

origen

NEW DEVELOPMENTS IN EATING DISORDERS


A/Prof Andrea Phillipou



We acknowledge the Traditional Owners of the lands we are on and we pay respect to their Elders past and present. We recognise and respect their cultural heritage, beliefs and relationships to Country, which continue to be important to the First Nations people living today.



Artwork by Emrhan Tjapanangka Sultan, Luritja clan of the Western Desert
From the painting 'Honey ants and the rivers of hope to sharing knowledge', 2018



Orygen acknowledges people with lived experience of an eating disorder, their family, carers and other supports.

-
- Research participants
 - Collaborators
 - SWAN team
-



QR CODES





FACTS

FEEDING & EATING DISORDERS

‘Feeding’ Disorders

- Childhood onset

‘Eating’ Disorders

- Adolescent/young adulthood onset

FEEDING & EATING DISORDERS

‘Feeding’ Disorders

- Pica
 - Persistent eating of non-nutritive, non-food substances
- Rumination Disorder
 - Repeated regurgitation of food
- Avoidant/Restrictive Food Intake Disorder (ARFID)
 - Eating or feeding disturbance (e.g. apparent lack of interest in eating or food; avoidance based on the sensory characteristics of food; concern about aversive consequences of eating) as manifested by persistent failure to meet appropriate nutritional and/or energy needs

FEEDING & EATING DISORDERS

‘Eating’ Disorders (EDs)

- **Binge Eating Disorder**
 - Recurrent episodes of binge eating
 - Marked distress regarding binge eating is present
 - The binge eating is not associated with the recurrent use of inappropriate compensatory behavior

FEEDING & EATING DISORDERS

'Eating' Disorders

- **Bulimia Nervosa**
 - Recurrent episodes of binge eating
 - Recurrent inappropriate compensatory behaviors in order to prevent weight gain
 - Self-evaluation is unduly influenced by body shape and weight

FEEDING & EATING DISORDERS

‘Eating’ Disorders

- **Anorexia Nervosa**
 - Restriction of energy intake leading to a significantly low body weight
 - Intense fear of gaining weight or of becoming fat, or persistent behavior that interferes with weight gain
 - Disturbance in the way in which one’s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight

FEEDING & EATING DISORDERS

Other Specified Feeding or Eating Disorders (OSFED)

- Atypical anorexia nervosa
- Bulimia nervosa (of low frequency and/or limited duration)
- Binge eating disorder (of low frequency and/or limited duration)
- Purging disorder
- Night eating syndrome

EATING DISORDERS

Stigma and Misconceptions

- High socioeconomic status, young, Caucasian, female
- Attention-seeking
- Vanity
- A choice
- Going through a phase
- Trivial or benign
- Should 'just eat' normally
- Parents are to blame

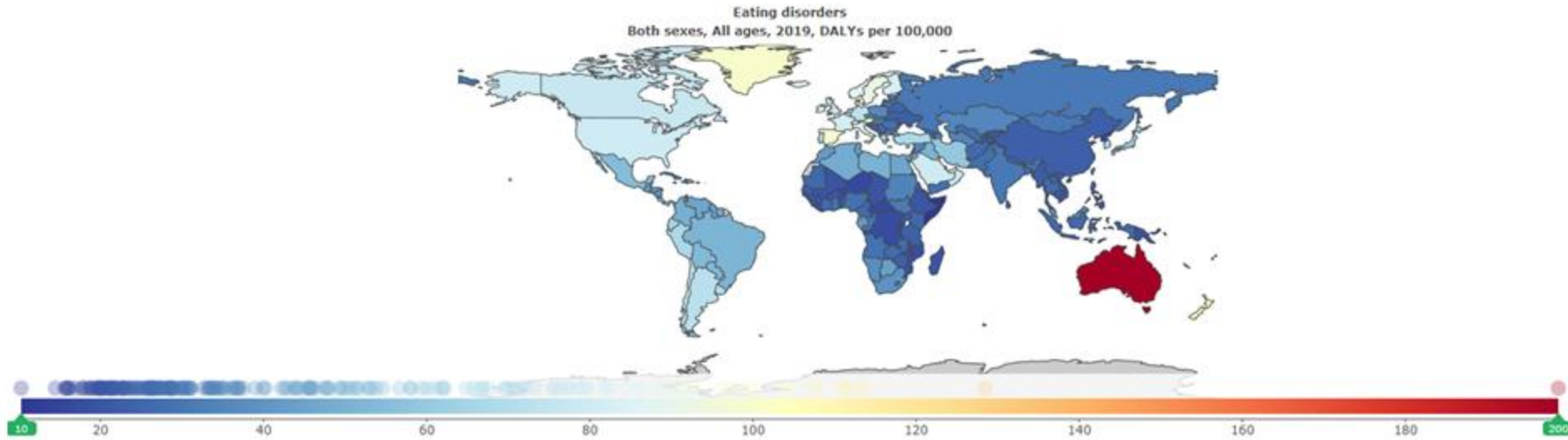
EATING DISORDERS

- Serious psychiatric conditions
- Characterised by psychological, behavioural and physical symptoms
- Socioeconomic cost in Australia ~\$70 billion/year ¹
- > one million currently affected in Australia ¹



¹ Deloitte Access Economics (2024). *Paying the price: The economic and social impact of eating disorders in Australia*

