Outline of Medicine
May 20, 2013

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Note: To look up references, see the Consciousness Bibliography, listing 10,000 books and articles, with full journal and author names, available in text and PDF file formats at http://www.outline-of-knowledge.info/Consciousness_Bibliography/index.html.

BIOL>Medicine

medicine
Biology {medicine} can study diseases, drugs, examinations, treatments, and oriental medicine.

healthy habits
Eat protein-rich breakfasts and good lunches. Sleep normal amount. Exercise to increase heart rate and breathing rate. Take 20 minutes of quiet rest and relaxation every day, closing eyes, sitting comfortably, relaxing muscles, and breathing evenly. Take free days, weeks, or vacations regularly. Set priorities and perform them in order. Plan purchases and activities: when, how much, how long, what, and goal. Waste no time on long discussions. Postpone no problems. Leave no decision waiting. Allow no jealousy, envy, anger, bitterness, or sadness to waste energy.

doctrine of signatures
Substances with similar appearances have same therapeutic effects {doctrine of signatures} {signatures doctrine}. However, this ancient theory is incorrect.

Hippocratic oath
Licensed doctors swear to follow standard medicine principles {Hippocratic oath}|. Most famous is "Do no harm".

malpractice
Doctors can perform procedures incorrectly or perform questionable procedures {malpractice}|.

prognosis
Patients have probable outcomes {prognosis, outcome}|.

reversion
Patients can return to previous habits or states {reversion}|.

BIOL>Medicine>Clean

aseptic
Conditions {aseptic}| can have no bacteria or fungi.

septic as pathogenic
Conditions {septic} can be about pathogens in tissue.

pasteurization
Boiling milk and other liquids, for several minutes, kills organisms {pasteurization}|.

BIOL>Medicine>Disease

disease
Malnutrition, unclean water, faulty or non-existent sewer systems, air pollution, tobacco abuse, alcohol abuse, drug abuse, unsafe sexual activity, low physical activity, occupational hazards, and hypertension can cause diseases {disease}.

complex of symptoms
Diseases have observable signs {complex, disease}. Treatment can eliminate symptoms and/or cause.

malady
People can be sick {malady}.

infection
Parasitic organisms can cause diseases {infection}| {infectious disease}.

pathogen
Bacteria, viruses, and toxins {pathogen}| can cause disease.

BIOL>Medicine>Disease>Widespread

epidemic
Diseases {epidemic} can be widespread.

pestilence
Organisms {pestilence}| can be widespread and destructive.

plague as disease
Diseases {plague}| can be widespread and typically fatal.

contagion as disease
Diseases {contagion, disease} can spread from person to person.

BIOL>Medicine>Disease>Kinds

heat exhaustion
Dehydration can cause weakness and high body temperature {heat exhaustion, disease}|.

motion sickness
In moving vehicles that change direction, people can experience nausea and headache {motion sickness}. Dramamine can reduce motion-sickness symptoms. People can focus on outside objects.

prostration
People can be physically too tired to move {prostration}|.

trauma
blows to body {trauma}|.

venereal disease
Sexually transmitted diseases {venereal disease}| {social disease} include syphilis and gonorrhea.

BIOL>Medicine>Disease>Kinds>Cancer

cancer
Genes that regulate cell growth and division can have mutations or expression errors that cause tissues to grow too rapidly {cancer}|.

cell division
Normal cells can have 70 replications. Cancer cells make, or react to growth-promoting chemicals and make, molecules that trigger cell division. Cancer cells have no cell-division limits. Cancer cells do not respond to molecules from adjacent tissues that normally stop growth and cell division.

cell death
Cell mechanisms for killing cells in response to DNA damage do not affect cancer cells.

steps
Common progression to cancer is inflammation, metaplasia or hyperplasia, dysplasia or neoplasia, and carcinoma or other cancer types. Perhaps, inflammation is from bacteria or toxins. Cancer starts with oncogene activation, followed

by transformed-cell proliferation, immune-system-mechanism evasion, and tumor angiogenesis-factor release. Cancer cells have chemokine receptors.

types

Tissue cancers are carcinoma, sarcoma, leukemia, and lymphoma.

Organ cancers are mostly in lung, large intestine, colon, rectum, and breast. Organ cancers have lower frequency in pancreas, prostate, stomach, and brain.

types: immune system

In immune system, genes that regulate transpositions that make antibodies can have mutations or expression errors that express protein {c-myc protein} that can cause leukemia, lymphoma, B-cell tumor, and T-cell tumor.

blood vessels

Tumors can secrete angiogenesis factors that make blood vessels grow.

aneuploidy

Perhaps, cancerous cells first change chromosome number or arrangement {aneuploidy, cancer} and later become cancerous. Chromosome parts duplicate, transfer, switch, join, and become lost, so genes that control cell division {master genes} can mutate or change epigenetically. Perhaps, centrosome RNA genes have master genes. Chromosomes can also add or subtract histone proteins and acidic nuclear proteins. Enediynes break DNA apart.

contagious cancer

Canine venereal tumor disease and devil facial tumor disease are contagious cancers.

metaplasia

Cells can transform from one type to another type {metaplasia}, as when cartilage becomes bone, or cells become cancerous.

metastasis

Cancer cells can migrate {metastases} {metastasis}|. Migrating cancer cells go through blood-vessel walls and travel in blood and lymph {metastasize} until trapped in small blood vessels or lymph nodes. Cancer cells pass through capillary linings and start secondary tumors.

effects

Tumor cells can invade and destroy cell-cell adhesions, stromal extracellular matrix, basement membrane, and parenchymal cells. Cells deform. Cell motility increases. Cell receptors alter.

factors

Serine proteinase, cysteine proteinase, metalloproteinase can assist cancer invasion.

carcinogenesis

Gene mutations that alter cell-proliferation repressors start cancer {carcinogenesis}.

apoptosis

If cells have broken DNA or low oxygen, TP53 gene makes p53 protein, which kills cells {apoptosis}. Bcl-x gene regulates apoptosis by making protein in two alternatively spliced forms, Bcl-x(L) and Bcl-x(S).

cancer testis antigens

Tumors, follicle cells, and sperm make antigens {cancer testis antigens}.

oncovirus

Viruses {oncovirus} can cause leukemia, Hodgkin's disease, and other cancers. The first oncovirus discovered was Rous sarcoma virus, which has src oncogene and is in all higher animals. Human papilloma virus {papillomavirus} (HPV) causes cervical cancer and suppresses tumor-suppressor genes. Epstein-Barr virus causes mononucleosis and prevents cell suicide. Retroviruses can cause sarcoma. Perhaps, cytomegalovirus causes glioblastoma.

vascularization

Tumor angiogenesis factors released by solid tumors start blood-vessel formation {vascularization}, which allows cancers to spread by supplying more oxygen.

BIOL>Medicine>Disease>Kinds>Cancer>Chemicals

angiogenesis factor

Tumors can secrete peptides {angiogenesis factor} that make blood vessels grow.

carcinogen

Cancer-causing chemicals {carcinogen}| mutate DNA. Radioactivity, electromagnetic radiation, air pollutants, chloramine, x-rays, ultraviolet radiation, vinyl chloride, asbestos, arsenic, nickel, coal, benzene, PCB, tris phosphate, perchloroethylene (perc), dimethylbenzanthracene (DMBA), tar in cigarette smoke, high fat diet, saccharin, cyclamate, diethylstilbesterol (DES), nitrites, red food dye, yellow food dye, chloroform, and excess estrogen mutate DNA.

BIOL>Medicine>Disease>Kinds>Cancer>Genes

master gene

Perhaps, genes {master gene} that control cell division mutate or change epigenetically. Perhaps, centrosome RNA genes have master genes.

tumor-suppressor gene

Genes {tumor-suppressor gene} {anti-oncogene} {recessive oncogene} can control oncogenes. Tumor-suppressor genes mutate and no longer make enough tumor suppressors, and this allows cancer to begin. For example, p53 gene protein suppresses growth, but p53-gene mutation allows growth. Tumor-suppressor genes {retinoblastoma gene} {Rb gene} {p53 gene} {APC gene} {MYC gene} {BCL-2 gene} {RAS gene} number 15 or more and regulate cell division.

BIOL>Medicine>Disease>Kinds>Cancer>Genes>Oncogene

proto-oncogene

Host cells have genes {proto-oncogene} that regulate cell growth. Chromosome rearrangements can activate proto-oncogenes. In human chronic myelogenous leukemia, chromosome-9 ends, with abl genes, are on chromosome 22 {Philadelphia chromosome}. Retroviruses incorporate proto-oncogenes from normal cells to make oncogenes by transduction.

oncogene

Tumor-virus genes {oncogene} can make host cells cancerous. Viral oncogenes are SV40 and polyoma T-antigen gene, adenovirus E1A and E1B genes, and papillomavirus E6 and E7 genes. Testicular germ-cell tumor (TGCT) gene, prostate-cancer-susceptibility gene, and familial male breast-cancer gene are on X-chromosomes. Src gene, BRAF gene, c-fos gene, and c-erbb3 are other oncogenes. Oncogenes number more than 100.

transformation

Oncogenes change host genomes by transformation. Oncogene products repress genes that stop cell growth and control oncogenes. Oncogene products start DNA replication, cell growth, and viral gene transcription. Viruses typically affect non-growing cells. Cancer daughter cells are cancerous, too.

mutation

Oncogenes mutate to activate. Perhaps, some cells are more susceptible to mutation.

cell death

Oncogenes send cell-death signals, which survival signals from other genes suppress. Perhaps, oncogenes protect against viruses.

transcription factors

fos gene, myc gene, rel gene, and other oncogenes can be transcription factors. B-cell tumors activate c-myc genes. Neuroblastomas have N-myc-gene over-replication. Avian leukosis virus goes into host genomes and then activates cellular myc proto-oncogene, so it transforms slowly.

signal transduction

Oncogenes can be in signal-transduction pathways. Oncogenic src-gene, abl-gene, and lck-gene protein-tyrosine kinases send signals even if they have not received initiation. Rous-sarcoma-virus src gene transforms quickly.

growth factor

Monkey-retrovirus sis genes encode platelet-derived growth factors that stimulate cells. Viral erbB genes make epidermal growth factor receptors without EGF initiation.

retrovirus

Cancer genes are similar to retrovirus genes. Cancer genes make protein kinases for protein phosphorylation. Phosphorylation cascades phosphorylate tyrosine in ATPase and trigger cell malignancy.

G protein
Harvey-sarcoma-virus ras gene products act like G proteins, but do not remove GTP. Ras-gene proteins associate with proteins {GTPase activating protein} {GAP protein}. IRA-gene products are similar to GAP proteins.

BCR-ABL fused gene
Philadelphia-chromosome BCR and ABL gene fusions {BCR-ABL fused gene} can cause leukemia {chronic myelogenous leukemia}.

B-RAF gene
Melanoma and moles have human cancer gene {B-RAF gene} mutations. First, cells proliferate. Later, B-RAF-gene products enhance p16 genes, which turn off cell division.

EGFR gene
Genes {EGFR gene} can mutate or duplicate in lung and colon tumors.

HER2 gene
Genes {HER2 gene} can be in breast and lung cancers.

HNPCC gene
Genes {HNPCC gene} can be in colon cancers and endometrial-cancer DNA repair.

P13K gene
Mutated genes {P13K gene} can be in solid tumors.

p16 gene
B-RAF-gene products enhance genes {p16 gene} that turn off cell division. p53 genes make proteins that prevent p16 enhancement and so allow cancerous cell division.

Pop1 gene
Genes {Pop1 gene} can affect breast cancer.

PTEN gene
Human genes {PTEN gene} can be in prostate and prevent uncontrolled cell division. When PTEN gene mutates, cancer starts. p53 can activate PTEN gene, so cell division stops.

ras gene
Genes {ras gene} can repress cell division. Ras-gene product regulates other genes to stop cell division {oncogene-induced cell senescence}. Ras-gene mutation turns on cancerous cell division to make immortalized cells. Human cancer genes {H-RAS gene} can be in bladder cancers [discovered 1982]. Genes {K-ras gene} can code tumor-growth signaling proteins.

RB1 gene
Oncogenes {retinoblastoma tumor suppressor gene} {RB1 gene} can be in eye.

src gene
Cancer-causing genes {src gene} can be in all higher animals.

TGCT gene
Tumor-causing genes {testicular germ-cell tumor gene} {TGCT gene} can be on X-chromosomes.

BIOL>Medicine>Disease>Kinds>Cancer>Tumor

tumor of cancer
Cancer cells continuously divide to make masses {tumor}| that can be benign or malignant.

benign tumor

Cancerous regions {benign tumor}| can stay in well-defined areas and stop proliferating.

malignant tumor
Cancer cells can keep proliferating and spread to other body parts {malignant tumor}|.

BIOL>Medicine>Disease>Kinds>Cancer>Kinds

dysplasia
Cancers {dysplasia} can have abnormal cell growth.

hyperplasia
Cancers {hyperplasia} can be abnormally high numbers of cells in organs or tissues.

hypoplasia
Cancers {hypoplasia} can be abnormally low number of cells in organs or tissues.

neoplasia
Cancers {neoplasm} {neoplasia} can be tumors.

polyp on mucosa
Mucosa can have growths {polyp, mucosa}|.

BIOL>Medicine>Disease>Kinds>Cancer>Kinds>Organ

adenoma
Cancers {adenoma} can be benign gland tumors.

prostate cancer
Cancers {prostate cancer}| can make enzymes {prostatic acid phosphatase} (PAP). Gleason scale measures severity. Prostate-cancer cells have SDC1 protein.

BIOL>Medicine>Disease>Kinds>Cancer>Kinds>Tissue

carcinoma
Tissue cancers {carcinoma} can be in epithelium. Epithelium has cell-adhesion molecules {epithelial cell adhesion molecule} (EpCAM).

leukemia
Tissue cancers {leukemia}| can be in bone marrow. Leukemia and organ cancers have low rate.

lymphoma
Tissue cancers {lymphoma}| can be in lymph nodes.

sarcoma
Tissue cancers {sarcoma}| can be in fibrous tissue and blood vessels. Sarcoma is rarest.

BIOL>Medicine>Disease>Kinds>Development

developmental disease
Development diseases {developmental disease} include cleft palate, club foot, and spina bifida.

cleft palate
Development diseases {cleft palate}| {harelip} can be incomplete midline face-bone fusion.

club foot
Development diseases {club foot}| can be feet at wrong angle to legs.

spina bifida
Development diseases {spina bifida}| can be spine malformations.

BIOL>Medicine>Disease>Kinds>Fever

fever
High temperature {fever} can cause brain damage.

febrile
People can have fever {febrile}|.

ague
Fever can cause shivering {ague}|.

pyretic
Chemicals {pyretic}| can cause fever.

pyrogen
Chemicals {pyrogen}| can cause fever.

BIOL>Medicine>Disease>Kinds>Genetic Disease

genetic disease
Human altered genes can cause diseases {genetic disease} {human inherited disease}.
tests
DNA analysis can identify more than 200 inherited diseases. Genetic-disease testing can use amniotic-fluid cells, chorionic-villi cells on placenta fetal side, umbilical-cord blood cells, or cheek cells.
chromosomal abnormalities
Chromosomal abnormalities cause inherited diseases, such as Becker muscular dystrophy, Burkitt's lymphoma, chronic granulomatous disease, DiGeorge syndrome, Duchenne muscular dystrophy, Lowe syndrome, chronic myelogenous leukemia, neurofibromatosis learning disorder, Prader-Willi, retinoblastoma, and Wilm's tumor.
Fluorescent in-situ hybridization (FISH) tests for aneuploidy, BCR/ABL translocation or Philadelphia chromosome, cryptic translocation, Down's syndrome, Klinefelter's syndrome, Miller-Dieker syndrome, PML/RARA translocation, steroid sulfatase deficiency or X-linked ichthyosis, Turner's syndrome, velocardiofacial/DiGeorge syndrome, and William's syndrome.
gene probe
PCR followed by electrophoresis can make many genes for testing and sequencing. Mutant alleles can hybridize to allele-specific oligonucleotides. Tests can use mutated-gene-region genetic probes: adenosine deaminase deficiency, alpha1-antitrypsin deficiency, cystic fibrosis, Fabry disease, familial hypercholesterolemia, Gaucher's disease, glucose-6-phosphate dehydrogenase deficiency, hemophilia A, hemophilia B, Lesch-Nyan, maple syrup urine disease, ornithine transcarbamylase deficiency, phenylketonuria, retinoblastoma, Sandhoff disease, sickle-cell anemia, Tay-Sachs disease, alpha-thalassemia, beta-thalassemia, and von Willebrand disease. Sickle-cell anemia alters restriction-enzyme sites. Alpha1-antitrypsin inhibits elastase.
gene probe: oncogenes
Cancer oncogenes include colon-cancer gene, myc gene, ras gene, neu gene, int-2 gene, BRCA-1 and BRCA-2 gene, and retinoblastoma gene. myc gene causes lung cancer and neuroblastoma. BRCA-1 and BRCA-2 genes cause breast cancer.
gene product
Tests can check gene products. Hemophilia has altered Factor VII. Lesch-Nyan syndrome has altered hypoxanthine phosphoribosyltransferase. Thalassemias have altered globin.
protein
Enzyme and protein assays can identify over 40 inherited diseases, such as Angelman syndrome, breast cancer (BRCA-1) (BRCA-2), citrullinemia, Canavan disease, Charcot-Marie-Tooth, Factor V Leiden mutation, familial polyposis coli, familial Mediterranean fever, Gaucher's disease, hemochromatosis, Hunter's syndrome, Kennedy disease or spinal and bulbar muscular dystrophy, Lesch-Nyan syndrome, Machado-Joseph disease, metachromatic

leukodystrophy, multiple endocrine neoplasia type 1, phenylketonuria, Pompe's disease, Sanfilippo B, spinal muscular atrophy, spinocerebellar ataxia, Tay-Sachs disease, von Hippel-Lindau disease, Waardenburg syndrome type 1, Wilson's disease, and x-linked lymphoproliferative disease. Antibodies can detect mutant proteins, such as BRCA-1, BRCA-2, and Fragile X. Sickle-cell anemia changes protein mobility.

RFLP markers

Tests can use linked RFLP markers: alpha1-antitrypsin deficiency, Duchenne muscular dystrophy, Factor X deficiency, Friedreich's ataxia, hemophilia, Huntington's disease, myotonic dystrophy, and phenylketonuria.

