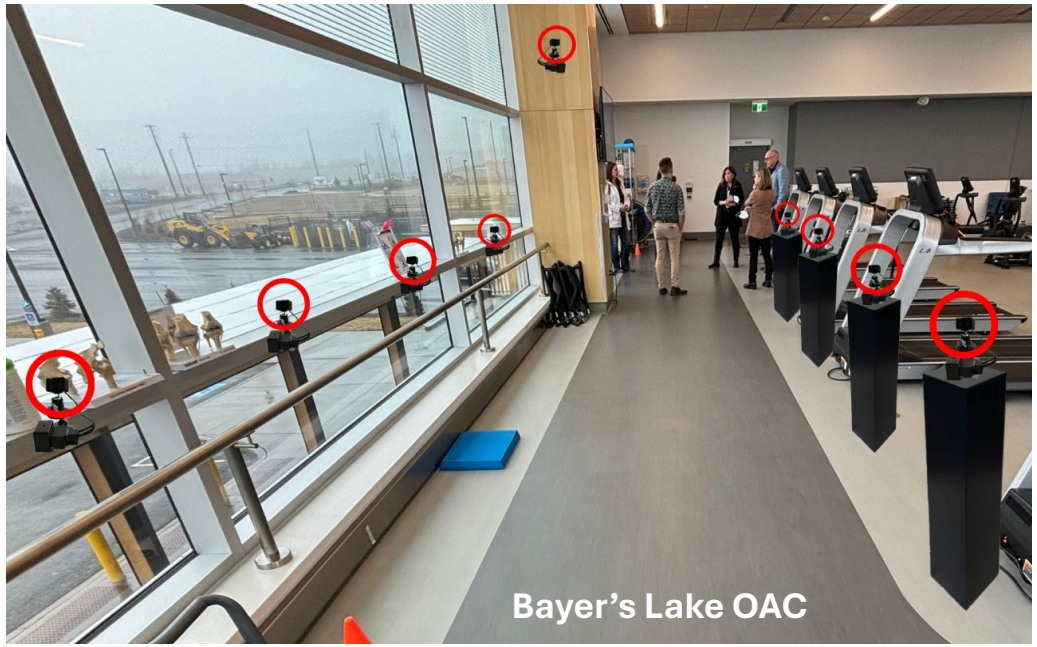
FOUNDATION


Walkway


Walkway


Bayer’s Lake OAC


Dartmouth OAC

St. Joseph's Healthcare Hamilton

McMaster University

Multi-site End-Stage Knee OA Markerless Gait Cohort Study

Calgary

Alberta Health Services

University of Calgary

Winnipeg

Orthopaedic Innovation Centre

Concordia Joint Replacement Group

London

London Health Sciences Centre

Western

Hamilton

St. Joseph's Healthcare Hamilton

McMaster University

Kingston

Kingston Health Sciences Centre

Centre des sciences de la santé de Kingston

Hôpital Hotel Dieu Hospital

KGH Hôpital Général de Kingston General Hospital

Queen's University

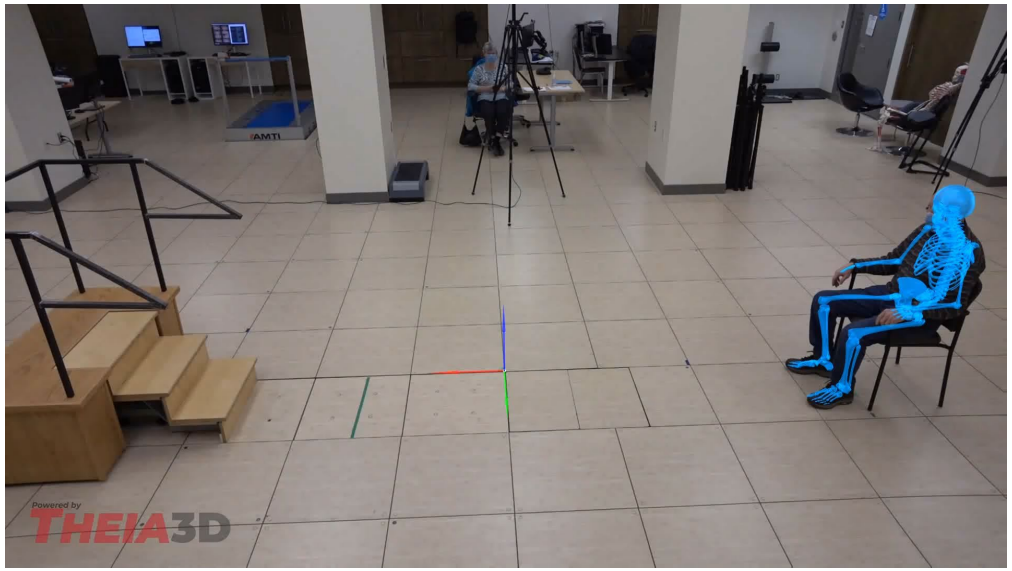
Halifax

Dalhousie University

nova scotia health authority

Queen's University


Hotel Dieu Hospital, HMRL
(Kingston, Ontario)
HOTEL DIEU
HOSPITAL
ENTRANCE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Thank You

Wilson Lab Talks and Posters at the COA/CORS 2024:

Thursday June 13:
#14 CORS Papers and Posters – Biomechanics and Implanted Devices:

- 'A Pre-operative comparison of sensor-based free-living and in-clinic video-based gait measures in patients awaiting knee arthroplasty surgery' (A Dorrance)
- 'Predicting gait kinetic outcomes using kinematics in patients before and after total knee arthroplasty' (B MacDonald)
- Poster – 'Investigating longitudinal changes in gait kinematics over the waitlist period in patients awaiting total knee arthroplasty surgery' (S Civiero)

Friday June 13:
#62 CORS Papers and Posters – Cells to Clinic:

- 'Female patients with end-stage knee osteoarthritis engage in less daily activity in the pre-arthroplasty wait period' (N Ammoury)

Mitacs Accelerate

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The Wilson Ortho Lab