

Exercise and heart health in youth with bipolar disorder

February 27, 2024

12 – 1 PM (Eastern Time)

camh



Land acknowledgement

CAMH is situated on lands that have been occupied by First Nations for millennia; lands rich in civilizations with knowledge of medicine, architecture, technology and extensive trade routes throughout the Americas. In 1860, the site of CAMH appeared in the Colonial Records Office of the British Crown as the council grounds of the Mississaugas of the New Credit, as they were known at the time. Today, Toronto is covered by the Toronto Purchase, Treaty No. 13 of 1805 with the Mississaugas of the Credit. Toronto is now home to a vast diversity of First Nations, Inuit and Métis who enrich this city.

CAMH is committed to reconciliation. We will honour the land through programs and places that reflect and respect its heritage. We will embrace the healing traditions of the Ancestors, and weave them into our caring practices. We will create new relationships and partnerships with First Nations, Inuit and Métis – share the land and protect it for future generations.



Reference: <https://www.camh.ca/en/driving-change/building-the-mental-health-facility-of-the-future>

AGENDA

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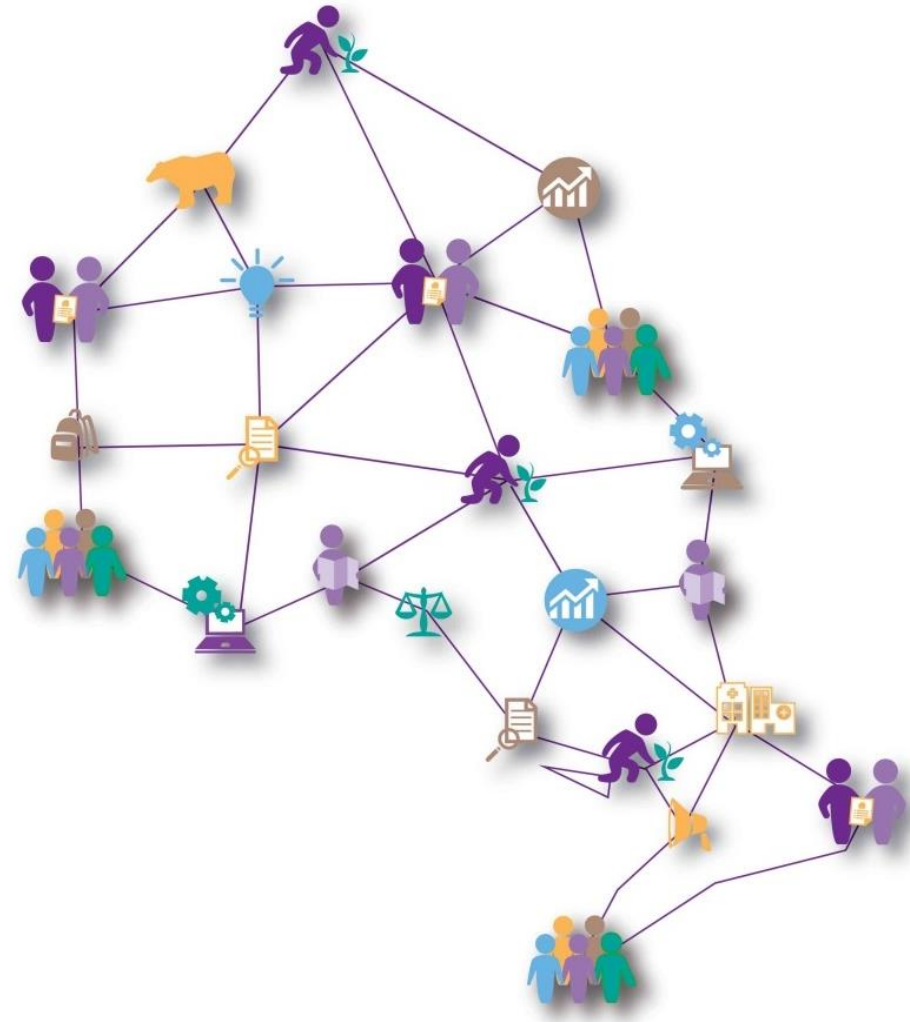
About the webinar hosts

CAMH's Provincial System Support Program (PSSP)

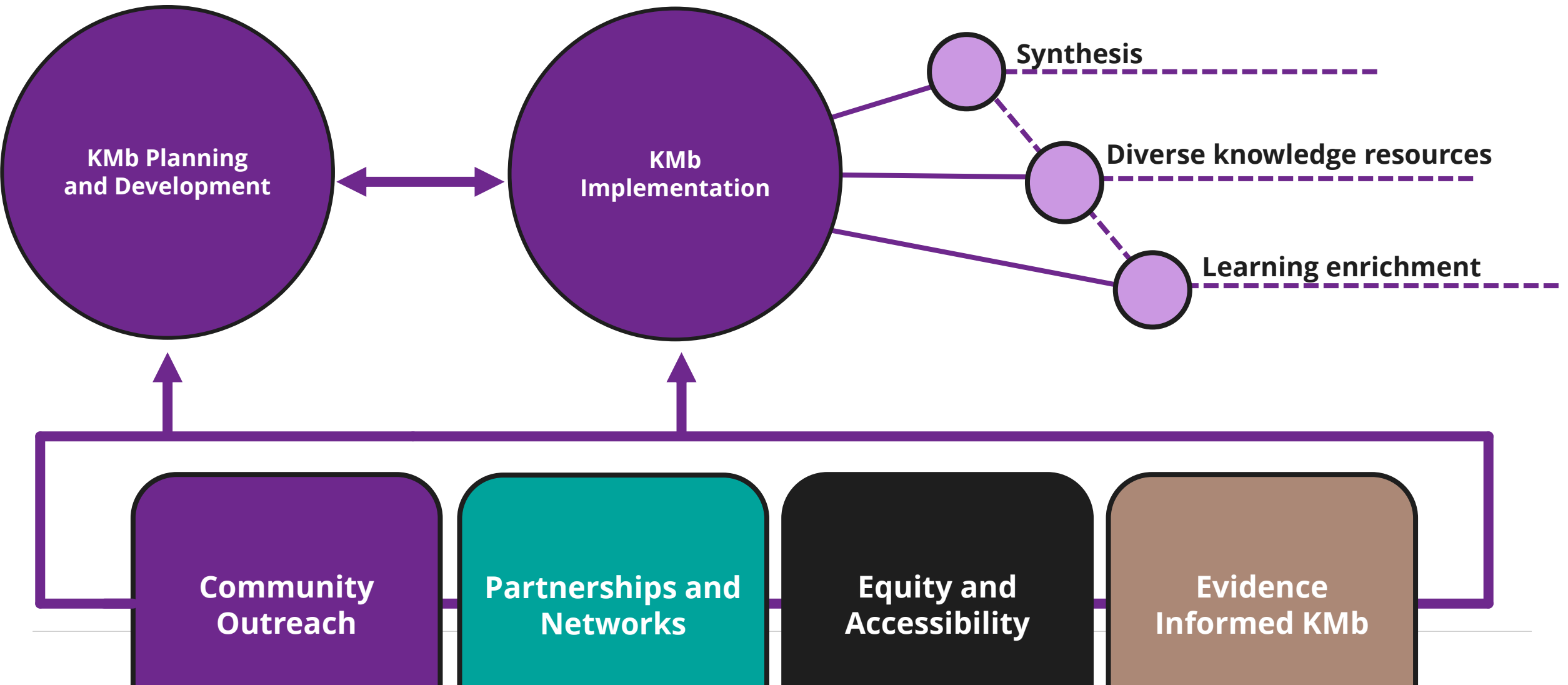
Our Knowledge Mobilization (KMb) team sits within PSSP at CAMH.

