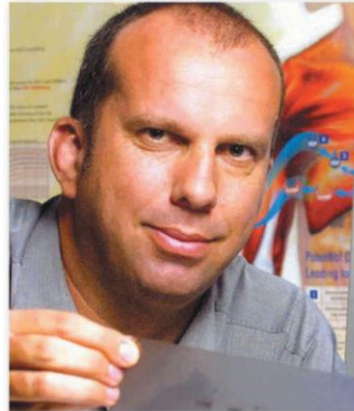




**Ms Mary
Cavanagh**

Co-Director
MiCA Projects
Ministry of Health
Auckland



**Associate Professor
Mark Vickers**

Liggins Institute
The University of Auckland
Auckland

Sunday, June 11, 2017

(Room 1)

8:30 - 9:25 WS #193: Healthy Conversation Skills

9:35 - 10:30 WS #205: Healthy Conversation Skills (Repeated)

Healthy Conversations

Developmental programming and later disease risk



Professor Mark Vickers,
Liggins Institute,
University of Auckland, New Zealand.

Introduction

- obesity and related metabolic disorders such as type 2 diabetes have reached epidemic levels
- these increases are largely attributed to lifestyle factors such as poor diet and the decline in physical activity
- now well-established that alterations in the early life environment can increase risk for obesity and metabolic disorders in offspring