Southern blotting

Southern blotting can test for sequence changes, as in sickle-cell anemia. Southern blotting can test for RFLPs, VNTRs, or triplet repeats, as in Huntington's disease and JFOM's disease. In Fragile X syndrome, FMR1-gene amplification causes Xq27 X-chromosome structural defect, which causes mental retardation.

autosomal dominant disease

Myotonic dystrophy and other human inherited diseases {autosomal dominant disease} can depend on one mutant allele. Familial hypercholesterolemia has few low-density lipoprotein receptors, which bind membrane cholesterol. Huntington's disease has too many Huntington-gene CAG repeats and damages neurons. Marfan's syndrome affects connective-tissue fibrillin.

autosomal recessive disease

Human inherited diseases {autosomal recessive disease} can have non-sex-chromosome homozygous mutant alleles. Carboxylase-enzyme deficiency requires biotin. Cystic fibrosis requires cystic-fibrosis transmembrane-conductance regulator (CFTR). Gout requires urate oxidase. Lesch-Nyhan syndrome requires hypoxanthine phosphoribosyltransferase (HPRT). Phenylketonuria requires phenylalanine hydroxylase. Neurofibromatosis requires NF1. Sickle-cell anemia requires beta-globin. Tay-Sacks disease requires hexosaminidase A. Beta-thalassemia requires beta-globin.

albinism

Skin and hair can have no pigmentation {albinism}|.

alkaptonuria

Urine can have dark color, because homogentistic oxidase is missing {alkaptonuria}.

Bardet-Biedl syndrome

Young children can have poor night vision and then become blind by age five to ten {Bardet-Biedl syndrome}. They can be obese and have diabetes and kidney disease. Primary cilia have damage.

polycystic kidney disease

Damaged kidney-cell primary cilia do not bend, blocking filtration and causing cell proliferation, so kidneys can have cysts {polycystic kidney disease}.

celiac disease

In inherited diseases {sprue} {celiac sprue} {celiac disease}|, gluten can inflame intestinal lining.

essential hypersomnia

Sleep-disorder genes can be on chromosome 4 {essential hypersomnia syndrome} (EHS). Perhaps, EHS uses circadian locomotor output-cycle kaput gene {CLOCK gene} and gamma-aminobutyric-acid beta-1-receptor gene {gamma-aminobutyric acid beta-1 receptor} (GABRB1 receptor).

founder mutation

One genetic change {founder mutation} can pass to descendants. More than 1000 human diseases arose from founder mutations. Founder mutations are typically recessive but have benefits in special circumstances, so they can persist.

types

Hereditary hemochromatosis persists because HFE-gene mutation can prevent anemia.

Sickle-cell anemia persists because Hb5-gene mutation can prevent malaria. Sickle-cell anemia has five founders.

Cystic fibrosis persists because CFTR-gene mutation reduces diarrhea.

Factor V Leiden persists because FV-Leiden mutation causes thrombosis but protects against sepsis from blood bacteria.

GJB2-gene mutation causes deafness.

ABCA4-gene mutation causes blindness.

ALDH2-gene mutation causes inability to detoxify alcohol but can prevent alcoholism and possibly hepatitis B.

LCT-gene mutation allows lactose conversion. It began [-3500] in Funnel Beaker culture in north Europe.

For 75% of people, chemicals {phenylthiocarbamide} (PTC) can taste bitter. 25% of people have three changes in one gene, do not taste bitter, and can taste another toxin. Mutation arose 100,000 years ago in Africa. Because there is no variation over those years, it suggests that Homo sapiens did not interbreed with hominins in Mideast, Asia, or Europe.

Another founder mutation suggests that Basques and Celts are similar.

region

DNA regions that contain mutations can be long, for recent founding, or short, for ancient founding. Regions are originally whole chromosomes but shorten at each generation by repeated crossing over.

no founder

Hemophilia results from factor-VII-gene mutations and so has no founder.

Chromosome-4 FGFR3-gene base-pair 1138 and other DNA locations can have high mutation rate and cause achondroplasia. Such DNA diseases have no founder.

galactosemia

Lacking galactosidase genes, which make enzymes to metabolize galactose, causes liver damage, cataracts, and retardation {galactosemia}.

glycogen storage disease

Glycogen can accumulate in muscles, heart, and lungs, because lysozymes lack enzymes {glucosidase} {acid maltase} to break down glycogen {glycogen storage disease}.

glycogen

After translation, glycogen-cleaving-enzyme precursors attach mannose at species-specific glycosylation sites. Precursors lose signal peptides after leaving endoplasmic reticulum. Mannose phosphorylation allows protein uptake into lysosomes, where enzymes split precursors into other enzymes and glycogen-cleaving enzymes.

mutation

Gene-intron mutations can cause incorrect mRNA splicing, so lysosomes have no glycogen-cleaving enzymes. Heterozygotes are only carriers, but people with two mutated genes have varying illness degrees.

types

Fabry disease, Gaucher disease, Tay-Sachs disease, and mucopolysaccharide storage diseases are glycogen storage diseases. Glycogen storage diseases {glycogen storage disease type II} include Pompe's disease and muscular dystrophy.

hemophilia

Males can lack blood-clotting factors and cannot stop wound bleeding {hemophilia}|.

histinuria

People can be unable to metabolize histidine amino acid {histinuria}.

homocystinuria

People can be unable to metabolize cysteine amino acid {homocystinuria}.

multifactorial disease

Gene and environment interactions can cause inherited diseases {multifactorial disease}.

polygenic disease

Several interacting genes can cause inherited diseases {polygenic disease}.

sex-linked recessive

Diseases {sex-linked recessive disorder}| can be only in males.

Tay-Sachs disease
Deficient lysozyme proteins can lessen ganglioside production {Tay-Sachs disease}| {Niemann-Pick disease} {Hunter-Hurler syndrome}.

trisomy 18
Chromosome 18 can have three copies {trisomy 18} {trisomy E} {Edward's syndrome} (John H. Edwards) [1960]. Fetus typically dies from heart, kidney, and other internal organs, but some live up to one year after birth and have mental retardation. Incidence is one in 3000 embryos.

tyrosinuria
People can be unable to metabolize tyrosine amino acid {tyrosinuria} {maple syrup urine disease}.

Werner syndrome
Gene {WRN gene} products, similar to DNA and RNA helicases, can cause autosomal-recessive diseases {Werner's syndrome} {Werner syndrome}, which have aging symptoms.

X-linked disease
Color blindness, Duchenne muscular dystropy, hemophilia, and other male human-inherited diseases {X-linked disease}| can require X-chromosome mutant alleles. Duchenne muscular dystropy alters dystrophin. Hemophilia alters Factor VII.

BIOL>Medicine>Disease>Kinds>Genetic Disease>Chromosome

aneuploidy
Chromosome numbers and shapes can be abnormal {aneuploidy, chromosome}| {chromosome instability}. Almost all cancer cells have aneuploidy, perhaps from gene mutations or carcinogens that affect dividing cells. Different cancers have different chromosome-disruption patterns.

non-disjunction
Homologous-pair chromosomes can fail to separate in second meiotic division {non-disjunction}.

BIOL>Medicine>Disease>Kinds>Genetic Disease>Chromosome>Regions

chromosome inversion
Chromosomes can flip segments {chromosome inversion}.

translocation of chromosomes
Chromosomes can have segment deletion, duplication, or transfer {chromosome, translocation} {translocation, chromosome}.

BIOL>Medicine>Disease>Kinds>Genetic Disease>Chromosome>Extra

chromosome abnormality
In early cell-division stages, cells can have too few or too many chromosomes {chromosome abnormality}, such as in Down's syndrome. One birth in 250 has chromosome abnormality. New strain 0139 flourished in 1993.

Down syndrome
Human #21 chromosome can have three copies {mongolism} {Down's syndrome} {Down syndrome}, rather than two, resulting in mental retardation. Symptoms are flattened face, thick and large tongue, extra eyelid folds, uncoordinated movements, and IQ between 20 and 60. Down's syndrome patients over 35 years have same pathological brain changes as Alzheimer's patients. Extra 21st chromosomes relate to infectious hepatitis.

Patau syndrome
Extra chromosome 13 causes mental retardation {Patau syndrome}.

BIOL>Medicine>Disease>Kinds>Genetic Disease>Chromosome>Sex

Klinefelter syndrome
Having two X-chromosomes and one Y-chromosome results in male features but with enlarged breasts and few sperm {Klinefelter's syndrome} {Klinefelter syndrome}.

Turner syndrome
Having only one X-chromosome results in immature female features {Turner's syndrome} {Turner syndrome}|.

BIOL>Medicine>Disease>Kinds>Nutrition

goiter
Iodine lack lowers growth and energy levels and enlarges thyroid gland {goiter}|.

hemosiderosis
Tissues can have too much iron {hemosiderosis}.

ketosis
If carbohydrate level is too low, ketones {ketone bodies} can accumulate {ketosis}|, as body stops using them for energy. Ketosis depletes cell electrolytes, blood pH rises, tissues lose water, blood loses water, blood pressure goes down, breath has acetone smell, and people feel nauseous and have mild depression.

kwashiorkor
People can have protein deficiency {kwashiorkor}| {marasmus}.

obesity
More than one-sixth of people are overweight {obesity}|. For women, normal height and weight are 150 centimeters = 45 to 54 kilograms, 160 centimeters = 51 to 60 kilograms, 170 centimeters = 57 to 66 kilograms, and 180 centimeters = 64 to 75 kilograms. Animals regulate food intake to maintain weight. Animals have higher weight if food tastes good. Animals on low-calorie diets eat more.

osteoporosis
Bone diseases {osteoporosis}| can involve calcium and protein loss.

Prader-Willi syndrome
Father chromosome-15 gene makes people want to keep eating {Prader-Willi syndrome}.

rickets
Teeth and bones can have low calcium and phosphorus {rickets}|. Low vitamin D causes soft bones.

starvation
If food intake is not enough {starvation}|, body uses first glycogen, then fat, and then protein. In ketosis, blood pH can go below 7.4 in acidosis, resulting in rapid breathing.

tetany
Low calcium can increase nerve and muscle irritability {tetany}|.

thinness gene
Mother chromosome-15 gene {thinness gene}, near Angelman-syndrome gene, makes thin people.

BIOL>Medicine>Disease>Kinds>Nutrition>Vitamin

avitaminosis
People can have vitamin deficiency {avitaminosis}.

beriberi
Thiamine deficiency causes nerve damage, cardiovascular damage, and edema {beriberi}|.

pellagra
Niacin deficiency causes skin lesions, indigestion, and nerve problems {pellagra}|.

pernicious anemia
Vitamin-B12 malabsorption causes indigestion, spinal-cord lesions, and large red blood cells {pernicious anemia}|.

scurvy
Vitamin-C deficiency can cause weakness and skin and gum bleeding {scurvy}|.

BIOL>Medicine>Disease>Kinds>Protein

protein conformation diseases
Protein shape and conformation disorders {protein conformation diseases} include Alzheimer's disease, Parkinson's disease, multiple sclerosis, amyotrophic lateral sclerosis, Huntington's disease, and frontotemporal dementia. Germline mutations cause 5 to 20% of Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis, fronto-temporal dementia, and prion diseases. Age is a major risk factor.

amyloid plaque
Protein-polysaccharide fragments {A-beta protein} can link hydrophobic ends to form extracellular plaques {amyloid plaque}|, create free radicals, or attract microglia. Apolipoprotein E (APOE) helps A-beta protein form plaques. APOE-4 slows A-beta protein removal. Perhaps, A-beta protein disrupts calcium regulation.

cystic fibrosis
Protofibrils and then plaques can be in lungs and pancreas {cystic fibrosis}|. Sodium-ion-channel and chloride-ion-channel proteins change.

polyglutamine disease
Chromosome-4-tip autosomal dominant gene can cause Huntington's chorea and related diseases {polyglutamine disease, protein}. Gene has middle cytosine-adenine-guanine repeats {CAG repeat, polyglutamine} that repeat too many times, making too many glutamine amino acids, and this causes proteins to clump. Cytosine-anything-guanine regions {CxG region, polyglutamine} have many DNA hairpins, and copies often have even longer CxG repeats. Huntington's disease and polyglutamine diseases first have many protofibrils and then plaques.

prion
Misfolded cell-surface glycoproteins {Proteinaceous Infectious Particle} {prion}| can be in vertebrates [Prusiner, 1982].

gene
All vertebrates have protease-resistant protein (PrP) genes, whose sequence controls transmissibility.

prion protein
PrP proteins can have normal forms {cellular prion protein} (PrPC), which are in neurons. PdPSc refolds PrPC and makes clumps. PrPC can change into sticky clumps if affected by other prions, especially in B cells and brain.

amyloid
Prion proteins of size 27 to 30 kilodaltons, PrP 27-30, polymerize into amyloid fibrils. Prion-disease amyloid plaques have PrP.

radiation
Prions are more stable than anthrax spores. Irradiation does not end them.

diseases
Prion brain diseases {chronic wasting disease} (CWD) can be in sheep {scrapie}, Papua New Guinea Kore tribeswomen {kuru} {laughing sickness}, people {Creutzfeldt-Jakob disease} (CJD), and cows {spongiform encephalopathy} {bovine spongiform encephalopathy} (BSE) {mad-cow disease}. Prion diseases are sporadically infectious and can inherit.

Scrapie is in sheep and so is ovine neurodegenerative disease. Scrapie PrP has altered cellular PrP.

Chronic Wasting Disease affects deer and elk herds in west USA and Canada.

Mad Cow disease caused 1990s new-variant Creutzfeldt-Jakob disease (nvCJD) outbreak. Europe and Japan screen cattle for BSE.

Inherited CJD is 10% to 15% of human prion-disease cases. Altered cellular PrP causes human Gerstmann-Sträussler-Scheinker syndrome and familial CJD. Typical cases have no sequence changes or chemical differences between normal PrP and disease PrP, but they fold into different shapes. Proteinase K digests normal PrP completely, but aggregated disease PrP resists digestion. Disease PrP prompts normal PrP refolding into disease PrP.

Disease PrP can be protease-sensitive precursors in blood, unlike normal PrP [Safar et al., 1998].

BIOL>Medicine>Disease>Kinds>Organ

atresia
Orifices can close, or ovarian follicles can be absent {atresia}.

cyst
Tissues can have fluid-containing sacs {cyst}|.

laryngitis
Larynx can have inflammation {laryngitis}|.

BIOL>Medicine>Disease>Kinds>Organ>Abdomen

ascites
Abdomen can have excess fluid {ascites}.

colic
In babies, abdomen distension, pained look, and crying indicate bad digestion {colic}|.

colitis
Large-intestine lining can have inflammation {colitis}|.

cystitis
Bladders can have infections {cystitis}.

dyspepsia
Stomach can have indigestion {dyspepsia}.

enteritis
Intestine can have inflammation {enteritis}|.

nausea disease
People can have urge to vomit {nausea, disease}|.

prolapse
Organs, typically uterus, can slide down or to side {prolapse}.

pseudopregnancy
Women can have pregnancy symptoms {pseudopregnancy}.

retroversion
Organs, typically uterus, can tilt or turn backward {retroversion}|.

ulcer
Stomach or small intestine can have mucosa damage {peptic ulcer} {ulcer}|.

volvulus
Stomach or large intestine can twist {volvulus}.

BIOL>Medicine>Disease>Kinds>Organ>Circulation

infarct
Low blood flow can cause tissue breakdown {infarct}| {infarction}. Five-sixths of cases involve artery blockage, causing brain-tissue death.

priapism
Penis can have prolonged erection {priapism}|.

shin splint
Expanded muscles can reduce blood flow {exertional compartment syndrome} {shin splint}|. Shin bones can have small fractures.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Dilation

aneurysm
Blood vessels can dilate {aneurysm}|.

embolism
Arteries can widen {embolism}| and weaken, leading to bleeding.

hematoma
Swellings {hematoma}| can contain blood.

hemorrhoid
Anal-area swollen veins {hemorrhoid}| can cause pain or itching.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Inflammation

arteritis
Arteries can have inflammation {arteritis}.

phlebitis
Veins can have inflammation {phlebitis}|.

vasculitis
Blood vessels can have inflammation {vasculitis}.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Blockage

atheroma
Fatty substances can stick to blood-vessel walls {atheroma}, eventually causing artery narrowing stenosis.

atherosclerosis
Arterial-wall smooth-muscle-cell fibrous plates can catch fatty debris, clotted blood, and connective tissue {atherosclerosis}| {arteriosclerosis}, to make blobs {plaque}. If blobs break, blood clots can form, which later can stay or break off and block blood flow.
Statins decrease LDL.
Molecules {vascular cellular adhesion molecule-1} (VCAM-1) can attract monocytes and lymphocytes to epithelia and cause inflammation. Pyrrolidine dithiocarbamate anti-oxidant represses VCAM-1 gene. Lipid peroxide activates VCAM-1 gene.

coronary disease
Coronary arteries can have blockage {coronary}| {coronary thrombosis}.

ischemia
Blood-vessel obstruction or constriction can cause low blood supply {ischemia}| in organs and tissues.

occlusion in artery
Arteries can have blockage {occlusion, artery}|.

peripheral artery disease
Leg arteries can have blockage {peripheral artery disease} that causes calf pain. Ankle-brachial index measures leg-artery clogging.

stenosis
Arteries can narrow {stenosis}|.

stroke
Brain blood vessels can burst, or emboli can block blood vessels {stroke}| {apoplexy}. One-sixth of strokes involve cerebral-hemorrhage bleeding. Five-sixths of cases involve artery blockage, causing brain-tissue infarction.
causes
Main cause is hypertension. Atheroma can cause stenosis. Occlusion or embolism can weaken vessels, leading to breaking and bleeding.
effects
First, one body side has arm and leg weakness {hemiplegia, stroke}. Brainstem pressure coning can cause drowsiness, unconsciousness, respiratory paralysis, and ultimately death. Low oxygen can cause consciousness loss. About one-third of patients die within three weeks. Stroke is third major death cause in USA and Europe, in 0.2% of people each year, three quarters in seniors. Survivors often have partial arm or leg paralysis.

thrombosis
Blood-clot thrombi can block blood vessels {thrombosis}|.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Bleeding

cerebral hemorrhage
One-sixth of circulation cases involve brain bleeding {cerebral hemorrhage}|.

hemorrhage
Blood vessels can have bleeding {hemorrhage}|.

purpura
Blood diseases can cause bruising or bleeding under skin {purpura}|. Blood transfusions can cause bruising.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Muscle

angina
When heart muscle does not receive enough blood {angina pectoris} {angina}|, chest pain results.

arhythmia
Abnormal heart rhythms {arhythmia}| include ectopic beats, electrical alternations, torsades de pointes, high-grade blocks, escape rhythms, Wenckebach rhythms, tachycardia, and fibrillation.

fibrillation
Heart and other muscles can twitch {fibrillation}|.

heart attack
Emboli can block cardiac blood vessels {heart attack}|. Blood-plasma transthyretin makes amyloid.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Heart Rate

bradycardia
Heart can beat too slow {bradycardia}|.

tachycardia
Heart can beat too fast {tachycardia}|.