PSSP is on the ground collaborating with partners to build a more evidence-informed system, through our work and expertise in:

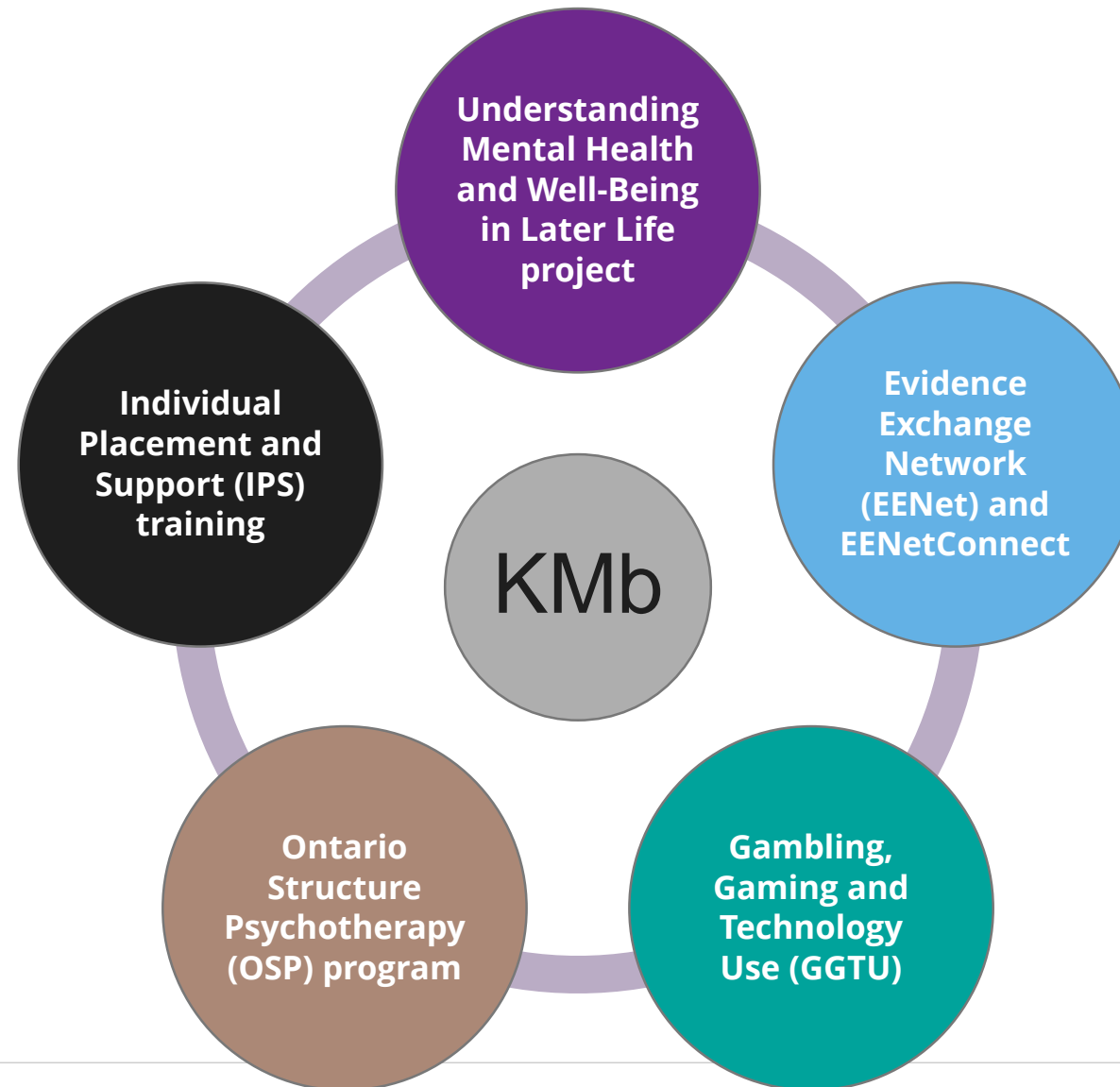
- knowledge mobilization
- health equity
- lived-experience engagement
- implementation
- data management
- evaluation



KMb integrated functions



Some examples of KMb-PSSP's initiatives



The Centre for Youth Bipolar Disorder

The Centre for Youth Bipolar Disorder is a fully integrated clinical-research program that seeks to generate discoveries that are uniquely relevant to youth with bipolar disorder. Our focus is on the full spectrum from biology (e.g., genetics, imaging) to clinical trials of pharmacological and psychotherapeutic interventions. CYBD is also committed to advocacy, stigma reduction and education in the field of youth bipolar disorder. You can find us at www.camh.ca/CYBD and @CYBDatCAMH.

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About the presenters

Dr. Megan Mio

Megan is currently a Postdoctoral Fellow at the Centre for Youth Bipolar Disorder under the supervision of Dr. Benjamin Goldstein. Prior to this, she completed her PhD in the Department of Pharmacology and Toxicology at the University of Toronto. Megan's PhD work focused on retinal vascular imaging in relation to brain imaging in youth with bipolar disorder. She is now expanding to other diagnoses, and focusing on heart-brain connections in women specifically.



Diana Khoubaeva

Diana Khoubaeva is a previous research analyst at the Centre for Youth Bipolar Disorder (CYBD) and is currently completing the final months of her Masters of Social Work (MSW) at the University of Toronto. Diana's work at CYBD included supporting an exercise intervention study, and her own projects exploring suicidality, eating disorders, and psychosocial treatment in youth with bipolar disorder.



Randa Shickh

Randa is a registered kinesiologist and a member of the Ontario Kinesiology Association. Her primary interest is in the prevention of cardiovascular disease and using exercise as a therapeutic intervention for youth with bipolar disorder.



Aarya

Youth speaker with lived experience who will be discussing her relationship with exercise and offering a teen perspective.