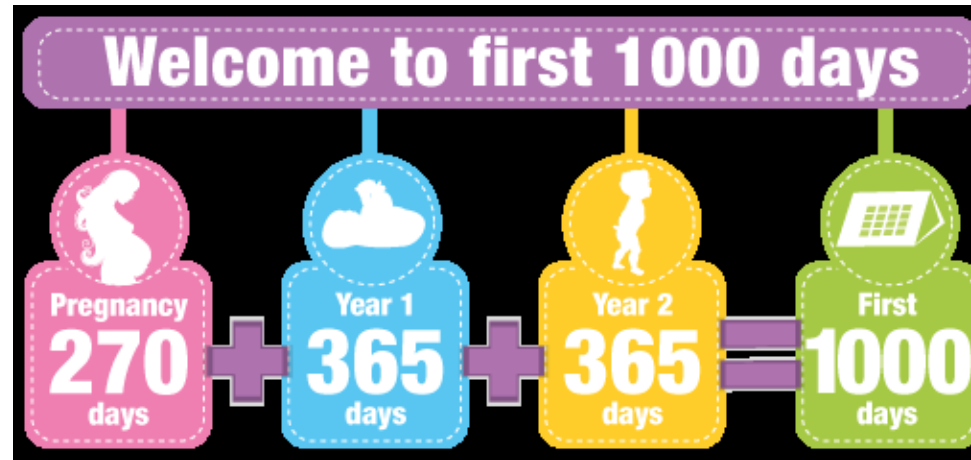
Developmental Programming



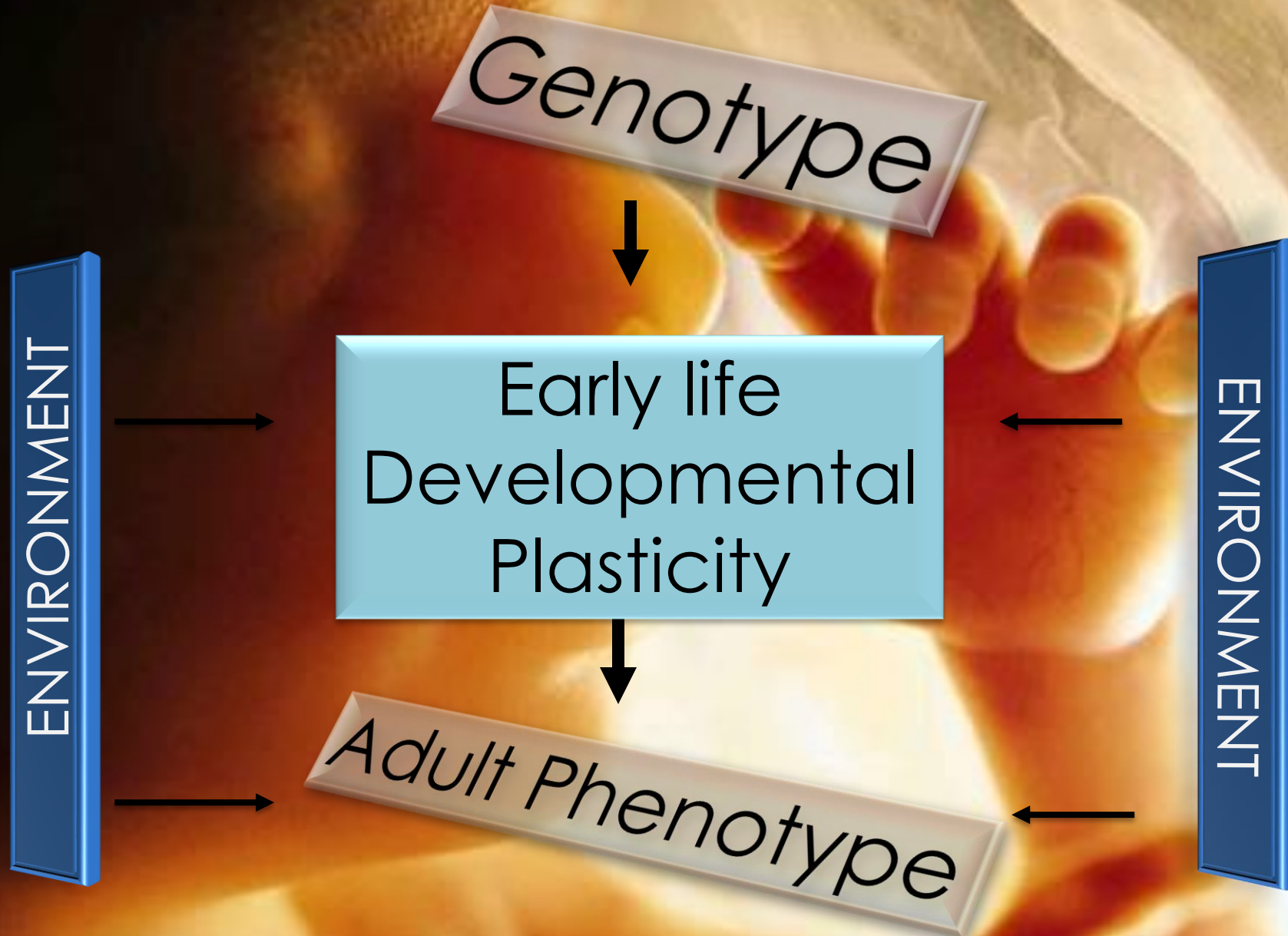
The First 1000 Days

- much of a child's future is determined by the quality of nutrition in the first 1000 days
- initial focus was undernutrition but effects of maternal overweight and obesity are leading to a burden of disease at both ends of the nutritional spectrum

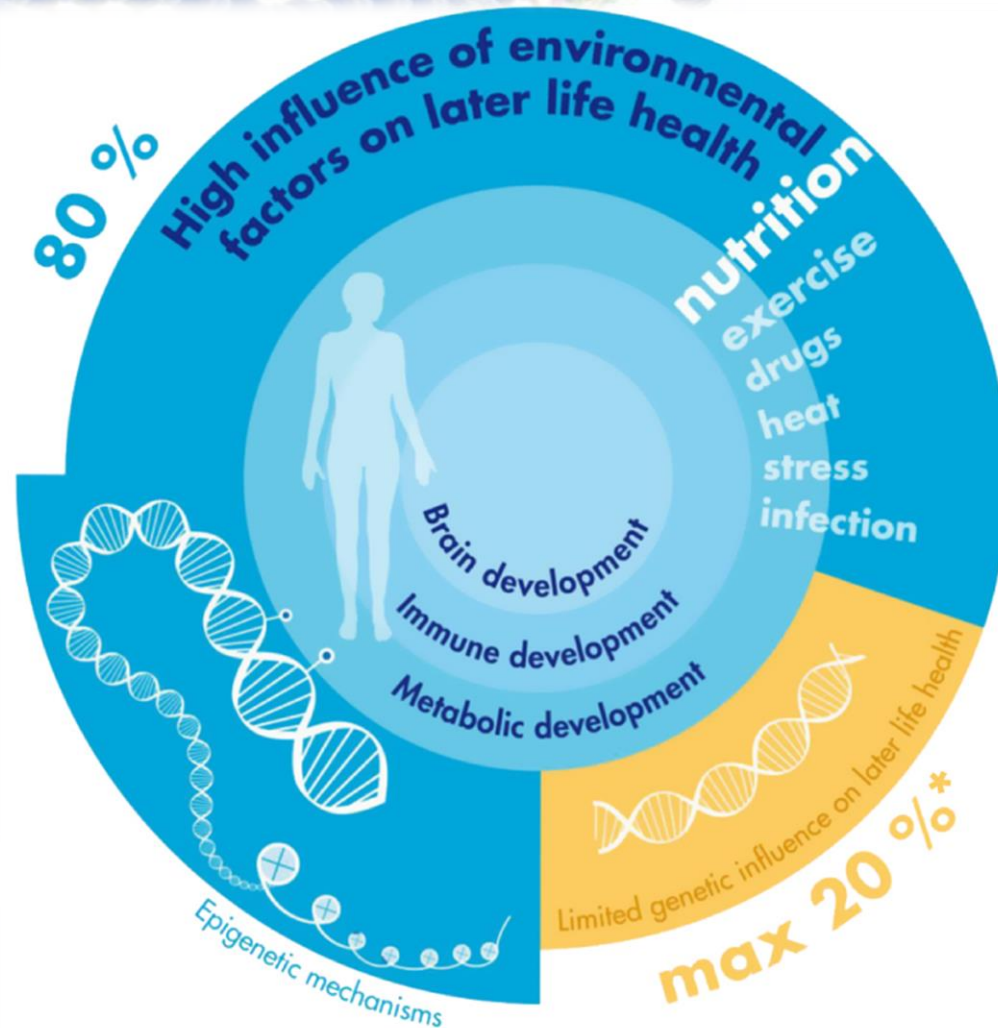
Preconception +



Critical windows of opportunity ?



