Infant growth trajectories and dyslipidemia in adolescence

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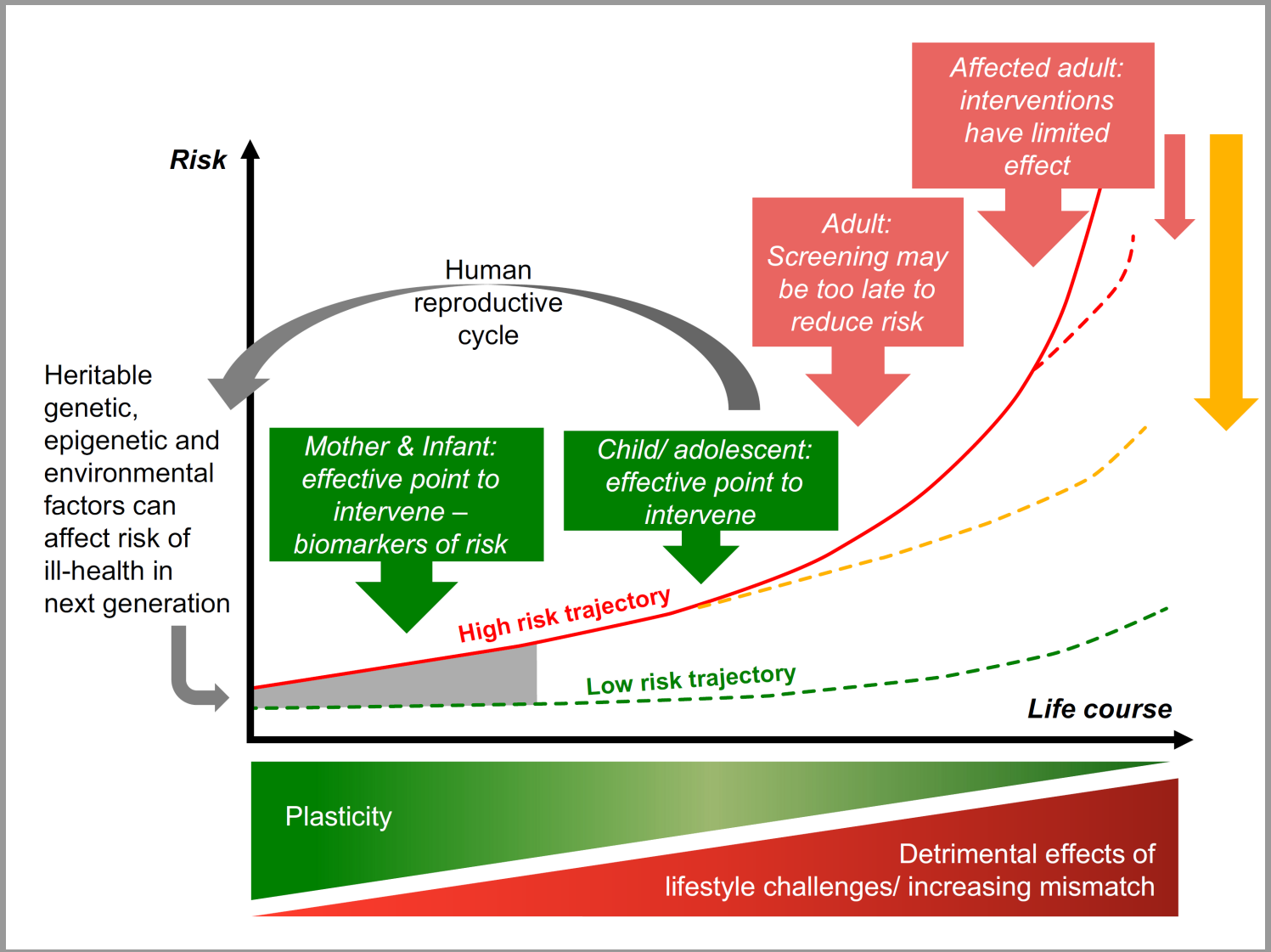
CVD and lipids

- ☐ CVD is a chronic disease
- ☐ Primary modifiable risk factors
- ☐ lipid description

Developmental Origins of Health and Disease



Postnatal growth and lipids

- Repeated animal and human studies have shown that postnatal growth is associated with the later development of adverse cardiovascular risk factors like low HDL-C levels.

	Author	Year published	Direction of growth with increase in HDL-C	2+ observations in change measure	Non-European sample?
1	Corvalan	2009	+		✔
2	Ekelund	2007	+		
3	Howe	2010	–		
4	Kajantie	2008	+		
5	Leunissen	2009	–		
6	Oostvogels	2014	–		
7	Tzoulaki	2010	+	✔	

Postnatal growth as an environmental cue

- ☐ Find a good figure demonstrating growth as an environmental cue.

Aims

Overall: - Investigate the association between postnatal growth trajectories and lipids in adolescence - Contemporary Chilean birth cohort with monthly measures of weight in the first year of life - High quality clinical measures of cardiovascular disease risk factors.

- ☐ Will investigate postnatal growth trajectories for weight-for-length, weight and length outcome measures.

Aim 1

What do growth trajectories look like for infants from 0 to 12 months and what are some significant predictors?

Aim 1 Characterize individual growth trajectories in the first year of life and replicate predictors of growth using external validation with an independent sample.

We expect to replicate previous findings[1] indicating a positive association between:

1. Maternal characteristics such as pre-pregnancy BMI, height and age with trajectory size.
2. Maternal education and trajectory velocity.

[1] Pizzi C; Cole TJ; Richiardi L; dos-Santos-Silva I; Corvalan C; De Stavola B. Prenatal Influences on Size; Velocity and Tempo of Infant Growth: Findings from Three Contemporary Cohorts. PLoS ONE. 2014 Feb 27;9(2):e90291..

Aim 2

Are there any specific types of postnatal growth trajectories associated with dyslipidemia?

Aim 2 Examine the association between postnatal growth trajectories and HDL-C levels.

Based on prior evidence we expect

1. Infants with steeper growth trajectories to associate with adverse HDL-C levels in adolescence.
2. Males will show a stronger association between size, tempo and velocity measures than females.

Aim 3

SITAR method

Latent growth mixture models (LGMM)

Strengths and Limitation

- ☐ Strengths
- ☐ Limitations

Implications

- ☐ Point 1
- ☐ Point 2