Exercise and heart health in youth bipolar disorder

Megan Mio, PhD, Postdoctoral Fellow

Diana Khoubaeva, HBSoc, MSW (in progress)

Centre for Youth Bipolar Disorder

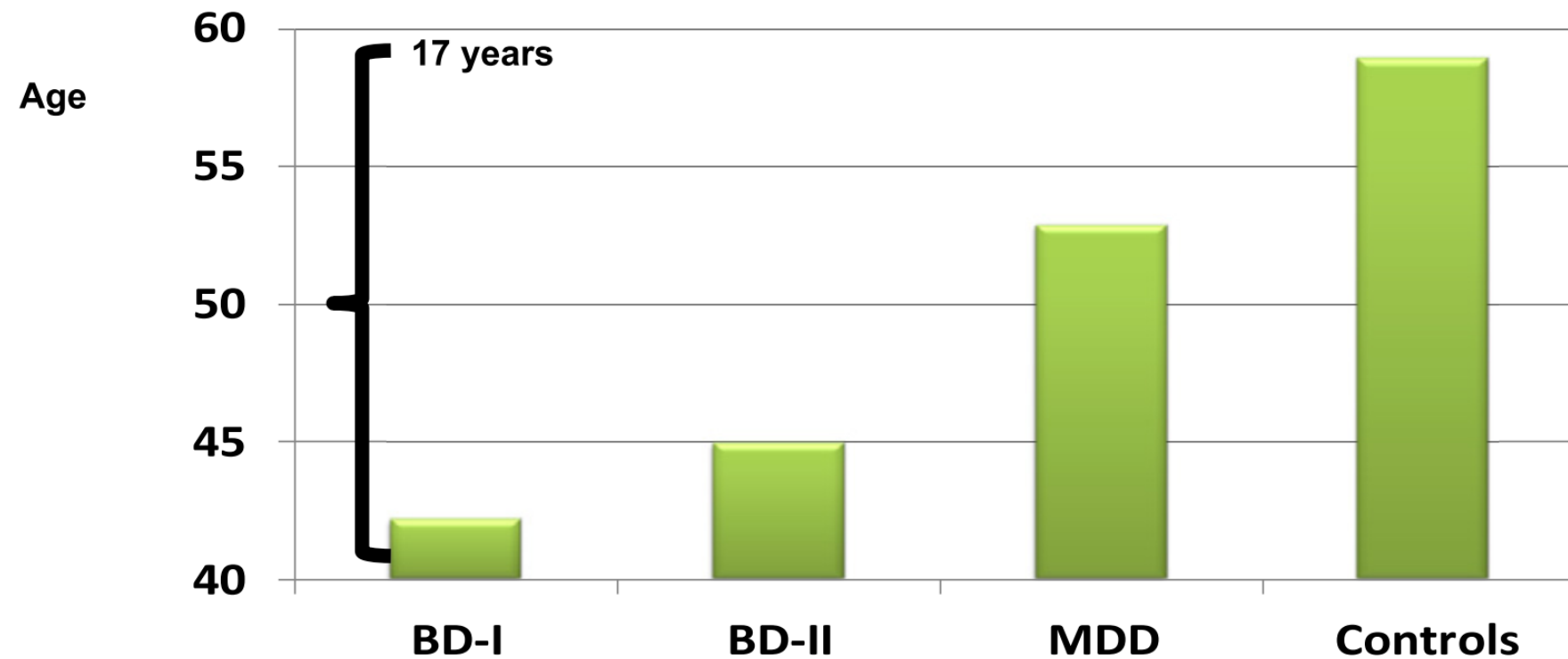
February 27th, 2024

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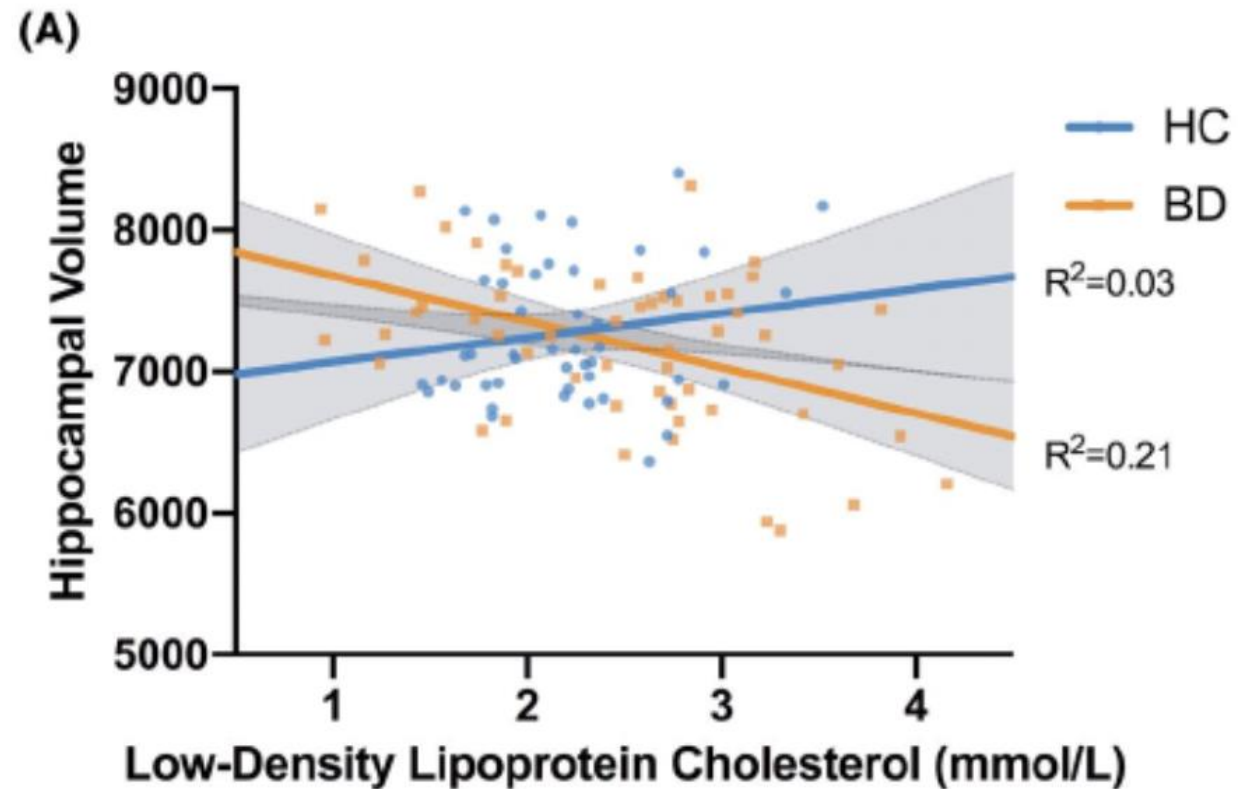
Bipolar Disorder

- Mood disorder affecting 3-5% of adolescents and adults
- Burden of mood symptoms is greater in youth vs. adults with bipolar disorder (BD)
- BD confers increased risk of cardiovascular disease and mortality, independent of traditional cardiovascular risk factors