Your genetics load the gun
Your environment pulls the trigger



* Gluckman, 2013

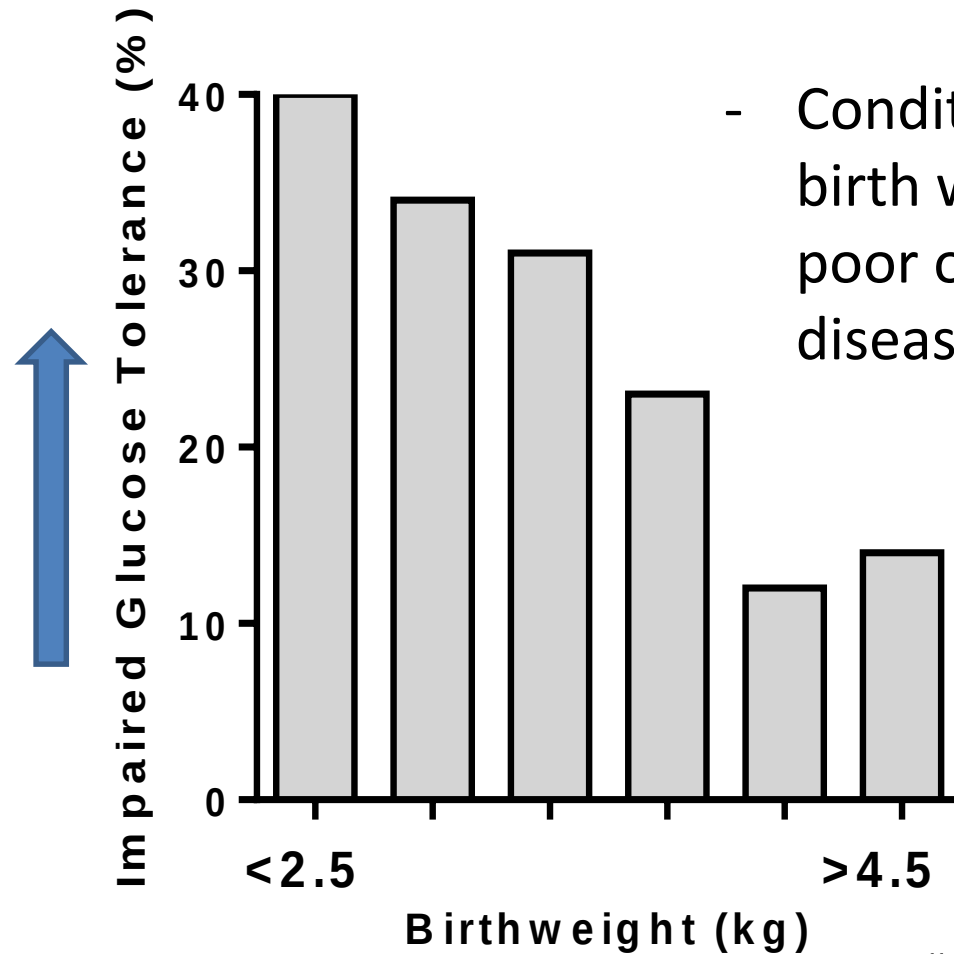
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Year	Month	Day	Time	Place	Remarks	Species	Number	Sex	Age	Notes	Remarks
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1918	Jan	2	12:00	St. Louis	St. Louis	St. Louis	1	♂	ad	1	Good condition
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1918	Jan	27	12:00	St. Louis	St. Louis	St. Louis	1	♂	ad	1	Good condition
1918	Jan	28	12:00	St. Louis	St. Louis	St. Louis	1	♂	ad	1	Good condition
1918	Jan	29	12:00	St. Louis	St. Louis	St. Louis	1	♂	ad	1	Good condition
1918	Jan	30	12:00	St. Louis	St. Louis	St. Louis	1	♂	ad	1	Good condition
1918	Jan	31	12:00	St. Louis	St. Louis	St. Louis	1	♂	ad	1	Good condition



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The “Barker” Hypothesis



- Conditions around the time of birth (e.g. low birth weight) were associated with a range of poor outcomes in later life including heart disease, hypertension, stroke and type 2 diabetes

“...Process whereby a stimulus or insult at a sensitive or critical period of development, has a lasting or lifelong impact on health or function”

The Dutch Famine 1944-1945

- daily intake reduced from 1800 calories to 400-800 calories
- exposure to maternal malnutrition was associated with 2-fold risk of childhood obesity
- 3-fold increase in cardiovascular disease and atherogenic lipid profiles
- marked increase in risk of breast cancer
- transmission to 2nd generation



What can be programmed ?