EATING DISORDERS



2019 Global Burden of Disease (GBD) study. World Health Organization

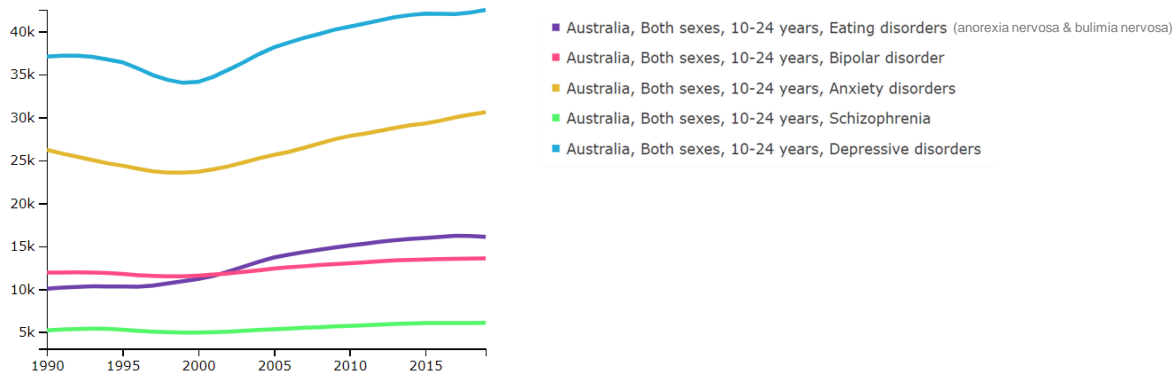


EATING DISORDERS

- Distressing, often long-standing illnesses
- Impact on individual, family, clinicians, hospital system
- Significant morbidity and mortality



DALYs (Disability-Adjusted Life Years), number

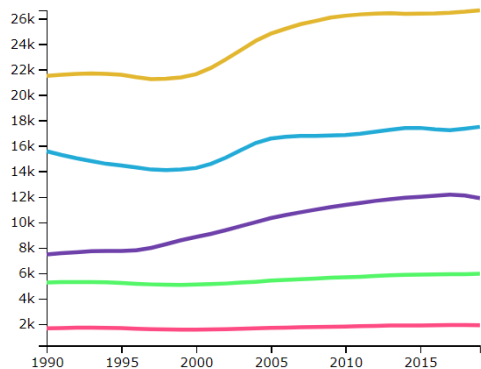


EATING DISORDERS

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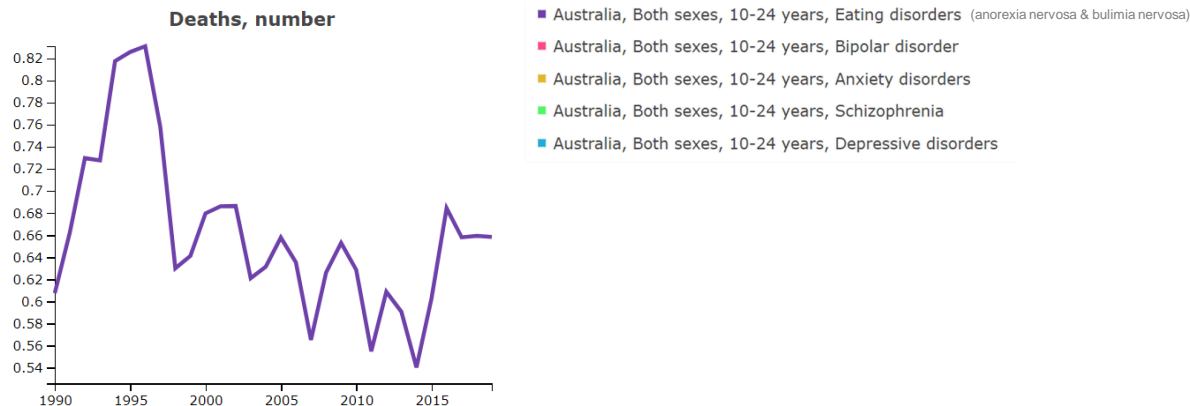
DALYs (Disability-Adjusted Life Years), number



- Australia, Females, 10-24 years, Eating disorders (anorexia nervosa & bulimia nervosa)
- Australia, Females, 10-24 years, Schizophrenia
- Australia, Females, 10-24 years, Depressive disorders
- Australia, Females, 10-24 years, Bipolar disorder
- Australia, Females, 10-24 years, Anxiety disorders

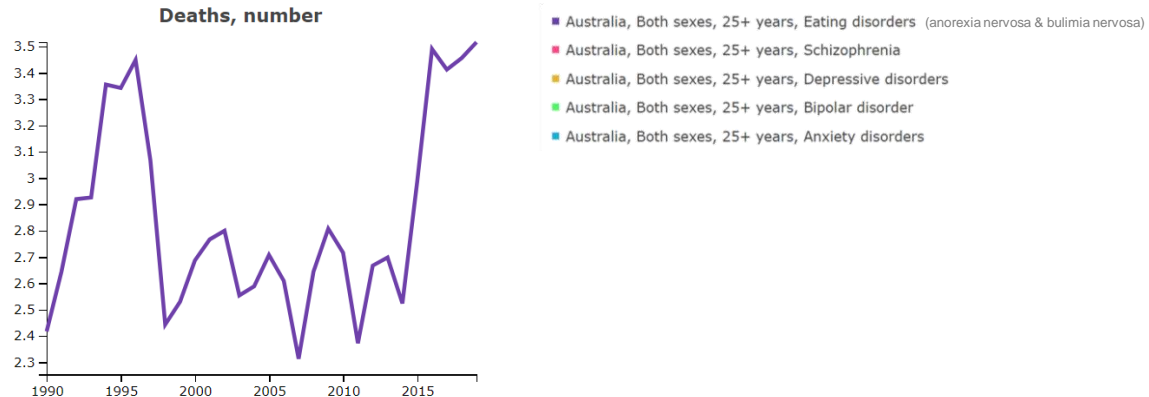
EATING DISORDERS

- Distressing, often long-standing illnesses
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EATING DISORDERS

- Distressing, often long-standing illnesses
- Impact on individual, family, clinicians, hospital system
- Significant morbidity and mortality



RECOVERY

- AN & BN: Among highest relapse rates of any mental illness
- AN: Highest death rate of any mental illness, ~1 in 10 ^{1,2}
- AN: Recovery rate ~50% since 1950 ³

TABLE 4. Outcome of Anorexia Nervosa in 119 Patient Series by Time Period of Study (N=3,147)

Outcome Variable	Percent of Subjects, by Time Period					
	1950–1979 (N=256)		1980–1989 (N=979)		1990–1999 (N=1,912)	
	Mean	SD	Mean	SD	Mean	SD
Mortality	4.7	5.9	5.2	5.0	4.6	5.4
Recovery	47.0	26.3	49.9	19.5	47.2	20.7
Improvement	28.7	14.5	29.1	15.2	29.3	16.1
Chronicity	22.2	17.1	20.7	8.7	22.0	15.3

*p<0.001.