Bipolar Disorder is Associated with Premature Onset of Heart Disease



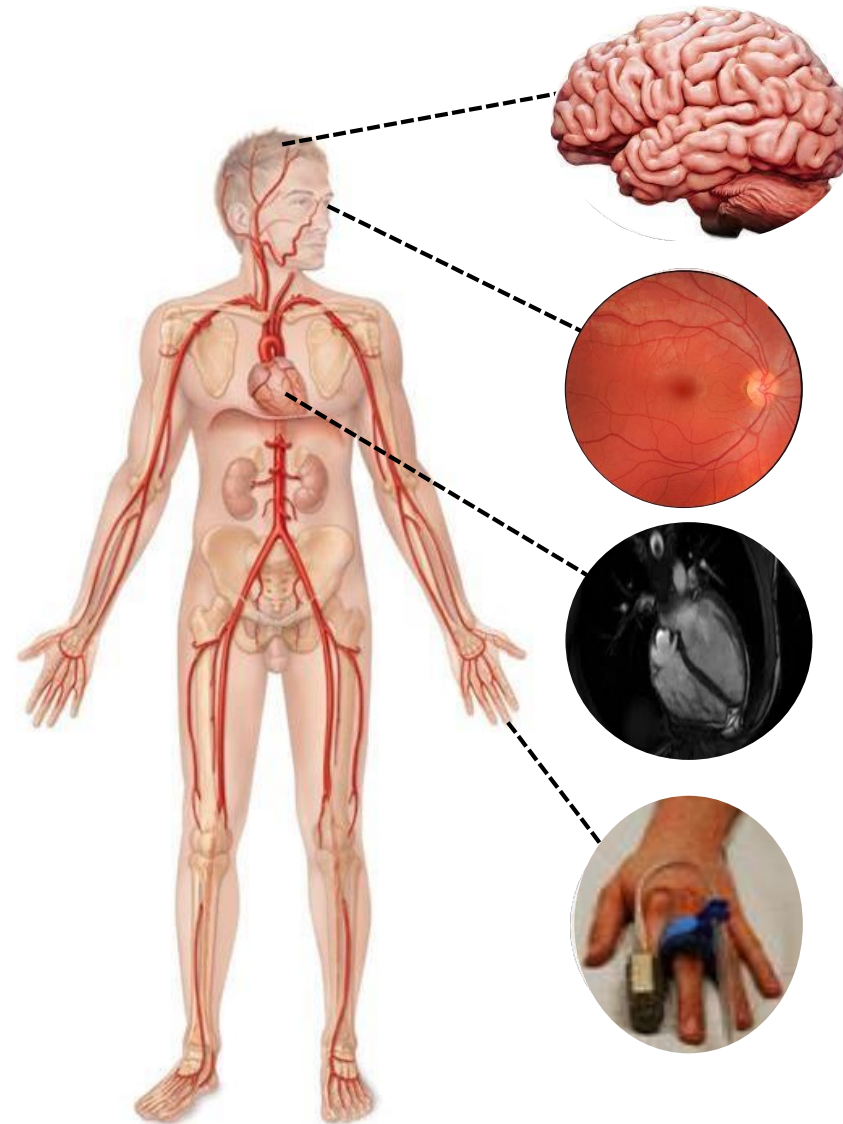
Heart-Brain Link in Bipolar Disorder



The heart-brain link may be ***stronger*** in youth with bipolar disorder relative to healthy control youth