Cardiovascular system

CHD, blood pressure

Appetite, adipocytes

obesity

Respiratory system

lung volume

Endocrine system

stress axis

Reproductive system

puberty, PCOS

CNS

depression

Immune system

allergies, asthma

Skeletal Muscle

insulin resistance

Bone

bone density

Liver

cholesterol

Kidney

renal function

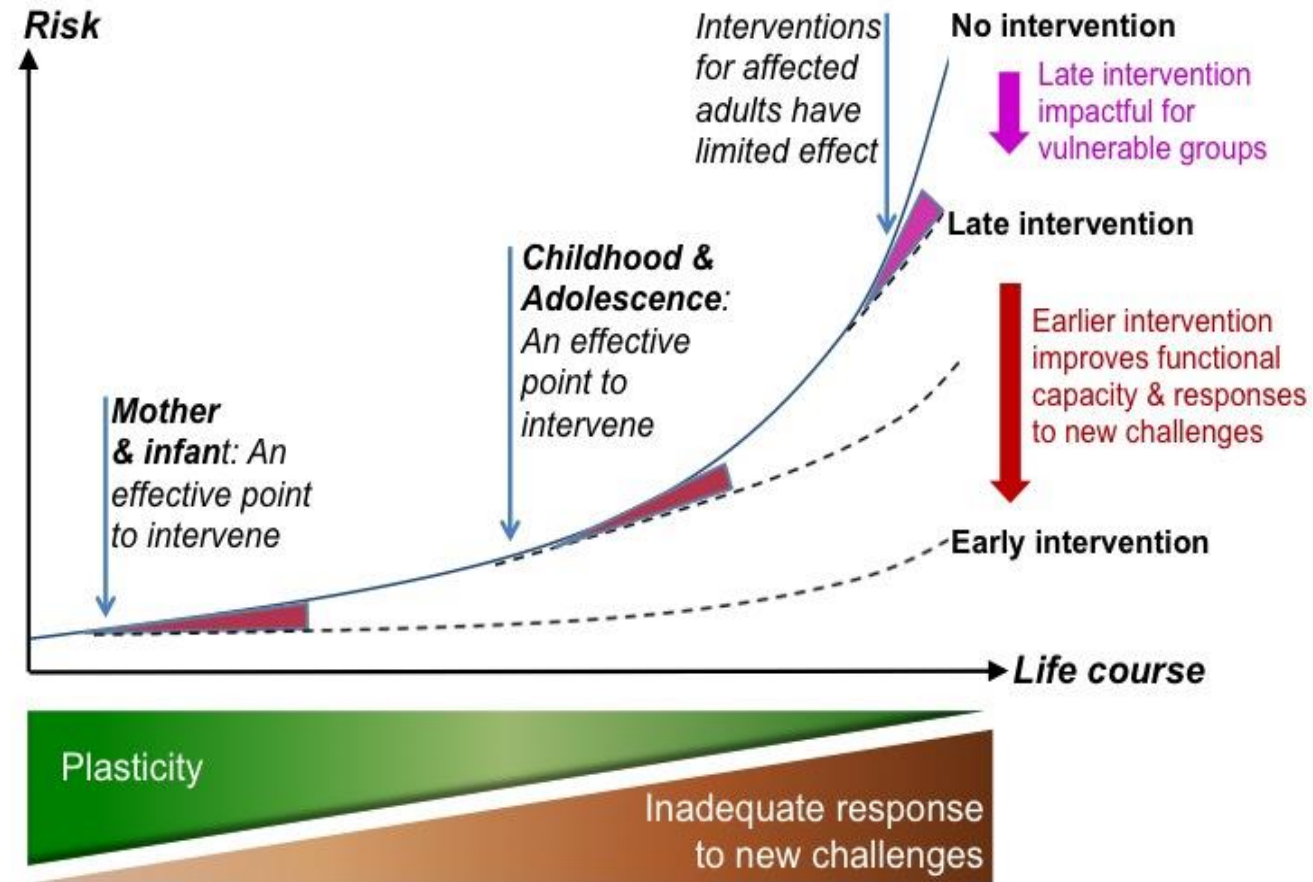
Ageing

lifespan



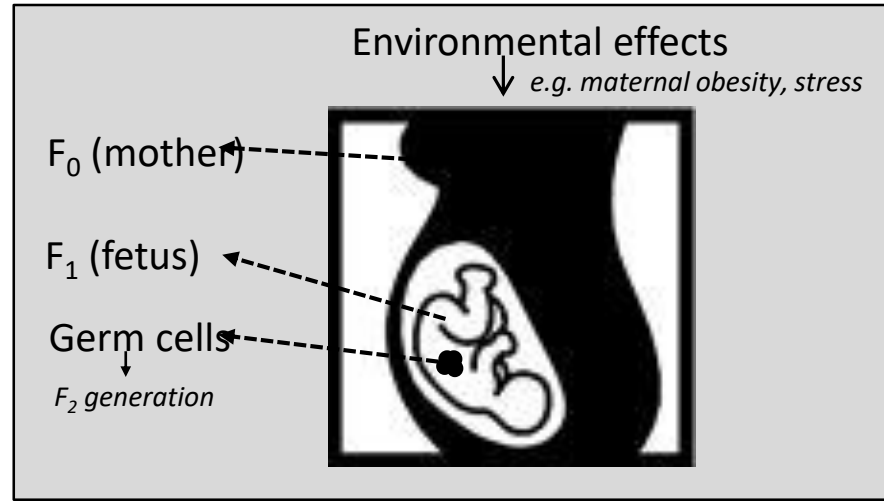
The importance of the early life period

Lifecourse view of NCD



- The earlier the intervention the bigger the effect on later risk reduction

Transgenerational Effects



The effects of a single environmental exposure can be transmitted transgenerationally. An adverse maternal environment (F₀) affects not only the development of the fetus (F₁) but can also affect the germ cells which form the F₂ generation.



Not just maternal nutrition !

- increasing evidence for the role of **paternal factors** in health and well-being of offspring



Create the best future for your child,