¹ Harris EC, Barraclough B (1998). Excess mortality of mental disorder. Br J Psychiatry. 173:11-53.

² Sullivan PF (1995). Mortality in anorexia nervosa. Am J Psychiatry. 152(7):1073-4.

³ Steinhausen HC (2002). The outcome of anorexia nervosa in the 20th century. Am J Psychiatr, 159(8), 1284-1293.



RECOVERY

- Recovery rates (surviving patients)
 - BN: 68.2% recovery rate (9 and 22-yr follow-up)
 - AN: 31.4% at 9-yr follow-up, 62.8% at 22-yr follow-up



Eddy, K. T., Tabri, N., Thomas, J. J., Murray, H. B., Keshaviah, A., Hastings, E., Edkins, K., Krishna, M., Herzog, D. B., & Keel, P. K. (2017). Recovery from anorexia nervosa and bulimia nervosa at 22-year follow-up. *The Journal of clinical psychiatry*, 78(2), 17085.

RECOVERY

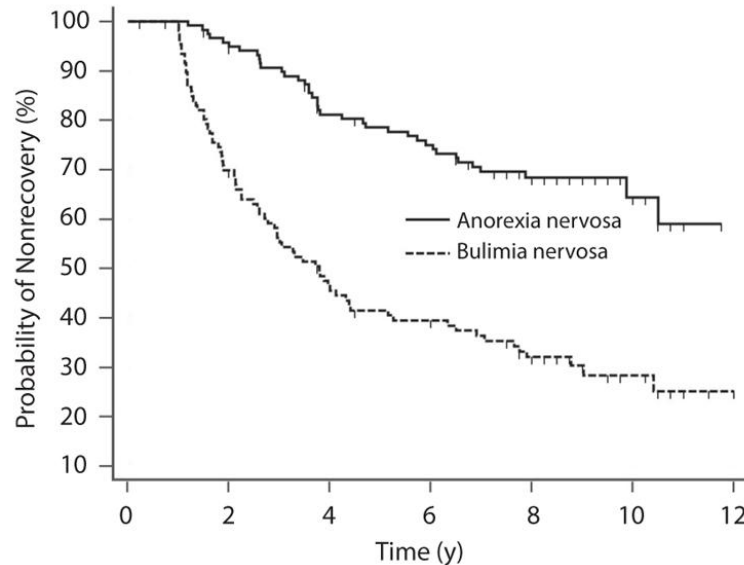
- Recovery rates (surviving patients)
 - BN: 68.2% recovery rate (9 and 22-yr follow-up)
 - AN: 31.4% at 9-yr follow-up, 62.8% at 22-yr follow-up
 - 10.5% of those recovered at 9yrs *not* recovered at 22yrs



Eddy, K. T., Tabri, N., Thomas, J. J., Murray, H. B., Keshaviah, A., Hastings, E., Edkins, K., Krishna, M., Herzog, D. B., & Keel, P. K. (2017). Recovery from anorexia nervosa and bulimia nervosa at 22-year follow-up. *The Journal of clinical psychiatry*, 78(2), 17085.

RECOVERY

- Early recovery is key to improved outcomes





FRUSTRATIONS

TREATMENT

- Family-based treatment (FBT)
 - Adolescent AN
- Cognitive behaviour therapy – enhanced for eating disorders (CBT-E)
 - AN, BN, BED

TREATMENT

- Evidence-based treatments are 'old' and not effective in most people
- Treatment can be harmful and traumatising for the individual and family
- ~50% 'recovery' rate
- Relapse is common (but not well documented)

TREATMENT

- Meta-analysis of randomised controlled trials in AN ¹ :
 - End of treatment = improved weight outcomes,
= no improvement in psych outcomes
 - Follow-up = no treatment effect on weight or psych outcomes



¹ Murray SB, Quintana DS, Loeb KL, Griffiths S & Le Grange D (2019). Treatment outcomes for anorexia nervosa: a systematic review and meta-analysis of randomized controlled trials. Psychological medicine, 49(4), 535-544.

TREATMENT

- Existing treatments are successful for some
- No significant advancements in treatment
- No biological treatments



TREATMENT

- Treatments focus heavily on weight:
 - Admission
 - Engagement/commitment
 - Primary outcome/discharge
- Psychological symptoms/distress are often not adequately addressed to ensure 'true' recovery



TREATMENT

- System/service issue
 - Resourcing
- Research issue
 - Lack of innovation

RESEARCH

- “I think we have failed... As a field, we need to stop beating the same drum. There is so much stuff that is being done that is irrelevant – that isn’t moving the field forward”
– Cyndi Bulik



RESEARCH

- Have we lost hope?
- Proposal to define terminal AN:
“...these patients deserve the same attendant care and rights as all other patients with terminal illness, up to and including medical aid in dying in jurisdictions where such care is legal” ¹

¹ Gaudiani JL, Bogetz A & Yager J (2022). Terminal anorexia nervosa: three cases and proposed clinical characteristics. J Eat Disord 10, 23



RESEARCH

- Funding
 - Small field
 - Stigma
 - Not a priority ¹
 - Research funding in Australia
 - EDs = \$1.10/affected individual
 - ASD = \$32.62/affected individual
 - SZ = \$67.36/affected individual



¹ Murray SB, Pila E, Griffiths S & Le Grange D (2017). When illness severity and research dollars do not align: Are we overlooking eating disorders? *World Psychiatry*, 16(3), 321

RESEARCH

- Bio-psycho-social development & maintenance factors not understood
- To effectively treat any illness we need to target underlying factors



Phillipou, A., Musić, S., & Rossell, S. L. (2019). A biopsychosocial proposal to progress the field of anorexia nervosa. *Australian & New Zealand Journal of Psychiatry*, 53(12), 1145-1147.



