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Q5(e)

Foetal origin of adult diseases and contribution of David Barker.

UPSC Civil Services Mains 2025 · Anthropology GS 1 · 10 marks · Culture, Language and Communication

7. Culture, Language and Communication: Nature, origin and characteristics of language; verbal and non-verbal communication; social context of language use.

Core demand of the question

- State the foetal-origins idea associated with **David Barker**
- Explain the mechanism in simple life-history terms
- Give adult-disease outcomes and anthropological significance
- Link to nutrition and inequality

Revision summary

David Barker linked poor foetal growth to later adult heart disease and diabetes.

Hales and Barker's **thrifty phenotype** says the foetus adapts to scarcity and then mismatches plenty.

This is developmental plasticity, not a single-gene disease.

Indian discussion of thin-fat bodies and urban diets illustrates the mismatch.

The idea joins nutrition, embodiment and political economy.

The constraint is often structural, not a moral failure of mothers.

Introduction

David Barker argued that adult heart disease, stroke and type 2 diabetes can begin in the womb. Poor foetal growth, often marked by **low birth weight**, programmes the body for a world of scarcity. If later life is calorie-rich, the mismatch becomes disease. This is the foetal origins of adult disease, now often called **DOHaD**.

Body**Barker's contribution**

Using English birth and death records, Barker showed that areas with high infant mortality decades earlier also showed high adult coronary disease. The **thrifty phenotype** idea, developed with **C. N. Hales**, says the foetus adapts: smaller body, altered liver and pancreas, different blood-pressure settings. Those settings help survival if food stays short. They harm if the child later meets cheap sugar, oil and sitting work.

This is developmental plasticity, not a Mendelian defect. It sits beside nutritional anthropology: the plate of the pregnant woman is already political economy.

How anthropologists use it

- **Mechanism:** The uterus is an environment. Placental nutrition, infection, stress and the mother's own childhood shape the foetus. Embodiment is literal here.
- **Indian research:** Physicians such as **C. S. Yajnik** have discussed a "thin-fat" pattern: relatively small birth size with later central fat and diabetes risk. The point is mismatch between a constrained womb and an urban food environment.
- **Inequality:** **Low birth weight** clusters with caste, class, women's food, anaemia and indoor smoke. Barker's biology does not replace Wolf's political economy. It gives it a body.
- **Current examples:** COVID-19 pregnancy stress, heat and food-price shocks, and the gap between ICDS pregnancy care and actual intra-household allocation are living illustrations of the same hypothesis.

Significance

Foetal origins join biological and social anthropology. They warn that adult lifestyle advice that ignores the first thousand days will miss the poor. They also warn against blaming the mother as a moral failure: the constraint is often structural.

Flow diagram

Womb constraint -> Thrifty phenotype
Thrifty phenotype -> Adult diabetes and heart disease
Later plenty -> Adult diabetes and heart disease
Inequality of maternal diet -> Womb constraint

Conclusion

Barker showed that adult metabolic and cardiovascular disease can be written in foetal growth. The **thrifty phenotype** is an adaptation to scarcity that becomes a risk in plenty. Anthropology's job is to place that womb inside ecology, culture and inequality, not to stop at birth weight as a number.

Facts & figures

David Barker

He proposed that undernutrition in the womb programmes later adult cardiovascular and metabolic disease. This is the foetal origins or Barker hypothesis.

Thrifty phenotype

Hales and Barker's idea that foetal adaptation to poor nutrition becomes a risk when later life is energy-rich.

DOHaD

Developmental Origins of Health and Disease: the wider research field that grew from Barker's work, covering the first thousand days and later chronic disease.

Low birth weight

A common marker in this literature for constrained foetal growth. It is a clue, not a complete explanation by itself.

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