through your own diet and lifestyle

ENCOURAGE A HEALTHY WEIGHT FOR LIFE

The weight of both partners before preconception is important. A GP can check your BMIs (Body Mass Indexes) to see they're within a healthy range.

Women with a healthy BMI have less risk of developing gestational diabetes, which in turn helps decrease the risk of diabetes and excessive weight gain in later life.

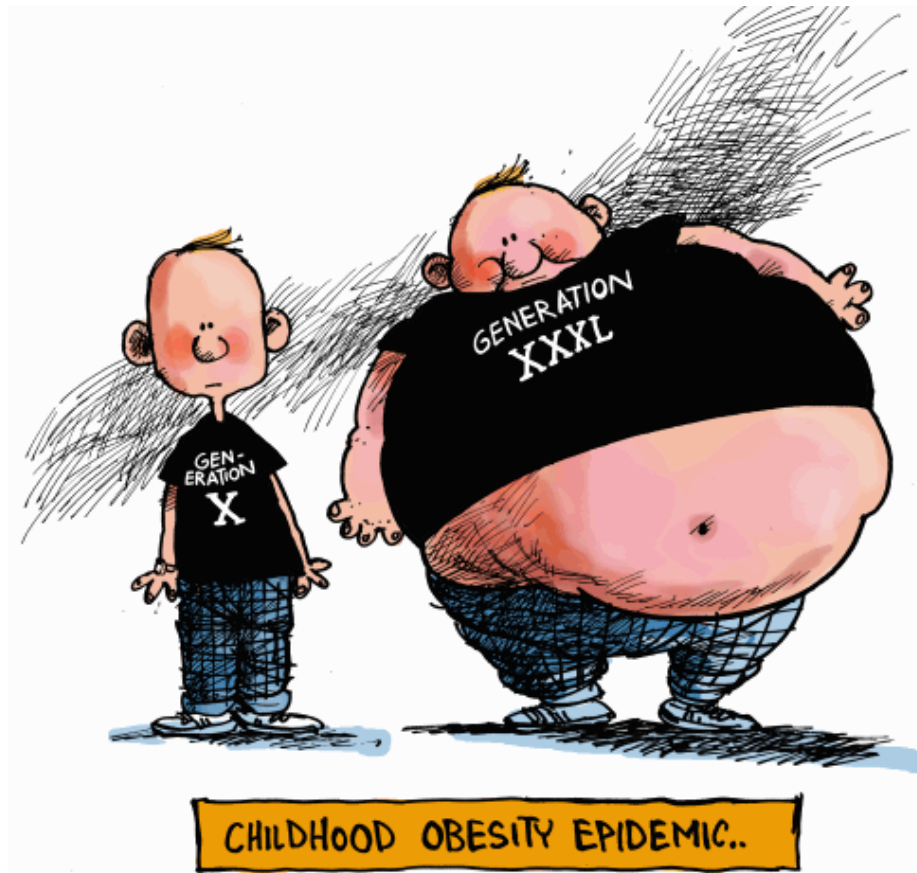
A man's BMI can affect their sperm health and influence their partner's chances of falling pregnant. Healthy weight in males is linked to normal development of the unborn child and reduced risk of miscarriage.

PRE-PREGNANCY CHECKLIST

- ☐ Check your and your partner's BMI and ensure they're within the healthy weight range.
- ☐ Get any existing health conditions under control (if you have type 2 diabetes, ensure you have good glycaemic control).
- ☐ Check your nutritional status with a GP before conceiving.
- ☐ Take a folic acid and iodine supplement whilst trying to conceive.