THE FUTURE

OUR RESEARCH

- Bio-psycho-social research across three streams:
 - 1- Understanding the factors and mechanisms involved in the development and maintenance of eating disorders to improve prevention and treatment,
 - 2- Developing tools (e.g. biomarkers) that can be used for more accurate diagnosis, early intervention and prevention, and
 - 3- Developing more effective interventions and treatments, and improving clinical services and support programs for people with eating disorders (and their supports) across the continuum of care

STREAM 1

- Understanding the factors and mechanisms involved in the development and maintenance of eating disorders to improve prevention and treatment

STREAM 1

- Understanding the factors and mechanisms involved in the development and maintenance of eating disorders to improve prevention and treatment
 - Study: Investigating the Cause and maintenance of Anorexia Nervosa (I-CAN)
 - Co-designed with lived experience, clinicians, multidisciplinary research team
 - Largest bio-psycho-social battery in EDs
 - Target recruitment >300



STREAM 1

- Understanding the factors and mechanisms involved in the development and maintenance of eating disorders to improve prevention and treatment
 - Study: Orygen Specialist Program Registry for Eating Disorders in Youth (OSPREGY)
 - Longitudinal clinical research registry
 1. Identify developmental and maintenance factors involved in eating disorders
 2. Identify factors relevant to recovery and treatment response
 3. Inform personalised treatment within service
 4. Embed clinical trials

STREAM 1

- 4L Framework:
 - Lived, loved, laboured, learned experience



STREAM 1

- Data collection:
 - Combination of self-report & interviews from patients and carers
 - Coordinate with clinical data being collected/systems being used
 - Collected during admission, CRIMPs, at discharge and at follow-up
- Types of data:
 - Demographics, diagnoses, etc.
 - Biological (e.g. bloods)
 - Psychosocial (e.g. trauma history, personality)

STREAM 2

- Developing tools (e.g. biomarkers) that can be used for more accurate diagnosis, early intervention and prevention



Phillipou, A., Rossell, S. L., Castle, D. J., Gurvich, C., & Abel, L. A. (2014). Square wave jerks and anxiety as distinctive biomarkers for anorexia nervosa. *Investigative ophthalmology & visual science*, 55(12), 8366-8370. <https://doi.org/http://dx.doi.org/10.1167/iovs.14-15807>

STREAM 2

- Developing tools (e.g. biomarkers) that can be used for more accurate diagnosis, early intervention and prevention
 - Study: Establishing a biomarker for anorexia nervosa
 - Funded by NHMRC



Phillipou, A., Rossell, S. L., Castle, D. J., Gurvich, C., & Abel, L. A. (2014). Square wave jerks and anxiety as distinctive biomarkers for anorexia nervosa. *Investigative ophthalmology & visual science*, 55(12), 8366-8370. <https://doi.org/http://dx.doi.org/10.1167/iops.14-15807>

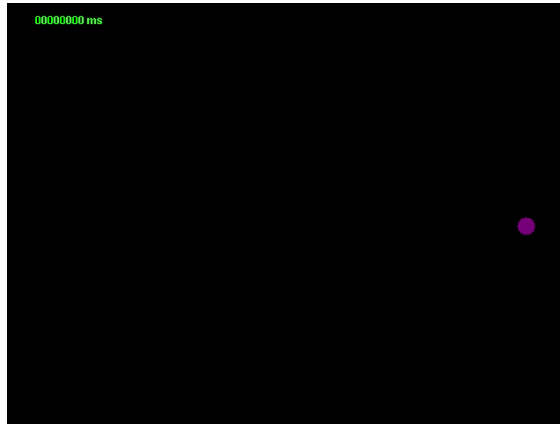
STREAM 2

- Biomarkers:
 - *Provide an objective diagnostic measure for identifying an illness*
 - *Can enable early identification of an illness*
 - *Can identify those at risk of developing an illness*
 - *Provide insight into the underlying biological mechanisms underpinning an illness*



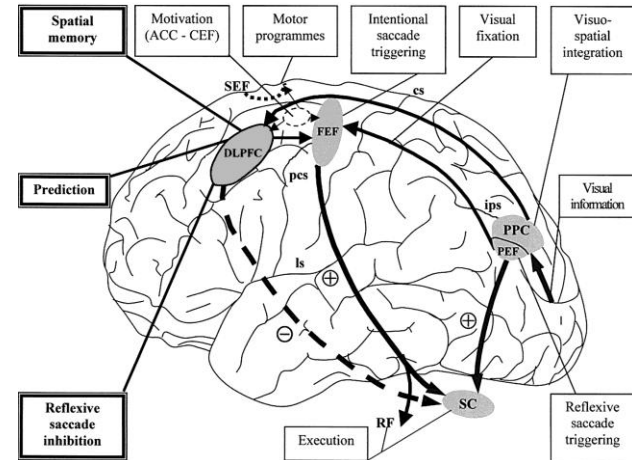
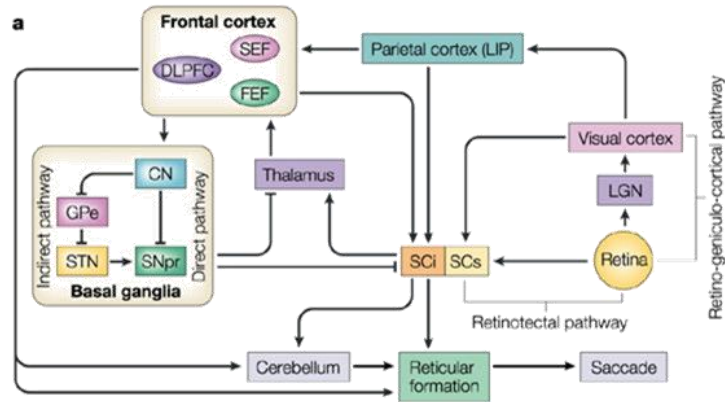
STREAM 2

