

BIO1300 The Human Animal

Topic 6: Being Human

Key Words

The great leap
40-50,000 years ago
Cultural evolution
Sophisticated tools
Art-forms
Decoration
Biological evolution
Clothing and shelter
Environmental factors
Better weaponry
Smaller bodies
From Braun to Brains
Robust bodies
Caloric requirements
Danger of the hunt
Projectile weapons
Atlatl
Hunt from safe distance
Invest energy into brains instead
Pygmy Bushmen
Bow and arrow
Poison dart tips
Expansion out of Africa
Occupy entire globe
Development of races
Physical appearance
Cultural practices
Physiological differences
The rate of evolutionary change
Gradualism
Punctuated equilibrium
Scarcity of fossil record
Evolutionary shallow changes
Unlikely to evolve major changes
Single mutations may lead to big differences
Loss of function
Exaggerations
Neotony
Dog domestication
All breeds descended from wolves
Same timescale as recent humans

Companion species
Aiding in the hunt
Great amount of variability in traits
Loss of function
Birthing in dens
Not ideal for nomadism
Exaggeration
Irish setters point
Hunting companion
Wolf pack
Scent detection
Ambush prey
Neotony
Playfulness
Infant mammals
Learning movements
Developing social interactions
Genetic variation
Within group variation
Between group variation
Quantity of genes not important
Which genes affected is important
Source of genetic variation
Interbreeding
Neanderthal genes
Advantages to living in Europe
Cold-hardiness
Skin colour
Day-length changes
Disease resistance
Changes to the brain
Reduction in body size
Increase in brain function
Back-crossing occurred later in Asia,
Africa
The role of agriculture
Calories/acre
Foraging
Population growth
Food storage
Increased reproductive rate
Civilizations
Larger gene pool
Sweaty humans
Evolution of hairlessness
Eccrine glands

Salt loss
Gene for salt retention
Migration out of Africa
Cooler environments
Null variant gene
Loss of salt retention
Dietary requirement
Salt craving
Roman legionnaires
Payment of salt
Soldier
Salary
Salty snacks
Blue eyes
More-or-less non-existent outside of Europe
Small pockets of occurrence
Berbers of Morocco
Tuaregs of Sahara
Kurds of mountains in Iran/Iraq
Afgans
OCA2 gene
Oculocutaneous albinism II
10,000 -6,000 years ago
Northern European origin
Vandals plundering Europe
Barbarian groups
Germanic origin
European marauding
Looting
Pillaging
Raping
Men killed
Women raped or brought into harem
Spreading of gene throughout
European descendants
Homosexuality
Occurs among most animals
2-4% of humans
Has a genetic contribution
Studies using twins
Identical vs. non-identical twins
Genetic vs. environmental effects
Role of hormones
Sexual anatomy is similar
Sex differentiation in uterus

Stress lowers testosterone
Low testosterone on males
Increased frequency of gays
Increased testosterone affects girls
Diethylstilbistrol (DES)
Prevent miscarriages
Increased frequency of lesbians
Gay men are more effeminate
Still strong focus on physicality
Lesbians exhibit range in masculinity
Not binary differences
Gayness is a gradient
Brain differences
Hemisphere volume
Amygdala
Homo vs. heterosexual brains
Behaviour differences
Sex-typical vs. sex-atypical play
Gender identity
How evolved and maintained?
Zero fitness
Non-breeding helpers
Florida Scrub Jay
Help raising siblings
Genes in common
Inclusive fitness
Improve fitness of family
Human speech
Trade-off between muscle and brain tissue
Dystrophin protein
Longest gene sequence
High frequency of mutations
Muscular dystrophy
Human propensity for language
Learnt at young age
Complex syntax and grammar
Non-human primate speech
Chimpanzees
Common ancestry
Sign language
Cue cards
Larynx
Throat and mouth morphology
Complex vocalizations
FOXP2 gene

Human communication
Social animals
Subtlety of context
Visual cues
Facial expressions
Body language
Functional resonance magnetic
imagery
fMRI
Temporal sulcus region
Observation of visual cues
Inseparability of visual and audio
components
McGurk Effect
Combination of visuals and audio
Ba Ba
Frugivores
Fermentation
Sugar concentration
Nutrient quality
Alcohol dehydrogenase enzymes
ADH
Detoxification
Tolerate alcohol intake
Human brew and drink alcohol
Ever since advent of agriculture
Beer/wine at 8,000-5,000 years ago
Benefits of moderate consumption
Thinning of blood
Decrease hypertension
Antioxidants
Avoiding water borne diseases
Social lubrication
Getting silly
ADH associated with agrarian cultures
(with institutionalized agriculture)
Aborigines lacking ADH complex
Susceptibility to toxic effects of
alcohol
Granivore mammals lacking gene
Susceptibility to intoxication
Future evolution of humans
Role of technology
Artificial intelligence
Cyborg-human creations
Independence from nature

Evolution continues!
Yeah