BIOL>Medicine>Disease>Kinds>Organ>Circulation>Blood

acidosis
Blood pH can go below 7.4 {acidosis}|, resulting in rapid breathing.

anemia
Low blood oxygen and high blood carbon dioxide result from decrease in hemoglobin and red-blood-cell number {anemia}|. Snake venom, malaria, burns, chemicals, blood loss, bone-marrow disease, vitamin-B12 deficiency, folic-acid deficiency, iron deficiency, blows, or shock can cause anemia.

embolus
Blood vessels can have blocks {embolus}| to blood flow.

hemochromatosis
People can absorb iron efficiently {hemochromatosis}.

hemolysis
Poisons, toxins, and immune reactions can break red blood cells {hemolysis}|.

hypertension
Blood can have too-high pressure {hypertension}|.

polycythemia
Diarrhea can increase red-blood-cell number {polycythemia}|, causing poor blood flow.

septicemia
Organisms or toxins can be in blood {septicemia}.

sickle cell anemia
Different hemoglobins can make different-shaped red blood cells {sickle cell anemia}|.

thalessemia
Hemoglobin synthesis can be faulty {thalessemia}.

thrombospondin
Molecules {thrombospondin} can bind to red blood cells, which then secrete molecules that make red blood cells stick to blood-vessel walls.

BIOL>Medicine>Disease>Kinds>Organ>Digestion

appendicitis
appendix inflammation {appendicitis}|.

constipation
dry feces and too-slow movement {constipation}|.

diarrhea
watery feces and too-fast movement {diarrhea}|.

gallstone
Precipitated cholesterol {gallstone}| can be in bile ducts.

BIOL>Medicine>Disease>Kinds>Organ>Endocrine

acromegaly
High growth-stimulating hormone can cause excessive hand, feet, and face growth {acromegaly}|.

amenorrhea
Woman can have no menstruation {amenorrhea}|.

eunuch
Castrated males {eunuch}| have low male hormones.

hyperparathyroidism
Too much parathyroid activity {hyperparathyroidism}| can cause soft bones.

morning sickness
At pregnancy beginning, women can have morning nausea {morning sickness}|.

BIOL>Medicine>Disease>Kinds>Organ>Endocrine>Thyroid

hyperthyroidism
Too much thyroxin {hyperthyroidism}| can cause high heat, overeating, nervousness, high blood pressure, and eyeball protrusion.

hypothyroidism
Thyroid hormone deficiency {hypothyroidism}| causes low energy.

myxedema
Hypothyroidism can cause bloating {myxedema}|.

BIOL>Medicine>Disease>Kinds>Organ>Endocrine>Adrenal

Addison disease
Low adrenal-gland hormone production {hypoadrenocorticism} causes weakness, weight loss, low blood pressure, GI tract problems, and brown skin {Addison's disease} {Addison disease}.

Cushing disease
Pituitary gland can make high ACTH, resulting in increased hormone production by adrenal glands and obesity {Cushing's disease} {Cushing disease}.

BIOL>Medicine>Disease>Kinds>Organ>Endocrine>Glucose

diabetes
Insulin lack makes blood glucose stay high {diabetes}| {diabetes insipidus}.

hyperglycemia
Blood glucose can be too high {hyperglycemia}|.

hypoglycemia
Blood glucose can be too low {hypoglycemia}|.

insulin-dependent diabetes
Immune system can attack pancreas beta cells and cause diabetes {type 1 diabetes} {insulin-dependent diabetes}.

Type 2 diabetes

Pancreas islet cells make proteins {islet amyloid polypeptide} (IAPP) that can clump {Type 2 diabetes}. Genes {TCF7L2 gene} can affect glucose metabolism. Sulfonylureas, such as glimeperide and glipizide, are effective drugs. Metformin is effective.

BIOL>Medicine>Disease>Kinds>Organ>Excretion

kidney stone
Uric-acid or calcium-phosphate stones {kidney stone}| can form in ureter.

nephritis
Glomeruli can have bacterial infections {nephritis}|.

renin
Injured kidneys make chemicals {renin}, which constrict blood vessels.

uremia
Nitrogen wastes can accumulate in blood {uremia}|.

BIOL>Medicine>Disease>Kinds>Organ>Immune

autoimmune disease
Addison's disease, anti-phospholipid syndrome, type 1 insulin-dependent diabetes, rheumatoid arthritis, celiac disease, multiple sclerosis, and systemic lupus erythematosus have antibodies {autoantibody} to body tissues {autoimmune disease}|. T-cell antibodies start to attack cells up to 10 years before symptoms appear. B cells can make autoantibodies used in diagnosis.

autolysis
Enzymes can break down cells {autolysis}.

immunodeficiency
Adenosine-deaminase (ADA) gene damage prevents making immune system cells {immunodeficiency}|. HIV virus destroys helper T cells and causes acquired immunodeficiency syndrome (AIDS).

inflammation
Bacteria chemicals can dilate arteries, causing reddening and high temperature {inflammation}|. Inflammation allows white blood cells to leave blood and attack foreign tissues. Leukocytes pass through artery walls, locate bacteria chemically, and phagocytize bacteria. Inflamed tissues increase white-cell production. Myeloperoxidase (MPO) indicates inflammation amount. Blood-vessel inflammation starts and assists atherosclerosis. LDL can cause vessel inflammation.

inflammasome
Oxygen activates protein complexes {inflammasome} {Nalp3 inflammasome} that cause inflammation.

lupus
Enzymes that lyse dead-cell molecules can not work well and leave DNA pieces, to which antibodies develop, causing inflammation {lupus}| {systemic lupus erythremosis}. Lupus patients have low DNAase-1. LymphoStat-B monoclonal antibody inhibits B-cell stimulators {B-lymphocyte stimulator} (BLyS). Lupus affects 200,000 to 500,000 people each year in USA.

severe combined immunodeficiency syndrome
Diseases can prevent calcium ions from passing into T cells {severe combined immunodeficiency syndrome} (SCIDS).

Sjogren syndrome

Autoimmune diseases {Sjögren's syndrome} {Sjögren syndrome} can attack secretory-gland tissues, causing dry mouth and eyes, plus teeth and eye problems. Sjögren's syndrome is in about 1% of people and affects women most. It can lead to lymphoma.

BIOL>Medicine>Disease>Kinds>Organ>Immune>Allergy

allergy
Cells can react to chemical substances {allergy}|. Chemical substances release muscle-constricting and blood-vessel-relaxing chemicals {histamine, allergy}. Antihistamines can block histamine chemical reactions and treat allergies. Food allergans include gluten and soybean p34 protein. Peanuts, tree nuts, milk, eggs, shellfish, and fish have allergans. Gluten causes celiac sprue. Allergies can involve tens of genes.

allergic reaction
Histamines can cause hives, eye burning, shock, breath shortness, hard breathing, and edema {allergic reaction}|.

anaphylaxis
Histamines can cause nausea, weakness, low temperature, and convulsions {anaphylaxis}|.

asthma
Lungs can have allergic reactions {atopy} {asthma}|. Eczema, hay fever, anaphylaxis to bee sting or peanuts, and other allergies involve immunoglobulin and histamine.
causes
Dust-mite dung, pollen, feathers, molds, foods, metal vapor, plastics, wood, cigarette smoke, paint, sprays, aspirin, heart drugs, and exhaust gases can cause asthma. Immunization can activate Th1 cells. Mycobacteria can activate Th2 cells. Perhaps, virus exposure, isocyanate, trimellitic anhydride, and phthalic anhydride cause asthma.
biology
Immunoglobulin-E release signals mast cells, which release histamines. Asthma can cause smooth muscle to contract uncontrollably.

hay fever
Pollen allergies {hay fever}| affect eye, throat, and lung mucous membranes.

hives
Allergic reactions {hives}| can cause itching skin welts.

BIOL>Medicine>Disease>Kinds>Organ>Liver

liver disease
Liver can have diseases {liver disease}. Fatty liver can result if people are starving, have diabetes, eat many fats, have alcoholism, have vitamin deficiency, or ingest toxins.

cirrhosis
Liver can scar and fill with fat {cirrhosis}|.

jaundice
Liver diseases {jaundice}| can cause brain damage.

BIOL>Medicine>Disease>Kinds>Organ>Muscle

muscle degeneration
Degenerative diseases {muscle degeneration}| include Duchenne's muscular dystrophy.

charley horse
Strains and contusions can cause quadriceps soreness and stiffness {charley horse}|.

clonus

Reflex muscle contractions can cause leg shaking or jerking {clonus}|.

Duchenne muscular dystrophy
Degenerative diseases {Duchenne's muscular dystrophy} {Duchenne muscular dystrophy} can harm muscle tissue.

hypertrophy
Muscle mass or circumference can increase {hypertrophy}|.

hypotrophy
Muscle mass or circumference can decrease {hypotrophy}|.

lumbago
Lower-back muscles and tendons can have rheumatism {lumbago}|.

BIOL>Medicine>Disease>Kinds>Organ>Nerve

brain damage
Smoking, excessive alcohol, poor prenatal care, malnutrition, failure to breathe properly, baby battering, and falls can damage brains {brain damage} [Gershan and Rieder, 1992].

adding problem
Congenital cerebral-cortex defects can cause inability to add two numbers to sums greater than ten {adding problem}. Children can learn digits but cannot carry to next column when adding.

coning
Brainstem pressure can cause drowsiness {coning}, unconsciousness, respiratory paralysis, and ultimately death.

cortical absence
Animals with no cortex {cortical absence} cannot discriminate well but can learn and remember.

hemiplegia
Cerebral-hemisphere damage can cause opposite-body-side arm and leg weakness {hemiplegia, cerebrum}.

Kallman syndrome
Hypothalamus damage can affect sexual development and smell {Kallman syndrome}.

Lhermitte syndrome
Inferior prefrontal lobe controls planning and action. After inferior-prefrontal-lobe stroke or lesion, external stimuli can start automatic behavior, with no inhibition {Lhermitte syndrome}.

neuritis
Nerves can have inflammation {neuritis}|.

neuropathy
People can have general nerve problems {neuropathy}.

split brain
Brain-half anatomy and function differ {lateralization, cerebral}. Brain halves integrate by cross connections.
split brain
After corpus-callosum surgery {callosotomy} {split brain}, patients feel the same as before, with one self and same consciousness [Akelaitis, 1941] [Akelaitis, 1944] [Bogen, 1986] [Bogen, 1993] [Bogen, 1997] [Bogen and Gazzaniga, 1965] [Bogen and Gordon, 1970] [Bogen et al., 1965] [Gazzaniga, 1995] [Gazzaniga, 2004] [Geschwind and Galaburda, 1987] [Gordon and Bogen, 1974] [Greenblatt, 1997] [Kinsbourne, 1982] [Kohler et al., 2000] [Luck et al., 1989] [Luck et al., 1994] [Mark, 1996] [Miller et al., 2000] [O'Shea and Corballis, 2001] [Pettigrew and Miller, 1998] [Schiffer, 2000] [Schmitt and Worden, 1974] [Sperry, 1961] [Sperry, 1974] [Wigan, 1844].

However, experiments that detect what hemispheres know show that split-brain patients can have two consciousnesses. Consciousness can be only or mainly in left side, be only reportable from left side, be always both sides, or automatically switch back and forth between two selves.

right brain

Right brain has minimal attention, consciousness, emotion, imagery, memory, perception, verbal ability, and will.

connections: corpus callosum

Corpus callosum carries high-level information, mostly excitation. People can have impaired corpus callosum from birth {callosal agenesis} and develop integrative and substitute processing.

connections: other

Information about existence and spatial and temporal locations can pass between brain halves through smaller interhemispheric pathways and by relay through brainstem and thalamus.

self

Self or mind integrates brain modules through corpus callosum, brainstem, thalamus, and other pathways, by inhibition and excitation.

interpreter

Patients with severed commissures have no information exchange, but hemisphere with language ability {the interpreter} invents explanations. Only that hemisphere is highly conscious [Gazzaniga, 1992].

drugs

Amobarbitol can anesthetize either hemisphere.

locations: arousal

Arousal mechanisms affect both hemispheres equally.

locations: attention

Attention from brainstem and midbrain goes to both hemispheres, each of which can try to control attention.

locations: hearing

Ear sound information mostly goes to other side.

locations: language

Broca's area semantic-and-syntactic language processing is typically only in left hemisphere. However, both sides have vocabulary and perception processing.

locations: pain

Pain information goes to both hemispheres.

locations: proprioception

Proprioception information goes to both hemispheres.

locations: space and time

Right hemisphere seems better at high-level spatiotemporal processing.

locations: touch

Touch information goes to both sides, though less to same side.

locations: vision

Visual information from right or left visual field goes to left or right hemisphere, but patients have unified visual fields.

locations: voluntary movement

Eye-saccade initiation and monitoring and voluntary large-muscle movement are on both sides.

factors: age

With age, corpus callosum has more myelination.

factors: gender

Men have more language lateralization.

tinnitus

ear ringing {tinnitus}|.

vertigo

Vestibular-system damage can cause dizziness {vertigo}|.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Cephaly

hydrocephaly

Excess cerebrospinal fluid {hydrocephaly} can cause larger than normal brain cavities and skulls.

macrocephaly

People can have larger than normal heads and brains {macrocephaly}.

microcephaly

People can have smaller than normal heads and brains {microcephaly}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Aging

Alzheimer disease

Acetylcholine and serotonin brain neurons can degenerate {Alzheimer's disease} {Alzheimer disease}, with intracellular tangled protein fibers {neurofibrillary tangle} and extracellular protein amyloid plaques.

plaque

Amyloid plaques can disrupt calcium regulation, create free radicals, or attract microglia. Presenilin gene makes gamma-secretase, which cuts cell-membrane protein {amyloid-beta precursor protein} (APP) inside membranes, and beta-secretase {secretase} cuts APP outside membranes, to make short A-beta proteins, which can be signal proteins. A-beta proteins can link hydrophobic ends to form plaques. Apolipoprotein E {apolipoprotein} (APOE-4) helps A-beta protein form plaques and slows A-beta protein removal. APP gene is on chromosome 21.

incidence

In USA, five million people have Alzheimer's disease. At age 60, 1 in 10,000 people develops Alzheimer's disease. By age 85, one in three people have dementia, typically Alzheimer's disease.

causes

Gene {presenilin gene} mutations can cause early-onset inherited Alzheimer's disease.

Apolipoprotein-E-gene isotype can modulate familial and sporadic Alzheimer's disease onset age.

Proteins {tau protein} can bind to tubulin, change, and increase in Alzheimer's disease. Tau proteins then make helical pairs, disrupting tubulin binding and microtubules.

Small proteins {amyloid beta-derived diffusible ligand} (ADDL) can come from amyloid-beta precursor proteins, can diffuse, do not make plaques, and attach to neuron receptors.

Brain proteins {clusterin} can increase in Alzheimer's disease.

dementia

Brain or brain blood-vessel degeneration {dementia}| {senile dementia} can be chronic and progressive.

symptoms

Recent-event memory loss is first symptom. People have intellect, memory, and personality impairment, but no consciousness or basic-skill impairment. People have unreal and slow thinking. People have slowness of, and disinterest in, activity. People forget goals, do not compensate for changes, live in present only, are emotionally sensitive, and are susceptible to bulbar palsy. At end, people lose basic personality and social skills.

causes

About 10% of older dementia patients have benign brain tumors and hypothyroidism.

types

Subnormality, old-age dementias, and remitting and relapsing psychoses are milder. Acute, primary, and curable dementias are harsher. Chronic, secondary, and incurable dementias are harsher.

recovery

Dementia reverses in 10% of patients.

frontotemporal dementia

Tau-protein buildup causes slowly developing dementia {Pick's disease} {frontotemporal dementia} in people 50 to 60 years old.

multi-infarct dementia

Repeated closures of small or large blood vessels, as in minor or major strokes, causes brain-cell loss {multi-infarct dementia}.

pseudodementia

After pneumonia, heart attack, or hypothermia, older people can enter delirious states {pseudodementia}. Antidepressants reduce pseudodementia.

senility
Old-age organic psychosis {senility}| can involve memory loss and poor thinking ability.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Drug

delirium tremens
Fever, alcohol intoxication, drugs, withdrawal from barbiturates, withdrawal from alcohol, disturbances in body chemistry, and brain infections can cause delirium {delirium tremens}| (DTs). Most delirious patients recover completely after removing cause.

dipsomania
People can have desire to drink alcohol {dipsomania}.

frozen addict
Addicts that take MPTP destroy dopamine neurons and cannot move {frozen addict}, though conscious.

Marchhiafava-Bignami
Alcohol can damage corpus callosum and anterior commissure {Marchhiafava-Bignami disease}.

metal poisoning
Metal toxins {metal poisoning}, such as mercury or lead, can damage brains.

narcosis
Drugs or anesthetics can cause stupor {narcosis, stupor}|.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Food

anorexia nervosa
People can starve themselves, fear becoming fat, think about being thin, have distorted body perception, overestimate size, and have abnormal hypothalamus, which controls appetite {anorexia nervosa}|.

bulimia nervosa
After strong desire {compulsive eating} {binge eating} causes eating large quantities, people can vomit or use laxatives {bulimia nervosa}|.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Infection

encephalitis
Herpes simplex and other viruses can cause brain inflammation {encephalitis}| {aseptic encephalitis} {acute viral encephalitis}.

encephalitis lethargica
A 1920s epidemic viral disease {encephalitis lethargica} destroyed same brain cells as idiopathic Parkinsonism.

meningitis
Bacteria or viruses can cause meninges inflammation {meningitis}|.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Agnosia

agnosia
Though sense organs and nerves are normal, people can interpret sense information incorrectly {agnosia}. Agnosias can be for objects, colors in achromatopsia, faces in prosopagnosia, motions in akinetopsia, or imposters in Capgras syndrome [Bauer and Demery, 2003] [Bridgeman et al., 1997] [Damasio et al., 2000] [Farah, 1990] [Goodale, 2000] [Goodale and Milner, 2004] [Goodale et al., 1994] [Grüsser and Landis, 1991] [Heilman and Valenstein, 2003] [Hu and Goodale, 2000] [Mesulam, 2000] [Milner and Goodale, 1995] [Milner et al., 1991].

anosagnosia

People with right-brain damage can deny that they have problems with, or paralysis of, left hand and arm {anosagnosia, disease} {anosodiaphoria}.

mirror agnosia

People with right-parietal damage think that objects on left reflected in mirrors on right are behind mirrors on right {mirror agnosia} {looking-glass syndrome}.