- Saccadic eye movements – ‘saccades’
 - Fast, ‘jerky’ eye movements humans use to view the world
 - 2-3 saccades every second

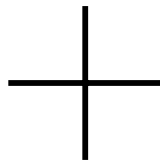


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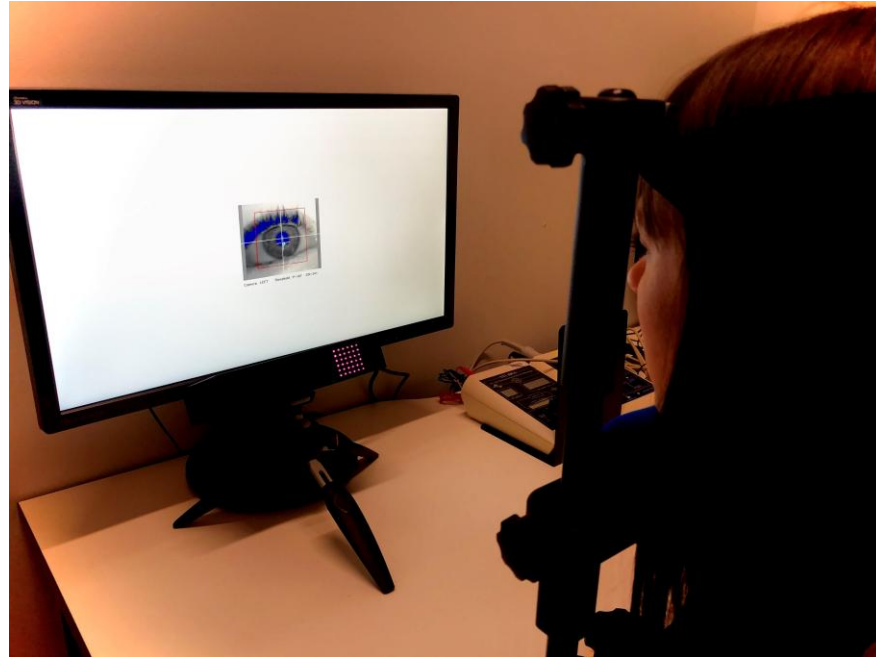
- Why study saccades?



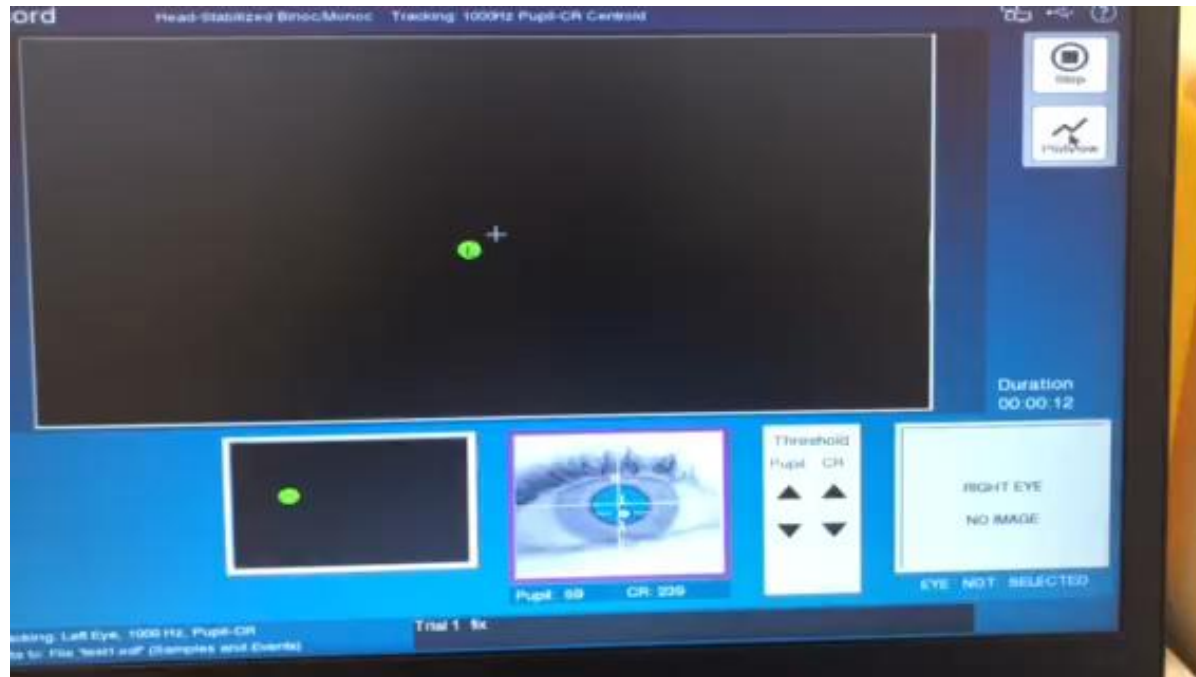
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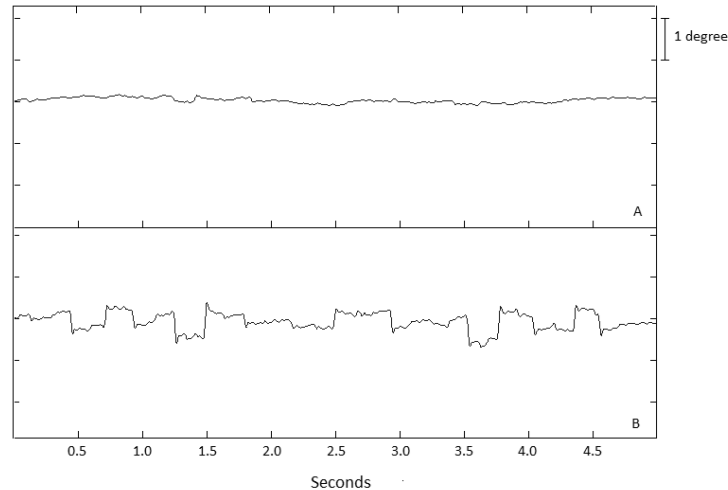