- Weight loss in males prior to conception can improve health outcomes for the child
- Shared parental responsibility



Pre-clinical models are a key tool for the investigation of mechanisms underlying the early life development of obesity and related metabolic disorders

Maternal Undernutrition

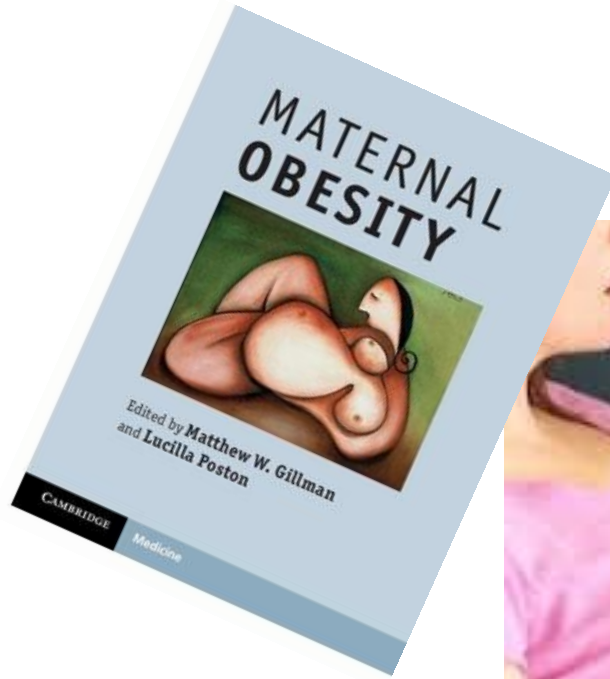


Control

UN



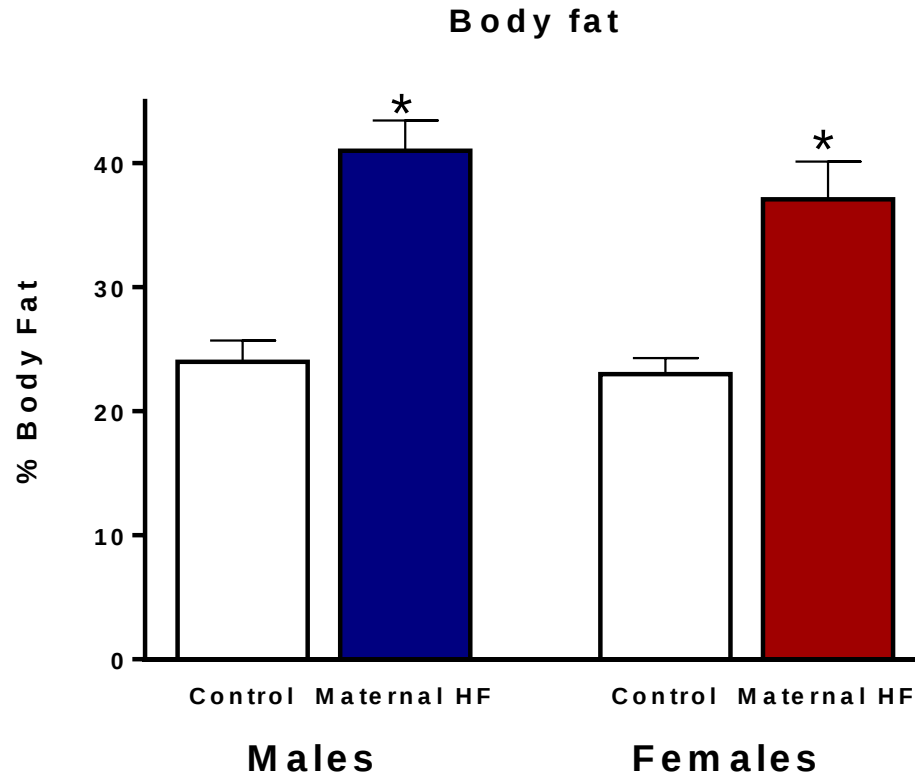
Maternal Obesity



- over 60% of women of reproductive age are overweight obesity “epidemic” in pregnant women
- leads to increased complications of pregnancy including miscarriage, hypertension, gestation diabetes
- ***maternal obesity leads to increased risk of obesity and metabolic disease in offspring***

Maternal Obesity

Control fed offspring of mothers fed a HF diet



Control

MHF

- maternal high fat nutrition induces significant obesity in offspring, ***independent*** of the level of postnatal diet

What interventions ?

- **Dietary**
 - Lipids/fatty acids, pre-/probiotics, taurine, polyphenols, vitamins, methyl donors etc...
- **Pharmacologic**
 - Leptin, growth hormone, insulin sensitizers (GLP-1 analogs etc)
- **Behavioral/lifestyle**
 - Exercise, counselling, education etc...



