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Q6(a)

Elucidate the biological and cultural factors in Human evolution.

UPSC Civil Services Mains 2016 · Anthropology GS 1 · 20 marks · Biological and Cultural factors in human evolution.

(a) Biological and Cultural factors in human evolution.

Core demand of the question

- Elucidate the biological and cultural factors in Human evolution
- Write about 250 words for 20 marks

Revision summary

Bipedalism and a large, slow-growing brain are biological platforms.

Stone tools, fire, and sharing are cultural forces.

Washburn treated tools as a cause of further anatomy.

Hrdy's alloparents help explain childhood.

Lactase persistence shows the loop continuing.

Introduction

Human evolution is a two-way process. Somatic change opened new habits; tools, fire, and teaching then selected further biology.

Body**Biological factors**

- **Bipedalism** in **Australopithecus**, with **Laetoli** footprints, freed the hands and changed the birth canal.
- Brain enlargement, reduced canines, and a longer childhood mark **Homo habilis** and **Homo erectus**.
- Sweat cooling, endurance walking, and dietary shifts, including **Wrangham's** cooking hypothesis, lowered gut cost.
- **Life history**: helpless infants need carers, which **Hrdy** ties to cooperative breeding.

Cultural factors

- **Oldowan** and **Acheulian** tools at **Olduvai** and **Attirampakkam** extend diet and range.
- Fire, shelter, clothing, and later language store knowledge outside the body.
- Food sharing and division of labour make a social niche. **Tomasello** calls the result cumulative culture.
- **Washburn** argued tools selected the human hand, not only the reverse.

Feedback still visible

- **Lactase persistence** and high-altitude alleles show gene-culture coevolution after the Pleistocene.
- Neither biology nor culture is a residual. The human niche is both.

Flow diagram

Bipedal brain childhood -> Tools fire language
Tools fire language -> Selection on body
Selection on body -> Bipedal brain childhood

Conclusion

Biological factors are bipedalism, brain, and delayed growth. Cultural factors are tools, fire, sharing, and teaching. Evolution of humans is their feedback, not a choice of one side.

Facts & figures

Laetoli

Bipedal prints before a rich stone-tool record.

Washburn

Man the tool-maker as a selection argument.

Wrangham

Cooking as a biological game-changer.

Hrdy

Cooperative breeding in human evolution.