STREAM 2



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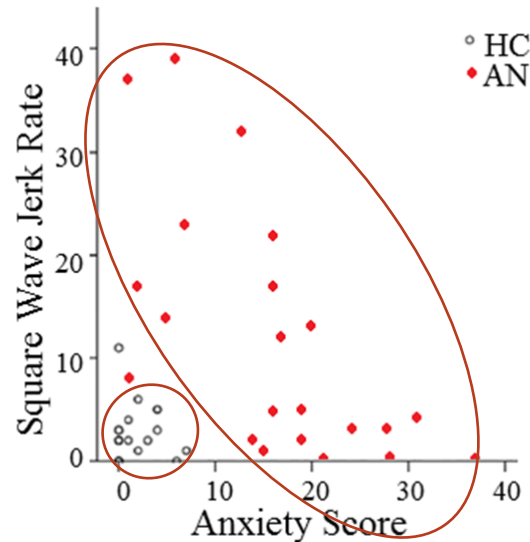
- Atypical eye movements during fixation: Square wave jerks (SWJs)
 - Tiny, involuntary and unconscious



Phillipou, A., Rossell, S. L., Castle, D. J., Gurvich, C., & Abel, L. A. (2014). Square wave jerks and anxiety as distinctive biomarkers for anorexia nervosa. *Investigative ophthalmology & visual science*, 55(12), 8366-8370.

STREAM 2

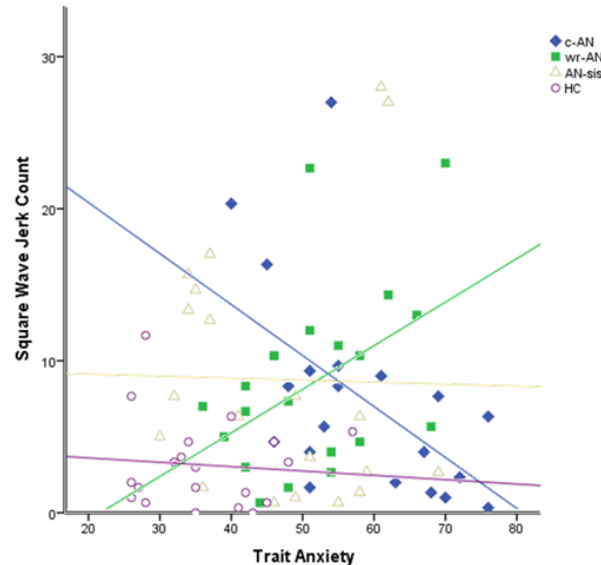
- SWJs & anxiety discriminated AN from healthy controls (HC) with 91.5% accuracy



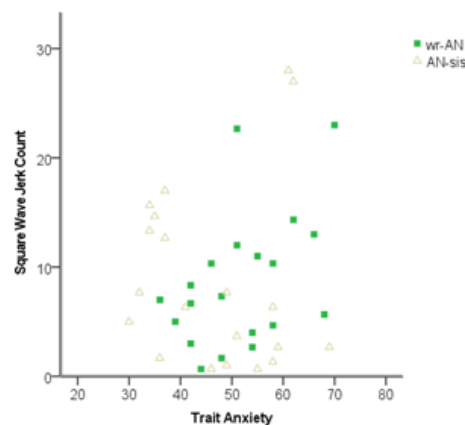
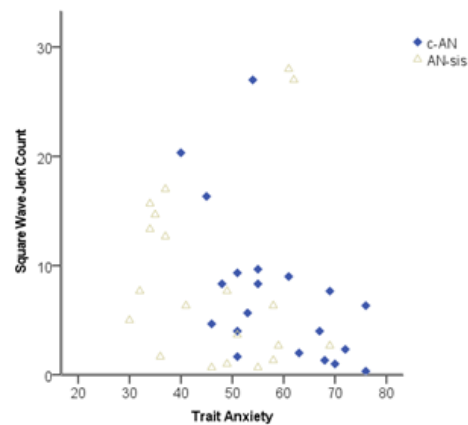
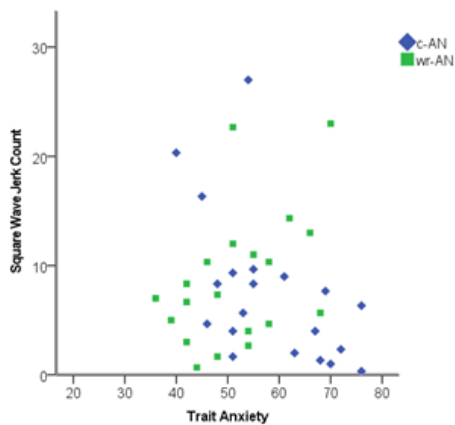
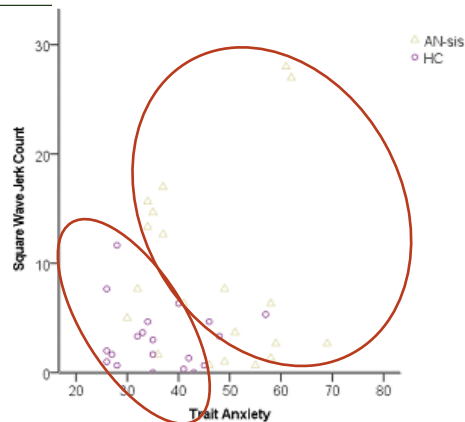
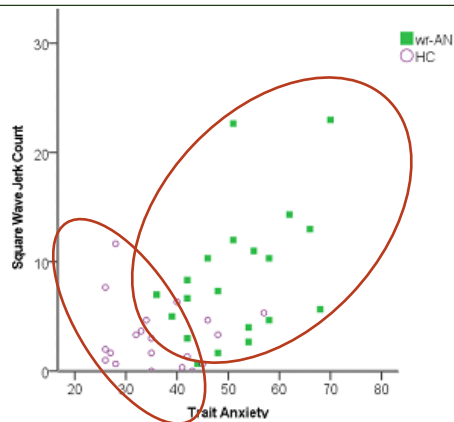
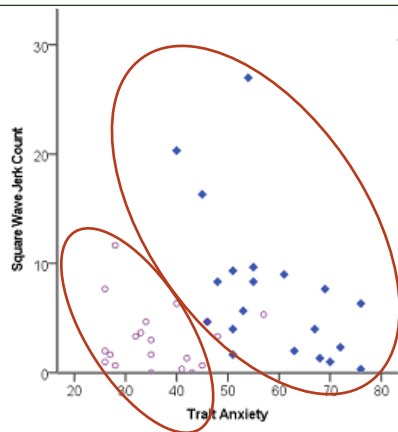
STREAM 2

