

# STRATEGIES TO PREVENT MENTAL DISORDERS IN AUSTRALIA

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# MENTAL HEALTH LITERACY IS ABOUT PREVENTING & PROMOTING MENTAL WELL- BEING

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- Indigenous mental well-being in Australia
- Aetiology of mental disorders
- Preconditions for mental disorders: are you at risk?
- Prevention by micronutrient supplementation
- Barriers to change in remote & indigenous communities
- WHO: Promote mental well-being

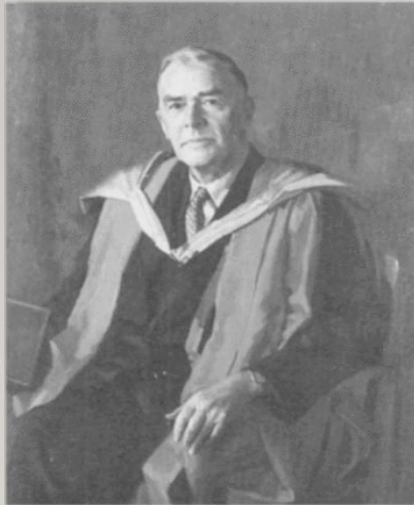
# INDIGENOUS MENTAL WELL-BEING IN AUSTRALIA

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- HUMAN RIGHTS ABUSE
- Australian government has permissively disrupted indigenous communities
- Displaced peoples, magnified stress & reduced access to nutritious products
- Changes to dietary patterns
- Exacerbated by heavy use of alcohol, tobacco & illicit substances
- 4.5 times greater admission rates to mental health facilities (Parker & Milroy, 2014)

# SIR CHARLES HERCUS & HIS TEAM

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Original family portrait  
reproduced in Adams, 1988

Original research was conducted in the 1920s

Measured, categorised thyroid glands  
80,750 thyroid examinations,  
34 sites within New Zealand,  
31.20% goitre,  
471 soil samples.

As a result of this and further findings:  
Iodine was introduced into salt at a Christchurch  
Mental Hospital in 1926



# NGAI TUHOE IWI EXAMPLE

- NZ government confiscated Te Tuhoe land 1866
- Cut off access to the sea;
- 1926 – sugar, flour only outside contact

INLAND NGAU TUHOE	SEAWARD NGAU TUHOE
Mineral poor soils, Goitre, Low protein, seafood & absent seaweed diet High carbohydrate diet	Mineral rich soils, No goitre, Seafood dietary staple: mineral rich mussels, kelp- eating fish

# ENDEMIC ILLNESSES

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Mental Hospitals	New Zealand population
<p>Good sanitation</p> <p>Tuberculosis outbreak 1925 Goitre endemic</p>	<p>Good sanitation overall No intestinal toxæmia Christchurch for example Typhoid outbreak in Urewera (poor sanitation) Hydatid disease Goitre, myxoedema, cretinism endemic</p>

# DIET: LOCAL SOURCES OF SUPPLY

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<b>Mental Hospitals</b>	<b>New Zealand population</b>
<p>Hospital farm: vegetables, fruits, grains 1 meal fish per week Late 1925 dietitian to manage low protein diet for Bipolar disorder &amp; epilepsy: drive inflammatory sexual manifestations (McKillop in Young, 1926).</p>	<p>710 families surveyed (70 occupations)  Pockets of low protein, seafood (supply issues &amp; price), no eatable seaweed in diet</p>

# BRAIN STRUCTURE AND TISSUES







BRAIN



THYROID  
HORMONE  
SYNTHESIS

+

Thyroid hormone  
signalling

20% of energy needs are required  
for brain functions (Belanger et al, 2011)

# AETIOLOGY OF MENTAL DISORDERS

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- Metabolic disorder in 1895 by Dr. Emil Kraepelin (Noll, 2007)
- Pervasive poor dietary patterns (131 years of data) **OR** mild hypoxic injury
- Disrupt the production of thyroid hormones, distort energy & lipid metabolic signalling (disabling oxidative stress defences), interfere with autophagy (reprogramming neurons & inflammatory response) & alter RNA processes; so the person is unable to cope with stress
- These RNA processes exhibit epigenetic changes as the brain adapts to low energy metabolic environment
- Can be passed to offspring in readiness for their low energy metabolic environment

# PRECONDITIONS FOR MENTAL DISORDERS: ARE YOU AT RISK?

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- **Do you skip meals or go without food for extended periods, then eat ferociously?**
- Busy professionals, fussy eaters, eating disorders, heavy alcohol, tobacco or illicit substance use, natural disaster, displaced peoples, disadvantaged children & children who over exercise in the absence of sufficient nutrients
- **Have you ever had a mild hypoxic brain injury?**
- Sporting injury or previous trauma
- **How healthy is your thyroid or do you have a sub-clinical concern?**
- Eating food grown in poor soil that lacks selenium; use iodised salt!
- **Do you have an underlying gastrointestinal problem that manifests as malabsorption?**
- Defence force personal or recent trauma

# PREVENTION BY MICRONUTRIENT SUPPLEMENTATION

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- Definitive studies from Christchurch earthquake disaster; verified by Canadian floods
- Indices stress, anxiety & depression reversed (*ES* 0.69-1.31) (Rucklidge et al, 2014)
- Micronutrients that the brain requires for energy & lipid metabolic processes:
- Iron, zinc, selenium & iodine for thyroid hormone production, maintenance of metabolism
- Copper, magnesium & manganese for fine tuning energy & lipid metabolic processes (Laupu, 2016)
- High quantities present in seafood, seaweed or protein
- Kaikoura (5-10% rise MI) (high dietary seafood) Christchurch (37% rise MI) (Laupu, 2018)



# BARRIERS TO CHANGE IN REMOTE & INDIGENOUS COMMUNITIES

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- Lack knowledge of advancements for their mental well-being
- Reliable supply of affordable food can be difficult
- Junk food is cheap
- Australian medical advice is behind international best practice in indigenous & remote communities
- Australia has yet to embrace WHO comprehensive action plan (2013-2020)
- Underpins need for change in mental health services (Australia is 35-40 years behind)

# WHO: PROMOTE MENTAL WELL-BEING

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- *Human rights:* practice respect, integrity, accountability & compassion
- *Empowerment:* provide support & patient centred-care
- *Universal health coverage:* parity of funding
- *Evidence based practice:* mental health literacy to prevent & promote well-being
- *Multisectoral approach:* integration back into the community
- *Life course approach:* promote hope, community & quality of life

# KEY MESSAGE

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- **We need policy to reflect mental well-being as a human right**
- **The precondition for mental well-being in indigenous and remote communities is access to healthy food, hope and knowledge for quality of life**
- **Combination micronutrients prevent mental disorders where eating patterns are sub-optimal**

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