Gertsmann syndrome

Left angular-gyrus damage {Gertsmann's syndrome} {Gertsmann syndrome} can cause anomia, finger agnosia, and left/right problems.

neglect after trauma

Non-dominant, usually right, posterior-parietal-lobe damage can cause ignorance {neglect, vision}| {visuo-spatial hemi-neglect} {hemi-neglect} of stimulus that normally stimulates V1 in opposite, usually left, space half {hemifield}, including opposite body half. Patients do not realize that they cannot see that space side. Right or left Brodmann-area-7 damage can cause neglect of opposite-space half [Berti and Rizolatti, 1992] [Bisiach, 1988] [Bisiach, 1992] [Bisiach and Luzzatti, 1978] [Driver and Mattingley, 1998] [Heilman and Valenstein, 2003] [Heilman et al., 2003] [Husain and Rorden, 2003] [Karnath, 2001] [Karnath et al., 2001] [Marshall and Halligan, 1988] [Mattingley, 1998] [Payne et al., 1996] [Rafal, 1997] [Rees et al., 2000] [Robertson and Marshall, 1993] [Schiller et al., 1979] [Sprague, 1966] [Swick and Knight, 1998] [Vuilleumier et al., 1996] [Vuilleumier et al., 2002].

Non-dominant posterior-parietal-lobe damage can cause neglect when stimulus is in same space half as lobe {extinction, neglect}. In extinction, if something is on one side, people can see object, typically on right side, but they cannot see anything on other side, though brain activity is same in both cases (Geraint Rees).

agnosia

People with neglect can not recognize that they are neglecting space half {anosagnosia, neglect}. People with right-parietal-lobe damage can have paralysis but not know that they have it [Damasio, 1999] [Weiskrantz, 1997]. Perhaps, they have no information receptors for that part. Perhaps, they cannot direct attention there.

realization

People realize that they cannot see that space side if expected information is not available.

somatoparaphrenia

People can not know that body parts belong to them {somatoparaphrenia}.

prosopagnosia

Agnosia can be for faces {prosopagnosia}. Inability to recognize faces involves more than one brain part [Benton and Tranel, 1993] [Perrett et al., 1992] [Tranel and Damasio, 1985] [Wada and Yamamoto, 2001].

simultagnosia

After damage to both parietal lobes, people can not perceive more than one object {simultagnosia}, as in Balint syndrome.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Amnesia

amnesia disease

People can be unable to retrieve memories {amnesia, disease}|. Amnesias can have long-term memory loss but retain short-term memory. People typically cannot remember events from when amnesia started up to recent times in the past.

duration

Amnesias can last several years. Over time, people remember earlier memories, as well as independent episodes. People typically can never remember time just before amnesia started.

types

People can be unable to identify people whom they know in other contexts {restricted paramnesia}. Autobiographical memory loss {fission, memory} can cause personal identity loss and inability to use first person.

causes

Electroconvulsive shock, potassium chloride, fluorothyl, barbiturates, and RNA, DNA, and protein synthesis-inhibiting drugs can cause forgetting and retrograde amnesia but can be offset by stimulants.

Head blows can cause memory loss with no other effects {postconcussion syndrome}.

Medial-temporal-lobe ischemia causes disorientation and recent-memory loss {transient global amnesia}.

Removing both temporal lobes and both hippocampuses, to treat epilepsy, causes orthograde amnesia.

recovery

Amnesias can heal but not if brain damage is permanent.

anterograde amnesia

People can be unable to make long-term memories {anterograde amnesia}.

Korsakoff syndrome

Amnesias {Korsakoff syndrome}| can have inattentiveness, poor recent memory, retrograde amnesia, anterograde amnesia, and time and place disorientation. Chronic alcoholics with poor nutrition can have Korsakoff syndrome. It affects third-ventricle floor, thalamus dorsomedial nucleus, hippocampal region, mamillary bodies, and frontal lobes [Korsakoff, 1887] [Korsakoff, 1890].

retrograde amnesia

Hippocampus damage can cause loss of recently stored memories {retrograde amnesia}. Time lost depends on memory type and strength.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Attention

attention deficit disorder

People can be unable to concentrate and can have high activity {attention deficit disorder}| (ADD) {attention-deficit hyperactivity disorder, brain} (ADHD). Perhaps, it involves dopamine receptors. Ritalin is a treatment.

Balint syndrome

Both-hemisphere parietal-lobe damage causes attention on only one thing {Balint's syndrome} {Balint syndrome} [Feinberg and Farah, 1997] [Rafal, 1997] [Robertson, 2003] [Robertson et al., 1997].

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Epilepsy

epilepsy

Organic psychoses can involve shaking convulsions {epilepsy}| {seizure, epilepsy} {convulsion} [Elger, 2000] [Fried, 1997] [Oxbury et al., 2000] [Penfield and Jasper, 1954] [Salloway et al., 1997].

cause

Strong electrical signals can cause altered consciousness, altered perception, and poor opposite-body-side muscle control.

types

Whole brain can become electrically abnormal {primary generalized seizure}. Cerebral-cortex regions can become electrically abnormal in focal seizure.

start

Seizures can begin with abdominal sensations, altered thoughts, or altered perceptions, which people can remember afterwards.

symptoms

Epileptic states {epileptic automatism} can involve large brain regions, unconsciousness, chewing, lip smacking, organized but purposeless arm or hand movements, laughing, being scared, and using isolated words. States can last for several minutes, mostly in temporal lobe. Normal function, deep sleep, or disoriented state follows. People have no memory of automatisms.

incidence

6% of people have at least one epileptic seizure.

factors: age

Seizures are more likely in early childhood, adolescence, and old age. Petit-mal seizures happen mostly in childhood and adolescence.

factors: genetics

Epilepsy is hereditary, especially temporal-lobe epilepsy.

drugs

Gamma-aminobutyric acid treats epilepsy.

absence in epilepsy

In petit-mal epilepsy, tonic phase and consciousness loss can last several seconds, and people can stare blankly {absence, epilepsy} with eyelid flickering and/or facial and arm muscle twitching [Crunelli and Leresche, 2002]. Large repeated currents between thalamus and cortex cause absence. People do not fall to ground.

aura in epilepsy

Seizures can begin with abdominal sensations, altered thoughts, or altered perceptions, which people can remember afterwards {aura, epilepsy}. Electrically stimulating brains elicits images and sense qualities that are like the dream-like sense qualities that patients experience when epileptic, and removing brain tissue does not delete the sense qualities [Penfield, 1958] [Penfield, 1975] [Penfield and Perot, 1963].

myoclonic jerk

Epilepsy can have upward arm jerk, head nod, and forward trunk bend {myoclonic jerk}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Epilepsy>Seizure

petit mal seizure

Epilepsy {petit mal seizure} can involve one brain region and have twitching, consciousness, and weird feelings, tastes, or smells. Focal epilepsy can have a déja vu "dreamy state" experience.

grand mal seizure

Epilepsy {grand mal seizure} {grand-mal convulsion} {tonic-clonic convulsion} can involve whole brain, whole-body seizures, consciousness loss, and repeated muscle tightening and relaxing [Canger et al., 1980] [Ebner et al., 1995] [Gloor, 1986] [Gloor et al., 1980] [Inoue and Mihara, 1998] [Lux et al., 2002] [Pedley and Guilleminault, 1977] [Reeves, 1985]. Muscles can stiffen symmetrically, people can cry out, breathing can stop briefly, and people can lose consciousness {tonic phase}. Then people can fall to ground and have muscle jerking {clonic phase}. Cyanosis blue color can develop around lips or face, bladder can empty, bowels can empty, and people can bite tongue. Left-hemisphere seizures more often result in consciousness loss.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Language

agraphia

People can lose ability to write {agraphia}. If lexically impaired, people can correctly write words spelled phonologically, but not words spelled non-phonologically {lexical agraphia}. If phonologically impaired, people can write words correctly {phonological agraphia} but write non-words incorrectly.

anomia

Frontal-temporal-borderline damage can cause lexical problems, circumlocutions, and incorrect words, without losing language comprehension, syntax, or phonemes. People can be unable to name objects {anomia} {anomic aphasia}, though they can see, read, and recognize.

aphasia

People can have impaired speaking {aphasia}|. Sometimes, speech does not connect {jargon aphasia}. Frontal-temporal borderline damage can cause phoneme-usage errors {conduction aphasia}, without comprehension or fluency loss.

Asperger syndrome

Patients can have good language but lack emotional responses {Asperger's syndrome} {Asperger syndrome}.

Broca aphasia

Broca's area damage {Broca's aphasia} {Broca aphasia} causes slow, slurred, hesitant, and non-fluent speech, with preposition, conjunction, and auxiliary-verb omissions and incorrect verb or noun endings. Damage still allows people to write, read, listen, and sing.

classifying disorder
People can lose ability to classify objects by name {classifying disorder}.

dyslexia
People can read with difficulty, spell badly, and have other problems with written language {dyslexia}|. Dyslexics cannot identify sounds, use phonemes together, or identify complex-figure parts. Dyslexics typically do not have strong right-handedness or left-handedness. Maturation delay, not brain damage or emotional problems, can cause resistance to learning and so dyslexia. People can have trouble only with grammar {grammar-specific language impairment}.

dysphasia
Strokes can cause speaking, writing, reading, or listening impairments {dysphasia}.

familial dysphasia
Dominant gene mutant can cause people not to use grammatical rules {familial dysphasia}.

global aphasia
Large left-hemisphere damage can cause normal-language loss {global aphasia} but does not affect automatic language.

specific language impairment
Changed chromosome-7 gene can cause poor grammar with normal intelligence {specific language impairment} (SLI).

tactile agnosia
Though sense organs and nerves are normal, people can be unable to identify objects by touch {tactile agnosia}.

Williams syndrome
Chromosome 7 or 11 deletions can cause voluble language but mental retardation {Williams syndrome}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Language>Wernicke

alexia
Wernicke's area damage can cause inability to read {alexia}. Brain can block phonology {deep alexia} and/or block lexical stage {surface alexia}.

paraphasia
Wernicke's area damage can cause incorrect words {paraphasia}.

tactile aphasia
Wernicke's area damage can cause inability to name objects by palpating {tactile aphasia}.

neologism in aphasia
Wernicke's area damage can cause non-existent words {neologism, aphasia}.

Wernicke aphasia
Wernicke's area damage {Wernicke's aphasia} {Wernicke aphasia} can cause bad semantics, paraphasia, imprecise words, circumlocutions, and neologisms, but speech is fluent, rapid, articulated, and grammatical.

word-meaning deafness
Wernicke's area damage can cause inability to understand spoken words {word-meaning deafness} {word deafness}, though people can hear and speak them.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental

mental illness
People can have mental disorders {mental illness}.
types
Brain diseases and physical illnesses can cause mental disorders. Psychoses, neuroses, personality disorders, and mental retardation {functional disorder} can show no definite physical problem. People cannot simulate mental illness consistently.
causes
Family-member or other-loved-person loss, job loss, illness, or development changes can cause mental illness.
mental health
People can affect mental illness {mental health}. People can have ability to cooperate with others and have close, loving relationships. People can make sensitive critical appraisals of themselves and world. People can cope with everyday problems.
Healthy personality has the following traits: good self-concept, self-knowledge, strong self-attitudes, self-acceptance, reality sense, active involvement in society, no inferiority feelings, good sexual attitudes, independence, objectivity, low aggression, low submissiveness, ability to give and accept love, average competitiveness, and continuous growth.
incidence
0.05% of people have neuroses. Ten percent of doctor visits are mostly about mental problems. 10% of such patients go to psychiatrists. Psychiatric patients use nearly half of all hospital beds.

abulia
Mental states {aboulia} {abulia} can have little will and inability to make decisions, such as akinetic mutism.

apathy
Mental states {apathy}| can have little emotion, listlessness, self-preoccupation, and detachment from environment.

Capgras syndrome
Damage in connections between visual and emotional centers can cause people to believe that imposters have replaced familiar people {Capgras syndrome} [Ramachandran, 2004].

Cotard syndrome
People can feel that they are not perception agents {Cotard syndrome} {Cotard's syndrome}. They can feel that they are dead. They have no emotional responses to experiences.

delusion
Frustration can cause fixed and unusual beliefs {delusion}|. Delusions protect against anxiety by explaining away facts that cause anxiety. If someone challenges their delusions, people have small or inappropriate emotional responses. Delusions and hallucinations are major symptoms of several mental illnesses.

derealization
People can have perceptions like in dreams, in which everything is vague or unreal and familiar things have no meaning {derealization}|. People can feel either that they have been changed or that world is unreal. They can have unreal and strange feelings.

disconnection syndrome
Destroying fibers connecting cerebral hemispheres {disconnection syndrome} can cause inability to understand written language {pure alexia} {pure word-blindness} {alexia without agraphia}, comprehend spoken language {pure word-deafness}, or write correct language {pure agraphia} without paralysis. People can be unable to make purposeful skilled movements {apraxia, disconnection} and to move in response to verbal commands, though they can comprehend words.

dissociative identity
People can have two personalities, each with amnesia for the other {dissociative identity disorder} (DID).

fixation disease
Stress can initiate old stereotyped responses {fixation, obsession}|, such as obsessive or compulsive actions, to new stimuli.

Fregoli phenomenon
People can believe that known people are impersonating other people {Fregoli phenomenon}.

Ich-Storungen
Schizophrenia, dissociative identity disorder, and other diseases show abnormal identity experience {Ich-Störungen}.

Lesch-Nyhan syndrome
People can like to hurt themselves {Lesch-Nyhan syndrome} [Ramachandran, 2004].

lunacy
Severe mental illnesses {lunacy}| require intervention by society, which must infringe civil rights.

mania
People can show uncontrolled excitement, feel self-important, have well-being and elation, be over-active, make grandiose pronouncements, and perform obsessive behaviors {mania}|. Mania is much less common than depression. Drugs that raise monoamine levels can cause mania.

melancholia
Depressive illness {melancholia}| can include loss and guilt, and loss has symbolic significance.

nymphomania
Women can have sexual promiscuity {nymphomania}|.

paranoia
People can have delusions {paranoia}| {paranoid state} of grandeur and/or persecution.
symptoms
They are suspicious, are highly sensitive, project fears, believe that their beliefs are correct and justified, and do not believe that they are ill. They attack people that they think persecute them, quarrel with neighbors, accuse people of trespassing, or accuse spouses of infidelity.
factors
Paranoics have no intellectual deficits, hallucinations, emotional withdrawal, or disrupted syntax.
causes
Paranoia is a disorder of self-esteem and stress. Narcissistic self-overestimation is a typical reaction to humiliation during infancy and childhood. Paranoic ideas and anxieties are impulse projections.
treatment
Paranoia is not treatable now.
comparisons
Artists, and political and religious leaders, can mimic paranoia.

perseveration
Frontal-lobe damage can cause repeated behaviors {perseveration, behavior}|. Wisconsin card-sorting test diagnosis it.

psychasthenia
People can be unable to resist compulsion, obsession, or phobia {psychasthenia}.

psychopathic personality
Personal behavior can violate group moral code {psychopathic personality}.

psychosomatic disease
Organic diseases {psychosomatic disease}| can associate with psychological factors.

types
Psychosomatic diseases include psychosomatic atopic dermatitis, anorexia nervosa, bronchial asthma, essential hypertension, gastric and duodenal ulcer, myocardial infarction, and ulcerative colitis. Heart disease, cancer, gastro-intestinal-tract disease, pulmonary tuberculosis, suicide, and accidents can also be psychosomatic.
cause
Stress caused by confinement, restraint, and frustration can affect organs.
individual
No disease is distinctively psychosomatic. Psychosomatic disease is peculiar to each patient and re-occurs.
age
Psychosomatic disease symptoms begin before age six and are real physiological disturbances.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental>Depersonalization

depersonalization reaction
People can ignore other's feelings or treat people as objects or things {depersonalization reaction}|. They can feel identity loss and body separation. They can have out-of-body experiences. Depersonalization can happen in relaxed periods after intense excitement and danger.

ego-dissolution
Depersonalization causes loss of perspective of outside world {Angstvolle Ich-Auflösung} {ego-dissolution}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental>Neurosis

neurosis
People can have maladaptive, socially unacceptable, or personally distressing habits {neurosis}| {psychoneurosis}.
symptoms
Neurosis symptoms include avoidance of others, self-indulgence, turning against others, self-deprivation, and turning against self. Neurosis symptoms are similar to normal-people feelings and thoughts but stronger.
onset
People can learn neurotic behaviors in early childhood.
persistence
Neurosis resists modification through learning. It persists because it protects against overt or hidden anxiety.
gender
Women outnumber men neurotics two to one.
types
Neuroses include functional disorders, such as limb paralysis or erectile impotence. They include alcohol dependence, anxieties, compulsions, drug dependence, hysteria, obsessive-compulsive disorders, personality disorders, phobias, sexual deviations, and disorders specific to childhood and adolescence.
neurotic personality types
Neurotic personality types include abnormal, cyclothymic, hysterical, obsessional, paranoid, schizoid, sociopathic, and vulnerable. Abnormal personalities have overreactions to anxiety. Cyclothymic personalities alternate in energy level. Hysterical personalities use repression and dissociation, especially in classic conversion hysteria. Obsessional personalities have rigid mental structures, possibly defenses against strong instinctual drives. Paranoid personalities use projection in behavior and thinking. Schizoid personalities use different personalities to hide anxieties. Anxiety and frustration can cause sociopathic personalities, likely to harm others. Vulnerable personalities cannot cope with everyday stresses, feel inadequate, seek attention, and are histrionic.