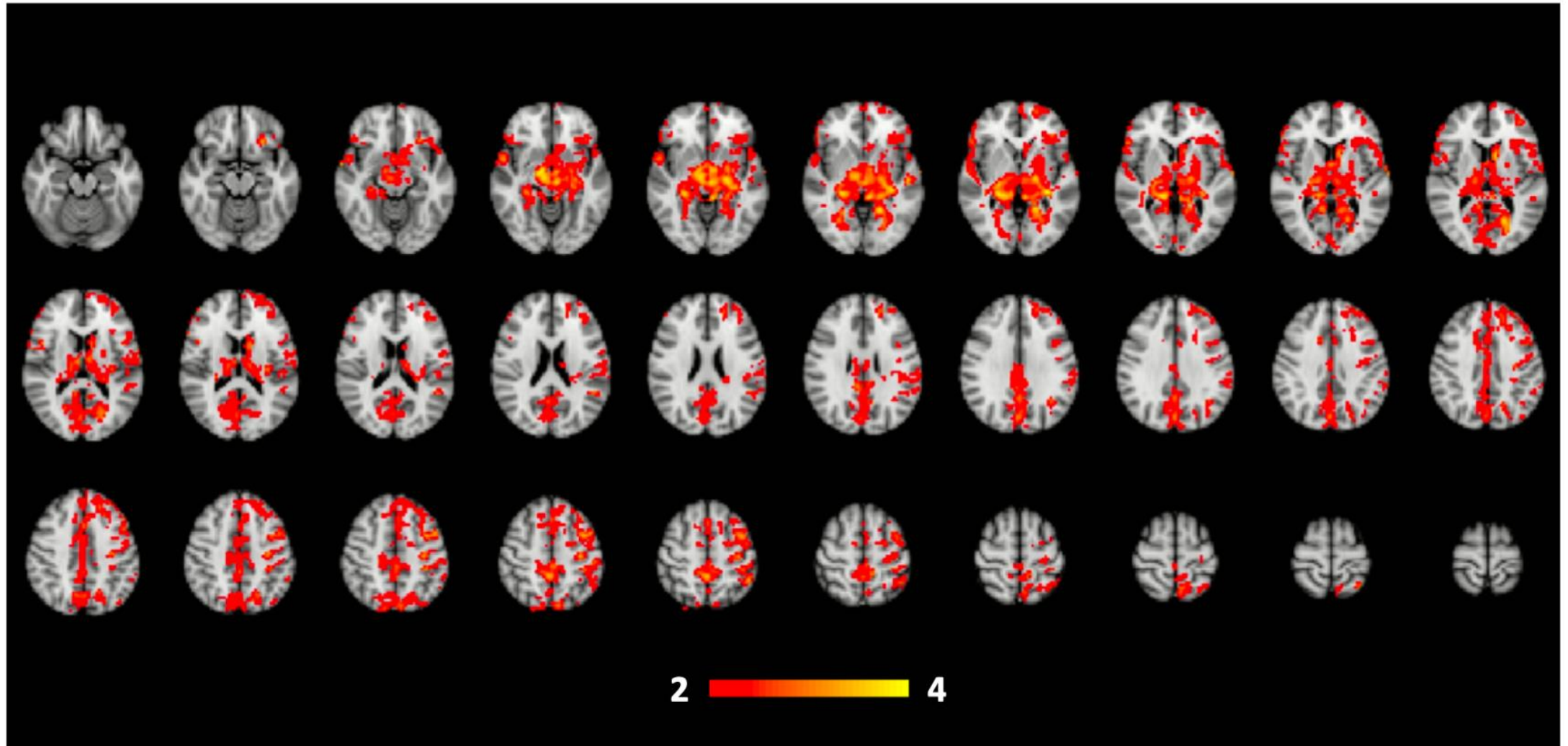
Combining Brain and Body Blood Vessels



Eye Vessel Imaging

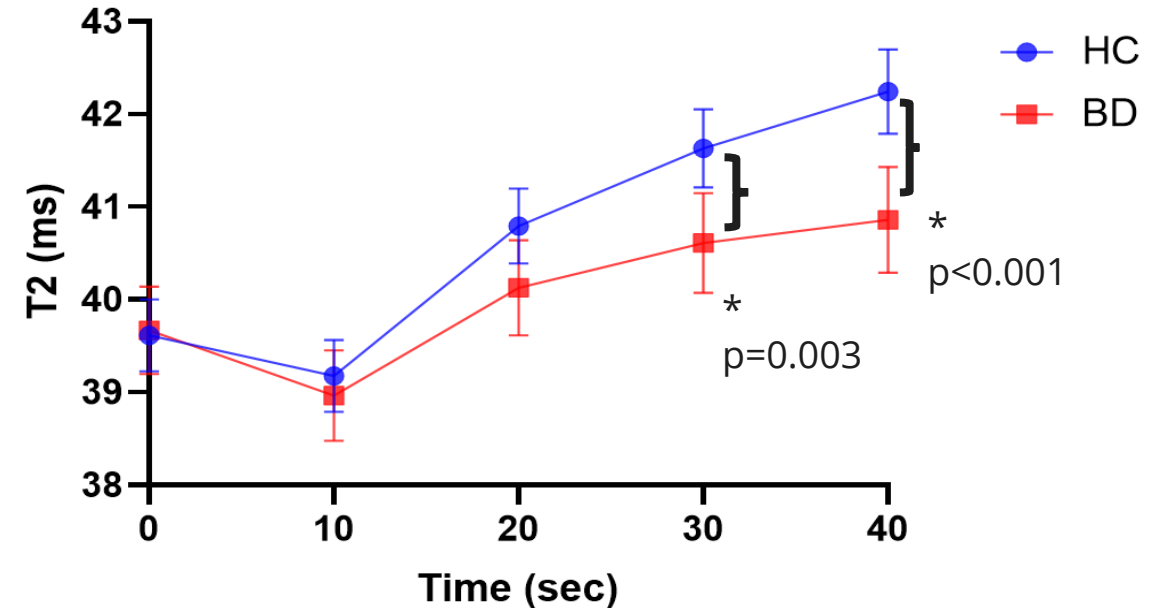
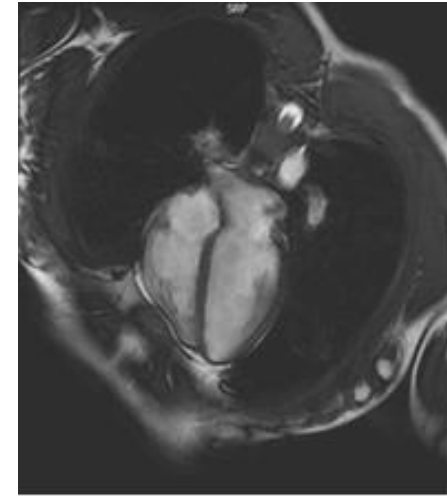


Retinal Vessel Health Related to Brain Blood Flow



Reduced Heart Vessel Response to Breath-hold

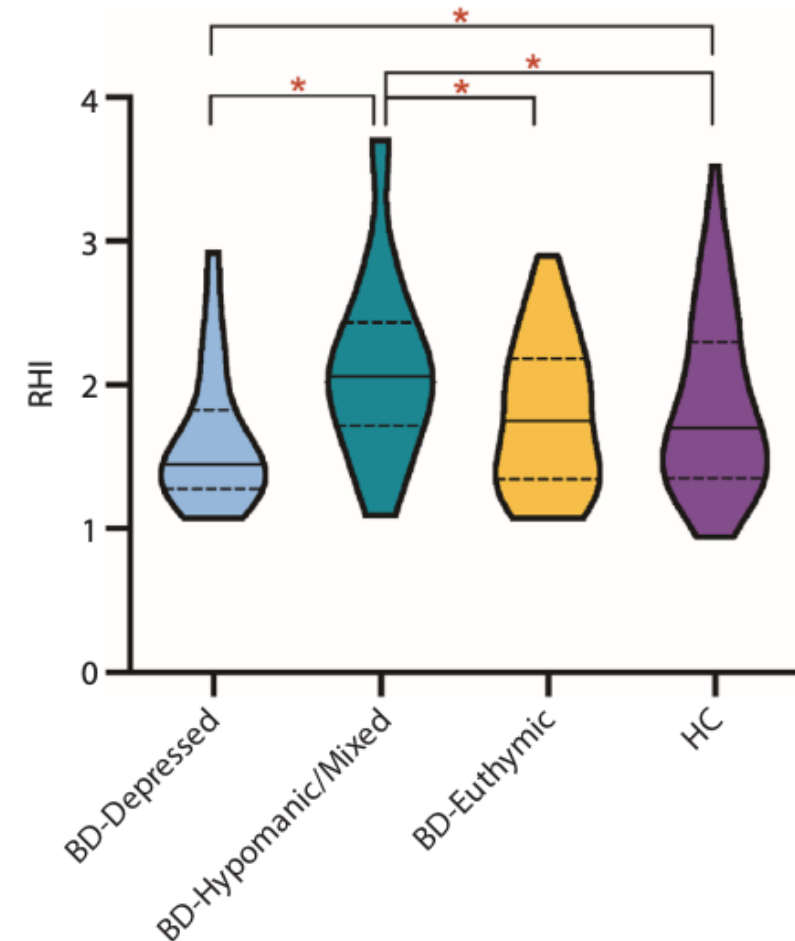
- Measured after a breath-hold task in a magnetic resonance imaging (MRI) scan
- Impaired heart vessel function in youth with bipolar disorder relative to controls



Fingertip Blood Vessel Function Dependent on Mood

- Similar test of blood vessel function, but in the fingertip
- Youth with bipolar disorder who are currently hypomanic have better blood vessel function

Figure 1. Differences in RHI Between BD Episode Groups and HC^a

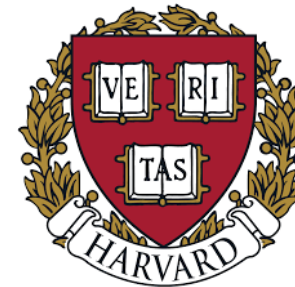
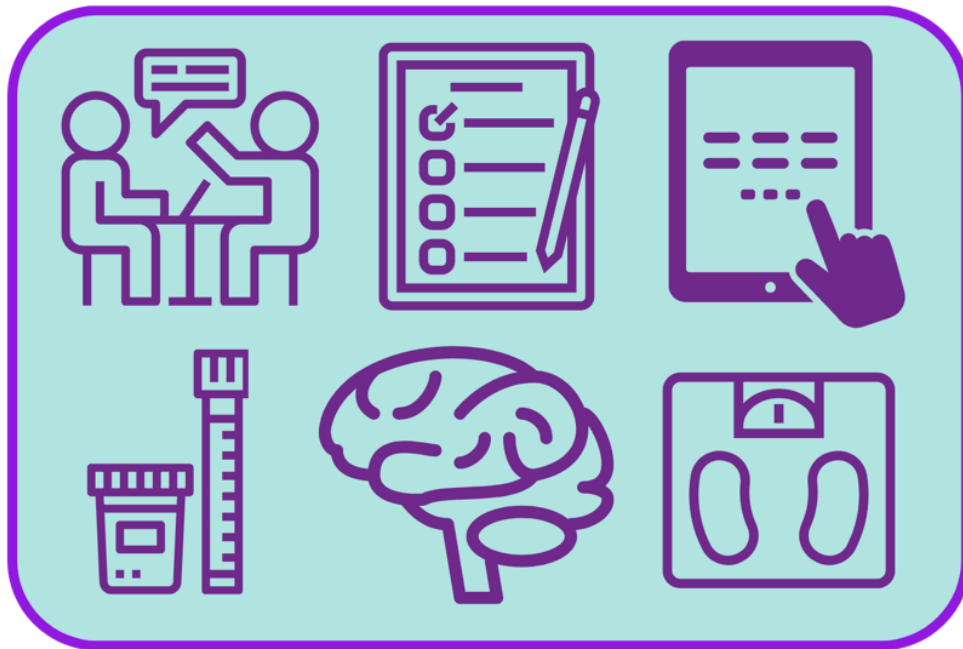