When to intervene ?

- Pre-conception, pregnancy, lactation, early infancy/childhood



Why is the importance of early life programming not on the “health radar” ?



- impact of early life environment on programming of disease has been well known for decades
- offers knowledge for prevention rather than treatment
- has the message been poorly communicated in the past?

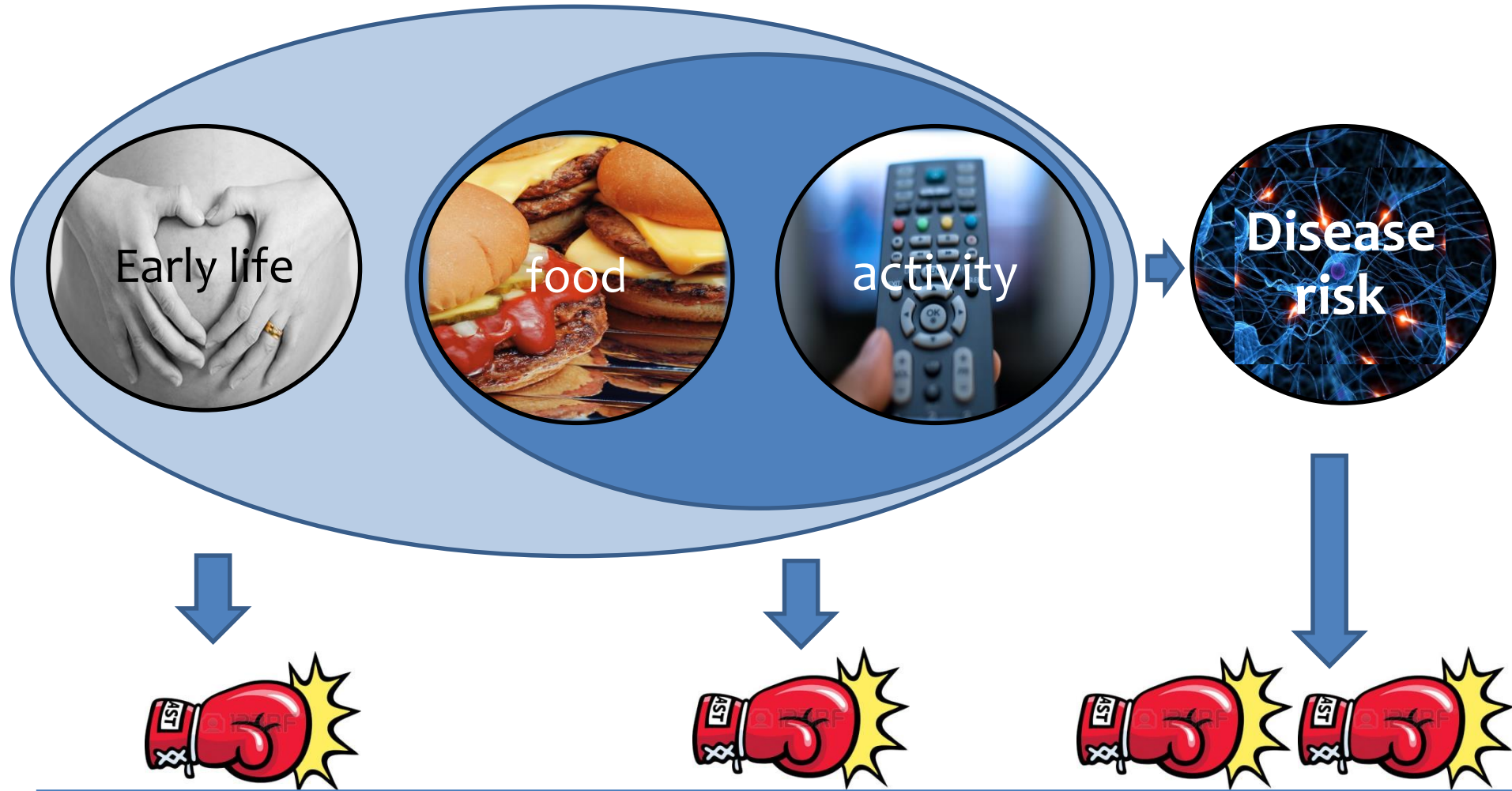


Discussion

- the first 1,000 days of life represents a vulnerable period for programming of disease risk, and is an important target for prevention of later disease
- the right nutrition during this developmental window can have a profound impact on a child's later life disease risk and behavioural and cognitive development
- given the transgenerational impacts, it can also shape a society's long-term health



What determines our health potential?





Healthy Start Workforce Project:

supporting health practitioners as agents of change.

Mary Cavanagh

A healthy start to life starts with all of us

Māu, māku, mā tātou e ora ai

An initiative funded by the Ministry of Health

What we deliver

**Online
education
programme**

Why

nutrition and
physical activity
matter in early life

**Healthy
Conversation
Skills**

How

to effectively
support lifestyle
behaviour change

**Website /
Facebook**

More

news, emerging
evidence and
interaction



Healthy Conversation Skills

93% report the training is valuable for practice.