anxiety reaction
The most common neurosis {anxiety reaction}| {anxiety state} involves acute fear, triggered by stimulus or conflict. People can have recurring or persistent fears or panic and have active autonomic nervous systems, with sweating, tremors, faintness, choking, breathlessness, and stomach queasiness.

character disorder
Neurosis {character disorder} can involve behavior or personality alterations.

conversion reaction

Neurosis {hysteria} {conversion reaction}| {conversion hysteria} can be defense against stress.

symptoms

Hysteria can involve speech abnormalities, multiple personalities, histrionic behaviors, attention-seeking behaviors, manipulative behaviors, flirtatious behaviors, little self-criticism, susceptibility to suggestion, paralyzed limbs, convulsions, sensation loss, blindness, ataxic gait, throat constriction, fugue, dissociation, twilight states, amnesias, and shallow and labile emotions.

brain

Two-thirds of hysteria patients have brain injury or neurological disease.

depression neurosis

Neurosis {depression, psychology}| {depressive neurosis} {depressive reaction} {unipolar affective disorder} can involve hopelessness, helplessness, despair, suicidal ideas, feelings of no control, edginess, irritability, and guilt. People tire easily, have low concentration, have poor appetite, lose weight, have constipation, have low sex drive, have light non-REM sleep, have low interest in things, and have earlier, longer, and more intense first REM sleep.

drugs

Drugs that deplete brain-messenger monoamines can induce depression. Drugs that raise monoamine level relieve depression.

factors

Artificial light and sleep deprivation reduce depression.

cause

Death, divorce, and other losses often cause depression [Wolpert, 2001].

hypochondria

Neurosis {hypochondria}| {hypochondriacal reaction} can involve unreasonable worries about health.

neurasthenia

Neurosis {neurasthenic reaction} {neurasthenia}| can involve nervousness, fatigue, weakness, and headache. Conflicts about masturbation, or inability to resolve doubt or uncertainty, can cause it.

thought disorder

Neurosis {thought disorder}| can involve delusion, dissociation, obsession, and phobia.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental>Neurosis>Obsession

obsessive-compulsive

Neurosis {obsessive-compulsive reaction}| {obsessive-compulsive neurosis} can involve absurd-idea recurrence.

symptoms

It can have odd behavior impulses, like kleptomania, pyromania, and poriomania. It can have compulsion. It can have obsession. People can be overly conventional, conscientious, reliable, scrupulous, or punctual. They can think about harm, contamination, sex, and sin. They can think repetitively about abstract problems. They can continually manipulate words and numbers. They can have fears of harming someone. They can fear dirt contamination. They can continually wash hands or check water taps. They often recognize their fears are silly.

incidence

Obsessive-compulsive reaction is rare.

compulsion

Mental states {compulsion}| can have uncontrollable desires to do odd behaviors.

obsession

Mental states {obsession}| can have fixed thoughts.

kleptomania

Compulsions {kleptomania}| can involve stealing.

poriomania

Compulsions {poriomania} can have continual movement.

pyromania
Compulsions {pyromania}| can have fire setting.

repetition compulsion
Specific emotional stimuli can cause habitual behaviors {repetition compulsion}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental>Psychosis

psychosis
People can have serious perception and thought disorders and so do not know reality {psychosis}|. Psychoses can be organic or functional. Severe mental illness is rare. Psychosis is equally frequent in both sexes. Psychoses can originate in childhood.

functional psychosis
Psychosis {functional psychosis} can involve psychological factors with no obvious body or brain diseases, such as faulty interactions in family. Functional psychoses include schizophrenia, affective psychosis, manic-depressive psychosis, involutional melancholia, and paranoia. Biochemical brain changes can cause functional psychoses.

bipolar affective disorder
Functional psychosis {manic-depressive psychosis} {affective psychosis} {bipolar affective disorder}| can involve mood extremes: first, flighty ideas and wildness and then profound apathy, despair, and little control. Manic-depression can be hereditary but also happens to extroverts under stress. Difficult life, bereavement, and loss can cause manic-depression. 15% of manic-depressive people die by suicide. Lithium prevents relapses.

involutional melancholia
Loss, menopause, middle age, or morbid feelings can cause agitated depression and functional psychosis {involutional melancholia}.

organic psychosis
Psychosis {organic psychosis} can result from brain degenerative structural changes. Organic psychoses include senile dementia, presenile dementia, arteriosclerotic dementia, and alcoholic dementia.

sociopath
Adolescent or young adult males {sociopath}| {antisocial psychopath} can be unable to conform to society rules.
symptoms
They cannot tolerate minor frustrations. They cannot form stable human relationships. They do not learn from experiences. They act impulsively or recklessly. They feel predominantly inadequate, aggressive, or creative.
effect
They typically die from accidents, suicide, or alcoholism.
treatment
Treatment to learn rational judgment and gain will to control antisocial behavior can help sociopaths. Medical treatment is currently useless or unused. By middle life, many sociopaths have adapted to society, without medical treatment.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental>Schizophrenia

schizophrenia
Functional psychosis {schizophrenia}| {dementia praecox} can have delusions, hallucinations, memory disturbances, ideas of reference, volition problem, and dementia. Schizophrenics think their minds and wills are not under their control. They think that thoughts are being put into, or removed from, their minds. They suspect that someone is hypnotizing them.
incidence
About 1% of people have schizophrenia. Incidence has been the same for 50 years.
recovery

Individual episodes typically end with previous-personality recovery. Recovered schizophrenics can relapse after contact with critical and involved relatives. 80% of schizophrenic patients recover from first attack. Only 50% remain healthy. 10% of schizophrenic patients are long-term hospital in-patients. People can improve even after years of hospitalization.

properties: 4 A's

Schizophrenia has autistic thinking, emotion ambivalence and withdrawal, apathy and low emotional level with affect lack, inappropriate emotions, and unconnected thought and words with association lack.

properties: behavior

Schizophrenia causes agitation. Schizophrenia can show low spontaneity, simple speech, and slow movement. Schizophrenics have abnormal eye movements. They change mental-function distribution between cerebral hemispheres. They have difficulty processing incoming information.

properties: emotion

Schizophrenics lose interest in, and respond unemotionally to, other people.

properties: memory

Schizophrenics can lose discussion point. Schizophrenia can lessen memory formation and problem solving.

properties: speech

Schizophrenia can involve unusual associations to words or questions, with rambling and incoherent answers.

properties: will

Schizophrenics lose energy and are apathetic.

types

Schizophrenia types are catatonic, childhood, hebephrenic, paranoid, pseudoneurotic, schizo-affective, and simple.

factors

Schizophrenia has same types and frequencies in all environments and cultures. Schizophrenia does not increase in wars or other catastrophes.

causes

Trauma or intense family pressure can cause schizophrenia. Schizophrenia can transmit genetically.

causes: theory

Both nature and nurture cause schizophrenia {diathesis stress model}.

biochemistry

Schizophrenia lowers glutamate and increases NAAG, kynurenic acid, and homocysteine, which all affect NMDA receptors. D-cycloserine, D-serine, and glycine stimulate NMDA receptors. D-amino acid oxidase catabolizes D-serine. Catechol-O-methyltransferase affects dopamine metabolism, mainly in prefrontal lobes. Dysbindin and neuregulin affect number of NMDA receptors.

biochemistry: dopamine

Excess dopamine causes more activity. Low dopamine causes low activity. In schizophrenics, amygdala contains abnormal dopamine quantities. Dopamine D1 receptors are in frontal lobes. Cortex and brainstem receptors differ. A dopamine receptor binds dopamine antagonist drugs. Amphetamines, apomorphine, clozapine, etomidate, ketamine, Levodopa, phencyclidine, and phenothiazines affect schizophrenia.

tests

Tests for actions are Tower of London and Wisconsin Card-Sorting tests.

ambivalence in disease

Schizophrenics can have opposite ideas about same things {ambivalence}.

autistic thinking

People can have intellectual deficits, hallucinations, emotional withdrawal, and disrupted syntax {autistic thinking}.

hallucination in schizophrenia

People can visualize images {hallucination, schizophrenia} as sensations {psychosensory hallucination} or thoughts {psychic hallucination}. Schizophrenics typically hear voices talking to or about them. People can hear sounds {outer voices} or internally hear {inner voices} insistent voices that seem to come from outside. They hear voices telling them what to do, commenting on or repeating their thoughts, discussing among themselves, or threatening to kill them. Voices can give commands {command hallucination}.

ideas of reference

Schizophrenics can have delusions, hallucinations, and memory disturbances, and can attribute incorrect object characteristics {ideas of reference}.

lack of affect
Schizophrenics can have apathy, low emotion, or inappropriate emotions {lack of affect}.

splitting in disease
Schizophrenics can lose coordination between different mental functions {splitting}, particularly between cognitive and emotional personality aspects.

thought insertion
Schizophrenics can feel that thoughts are not their own thoughts, but someone else put them in their minds or they are someone else's thoughts {thought insertion}.

volition problem
Schizophrenics can have little will {volition problem}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Mental>Schizophrenia>Type

catatonic schizophrenia
Schizophrenia {catatonic schizophrenia} can involve excitement and then stupor and immobility.

hebephrenic schizophrenia
Schizophrenia {hebephrenic schizophrenia} can involve withdrawal, bizarre mannerisms, and personal neglect.

paranoid schizophrenia
Schizophrenia {paranoid schizophrenia} can involve disrupted syntax, autistic thinking, hallucinations, and emotional withdrawal.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Pain

learned pain
People can have pain when trying to move limbs that had chronic pain {learned pain} [Ramachandran, 2004].

neuralgia
Fifth cranial nerve can feel sharp pain or shock in jaw or cheek {neuralgia}|. From 6 to 12 years, children can have restlessness and/or twitching, symptoms of tension from repressed needs or conflicts.

pain asymbolia
Insula senses pain and anterior cingulate has emotions, so damage to path from insula to anterior cingulate allows pain sensations but causes no emotions {pain asymbolia} [Ramachandran, 2004].

paresthesia
Skin can feel burning, prickling, itching, tingling, and numbness {paresthesia}, usually in extremities.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Pain>Headache

headache
Meningeal blood-vessel swelling, which stretches nerves, causes primary headaches {headache}| {primary headache}. Hormones, stress, and little sleep act on brain pain centers to produce serotonin and norepinephrine and cause blood-vessel swelling. Sinus pressure, pinched nerves, or irritation causes secondary headaches.

migraine
Headaches {migraine}| can be strong pains at one point.
symptoms

Days or hours before onset, mood, behavior, wakefulness, appetite, bowel activity, and/or fluid balance change. In 10%, sensation disturbances, lasting for 20 to 30 minutes, precede headache. Sense disturbance and pain can be on same or opposite body side.

biology

Migraines are non-bacterial inflammatory responses, which release neurokinines or other pain-producing substances and dilate meningeal and scalp blood vessels.

Progressive cortical blood-supply loss, or neuron intercellular-fluid neurochemical disturbance, can be causes. In 20%, foods containing biogenic amines or complex phenols can be causes. Vasoactive monoamine serotonin and other neurotransmitter changes can be causes.

causes

Causes are stress, glare, flashing lights, striped patterns, menstrual cycle, and sexual activity.

effects

Migraine can cause nausea or vomiting. Recovery from migraine takes hours.

age

Attacks typically begin before age 30 and decrease in frequency with age.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Pain>Later

complex regional pain

After small injuries, people can later have acute pain, swelling, inflammation, and paralysis {complex regional pain type 1} [Ramachandran, 2004].

reflex sympathetic

After small injuries, people can later have acute pain, swelling, inflammation, and paralysis {reflex sympathetic dystrophy} [Ramachandran, 2004].

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Retardation

Angelman syndrome

People can have mental retardation, odd facial expressions, and happy personality {Angelman's syndrome} {Angelman syndrome} {happy puppet syndrome}.

autism

Rare diseases {autism}| can involve abnormal development before 2.5 years old.

symptoms

Autistic children have stereotyped hand movements and facial grimaces. They withdraw from adults. They do not make friends with other children. They do not develop social responses or relationships. They have little eye contact. They do not adapt easily to new situations. They are obsessive. They strongly attach to favored objects. They cannot classify emotional responses. They cannot imagine others' mental states {mind blindness}. They have difficulty pretending.

biology

Autistic children typically have below-normal intelligence. Perhaps, bilateral hippocampal lesions, limbic-system and vestibular-nuclei abnormalities, brain injury, or chromosome-7 HOXA1-gene damage causes autism.

gender

Autism is more in boys than in girls.

cretinism

Iodine lack or damaged thyroid gland can cause decreased thyroxin, fat appearance, and mental retardation {cretinism}|.

phenylketonuria

Enzyme deficiency causes inability to make phenylalanine into tyrosine and results in toxicity affecting gait and posture {phenylketonuria}| (PKU). Enzyme deficiency also causes inability to metabolize phenyl pyruvate, and excess blood phenyl pyruvate causes mental retardation. PKU affects one in 10,000 births. Diets low in phenylalanine can prevent PKU.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Trauma

traumatic brain injury
Brain injury {traumatic brain injury} (TBI) can be mild or concussion.

anoxia
Blood can have low oxygen {anoxia}|. Difficult or premature births can cause brain damage, because no oxygen reaches brain.

concussion
Rotational or other mechanical force {concussion}| on brainstem disturbs vision, equilibrium, and consciousness.
incidence
In USA, 1.5 million people, mostly young, have concussions each year.
levels
Grade 1 concussion retains consciousness, symptoms last less than 15 minutes, and cognitive problems disappear within 24 hours. Grade 2 concussion has brief consciousness loss, and symptoms last longer than 15 minutes. Grade 3 concussion has consciousness loss and amnesia, and symptoms last long. Longer consciousness loss and longer amnesia {posttraumatic amnesia} (PTA) correlate with neurocognitive impairment severity.
brain
Concussion decreases blood flow, increases blood sugar, and changes cell-ion flows in inferior parietal, prefrontal, and cingulate cortex. Increased glutamate causes increased excitation. Changes can begin two to three days after injury and last more than one week. Brain is vulnerable to second injury.
symptoms
Common symptoms include uneven and dilated pupils, vomiting, headache, blurred vision, slurred speech, anxiety, and poor coordination and balance. Other symptoms are tiredness, poor concentration, irritability, noise, dizziness, clumsiness, eye problems, and headaches.
Early signs are vacant stare, fogginess, confusion, slowing, memory disturbance, consciousness loss (LOC), headache, dizziness, balance difficulties, and vomiting. Later somatic signs are headaches, fatigue, sleep disturbance, vision changes, ear ringing, and light/noise sensitivity. Affective signs are lowered frustration tolerance, irritability, more emotionality, depression, and anxiety. Cognitive signs are slow thinking, slow response, poor concentration, distractibility, learning difficulty, memory difficulty, and disorganization.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Eye

blindness
People can have retinal or brain damage or malformation and cannot see {blindness}| [Hull, 1990]. Peripheral retinal processing allows subconscious navigation.
restored sight
If blind people have restored sight, they can see but not well. Children with unused eyes see light spots after applying pressure to eyeball.
space
Senses can carry information about space and time. Vision impairment causes brain reconnections to other sense regions. Input and output shape plastic brain [Sur and Leamey, 2001] [Simpson, 1988] [Teuber et al., 1960] [Teuber, 1960] [Von Senden, 1960].
space: touch or sound
If touches or sounds substitute for vision, it seems that sense qualities vaguely become more like visual sense qualities [Bach-y-Rita, 1995] [Dobelle, 2000] [Normann et al., 1996] [Schmidt et al., 1996].
space: touch
Skin-vibrator arrays (Tactile Vision Substitution System) can represent camera images. People can learn images and place them in 3D space, so they use depth perception as well as form perception. Tongue electrode arrays can replace vestibular system [Bach-y-Rita and González, 2002].
space: sound
Sound pitches and timing can substitute for spatial dimensions [Meijer, 2002]. Blind people perceive objects by sound echoes. Blindfolded people can learn echo navigation rapidly.

blindness denial

People can be unaware that they cannot see {Anton's syndrome} {blindness denial}. They deny that they are blind [Ramachandran, 2004].

cataract of eye
Eye lenses can have protofibrils, which can develop into plaques {cataract, eye}|.

dry eye
Infection or tear-duct blockage can cause eyes not to receive enough tears {dry eye}|, primarily in older people.

flasher
In older people, vitreous humor can thicken and pull away from retina, and neurons can cause flashes in front of eye {flasher, vision}|. If new flashers appear, go to ophthalmologist. If you receive head blows, vitreous humor can rub retina, causing flashes {stars, vision}.

floater
In older people, vitreous humor can thicken and make denser filaments, which can appear as floating objects in front of eye {floater, vision}|. If new floaters appear, go to ophthalmologist.

glaucoma
Optic nerve can have damage {glaucoma}|.
causes
High intraocular pressure (IOP), eye injury, inflammation, tumor, advanced cataract, advanced diabetes, and steroid drugs can damage optic nerve.
types
Primary open-angle glaucoma (POAG) affects three million in USA. Eye-drainage canals clog, and inner-eye pressure increases. It has no symptoms and is gradual. It has easy treatment.
Blocked drainage canals can cause acute angle-closure glaucoma {narrow-angle glaucoma}. When pupil enlarges too much or too quickly, outer iris edge bunches up over drainage canals. Iris cannot open wide. Symptoms include headaches, eye pain, nausea, colors around lights at night, and blurred vision. Surgery can remove small region at outer iris edge.
Normal-tension glaucoma (NTG) {low-tension glaucoma} {normal pressure glaucoma} has optic nerve damage with almost normal intraocular pressure from 12 mm Hg to 22 mm Hg.

macular degeneration
Older people can have macula focal-area degeneration {age-related macular degeneration} (AMD) {macular degeneration}|. In first macular-degeneration stage {dry stage, macular degeneration}, tissues thin. In next stage {wet stage, macular degeneration}, blood vessels grow and hemorrhage or leak behind macula, forming scar tissue. Anti-oxidant vitamins and minerals slow dry form. Laser treatments and photodynamic therapy can seal leaking blood vessels.

quadrantanopia
People can not see one quarter of visual field {quadrantanopia} [Horton and Hoyt, 1991].

snow blindness
Sunlight on snow can cause temporary blindness, eye watering, and double vision {niphablepsia} {snow blindness}.

walleye
Eye can turn away from nose {walleye}|, or cornea can be white or opaque.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Eye>Color

color-blindness
People can have agnosia for colors {color-blindness}| [Meadows, 1974] [Nordby, 1990] [Zeki, 1990].