Clinical Implications

- Early evidence suggests heart health measures relevant to the brain in youth
- Findings may inform the integration of heart health into the research, monitoring, and treatment of psychiatric conditions in young people
- Pave the way for more comprehensive and effective intervention strategies

Looking Toward the Future

- Toronto Adolescent and Youth (TAY) Cohort Study
- International collaborations (i.e., Taiwan, Harvard, BD²)



Exercise and mental health



Exercise: structured physical activity for the purpose of improving physical fitness (aerobic, strength, stretching, etc.)

Benefits:



Development and severity of depression, anxiety, and other psychiatric symptoms/disorders

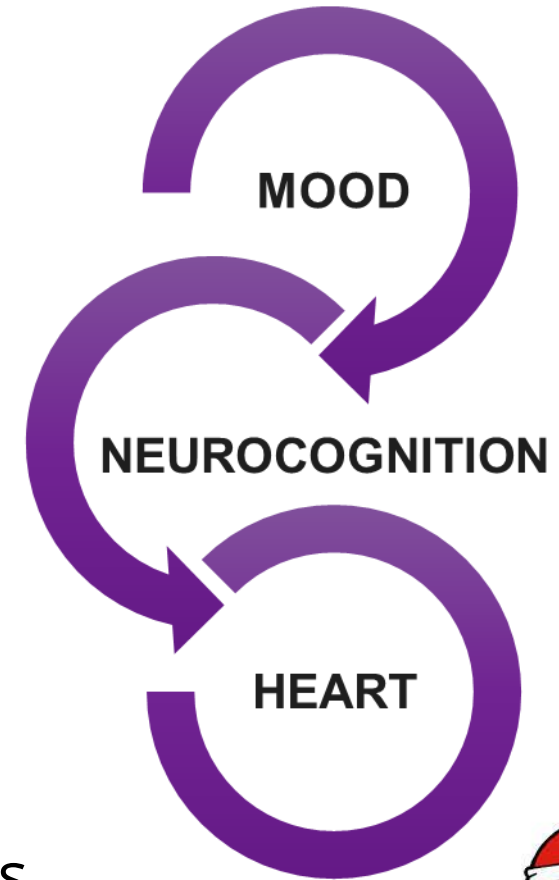


Brain and heart health, healthy ageing
Social and academic functioning, self-esteem and quality of life



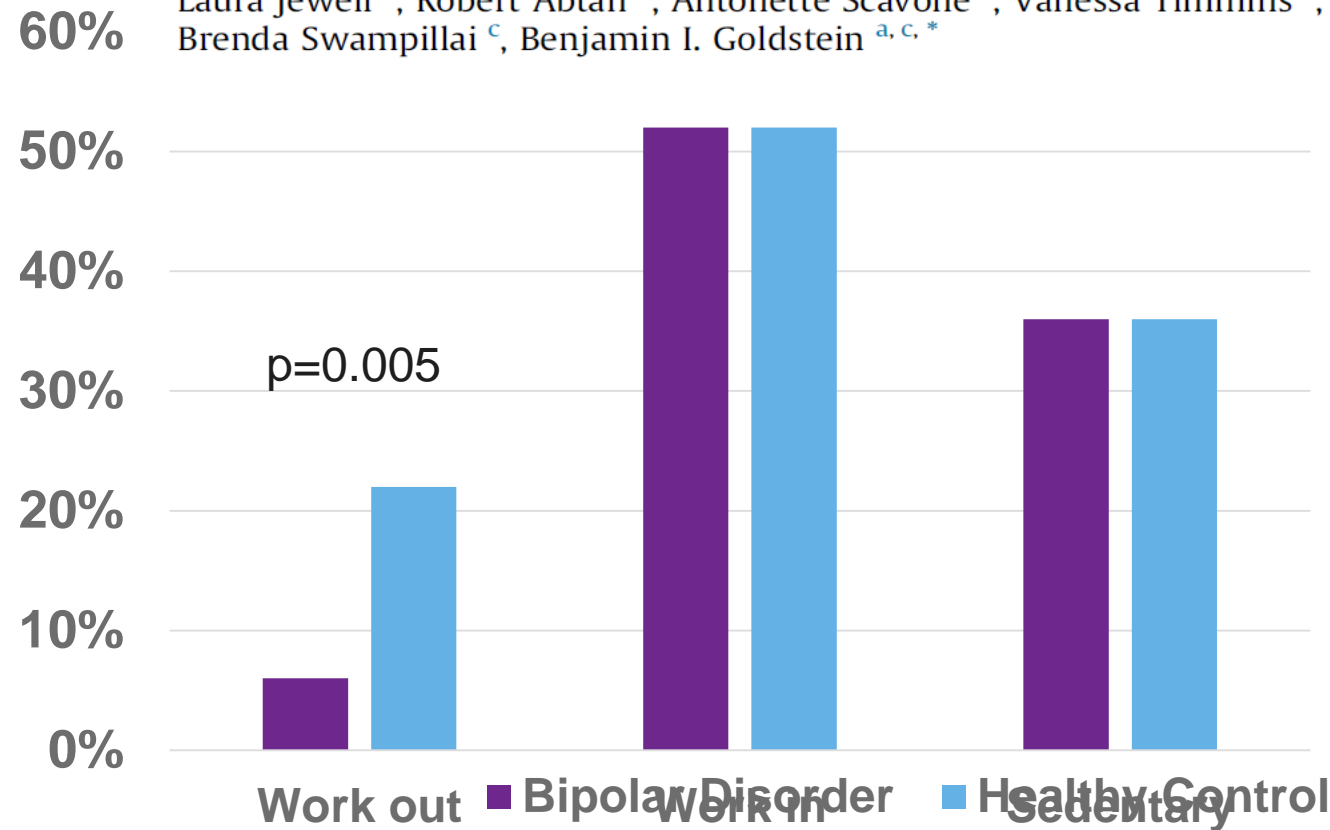
Why exercise for bipolar disorder?

