

Evolutionary Anthropology

Evolutionary Anthropology – Quick Reference Notes

1. Definition & Scope

Concept	Description
Evolutionary Anthropology	The subfield of anthropology that applies evolutionary theory to understand the origins, development, and variation of human biology, behavior, and culture.
Core Questions	• How did the human species arise? • What adaptive pressures shaped our anatomy, cognition, and sociality? • How do biological and cultural evolution interact?
Key Disciplines Integrated	Paleoanthropology, biological anthropology, genetics, primatology, archaeology, comparative psychology, and cultural evolution studies.

2. Theoretical Foundations

Theory	Main Idea	Representative Proponents
Darwinian Natural Selection	Differential reproductive success leads to adaptation.	Charles Darwin, George C. Williams
Modern Synthesis	Merges Mendelian genetics with natural selection; emphasizes population genetics.	Theodosius Dobzhansky, Ernst Mayr
Evolutionary Developmental Biology (EvoDevo)	Developmental pathways constrain and channel evolutionary change.	Sean B. Carroll
GeneCulture Coevolution	Genes and culture evolve reciprocally; cultural traits can alter selection pressures.	Robert Boyd, Peter J. Richerson
Inclusive Fitness & Kin Selection	Altruistic behavior can evolve if it benefits relatives sharing genes.	W. D. Hamilton

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Theory	Main Idea	Representative Proponents
Reciprocal Altruism & Mutualism	Cooperation can evolve when individuals gain long-term benefits from repeated interactions.	Robert Trivers
Self-Domestication Hypothesis	Selection against aggression leads to morphological and behavioral changes (e.g., reduced facial robusticity).	Richard Wrangham, Brian Hare

3. Major Evolutionary Transitions in Human History

Transition	Timeframe (approx.)	Key Anatomical / Behavioral Changes	Evidence
Bipedalism	6–7 Ma ? 4 Ma	• Pelvic shortening, valgus knee • Foot arches, heel strike	Fossils: <i>Australopithecus afarensis</i> (Lucy), <i>Orrorin tugenensis</i>
Brain Expansion	2 Ma ? present	• Cranial capacity ? from ~600 cc to >1,350 cc • Reorganization of prefrontal cortex	Endocasts, cranial measurements
Tool Use & Manufacture	2.6 Ma (Oldowan) ? 50 ka (Upper Paleolithic)	• Stone flaking, hafting, composite tools • Planning, foresight • Cooking, heat	Archaeological assemblages (e.g., Lomekwi, Olduvai, Levallois)
Control of Fire	~1 Ma (controversial) ? 400 ka (secure)	• regulation, night activity • Social gathering around hearths	Hearths, burned bones, thermoluminescence dating
Language Emergence	200–100 ka (est.)	• Complex vocal tract, FOXP2 changes, symbolic behavior	Endocasts, symbolic artifacts (ochre, beads)
Complex Social Structure	150 ka ? present	• Large, cooperative groups, pair-bonding, kin networks	Burial sites, art, settlement patterns

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Transition	Timeframe (approx.)	Key Anatomical / Behavioral Changes	Evidence
Agricultural Revolution	~12?ka	• Domestication of plants/animals, sedentism • Population growth, disease exposure	Plant remains,