Nida-Rumelin inversion

Males can interchange long-wavelength and middle-wavelength cones {double color-blindness} {Nida-Rümelin inversion}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Eye>Refraction

emmetropia
Eye refraction can be correct {emmetropia}, neither near-sighted nor far-sighted.

hyperopia
Far-sightedness {hyperopia} {hypermetropia} {far-sightedness} {presbyopia} results if eye length is too short. Hyperopia usually develops soon after birth. One person in three is hyperopic.

myopia
Near-sightedness {myopia}| {near-sightedness} results if eye length is too long. Myopia usually develops in early teens. One person in five is myopic. Near-sightedness makes reds more prominent.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle

akinesia
People can have reduced spontaneous movement {akinesia}.

amyotrophic lateral sclerosis
Protofibrils can appear in motor neurons, and plaques can appear there later {amyotrophic lateral sclerosis}| (ALS) {Lou Gehrig's disease}. Mao Tse-tung, David Niven, Stephen Hawking, and Dmitri Shostakovich had it. Superoxide dismutase can have mutations. ALS starts in axons. It first affects fast-twitch and fast-fatigue muscle fibers, then fast-twitch and fatigue-resistant muscle fibers, and then slow-twitch muscle fibers.

ataxia
Nerve damage can cause poor muscle coordination and unsteady posture, movements, eye movements, and speech {ataxia}.

athetosis
People can have twisting or writhing movements {athetosis}.

ballismus
Subthalamic-nucleus damage can cause ballistic movements {ballismus}.

bradykinesia
People can be slow in making and controlling voluntary ballistic movements {bradykinesia}.

bulbar palsy
In dementia, sudden stimuli or strong efforts can cause facial contortions and tears {bulbar palsy}, without unhappiness.

dyskinesia
People can have movement disorders {dyskinesia}|.

hyperkinesis
People can have increased movement {hyperkinesis}|.

hypokinesia
People can have involuntary tremors in resting arms and legs, stiffness in movements, akinesia, and bradykinesia {Parkinsonism} {Parkinson's disease} {shaking palsy} {idiopathic paralysis agitans} {hypokinesia}. Posture, mood, and activity changes can have no pain, little sensation loss, and little consciousness loss. Eye movements can be small or slow. Untreated Parkinsonism leads to crouching and immobility.
cause

Metal poisoning, oxygen deficiency, strokes, infections, and drug overdoses can cause Parkinsonism. Substantia-nigra dopamine neurons degenerate. Dopaminergic-neuron degeneration causes slow movements. Parkinsonism involves alpha-synuclein, which makes amyloid plaques {Lewy body} in brain cells.

Basal-ganglia damage disrupts unconscious motor plans, and perceptions cannot guide actions. Because perceptions and motor actions are not conscious, consciousness cannot use other behaviors to compensate.

treatment

Dopamine and L-DOPA treat Parkinson's disease.

incidence

One to 1.5 million people in USA have Parkinson's disease.

factors: age

Parkinsonism is a late-middle or old-age degenerative disease.

factors: genetics

Parkinsonism is not hereditary.

drugs

Reserpine causes motionless, humped back, splayfooted posture, and coarse, whole body tremor, which resembles Parkinson's disease.

multiple sclerosis

Antibodies can damage myelin and make weak muscles {multiple sclerosis}|. Patients can be unable to recognize objects by touch.

muscular dystrophy

Motor neurons can have damage {muscular dystrophy}|.

myelitis

Spinal-cord inflammation {myelitis} can cause muscle-function loss.

optic ataxia

After posterior-parietal-lobe damage, people cannot connect seeing with reaching or pointing {optic ataxia}.

palsy

Brain damage, typically from rubella, Rh factor, jaundice, or head injury, can cause infants to have bad posture and little control over movement {palsy}| {cerebral palsy}.

spinal ataxia

Sensory nerve tracts can degenerate {spinal ataxia}.

tic douloureux

Fifth cranial nerve can feel sharp pain or shock in jaw or cheek {trigeminal neuralgia} {tic douloureux}|. From 6 to 12 years, children can have restlessness and/or twitching, symptoms of tension from repressed needs or conflicts.

utilization behavior sign

Patients with bilateral focal frontal-lobe lesions can use objects within reach though told not to do so {utilization behavior sign}, because they have no inhibition.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle>Tremor

muscle tremor

Muscles can have oscillations {tremor, muscle} {muscle tremor}|. Normally, damping by cerebellum inhibits agonist and antagonist contractions to eliminate oscillations and smooth movement.

cerebellar action tremor

People can not perform low and small movements {cerebellar action tremor}, only larger movements.

intention tremor

Gamma-efferent nerve-system overstimulation makes limbs tremble {intention tremor}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle>Paralysis

akinetic mutism
Anterior-cingulate damage causes inability to speak, move, or be conscious {akinetic mutism}.

catalepsy
People can lose sense qualities and voluntary motion {catalepsy}|. Body stays in one position.

catatonia
Muscles can become rigid in one position {catatonia}|.

infantile paralysis
Children can get polio {infantile paralysis}|.

learned paralysis
People can have paralyzed limbs before amputation and stay paralyzed after {learned paralysis} [Ramachandran, 2004].

locked-in syndrome
People can be conscious but unable to move or express reports {locked-in syndrome}| [Bauby, 1997] [Celesia, 1997] [Feldman, 1971].

paralysis
Brain or peripheral-nerve damage can cause motor-function loss {paralysis}|. Hysteria can have paralysis. Paralysis does not affect emotions or consciousness.

paraplegia
People can be unable to move arms and legs {paraplegia}|.

paresis
Syphilis, encephalitis, brain damage, or cerebral arteriosclerosis can cause general paralysis and organic psychosis {paresis}.

polio
Virus {poliovirus} can paralyze by destroying motor nerve cells {polio}| {poliomyelitis}.

spastic paralysis
Paralysis can alternate with muscle spasms {spastic paralysis}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle>Oxygen

bends
When deep-sea divers breathing air rise too quickly, nitrogen dissolved in blood expands to form painful bubbles {bends}|.

nitrogen narcosis
Deep-sea divers breathing air act drunk {nitrogen narcosis}| {rapture of the deep}. Nitrogen narcosis begins at 30 meters deep and prevents working below 60 meters. Oxygen and helium mixtures {heliox} or oxygen, helium, and nitrogen mixtures {trimix} replace air to prevent bends and allow working. Heliox distorts voices and conducts heat efficiently.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle>Apraxia

apraxia

People can be unable to make purposeful skilled movements and to move in response to verbal commands {apraxia, muscle disease}, though they can comprehend words.

types

People can persevere in making distorted movements {ideomotor apraxia}, use previous movements in current movements, and show no difference between left and right limbs or meaningful and meaningless tasks.

People can have impaired motor-element selection and sequencing {ideational apraxia}, caused by problems in brain association areas that input to motor programs.

brain

Disconnecting Wernicke's area from motor centers causes apraxia. Language-hemisphere lesions impair action sequences. Animal brain lesions do not cause apraxia.

comparison

Aphasia and apraxia have no qualitative relation.

ideo-motor apraxia

People with left-hemisphere supramarginal-gyrus damage can have no paralysis but cannot imitate imagined motions well {ideo-motor apraxia}. They can perform skills correctly if skills do not require imagination. They cannot judge if another's actions are intentional.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle>Chorea

chorea

Dyskinesia {chorea}| can have too much dopamine in brain movement-control centers and cause quick muscle contractions. People can twist or writhe in athetosis. Huntington's chorea is hereditary. Syndenham's chorea is from rheumatic fever. Drugs, hormonal disorders, and blood vessel problems can cause chorea.

Huntington chorea

Dominantly inherited disorders {Huntington's chorea} {Huntington chorea} {Huntington's disease} can result from expanded glutamine repeats in HD proteins.

symptoms

At first, patients fidget, have spontaneous movements, and appear clumsy. Later, jerking and writhing affect face, tongue, and arms.

biology

A chromosome-4-tip autosomal dominant gene can cause Huntington's chorea. Cytosine-adenine-guanine nucleotides {CAG repeat, Huntington's} repeat in middle too many times, making too many glutamines. Proteins clump together {polyglutamine disease, Huntington's} to make protofibrils and later plaques. Cerebrum shrinks, ventricles enlarge, and midbrain caudate nucleus and putamen have damage. Cytosine-anything-guanine regions {CxG region, Huntington's} make DNA hairpins, so copies are longer.

St. Vitus' dance

After streptococcus infection, children 5 to 15 years old can have twisting chorea {St. Vitus' dance}| {Syndenham chorea}.

BIOL>Medicine>Disease>Kinds>Organ>Nerve>Muscle>Hand

alien hand syndrome

Corpus-callosum and prefrontal-region damage causes hand to move, though people do not will movement {alien hand syndrome}|. People say that their hand is doing things itself.

anarchic hand syndrome

After corpus-callosum damage, hands undo each other's work {anarchic hand syndrome}. Hands seem to act in opposition.

BIOL>Medicine>Disease>Kinds>Organ>Reproduction

hernia

Peritoneum can enter inguinal canal {hernia}|.

hot flash
At menopause, woman can have temperature spikes {hot flash}|.

hysterectomy
For cervical cancers, uterus removal {hysterectomy}| can include ovary removal.

hysterotomy
Surgeons can make incisions into uterus {hysterotomy}.

miscarriage
Before proper birth, mothers can expel embryo or fetus {miscarriage}| {abortion}.

surgery
Before 13 weeks after conception, surgical abortions use either suction or dilation and curettage. After 13 weeks after conception, surgical abortions use saline solution.

human
The question is this: Are, or when are, fetuses human beings, rational conscious persons, or organisms capable of suffering?

Some say abortion is killing innocent beings.

Some say, at all times, let mothers decide abortion decisions, because fetuses are in mothers' bodies.

sentience
Embryos or fetuses taken outside mother's body can possibly be, or develop into, persons, so life and death decisions can depend on when fetus achieves sentience, personhood, or capability to suffer.

stillborn
Babies can be dead at birth {stillborn}|.

pessary
After uterus prolapse, vagina rubber or plastic supports {pessary} can hold uterus.

toxemia of pregnancy
During pregnancy, kidney and circulatory problems can cause limb swelling {toxemia of pregnancy}| {pregnancy toxemia}.

vaginismus
Last third of vagina can contract {vaginismus}.

BIOL>Medicine>Disease>Kinds>Organ>Respiration

altitude sickness
Above 5000 meters, low oxygen can cause nausea {altitude sickness}|.

apnea
Breathing can stop {apnea}|.

asphyxia
Blocked breathing, carbon-monoxide poisoning, and cyanide poisoning can cause death from low oxygen {asphyxia}|.

bronchitis
Bronchi can have inflammation, with coughing of sputum {bronchitis}|.

catarrh
Mucous membrane can have inflammation {catarrh}, typically of respiratory tract.

croup

People can have laryngitis, difficult breathing, and coughing {croup}|.

dyspnea
People can have difficult breathing {dyspnea}.

emphysema
Inelastic air sacs cause difficulty breathing {emphysema}|.

halitosis
People can have bad smelling breath {halitosis}|.

hypoxia
People can have oxygen lack {hypoxia}|.

phlegm
When cold, mucus {phlegm}| can be sticky.

pleurisy
Pleura can have inflammation {pleurisy}|.

pneumonia
Lungs can have inflammation {pneumonia}|.

pneumothorax
Air can be in pleural cavity {pneumothorax}|. To treat tuberculosis, induced pneumothorax collapses lung.

shortness of breath
High blood carbon-dioxide concentration affects medulla respiratory centers and sends along phrenic nerve and to thalamus intralaminar nuclei, which increase pulse rate and breathing rate {shortness of breath} {air hunger} {breathlessness}.

sudden infant death
Breathing difficulties can cause babies to die in cribs {sudden infant death syndrome}| (SID) {crib death}.

BIOL>Medicine>Disease>Kinds>Organ>Skeleton

bone resorption
Bones can undergo calcium and other mineral removal {bone resorption}|.

osteogenesis imperfecta
Degenerative diseases {osteogenesis imperfecta} can cause brittle bones.

rheumatism
People can have muscle, tendon, joint, bone, or nerve pain {rheumatism}|.

splay foot
People can have flat and turned out foot {splay foot}|.

whiplash
Sudden forward or backward head movement {whiplash}| can cause neck or spine injury.

BIOL>Medicine>Disease>Kinds>Organ>Skeleton>Back

lordosis
People can have forward spine curvature at lumbar vertebrae {lordosis}|.

scoliosis
People can have greater than 10-degree vertical spine misalignment {scoliosis}|.

slipped disk
Vertebrae disks can move from normal position between two vertebrae {slipped disk}|.

BIOL>Medicine>Disease>Kinds>Organ>Skeleton>Joint

ankylosis
Joints can be immobile {arthrokleisis} {ankylosis}.

arthralgia
People can have joint pain {arthralgia}|.

arthritis
People can have joint inflammation with pain, swelling, and stiffness {arthritis}|.

bursitis
People can have bursa inflammation {bursitis}| with pain and swelling, typically at shoulder, elbow, or hip joints.

dislocation of bone
Bones can leave normal positions in joints {dislocation, bone}.

gout
If body makes too many purines, uric acid accumulates in joints {gout}|.

rheumatoid arthritis
People can have joint inflammation and stiffness {rheumatoid arthritis}|.

BIOL>Medicine>Disease>Kinds>Organ>Skin

bunion
People can have swelling {bunion}| under skin at big-toe first joint.

cauliflower ear
Boxers can have damaged pinna {cauliflower ear}|.

chilblain
Cold damp weather can cause erythema, skin swelling, pruritus, and burning on hands, feet, ears, children faces, women legs, and men hands {erythema pernio} {pernio} {chilblain}|.

gangrene
Injury, low blood flow, or disease vectors can cause tissue breakdown {gangrene}|.

hangnail
People can have dead skin at nail edges {hangnail}|.

heat rash
Heat and humidity can block sweat-gland tubules and cause inflammation {heat rash}| {miliaria} {prickly heat}, making red papules and causing itching.

lesion of skin
People can have wounds or diseased tissues {lesion, skin}|.

necrosis
People can have tissue breakdown {necrosis}|.

pre-baldness
White spots {pre-baldness} can be on skin and hair.

putrefaction
People can have tissue breakdown {putrefaction}|.

tonsilitis
People can have tonsil inflammation {tonsilitis}|.

vaginitis
People can have vagina inflammation {vaginitis}|.

welt on skin
Blows or allergic reactions can raise skin ridges {welt, skin}| {weal}.

BIOL>Medicine>Disease>Kinds>Organ>Skin>Bruise

contusion
Blows can bruise tissue {contusion}|.

mouse under eye
People can have bruises {mouse, under eye} under eye sockets.

shiner
People can have black eyes {shiner}.

BIOL>Medicine>Disease>Kinds>Organ>Skin>Pus

abscess
Pus forms where tissue disintegrates {abscess}|.

pustule
People can have pus-filled skin inflammation {pustule}|.

water blister
Blisters {water blister} can contain water or pus.

BIOL>Medicine>Disease>Kinds>Organ>Skin>Ulcer

bedsore
Continuous pressure can cause skin ulcerations {bedsore}| {decubitus ulcer}.

canker sore
People can have mouth and lip sores {cold sore} {canker sore}| not caused by herpes.

ulceration
Pus-filled lesions {ulceration}| can have inflammation.

BIOL>Medicine>Disease>Kinds>Organ>Tissue Water

dystrophy
People can have tissue degeneration {dystrophy}|.

edema
Tissue can have too much water {edema}| {dropsy}.

BIOL>Medicine>Disease>Kinds>Organism

disease organisms
Disease organisms {disease organisms} are bacteria, insects, worms, and viruses.

BIOL>Medicine>Disease>Kinds>Organism>Bacteria

anthrax
ATR proteins {protective antigen} are mammalian-cell receptors that have fragments that build membrane pores. Bacteria {anthrax}| toxins can have three proteins. One protein binds to ATR protein protective antigen. Zinc protease {lethal factor} attacks kinase and lyses macrophages. Adenylate cyclases {edema factor} can inhibit phagocytosis and burst macrophages. Lethal factor and edema factor bind to pores.

bubonic plague
Yersinia pestis bacteria {bubonic plague}| cause fever, delirium, lymph-node inflammation, and black skin spots.

cryptosporidium
Bacteria {cryptosporidium} reappeared in Wisconsin [1994].

diphtheria
Bacteria {diphtheria}| can cause weakness, fever, and difficult breathing as air passages fill with membrane.

gonorrhea
Gonococcus bacteria cause urethra discharge with painful urination, abdominal pain, fever, and vomiting {gonorrhea}| {clap}. Antibiotics can treat gonorrhea.

Legionnaire's disease
Bacteria {Legionnaire's disease}| can get in air ducts [1977].

ptomaine
Bacteria can cause protein breakdown to toxic nitrogen compounds {ptomaine poisoning}|.

rheumatic fever
Children can have joint inflammation, fever, and heart damage {rheumatic fever}|.

rubella
Before fourth month of pregnancy, measles {rubella}| {German measles} can cause birth defects.

salmonella
Bacteria {salmonella}| can be in bad eggs and meat.

sclerosis
Eyeballs can have inflammation {sclerosis}|.

scrofula
Mycobacteria can cause neck lymph-gland tuberculosis {scrofula} {tuberculous adenitis} in children.

strep throat
Streptococcus can cause fever and tonsil inflammation {strep throat}|.

sty
Eye oil glands can have inflammation {sty}|.

syphilis

Spirochete bacteria {syphilis}| can cause nerve-cell damage after entering blood from genitals. Bacteria make chancres 9 to 90 days after contact, cause rashes several weeks to six months later, and then can be latent for 10 to 20 years followed by blindness, heart trouble, and brain damage. Congenital syphilis can cause brain damage. People cannot become immune to syphilis. Syphilis reached Europe in 1495. Wassermann test detects syphilis. Penicillin kills syphilis bacteria.

tetanus as disease
Bacilli {tetanus, disease}| can cause rigid and spastic muscles {lockjaw}.

toxemia of blood
Toxins from local bacterial infection can enter blood {toxemia}.

toxic shock syndrome
Bacteria can be in uterus [1981] {toxic shock syndrome}|.

trachoma
Bacteria can affect trachea {trachoma}.

treponema
Spirochete bacteria {treponema} can cause syphilis and yaws.

typhoid
Food or water bacilli can cause red rash, fever, bronchitis, and internal bleeding {typhoid}|.

typhus
Bacteria {typhus rickettsia} can cause red spots and prostration {typhus}|.