91% intend to make changes to practice.

68% more confident about supporting change.

"More and more we're dealing with people wanting to pursue lifestyle change. Healthy Conversation Skills is useful for any condition which requires behaviour change. Having the confidence to help them move in the direction they want, using fairly simple techniques, is ideally suited to what we do." Dr Peter Bowden, Four Kauri Medical Centre, Auckland.



Healthy Conversation Skills

A 2 minute conversation

Response styles

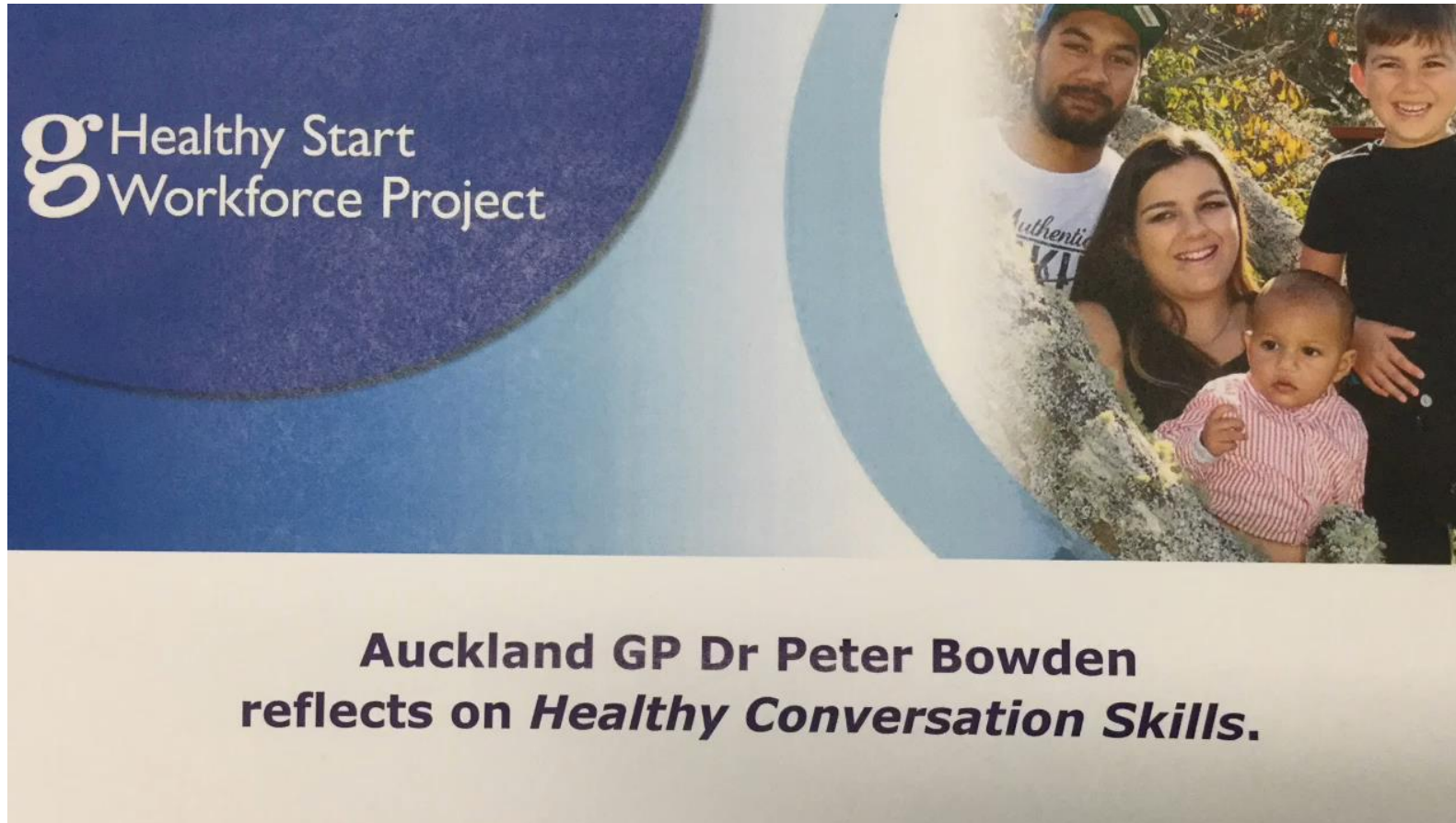
2 more conversations

Reflection

A healthy start to life starts with all of us

Māu, māku, mā tātou e ora ai

Healthy Conversation Skills: a GP's view



A healthy start to life starts with all of us

Māu, māku, mā tātou e ora ai

 Healthy Start
Workforce Project



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Thank you!



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 **Healthy Start
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