- Bipolar disorder is linked with heart health
- Individuals with bipolar disorder are on average less physically active and fit
- Exercise is beneficial for improving mental and physical health
 - Both relevant for bipolar disorder
- Exercise is low-cost, non-invasive, and not as stigmatized as other treatments
 - First-line or add-on treatment for depression

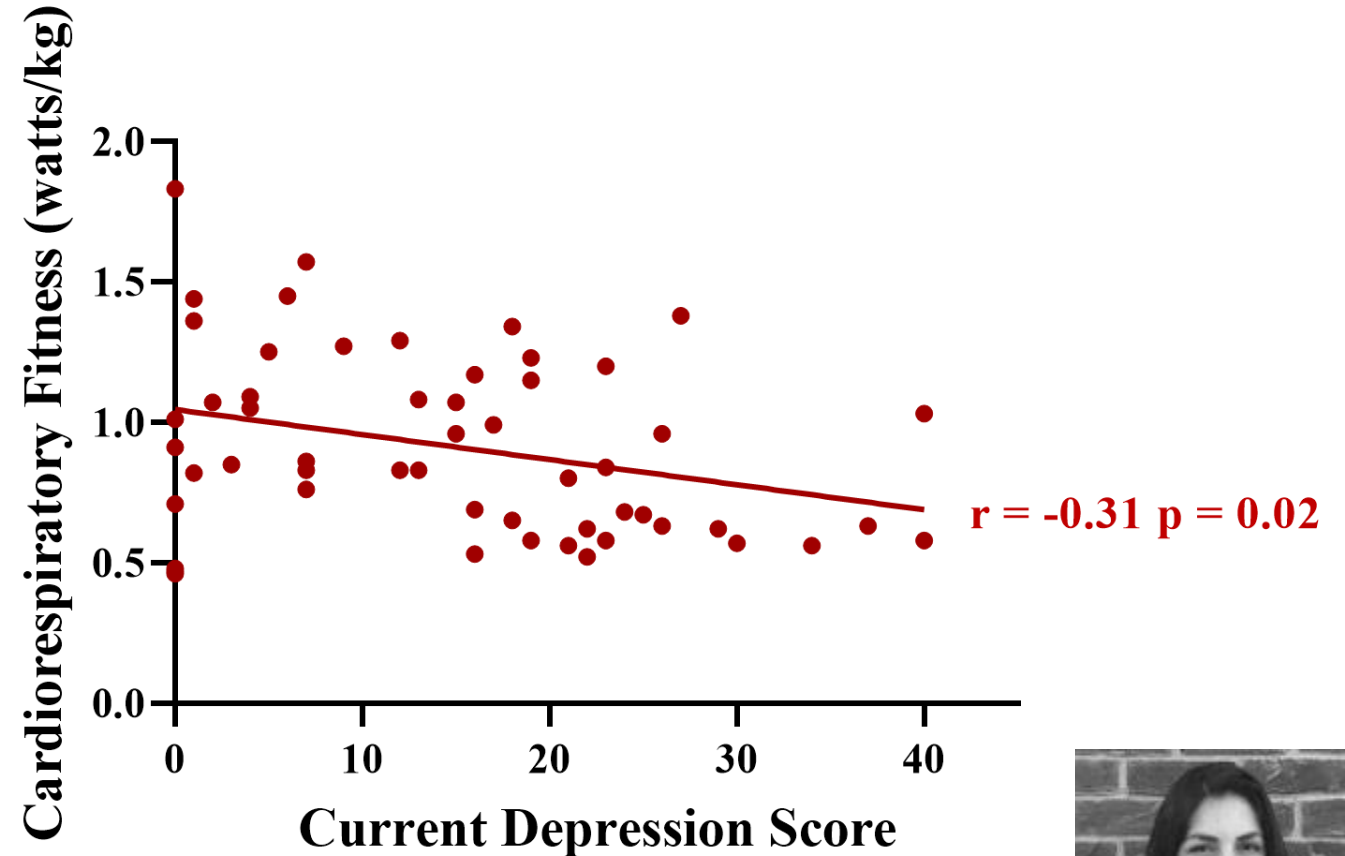
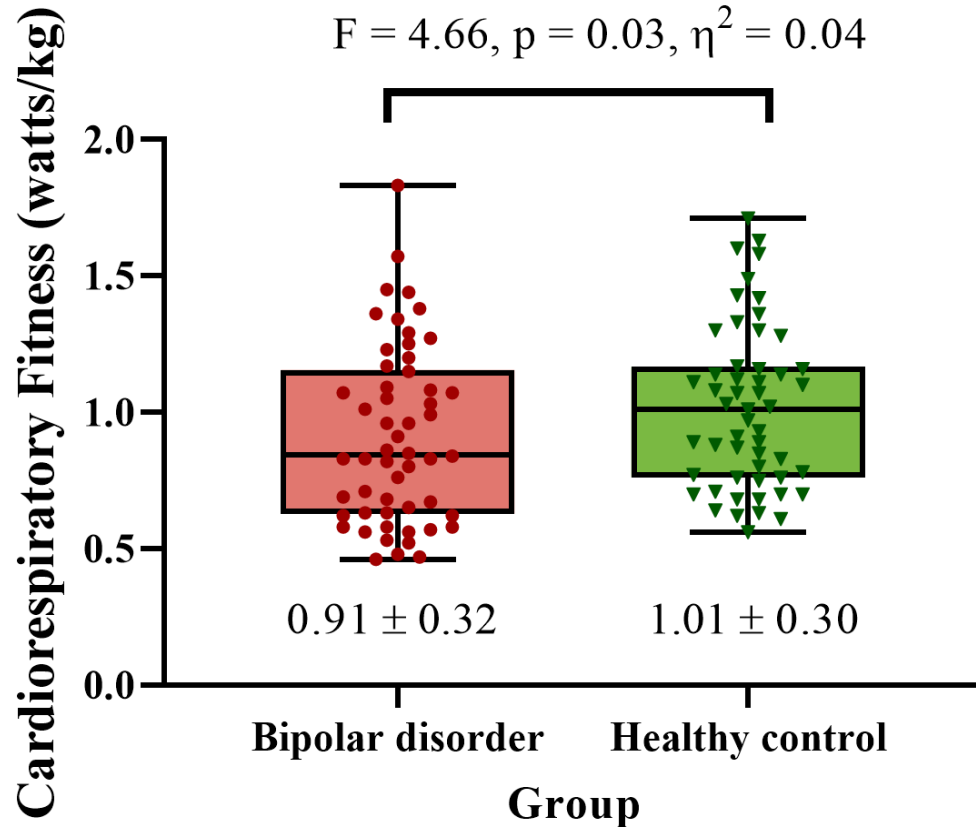


Preliminary evidence of disparities in physical activity among adolescents with bipolar disorder