BIOL>Medicine>Disease>Kinds>Organism>Bacteria>Animal

brucellosis
Bacteria {brucellosis} can be in cattle.

leptospirosis
Bacteria {leptospirosis} can come from dogs.

Lyme disease
Spirochete bacteria {Lyme disease}| come from mice and deer and are in ticks [began 1982 in USA].

measles
Perhaps, bacteria {measles}| came from cattle rinderpest.

psittacosis
Bacteria {psittacosis} come from chickens and parrots.

smallpox
Bacteria {smallpox}| come from cowpox or other animal pox. Smallpox is extinct, except in chemical-warfare and research laboratories.

tuberculosis
Perhaps, lung bacteria {tuberculosis}| (TB) {consumption} came from cattle. Lymphocytes and epithelioid cells form masses {tubercle, cell}. Multidrug-resistant tuberculosis began in 1991.

tularemia
Bacteria {tularemia} come from rabbits.

whooping cough

Perhaps, bacteria {pertussis} {whooping cough}| came from pigs or dogs.

yellow fever
Monkeys can transmit bacteria {yellow fever}|.

BIOL>Medicine>Disease>Kinds>Organism>Bacteria>Mouth

caries
Bacteria can cause tooth decay {caries}|.

gingivitis
Bacteria can cause gum disease {gingivitis}|.

pyorrhea
Bacteria can cause bleeding gums {pyorrhea}|.

trench mouth
Bacteria can cause painful gingivitis {trench mouth}|.

BIOL>Medicine>Disease>Kinds>Organism>Bacteria>Skin

acne
Bacteria can infect hair follicles and sebaceous glands and cause black heads, pimples, cysts, and abscesses {acne}|.

barber's itch
Fungus or staphylococcus bacteria can cause hair-follicle inflammation {barber's itch}| {sycosis barbae} {ringworm of beard} {tinea barbae}.

boil
Bacteria can infect hair follicles {furuncle} {boil, follicle}|.

buruli ulcer
Bacteria can cause ulceration {buruli ulcer}.

carbuncle
Bacteria can cause deep skin swelling and pain {carbuncle}| {boil, skin}.

cat-scratch fever
One or two weeks after cat scratches, Bartonella bacteria can cause skin inflammation {Parinaud oculoglandular disease} {la malade des griffes du chat} {cat-scratch fever}|. Bartonella-related bacteria cause trench fever spread by body lice.

chancre
Syphilis lesions are small red raised spots {chancre}| with fluid leading to firm spots {bubo} that heal with no scar.

dermatitis
Bacteria can cause skin inflammation {dermatitis}|.

fever blister
Bacteria can cause cold sores {fever blister}|.

leprosy
Bacteria can cause skin sores {leprosy}|.

pruritis

Released by inflammation or dryness, histamines, opioids, endorphins, prostaglandins, acetylcholine, and serotonin cause itching {pruritis}| {itching} by stimulating C-fiber prurireceptors. Itching C fibers are similar to, but separate from, pain C fibers.

Rocky Mountain spotted fever
Tick bites transfer bacteria {Rickettsia bacteria}, which make small pink wrist and ankle dots, that then enlarge, go all over body, and bleed {Rocky Mountain spotted fever}|.

seborrhea
Scalp, nose, eyebrow, eyelid, ear, and chest oil-gland inflammation makes red skin with yellowish scales {seborrhea}|.

yaws
Chronic Caribbean diseases {yaws}| can cause red pimples.

BIOL>Medicine>Disease>Kinds>Organism>Fungus

athlete's foot
Fungus {athlete's foot}| can cause skin sores.

eczema
Skin inflammations can have crusted itchy sores {eczema}|.

ergot disease
Rye has fungus {ergot disease}.

mycosis
Fungus can cause infection {mycosis}.

psoriasis
Skin inflammations can have white scaly skin patches {psoriasis}|.

ringworm
Fungus {ringworm}| can cause itching in small skin rings.

vaginal infection
Yeast infections {vaginal infection} can be thick, white, cheesy discharges, with bread-like odors. Trichomonas vaginal infections are thin, foamy, gray discharges, with foul odors, itching, and increased urination. Reduced urine acidity and secretions caused by sexual activity can cause vaginal infections. Treatments are having no sex, douching, using vaginal suppositories, and eating yogurt.

BIOL>Medicine>Disease>Kinds>Organism>Insect

crabs
Pubic body lice can cause itching {crabs}.

mange
In domesticated animals, organisms can cause skin damage and fur loss {mange}|.

BIOL>Medicine>Disease>Kinds>Organism>Protozoa

amoebic dysentery
Feces amoeba can cause diarrhea {amoebic dysentery}|.

babesiosis
Protozoa can cause malaria-like diseases {babesiosis}.

dysentery
Large-intestine inflammation can cause diarrhea {dysentery}|.

giardiasis
Giardia eukaryotes have two nuclei, have no mitochondria, are parasites, and cause vomiting, flatulence, diarrhea, and belching {giardiasis}. Giardia has 190 coat proteins, which it always makes, but then it destroys all but one by RNA interference and changes the one every ten generations.

malaria
Protozoa transmitted by mosquitoes destroys red blood cells {malaria}|. Perhaps, it came from birds, chickens, or ducks. Compounds {artemisinin} {sesquiterpene} from sweet wormwood in north China can kill protozoa. Amorphadiene precursor comes from nine genes {mevalonate pathway}.

trench fever
Lice transmit organisms that causes fever {trench fever}|.

BIOL>Medicine>Disease>Kinds>Organism>Protozoa>Tritryps

tritryps parasites
T. cruzi, T. brucei, and L. major are similar {tritryps parasites}.

Chagas disease
Trypanosomes (Trypanosoma cruzi) can be in blood-sucking kissing bugs {Chagas' disease} {Chagas disease}. Trypanosoma cruzi originally came from guinea pigs. T. cruzi, T. brucei, and L. major are similar.

leishmaniasis
Leishmania major protozoa parasites {leishmaniasis} are in blood-sucking sand flies. T. cruzi, T. brucei, and L. major are similar. Protozoan genome fused two strains several million years ago.

sleeping sickness
Blood-sucking tsetse flies transmit Trypanosoma brucei protozoa parasites, which cause fever, lethargy, and tremors {sleeping sickness, protozoa}| {African sleeping sickness}.

trypanosomiasis
Trypanosomes {Trypanosoma brucei} cause diseases {trypanosomiasis}|. T. cruzi, T. brucei, and L. major are similar.

BIOL>Medicine>Disease>Kinds>Organism>Virus

virus infection
Animals can have smallpox, rabies, polio, measles, yellow fever, warts, fever blisters, colds, hog cholera, and foot and mouth disease {viral infection} {virus infection}.

chicken pox
Varicella virus causes fever and itchy red spots {chicken pox}|, first on chest and stomach, and then in clusters on body. Blisters replace red spots, then dry and scab in one week.

cholera
Cholera toxin stimulates cAMP and so causes diarrhea {cholera}|, because toxin increases active transport.

cold in the head
Viruses can cause sinus headache, stuffiness, runny nose, cough, and fever {cold, disease}|.

dengue fever
Aedes aegypti mosquito carries virus {dengue} that causes flu and rash.

distemper
Animals can have fatal contagious viruses {distemper}|.

Ebola virus
Viruses {Ebola virus} can begin in Africa [1977].

grippe
People can have flu {grippe}|.

henipavirus
Hendra virus and Nipah virus {henipavirus} are similar.

hepatitis
Viral liver inflammation {hepatitis}| can cause jaundice.

herpes
Virus family {herpes}| {herpes simplex} {herpes zoster} causes skin and mucous-membrane blisters.

hog cholera
Pig virus can cause fever, appetite loss, diarrhea, and weakness {hog cholera} {African swine fever}.

hoof-and-mouth disease
Cattle virus can cause non-fatal fever and vesicle eruption near mouth and hooves {foot-and-mouth disease} {hoof-and-mouth disease}|.

human immunodeficiency disease
HIV-1 and HIV-2 retroviruses {human immunodeficiency virus}| [1983] can cause disease {acquired immunodeficiency syndrome} (AIDS).

virus
In all retroviruses, env gene is for coat proteins, gag gene is for core proteins, and pol gene is for reverse transcriptase and other viral enzymes.

In HIV, nef gene is for high infection. rev gene is for movement of RNA to cytoplasm. tat gene is for HIV-gene expression. vif gene is for higher infection. vpr gene is for transcription activation. vpu gene is for assembly and budding.

drug
Dideoxynucleoside anti-HIV drug {azidothymidine} (AZT) substitutes for thymidine in DNA and so prevents making DNA sequences in high-replication cells, such as retrovirus-containing cells and bone-marrow blood-precursor cells. Protease inhibitors block HIV protease, which cleaves gag protein and pol protein. Adjuvants stimulate immune system, which can help anti-HIV drugs.

hydrophobia
Animals can have rabies {hydrophobia}.

Korean hemorrhagic fever
Virus from Korea can cause fever {Korean hemorrhagic fever}.

Lassa fever
Virus, possibly from rodents, can cause fever {Lassa fever}.

Marburg virus
Virus {Marburg virus} reappeared in Angola [2004].

mononucleosis
Virus can cause blood-mononucleocyte proliferation {mononucleosis}|.

mumps
Virus can cause salivary-gland swelling {mumps}|.

rabies
Virus can cause mouth foaming {rabies}|.

Rift Valley fever
Virus can cause fever {Rift Valley fever}.

rotavirus
In electron microscopes, Ruth Bishop saw spherical RNA virus {rotavirus}| in small intestines of children with severe diarrhea [1973]. RNA has 11 segments. Rotavirus looks like wheels, has double-stranded RNA, and has three protein layers. VP7 is outer layer and has VP4 spikes for attachment. Splitting VP4 in host makes VP5 and VP8 for host entry. VP6 is middle layer and is for gene transcription. VP2 is inner layer. VP1 and VP3 enzymes copy virus genes. Rotavirus makes NSP4 toxin.

severe acute respiratory syndrome
Virus can affect lungs {severe acute respiratory syndrome} (SARS) [2003].

shingles of skin
Virus can cause skin eruptions along nerves {shingles}|.

wart
Virus can cause small hard skin lumps {wart}|.

West Nile virus
Virus {West Nile virus} came to USA [1999].

BIOL>Medicine>Disease>Kinds>Organism>Virus>Flu

influenza
Perhaps, flu virus {influenza}| {flu} came from pigs, ducks, or chickens. RNA virus has eight segments, which can mutate or recombine {reassortment}.

proteins
Flu virus has surface proteins. One protein {hemagglutinin} binds to mammal or bird cell-surface sialic acid to attach virus to cells and allow entry. One protein {neuraminidase} removes sialic acid from newly formed virus surfaces to allow viruses to leave host cells and go to other cells.

proteins: coat
Some genes, such as pore-making viral-coat-protein external part M2e, do not change and might be good for vaccines.

names
Flu-virus names indicate hemagglutinin H and neuraminidase N strains, for example H5N1. These two genes have frequent point mutations that cause genetic drift. Influenza virus can use genes from different animals, resulting in genetic shift.

avian flu
Birds can have deadly flu [1998] {avian flu} {bird flu} {H5N1 influenza}.

BIOL>Medicine>Disease>Kinds>Organism>Worm

worm disease
Worm diseases {worm, disease} include ascaris and Baylisascaris procyonis.

anisakiasis
Worms {anisakiasis} can be in fish sushi.

ascariasis
Ascaris worms can cause infection {ascariasis}.

dracunculiasis
Guinea worms can cause infection {dracunculiasis}.

hookworm disease
Worms {hookworm, disease}| can have hooks around front.

hydatidosis
Burrowing schistosome worms, carried in snails, can infect humans {hydatidosis}.

lymphatic filariasis
Worms can affect lymph {lymphatic filariasis}.

onchocerciasis
Worms can cause disease {onchocerciasis}.

pinworm
Small intestinal worms {pinworm}| can cause disease.

river blindness
Worms can destroy eyes {river blindness}|.

schistosomiasis
Worms, carried in dog feces, can infect human livers {schistosomiasis}.

tapeworm disease
Intestinal worms {tapeworm, disease}| can cause much eating, to feed worms.

trichinosis
Pig-muscle trichina worms can cause muscle weakness {trichinosis}|.

trichuriasis
Pig-muscle worms can cause muscle weakness {trichuriasis}.

BIOL>Medicine>Drug

drug
Drugs {drug} {pharmaceutical, drug} include anesthetics, antibiotics, depressants, hallucinogens, muscle relaxers, stimulants, and tranquilizers [Atkinson and Shiffrin, 1968] [Atkinson et al., 1999] [Atkinson et al., 2000] [Farthing, 1992] [Hobson, 1999] [Huxley, 1954] [Julien, 2001] [Metzner, 1971] [Metzner, 1999] [Spence and Spence, 1968] [Tart, 1972] [Tart, 1975]. Drugs are for blood, against cancer, for cognition, against fever, for GI tract, for hypnosis, against mental illness, against pain, for skin, and for sleep.
altered state
Drugs can provide atypical arousal, attention, emotions, body image, imagination, memory, meaning, perception, reasoning, self-control, sense of self, suggestibility, talking to oneself, time scale, and values {drugged state} {altered state of consciousness}.
FosB transcription factor
Regular drug use, and other stimuli that give reward, increase nucleus-accumbens transcription factors {FosB transcription factor}, which degrade slowly and cause sensitization.
depression
Drugs can cause or alleviate depression.
hallucination
Drugs can cause or stop hallucinations. Drugs can cause hallucinations that change sense qualities to another of same or different sense. For example, hallucinations can make red seem blue, high voice sound low, sweet seem sour, and

pain be pleasurable. Perhaps, imagination and expectation of vivid and mind-altering hallucinations causes such hallucinations.

hypnosis
Drugs can cause hypnosis.

memory
Drugs do not affect short-term memory. If drugs reduce brain electrical activity, brain has no memory consolidation or long-term memory. After memory consolidates, drugs do not affect long-term memory.

mood
Depressants, hallucinogens, hypnotics, pain blockers, sleep inducers, stimulants, and tranquilizers affect mood.

near-death experience
No drugs cause near-death experiences.

out-of-body experience
Drugs that relax body and reduce body image can induce out-of-body experiences.

pain
Drugs can cause or alleviate pain.

sleep
Drugs can cause or stop sleep. REM sleep diminishes with antipsychotics, anxiolytic drugs, and benzodiazepines.

stimulation
Drugs can cause or alleviate stimulation.

tranquilization
Drugs can cause or alleviate tranquilization.

bupropion
Antidepressant drugs {bupropion} can block smoking desire.

smelling salt
Ammonium carbonate {smelling salt} {ammonium carbonate} can revive people who faint.

castor oil tonic
Oils {castor oil} can have vitamin E.

saccharin
Benzosulfamide {saccharin} artificially sweetens [1879].

quinine drug
Peruvian-bark amine {quinine} treats malarial fever.

BIOL>Medicine>Drug>General

booster shot
Vaccines often require second doses {booster shot}.

patent medicine
Drugs {patent medicine} can be ineffective.

physic
drug {physic}.

placebo
Drug substitutes {placebo}| can have same look and feel as drugs but have no active chemicals.

snake oil
patent medicine {snake oil}.

tonic as drug
Drugs {tonic, drug} can be liquid chemical mixtures for treating general illness.

BIOL>Medicine>Drug>Classes

alkaloid
Alkaline drugs {alkaloid} include atropine, heroin, mescaline, morphine, reserpine, and scopolamine.

amine drug
Amines {amine, drug} include amphetamine, antihistamine, codeine, curare, histamine, morphine, nicotine, ninhydrin, novocaine, quinine, strychnine, and sulfa drugs. Multi-cyclic amines include codeine, morphine, quinine, and strychnine.

antimetabolite
Minerals {antimetabolite} can kill bacteria.

antipyretic
Antipyretics {antipyretic}|, such as salicylates, reduce fever.

antisense drug
Drugs {antisense drug} can bind to mRNA.

antiseptic
Inorganic chemicals {antiseptic}| can kill bacteria.

antiserum
Drugs {antiserum} can have antibodies that bind to disease organisms.

antitoxin
Drugs {antitoxin}| can neutralize poisons.

astringent
Inorganic chemicals {astringent}| can contract skin tissue.

definsin
Vertebrates make small proteins {definsin} that go into cell membrane and make tubes, killing microbes by opening holes.

entactogen
MDMA, MDA, and MDE methylenedioxyamphetamines {entactogen}| cause serotonin release from presynaptic transporters and increase synapse dopamine. Entactogens stimulate and can cause hallucinations and "peak" experiences.

expectorant
Guaifenesin and other drugs {expectorant}| can move mucus up from lungs, bronchi, and trachea, by thinning and wetting mucus.

fungicide
Drugs {fungicide}| can kill fungi, such as athlete's foot.

germicide
Drugs {germicide}| can destroy bacteria mechanically.

herbicide
Drugs {herbicide}| can destroy plants.

hypnotic drug
Sulfones {sulfone} [1888] and urethane {urethane} [1900] are hypnotics {hypnotic drug}.

insecticide
Drugs {insecticide}| can kill insects.

purgative
Drugs {purgative}| can cause bowel evacuation.

BIOL>Medicine>Drug>Addiction

addiction
Regular drug use can cause drug craving {addiction} when people do not take drug.

withdrawal symptom
If addicted people do not take addictive drugs, they have painful physical and psychological symptoms {withdrawal symptom}|.

BIOL>Medicine>Drug>Immunity

chalone
Specific cell-proliferation inhibitors {chalone} can be for immunotherapy.

immunotherapy
Affecting chalones {immunotherapy}| can aid immune system.

adjuvant
Chemicals {adjuvant}| can stimulate immune system.

BIOL>Medicine>Drug>Kinds

drug kinds
Drugs {drug, kinds} can be anesthetics, antibiotics, depressants, hallucinogens, stimulants, tranquilizers, and cognitive, mental illness, pain, and sleep drugs.

BIOL>Medicine>Drug>Kinds>Anesthetic

anesthesia
Chemicals {anesthesia}| {anesthetic} can inhibit voluntary-muscle movements {immobility}, inhibit involuntary-muscle movements {muscle relaxation}, lower consciousness to sleep-like level with dreaming {narcosis, anesthesia} {hypnosis, anesthesia}, inhibit pain {analgesia, anesthesia}, cause no memory of episode {amnesia, anesthesia}, and lower brain activity {sedation, anesthesia}.

