

SAMPLENOTES

PSYC20008

lowest stayed low, thus representing resistance to RTI in dyslexic children

- **Horowitz-Krows (2014)**: children with reading difficulties used more areas in the brain on the right side before intervention possibly due to compensation. Post-intervention, RD more in left & experienced improved performance, highlights metabolic shift and need for early intervention
- **Muinus (2016)**: found 39 RD read better with dyslexie font at 75.7w/min than without 70w/min

Giftedness

- **Giftedness**: a combination of high intelligence, developmentally advanced, top-performing in classroom, quick learner and very curious (within a culturally valued domain)
 - **Tripartite model (Pfeiffer, 2015)**: looks at high intelligence, high potential to excel and outstanding accomplishments altogether, multiple ways to identify each
- **Benefits** of identifying giftedness:
 - Admission to special programs
 - Understand strengths and weaknesses
 - Assessing growth areas → curriculum modification
 - Discerning factors contributing to under achieving
 - Determining appropriate grade placement
- Emotional and social strengths and weaknesses of the gifted
 - **Strengths**
 - Positive self-concept
 - High self-esteem
 - Motivation & task commitment
 - Resiliency
 - **Limitations**
 - Same age friends hard to make
 - Asynchronous development
 - Stigmatising label
 - Perfectionism

Language – Sound of Speech

Nature and Nurture

- **Nature extremes**: people are different from rocks, must have innate knowledge to learn language
- **Nurture extremes**: people need to hear language to speak it, do things animals don't → learned
- **Further arguments**: language specific v general cognition, limitations on the assumptions? Different from animals? Distinct modular area of the brain?
- Language specificity (brain modularity)
 - **FOR**: areas in the brain are specific for language – innate
 - **Broca's area**: close to motor cortex, issues with grammatical processing, stilted, ungrammatical, non-fluent, content-full speech full of nouns
 - **Wernicke's area**: close to auditory cortex, issues with fluent speech, lacks sense but grammar is intact
 - **AGAINST**: Non-linguistic, localisations (sheep recognition) developed, many components of language such as meaning are spread throughout the cerebral cortex

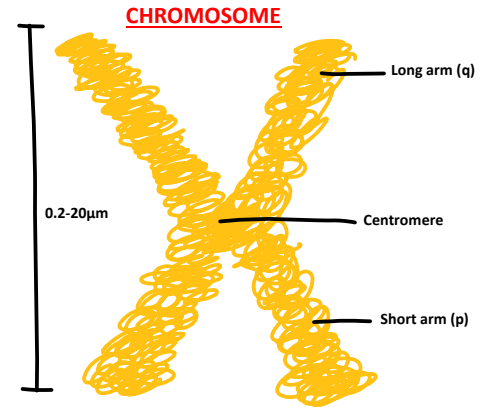
Influence of Environment

- **Wild/feral children**: children raised with little or no language influence, commonalities:
 - Strange gait
 - Dislike of clothing
 - Odd senses
 - Vocab better than grammar
 - Poor social skills
 - Sometimes no language skills at all
 - **Issues with using feral children for research**: too many confounds, deprived in many ways, traumatised, neglected, no social interaction → no need to communicate, don't know initial state
- **Deaf children**: children who learn sign language earlier are better at the grammatical nuances – critical period? British SL found that late learners were worse than second language learners

MODULE 3: Biological Development

Introduction to human Genetics

- **Phenotype**: observable properties of an organism produced by the genotype and environmental influences *E.g. height, Down's syndrome with sloping forehead and protruding tongue*
- **3 parent child**: mitochondrial DNA, only 1% contributed though
- Cells have 46 chromosomes, except gametes with 23 chromosomes
- **Chromosome**: linear sequence, made of chromatin (histones), only visible during meiosis and mitosis
- **Gene location**: chromosome number/letter, arm (p or q), gene position
- **Karyotype**: description of chromosomal content of a cell, 1-22 autosomes, sex are X and Y (smaller)



Chromosomal Variations

- **Down's syndrome**: trisomy at chromosome 21 (47 total)
- **Klinefelter syndrome**: XXY, 47 total, physical abnormalities, 1 in 500-1000 (common), affects dev...
 - **Physical**: weak muscles, reduced strength, lag in physical development, larger breasts
 - **Language**: between 25 and 85% of XXY have language difficulties
 - **Social**: quiet, shy, undemanding compared to other men
- **Turner syndrome**: XO, 45 total, intellectual disabilities and sexually underdeveloped
- **XYY syndrome**: 47 total, increased height, maybe aggression

DNA

- **DNA**: deoxyribonucleic acid, 4 bases, adenine – thymine, guanine – cytosine, complementary base pairing via Hydrogen bonds, read 5' → 3', antiparallel strands, nucleotide made up of the nitrogenous base, phosphate group and 2-deoxyribose sugar
- **Locus**: sequence of DNA situated on a specific region on a chromosome
- **Gene**: stretch of sequence of bases, Richard Dawkin's definition is "a gene is defined as any portion of chromosomal material that potentially lasts for enough generations to serve as a unit of natural selection", genes have one or more specific effects upon a phenotype, can recombine with other genes, can mutate, expressed at different times, only influence development when on and expressed
- DNA is a template for synthesis of RNA (so it can be carried to other cellular regions to create proteins), mRNA carries instructions, codons code for amino acids (64 codons, 20 amino acids)
- **Proteins**: important as they include enzymes, haemoglobin, insulin, collagen, keratin, histones, actin and myosin, immunoglobulin
- 1/3 of genes have 2 or more forms (alleles), AA or TT homozygous, AT or TA heterozygous, this is a **single nucleotide polymorphism (SNP)**
- **Polygenic inheritance**: traits governed by multiple genes
- **Mutations**: change in DNA, basis of natural selection, wide impacts, spontaneous or induced, base substitution, insertions, whole or partial chromosomal abnormalities

Genes and Environment

- Very complex interplay
- Normal human development occurs if gene is turned on and off at right time and for right length
 - Some only for hours and are then turned off permanently *E.g. embryo*
 - Others are involved in basic functioning all of the time