SWJs and anxiety discriminated groups with high accuracy:

- c-AN vs HC: 92.5%
- wr-AN vs HC: 77.5%
- AN-sis vs HC: 77.7%



STREAM 2



Scan me

STREAM 2

- Neurobiology of eye movements
 - Superior colliculus
 - GABA (also explains anxiety correlation)
- Links back to stream 1 (underlying mechanisms)
- Links to stream 3 (treatment target)



STREAM 3

- Developing more effective interventions and treatments, and improving clinical services and support programs for people with eating disorders (and their supports) across the continuum of care

STREAM 3

- Developing more effective interventions and treatments, and improving clinical services and support programs for people with eating disorders (and their supports) across the continuum of care
 - Study: High-definition transcranial direct current stimulation (HD-tDCS) for anorexia nervosa
 - Funded by the Swiss Anorexia Nervosa Foundation and Research Endowment Fund



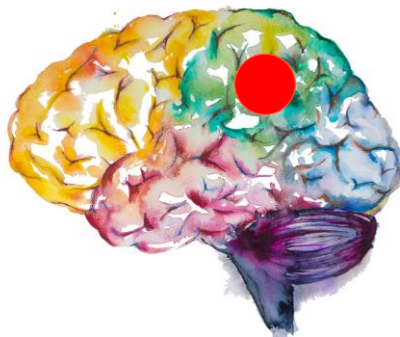
STREAM 3

- Based on eyetracking findings and fMRI findings
- Functional connectivity ('communication'):
 - Superior colliculus → inferior parietal lobe = reduced in AN
 - Multisensory integration, spatial representation, body image