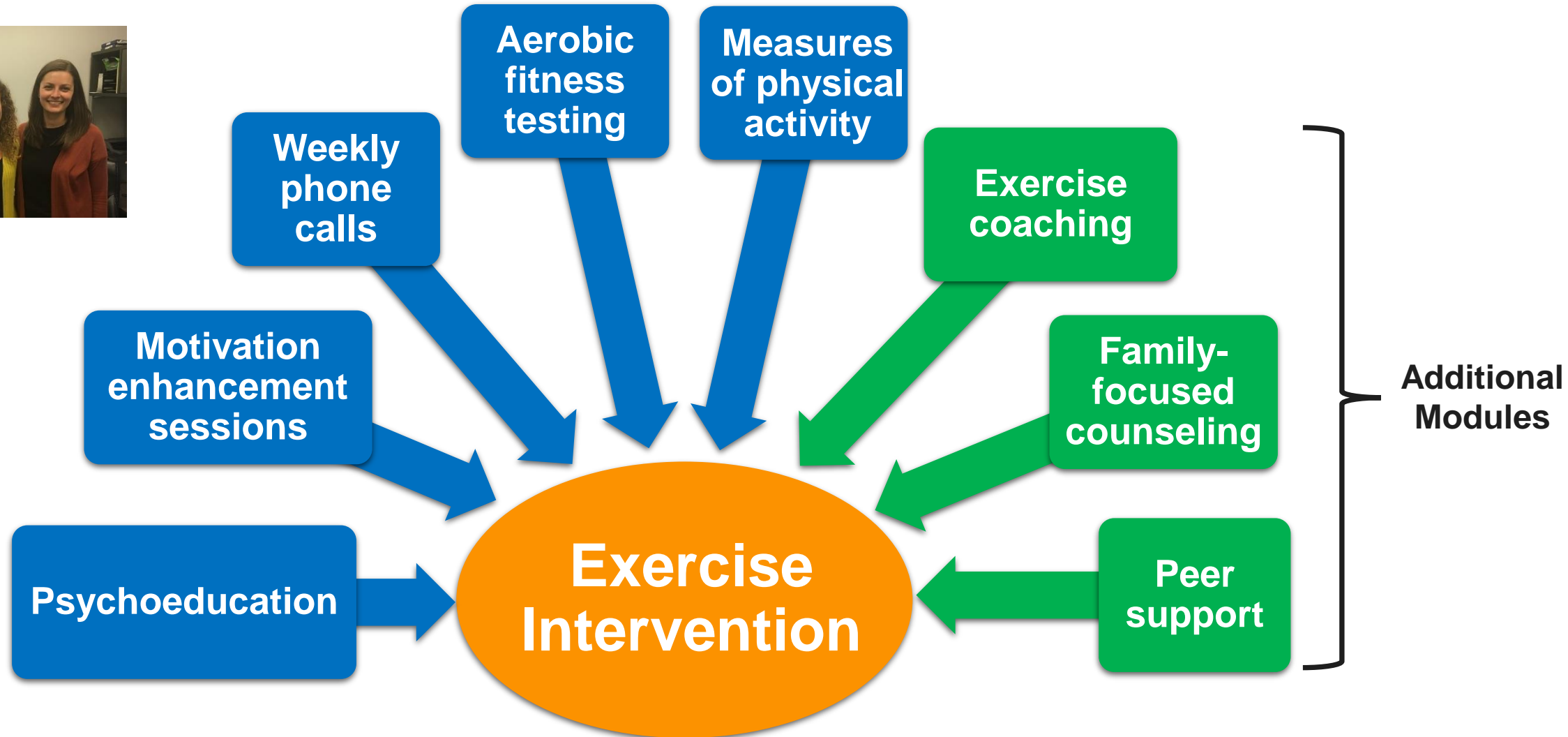
Laura Jewell ^a, Robert Abtan ^b, Antonette Scavone ^c, Vanessa Timmins ^c,
Brenda Swampillai ^c, Benjamin I. Goldstein ^{a, c, *}



Lower Cardiorespiratory Fitness Associated with Depression in Youth with Bipolar Disorder



Toward Exercise as Medicine for Youth with Bipolar Disorder (TEAM-BD)



TEAM-BD: Summary of Findings

Participants: N=20, 18±2 years old, 75% female, 55% Caucasian

Promising Findings

70% completed all study visits,
including exercise testing

Good therapist fidelity with manual

13/14 completers “very satisfied”

Exercise-induced improvements in
Positive Engagement, Revitalization
at each exercise testing session

Lack of Changes

Exercise (Fitbit, self-report)

Aerobic fitness

Mood symptoms

Stage of change



TEAM-BD: Summary of Findings

Findings from post-study consultation forms:

- Challenges with managing mood and other psychiatric symptoms
 - Adapting life to include exercise as new habit
 - Increasing awareness of importance of exercise
 - Changing attitudes and beliefs about exercise
 - Exercise change is gradual and ongoing
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- Value of receiving structured support that is adaptive to evolving needs and wants

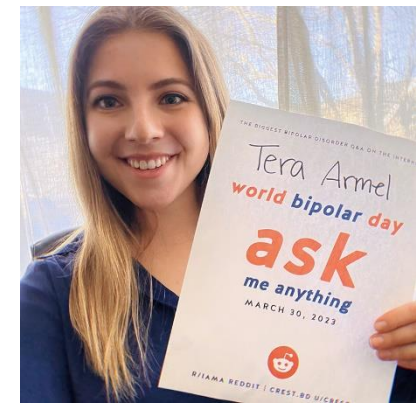
Patient Engagement in TEAM-BD

Consultation forums

- Pre-study: gathering design considerations
- Post-study: participant feedback on likes, challenges, future considerations
- Qualitative study: *"You can't take a pill to exercise"* (Khoubaeva et al, 2023)

Knowledge translation and dissemination

- Mood Disorders Association Ontario
- CREST.BD blogs, webinar
- Peer-reviewed publications
- Patient and parent collaborators



TEAM-BD Knowledge Translation and Dissemination

- Blog posts and webinar with CREST.BD
- Videos
- Post-study consultation forums
- Peer-reviewed articles on study findings

“You can't take a pill to exercise” – Qualitative findings from the Toward Exercise as Medicine for Adolescents with bipolar disorder (TEAM-BD) study

[Diana Khoubaeva](#)^a, [Najla Popel](#)^b, [Danielle Omrin](#)^a, [Jessica L. Roane](#)^a, [Vanessa H. Timmins](#)^a, [Erin Michalak](#)^c, [Andrew Kcomt](#)^d, [Tera Armel](#)^e, [Suzanne A. Jordan](#)^a, [Randa Shickh](#)^a, [Guy Faulkner](#)^f, [Bradley MacIntosh](#)^{g h}, [Brian McCrindle](#)ⁱ, [Rachel H.B. Mitchell](#)^{j k}, [Benjamin I. Goldstein](#)^{a j m}  



 DR. BENJAMIN GOLDSTEIN TERA ARMEL

Exercise for Youth with Bipolar Disorder

Child-adolescent psychiatrist Dr. Benjamin Goldstein (University of Toronto), and patient collaborator Tera Armel discuss how exercise can be used as...

Exercise as Treatment for Teens with Bipolar Disorder: Q&A With our Patient Collaborator Tera

FIRSTHAND PERSPECTIVES FROM TERA ON OCTOBER 20, 2020

What's next?

- Towards Exercise as Medicine for Adolescents with Bipolar Disorder (TEAM-BD)
 - Goal: improve cardiovascular fitness in youth with BD, tailoring to their specific needs
 - Counselling, research interviews, fitness tests, exercise coaching, Fitbit
- Next steps – **TEAM-BD 2.0**
 - Expand and refine intervention
 - Patient-informed design
 - Develop exercise prescriptions
 - Moment-by-moment mood and exercise tracking



Team BD – Exercise Expert

- Background
- Role in the study
- Team BD Exercise Module
 - Type of exercise
 - Location
 - Duration
- Common themes/barriers
- Experience as the exercise expert
- Considerations for future studies



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Q&A

Thank You

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