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Q5(a)

Human adolescent growth spurt

UPSC Civil Services Mains 2021 · Anthropology GS 1 · 10 marks · Factors affecting growth and development

Factors affecting growth and development: genetic, environmental, biochemical, nutritional, cultural and socio-economic.

Core demand of the question

- Write a note on the human adolescent growth spurt
- Keep the note to a 10-mark length of about 150 words

Revision summary

The adolescent growth spurt is a rapid height-weight rise at puberty.

Girls peak earlier than boys on **Tanner** velocity curves.

Hormones drive it; nutrition and class time it.

Menarche follows the height peak.

Human **life history** pairs long childhood with this late acceleration.

Introduction

The adolescent growth spurt is a rapid rise in height and weight at puberty. Among primates it is marked in humans and is a bio-cultural event, not only a hormone graph.

Body**Pattern**

- **J. M. Tanner** plotted velocity curves. **Peak height velocity** comes earlier in girls than in boys, which is why girls may be taller at twelve and shorter as adults.
- Sex steroids, growth hormone, and IGF-1 drive the spurt. The pelvis, fat, and muscle take sex-specific paths.
- Menarche follows the height peak. Spermatarche is less visible. Both lock fertility to a body that is still finishing.

Bio-cultural meaning

- Nutrition, class, and disease shift timing. **Secular trend** toward earlier puberty appears in well-fed populations.
- **Inuit**, high-altitude **Tibetan**, and chronically undernourished groups may show delayed or blunted spurts.
- The long human childhood plus a sharp spurt is part of the slow life-history that **Washburn** and later life-history theorists tied to learning and brain growth.

Flow diagram

Childhood -> Adolescent spurt
Adolescent spurt -> Tanner velocity
Adolescent spurt -> Earlier peak in girls
Adolescent spurt -> Nutrition class climate

Conclusion

The adolescent spurt is a human-typical velocity peak shaped by hormones and by food, class, and climate. **Tanner's** curves remain the teaching tool.

Facts & figures

Tanner

British auxologist whose stages and velocity charts remain the clinical and anthropological standard.

Peak height velocity

The fastest annual height gain; typically earlier in girls than in boys.

Secular trend

Earlier puberty and greater adult stature in many industrialising populations with better nutrition.

Life history

Human delayed reproduction and a late spurt fit a learning-intensive childhood.

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