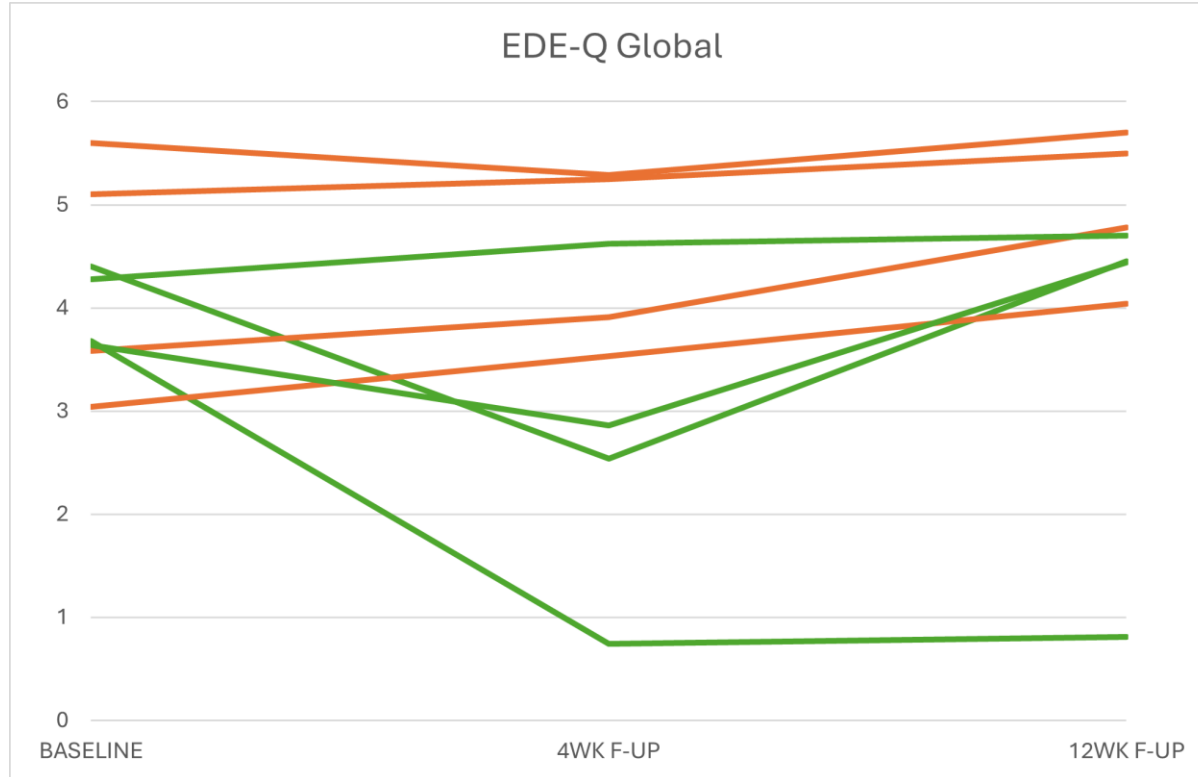


STREAM 3

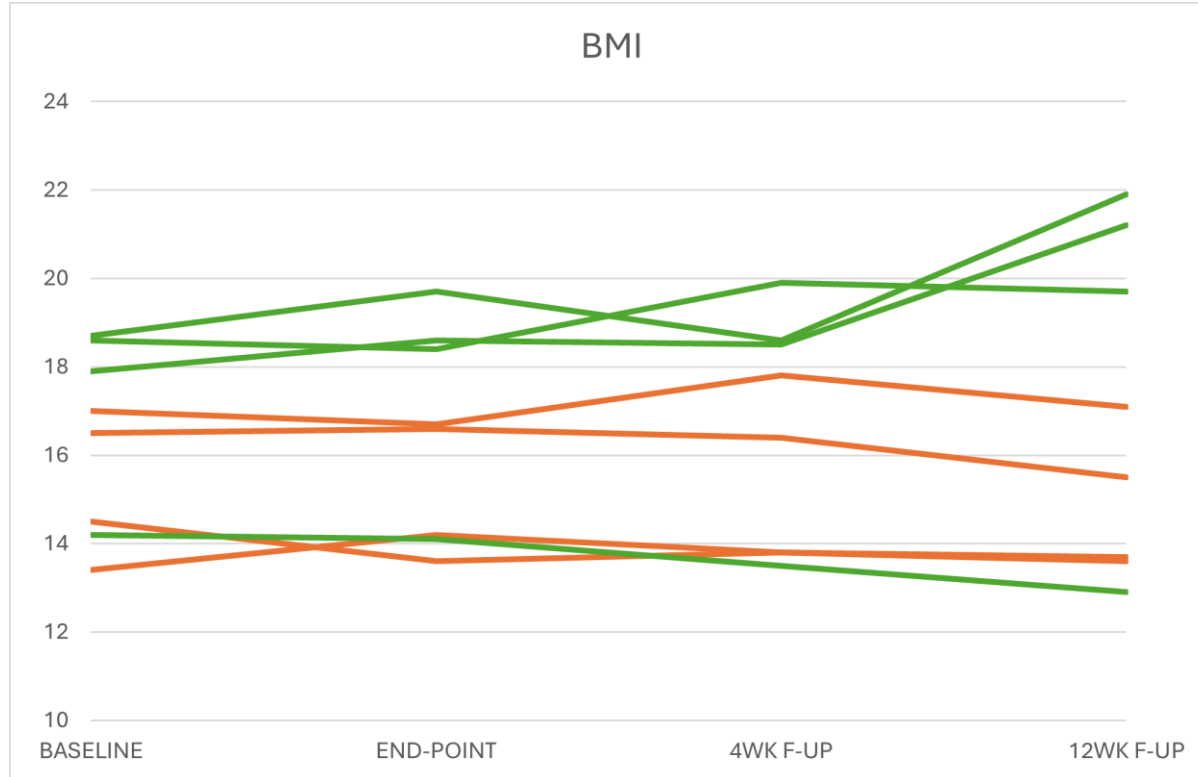
- Stimulate the inferior parietal lobe
 - Strengthen functional connectivity with superior colliculus
 - Reduce SWJs
 - Improve AN symptoms



STREAM 3



STREAM 3



STREAM 3

- Developing more effective interventions and treatments, and improving clinical services and support programs for people with eating disorders (and their supports) across the continuum of care
- Other studies:
 - Compassion-focused therapy – Inge Gnatt (SuT)
 - Psilocybin-assisted psychotherapy – Claire Finkelstein (SuT)

STREAM 3

- Developing more effective interventions and treatments, and improving clinical services and support programs for people with eating disorders (and their supports) across the continuum of care
- Other studies:
 - Eating disorder coaching – Carolyn Costin Institute
 - Carer support groups – Eating Disorders Families Australia

STREAM 3

- Developing more effective interventions and treatments, and improving clinical services and support programs for people with eating disorders (and their supports) across the continuum of care
- Other studies:
 - Temperament based therapy with supports (TBT-S) – Jasmin Watson (CEED)
 - Cognitive behavioral therapy for avoidant/restrictive food intake disorder (CBT-AR) – Jenny Thomas & Kamryn Eddy (Harvard/Massachusetts General Hospital)

STREAM 3

- Temperament based therapy with supports (TBT-S)
 - Neurobiologically-informed treatment for AN
 - Adjunct treatment
 - Support people included in treatment
 - 5-day intensive outpatient
 - Combines psychoeducation and experiential activities
 - Targets common temperament traits in AN

Stedal, K., Funderud, I., Wierenga, C. E., Knatz-Peck, S., & Hill, L. (2023). Acceptability, feasibility and short-term outcomes of temperament based therapy with support (TBT-S): a novel 5-day treatment for eating disorders. *Journal of Eating Disorders*, 11(1), 156.



STREAM 3

- Cognitive behavioral therapy for avoidant/restrictive food intake disorder (CBT-AR)
 - Stage 1: Psychoeducation about ARFID and supporting the individual to increase food volume and/or variety
 - Stage 2: Psychoeducation about nutrition deficiencies and helps the patient select novel foods for stage 3
 - Stage 3: In-session graded exposure (12–22 sessions) and between-session practice and is delivered across one, two, or three modules to target the patient's specific maintaining mechanisms (i.e., sensory sensitivity, lack of interest in eating/food, fear of aversive consequences)
 - Stage 4: progress evaluation and a relapse prevention plan



REVOLUTION IN MIND

ory
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THANK YOU

Orygen acknowledges the Traditional Owners of the lands we are on and pays respect to their Elders past and present. Orygen recognises and respects their cultural heritage, beliefs and relationships to Country, which continue to be important to the First Nations people living today.



Body Image and
Related Disorders
Conference
#BIRD2025



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*In loving memory of
Joanne Metaxas*