Anesthesia can be borderline anesthesia {hypesthesia}. Light anesthesia allows consciousness but blocks muscle movements.

Deep anesthesia blocks consciousness and muscle movements.

levels
Anesthesia first affects higher brain functions {anesthetic depth}. The lightest anesthesia causes analgesia, memory loss, and euphoria. Deeper anesthesia causes consciousness loss, rapid shallow breathing, sweating, and flushing. Complete anesthesia causes quiet, regular breathing, with eyeballs moving rhythmically. It does not affect reflexes. In deep anesthesia, first reflexes fail, then breathing becomes shallow, and finally people die.

levels: measurement
Inhaled anesthetics have alveoli concentrations {minimum alveolar concentration} (MAC) that block movements in response to stimuli in 50% of patients. Inhaled anesthetics have lower alveoli concentrations {minimum alveolar concentration-aware} {MAC-aware} that block stimulus awareness in 50% of patients. Intravenous anesthetics have blood-plasma concentrations {end-tidal concentration} that block movements in response to stimuli in 50% of patients.

Blood pressure, heart rate, sweating, and tear secretion combined {PRST score} indicate awareness level.

EEG power spectrum shows waves at 3 Hz below alpha-wave frequency. Stimuli cause EEG evoked potentials that appear at various times after event. Anesthesia reduces or delays evoked potentials. In anesthesia, three auditory evoked potentials typically happen 20 ms to 45 ms after stimulus {AEP index}.

local anesthesia

Local anesthesia makes body parts feel non-existent, rather than senseless or paralyzed. Local anesthesia inhibits touch and pain perception with lidocaine and similar chemicals, by injection into local nerves {nerve block}, spinal-cord epidural region {epidural anesthesia}, or subarachnoid spaces {spinal anesthesia}.

Local anesthesia does not cause amnesia and maintains consciousness. Local anesthesia can combine with benzodiazepine sedation {conscious sedation}, which causes amnesia but maintains consciousness.

biology

Anesthetics typically affect cell-membrane proteins. Anesthetics stimulate vagus nerve, which detects lung expansion.

biology: brain

Anesthesia can have prolonged brain-potential synchronization. Anesthetics seem to work on whole brain, not isolated circuits or regions [Alkire et al., 1998].

biology: drugs

Barbiturates, high-pressure nitrogen, alcohols, cleaning fluids like trichloroethene, industrial solvents, steroids, ether, chloroform, xenon, nitrous oxide, phencyclidine, opioids, and cholinergic agents can cause reversible consciousness loss.

Different drugs separately affect memory, voluntary muscles, and perception. Alfentanil, chloroform, cocaine, enflurane, ethyl p-aminobenzoate [1890], etomidate, halothane, isoflurane, ketamine, nitrous oxide, procaine, and propofol are anesthetics. Ethyl p-aminobenzoate [1890] is a local anesthetic.

Different anesthetics can have cross-tolerance.

biology: EEG

Bispectral index can measure anesthesia depth.

biology: endorphins

Perhaps, anesthetics affect enkephalin or endorphin chemistry.

biology: hippocampus

Perhaps, decreased hippocampus activity causes amnesia.

biology: receptors

Perhaps, anesthetics bind to NMDA or GABA-A receptor. Some anesthetics bind to microtubules. Anesthetics inhibit signal transfer between neurons [Alkire et al., 1997] [Alkire et al., 1999] [Antkowiak, 2001] [Franks and Lieb, 1994] [Franks and Lieb, 1998] [Kulli and Koch, 1991] [Lamme et al., 1998] [Logothetis et al., 1999] [Logothetis et al., 2001] [Rosen and Lunn, 1987] [Sennholz, 2000] [Tamura and Tanaka, 2001].

procedure

Before operations, patients have sedative, intravenous benzodiazepine, and oxygen.

Next comes intravenous thiopental or propofol, whose effects wear off quickly, followed by intravenous muscle relaxant {rapid sequence induction}, for quick anesthesia. Alternatively, next comes inhaled nitrous oxide and oxygen then inhaled halothane, desflurane, or sevoflurane {inhalation induction} {mask induction}, for slow anesthesia. Alternatively, next comes intravenous sufentanyl or propofol {intravenous anesthesia}.

After surgery, neostygmine allows muscle movement, and morphine inhibits pain.

High air pressures aid recovery from anesthesia.

results: amnesia

Anesthesia can cause no memory of surgery.

results: immobility

Anesthesia can cause no reaction to stimuli and no voluntary-muscle movement. Immobility can result from inhibition at spinal-cord GABA receptors.

results: memory

After anesthesia at level that precludes consciousness, patients can remember things that happened in surgery. Intense stimuli can cause memory without consciousness [Kihlstrom, 1996] [Levinson, 1965] [Merikle and Daneman, 1996].

Myer-Overton rule

Lipid solubility determines anesthetic effect {Myer-Overton rule}. Solubility allows binding to membrane proteins.

isolated forearm technique

Muscle relaxers act quickly, so if tourniquets stop blood flow to arms, arms later have no paralysis {isolated forearm technique}.

BIOL>Medicine>Drug>Kinds>Anesthetic>GABA

gamma-aminobutyric acid drugs
Intravenous hypnotic drugs, such as propofol, barbiturates, and benzodiazepines, increase inhibition by keeping chloride channels open, because they enhance receptor inhibitory neurotransmitter effects {gamma-aminobutyric acid, drugs} (GABA) [Franks and Lieb, 2000]. Humans have more than 15 GABA-receptor types, which have different binding constants and connect to different pathways.

etomidate
Drugs {etomidate} can enhance GABA-A receptors [Franks and Lieb, 2000].

propofol
Intravenous drugs {propofol} can affect GABA reception and correlate with low blood flow to midbrain and thalamus.

thiopental
Intravenous barbiturates and sedatives {thiopental} {sodium pentothal} can affect GABA receptors [1930 to 1940].

BIOL>Medicine>Drug>Kinds>Anesthetic>Inhaled

chloroform
Inhaled CH3Cl [3 is subscript] anesthetic {chloroform} is toxic.

enflurane anesthetic
Inhaled anesthetic {enflurane} can replace chloroform and ether. It affects nitric-oxide synthesis.

ether as anesthetic
William Morton [? to 1868] used inhaled gas {ether} [1846] for surgery October 16 {Ether Day}. Ether is too volatile.

halothane anesthetic
Inhaled anesthetic {halothane} can replace chloroform and ether. It affects nitric-oxide synthesis.

isoflurane anesthetic
Inhaled anesthetic {isoflurane} can replace chloroform and ether. It affects nitric-oxide synthesis.

nitrous oxide
Humphrey Davy noted [1800] inhaled anesthetic {nitrous oxide} {laughing gas}. Horace Wells used it in dentistry [1844]. Nitrous oxide prevents glutamine binding at NMDA-receptor complexes [Flohr, 2000]. It reduces felt time.

BIOL>Medicine>Drug>Kinds>Anesthetic>Involuntary Muscles

curare
Amines {curare} can block acetylcholine transmission across synapses and inhibit involuntary and reflex motions [1940 to 1950].

succinyl choline
Curare substitutes {succinyl choline} can block acetylcholine transmission across synapses and inhibit involuntary and reflex motions.

tubocurarine
Curare substitutes {tubocurarine} can block acetylcholine transmission across synapses and inhibit involuntary and reflex motions.

vecuronium
Curare substitutes {vecuronium} can block acetylcholine transmission across synapses and inhibit involuntary and reflex motions.

BIOL>Medicine>Drug>Kinds>Anesthetic>NMDA

NMDA antagonist
Ap5, CPP, CGS 19755, and D-CPP-ene {NMDA antagonist} compete for NMDA receptor but have no metabolic effect themselves.

ketamine
Anesthetics {ketamine} can prevent glutamine binding at NMDA receptor complexes. Ketamine can cause hallucinations and dissociation. Ketamine does not affect GABA-A receptors [Franks and Lieb, 2000] [Flohr, 2000] [Flohr et al., 1998] [Hardcastle, 2000].

BIOL>Medicine>Drug>Kinds>Antibiotic

antibiotic
Drugs {antibiotic}| can treat infections by killing infectious microorganisms. Penicillin and other beta-lactams inhibit cell-wall protein synthesis. Erythromycin and tetracycline antibiotics inhibit bacterial ribosomes, preventing protein production. Streptomycin and other aminoglycosides bind to rRNA. Quinolones inhibit enzymes used to replicate DNA. Sulfonamides inhibit DNA synthesis. Ciprofloxacin and rifampicin {fluoroquinolone} bind to gyrase enzyme and prevent DNA replication.

antibiotic resistance
Methicillin-resistant Staphylococcus aureus (MRSA) makes enzyme that splits antibiotic {antibiotic resistance}. Vancomycin-resistant Staphylococcus aureus (VRSA) has five-gene cassette that alters cell-wall receptor. Bacteria can make cell-membrane systems that pump out antibiotics.
As part of SOS response, bacterial cells can attach RecA protein to single-stranded DNA, which splits LexA regulatory protein, which derepresses genes that cause DNA mutations, which alter drug targets. Binding compound to LexA first, to prevent splitting by RecA, can prevent mutation resistance.

mycangimycin
Actinomycetes can make antifungals {mycangimycin}.

myxochromide
Myxobacteria Stigmatella aurantiaca can make antibiotic molecules {myxochromide}.

BIOL>Medicine>Drug>Kinds>Antibiotic>Bacteria

abyssomicin
Verrucosispora actinomycetes can make antibiotics {abyssomicin}.

aminoglycoside
Streptomycin {aminoglycoside} can inhibit enzyme synthesis.

bacterin
Drugs {bacterin} can destroy bacteria.

beta-lactam
Penicillin, methicillin, and penicillin-derivatives {beta-lactam} can inhibit cell-wall protein synthesis [1940].

carbapenem
Imipenem {carbapenem} can inhibit cell-wall protein synthesis.

cephalosporin
Ceftibuten {cephalosporin} can inhibit cell-wall protein synthesis.

chloramphenicol
Drugs {chloramphenicol} can be early antibiotics [1949].

fluoroquinoline
Ciprofloxacin {fluoroquinoline} can inhibit enzymes. Ciprofloxacin treats anthrax.

glycopeptide
Vancomycin {glycopeptide} can inhibit cell-wall protein synthesis [1958].

hexachlorophene
Drugs {hexachlorophene} can destroy bacteria mechanically.

lipopeptide
Drugs {lipopeptide} can be in membranes [2003].

macrolide
Erythromycin {macrolide} can inhibit enzyme synthesis [1952].

mutilin
Retapamulin {mutilin} can inhibit enzyme synthesis [2007].

oxazolidinone
Linezolid {oxazolidinone} can inhibit enzyme synthesis [2000].

quinolone
Ciprofloxacin {quinolone} can inhibit DNA unwinding [1962].

streptogramin
Drugs {streptogramin} can kill streptococci [1962].

sulfa drug
Drugs {sulfa drug} can be amines with sulfur [1938].

sulfonamide
Sulfamethoxazole {sulfonamide} can inhibit nucleic-acid precursor synthesis.

tetracycline
Minocycline {tetracycline} can inhibit enzyme synthesis [1949] and microglial activation. Minocycline can cross brain-blood barrier but does not affect astroglia or neurons.

triclocarban
Drugs {triclocarban} can be similar to triclosan.

triclosan
Drugs {triclosan} can be similar to triclocarban.

trimethoprim
Drugs {trimethoprim} can inhibit nucleic-acid precursor synthesis.

BIOL>Medicine>Drug>Kinds>Antibiotic>Virus

antiviral drug

Drugs {antiviral drug} can inhibit M2, used by viruses to detach or attach. Drugs {amantadine} can treat Asian flu. Antiviral drugs (CS-8958) {peramvir} {oselamivir} {zanamivir} can inhibit neuramidase, used by viruses to detach from cells and enter other cells. Antiviral drugs {fludase} can inhibit viral attachment to cell sialic-acid receptors. Antiviral drugs (G00101) can stimulate RNA interference with viral information. Antiviral drugs {neugene} can use antisense DNA to bind to viral-DNA regions.

idoxuridine
Drugs {idoxuridine} can treat eye herpes.

inosiplex
Drugs {inosiplex} can be for colds, flu, and herpes viruses.

levamisole
Drugs {levamisole} can treat herpes.

ribavarin
Drugs {ribavarin} {Virazole} can be for flu, infectious hepatitis, and herpes viruses.

BIOL>Medicine>Drug>Kinds>Antibiotic>Virus>Polio

Sabin vaccine
Oral vaccines {Sabin vaccine} can work against polio.

Salk vaccine
Injected vaccines {Salk vaccine} can work against polio.

BIOL>Medicine>Drug>Kinds>Cognition

psychoactive drug
Drugs {psychoactive drug} can affect mental function [Weil, 1998].

empathogen
Drugs {empathogen} can cause love feelings.

modafinil
Drugs {modafinil} can improve attention.

BIOL>Medicine>Drug>Kinds>Cognition>Alpha-Receptor

alpha-receptor agonist
Clonidine {alpha-receptor agonist} improves cognitive performance.

alpha-receptor antagonist
Yohimbine {alpha-receptor antagonist} prevents cognitive improvement.

BIOL>Medicine>Drug>Kinds>Cognition>Memory

puromycin
Drugs {puromycin} can block protein synthesis and prevent memory consolidation.

strychnine
Strychnos amine {strychnine} can reduce glycine binding but not affect glycine receptors. In very low doses, strychnine improves short-term memory and transfer to long-term memory. It is rat poison and can cause convulsions by sensitizing synapses.

volado

Drugs {volado} can affect mushroom bodies, which learn to avoid smells associated with shocks.

BIOL>Medicine>Drug>Kinds>Cognition>Memory>Acetylcholine

acetylcholine as drug
Acetylcholine {acetylcholine, receptor} can bind to nicotinic receptors and to receptors {muscarinic receptor} that bind muscarine. Nicotine and muscarine are cholinergic agonists.

ACh-inhibiting
Donepezil, galantamine, phenserine, and rivastigmine {acetylcholinesterase-inhibiting drug} {ACh-inhibiting} inhibit acetylcholinesterase, prolonging acetylcholine activity, as in Alzheimer's patients.

cholinergic agonist
Physostigmine {cholinergic agonist} competes for acetylcholine receptor and can improve memory. Pilocarpine cholinergic agonist is for Sjogren's syndrome.

cholinergic antagonist
Atropine and Cogentin {cholinergic antagonist} {anticholinergic drug} bind to nicotinic and muscarinic receptors and prevent acetylcholine binding.

scopolamine
Alkaloid cholinergic antagonist {scopolamine}, related to Solanaceae family, depresses memory ability and causes amnesia.

anti-cholinesterase
Drugs {anti-cholinesterase} can block cholinesterase and so aid memory.

hyoscine drug
Thorn-apple drugs {hyoscine, drug} can bind to acetylcholine receptors and affect long-term memory recall.

BIOL>Medicine>Drug>Kinds>Depressant

depressant
Drugs {depressant}| can reduce nervous-system activity and increase learning extinction. Depressants cause relaxed feeling, inhibition loss, inebriation, sleep, and feeling that time is slower. Depressants include alcohol, barbiturates, benzodiazepines, catecholamine affectors, and Solanaceae drugs.

alcohol as drug
Ethyl-alcohol depressant {alcohol, drug} can cause physical and psychological dependence. Alcohol dehydrogenases break down alcohol, but many Australian and North American natives cannot increase dehydrogenases. Alcohol binds to GABA receptor different from barbiturate receptor and keeps channel open longer.

barbiturate
Intravenous sedatives and depressants [1930 to 1940] {barbiturate}| bind to gamma-aminobutyric-acid (GABA) receptors and keep chloride channels open longer. Barbiturates can cause physical and psychological dependence. Barbiturates are for insomnia. They include barbital (Veronal), phenobarbital (Luminal), and thiopental (Pentothal) or sodium amytal.

BIOL>Medicine>Drug>Kinds>Depressant>Benzodiazepine

benzodiazepine
Drugs {benzodiazepine} {sleeping pill} can be sedatives and depressants [1930 to 1940]. Benzodiazepines include Valium, Mogadon, diazepam, Dalmane, and midazolam.
biology

Benzodiazepines link to GABA receptors to increase gamma-aminobutyric-acid (GABA) affinity for GABA neuroreceptors and enhance GABA-mediated synaptic potentials. Benzodiazepines can induce sleep by blocking reticular-activating-system activation.

dependence

Benzodiazepines are generally safe and effective, but prolonged use leads to dependence. Withdrawal causes anxiety, nightmares, and poor sleep for one week.

effects

Most mildly neurotic patients receive benzodiazepine tranquilizers. They reduce anxiety for several weeks but diminish in effectiveness over months. People often misuse them.

imidazopyridine

Drugs {imidazopyridine} can be like benzodiazepines but act on GABA-receptor parts.

BIOL>Medicine>Drug>Kinds>Depressant>Catecholamine

monoamine depressant

Drugs {monoamine depressant} can deplete brain-messenger monoamines and induce depression. Drugs can raise monoamine level and relieve depression, but cause mania.

catecholamine agonist

Drugs {catecholamine agonist} can compete for catecholamine receptor.

catecholamine antagonist

Drugs {catecholamine antagonist} can compete for catecholamine receptor but have no metabolic effect.

bretylium

Drugs {bretylium} can block catecholamine release. They have highly basic centers linked by one-carbon or two-carbon chains to rings.

desipramine

Drugs {desipramine} can inhibit catecholamine uptake.

guanethidine

Drugs {guanethidine} can block catecholamine release. They have highly basic centers linked by one-carbon or two-carbon chains to rings.

BIOL>Medicine>Drug>Kinds>Depressant>Solanaceae

Solanaceae

A drug family {Solanaceae} includes nightshade or belladonna, mandrake, jimson weed, henbane, scopolamine, and sodium amytal {truth serum}.

coniine

Hemlock has alkaloid {coniine}.

jimson weed

Solanaceae datura {jimson weed} has tropane alkaloids like atropine.

mandrake root drug

Solanaceae-family drugs {mandrake root} can contain scopolamine and atropine.

BIOL>Medicine>Drug>Kinds>Hallucinogen

hallucinogen

Drugs {hallucinogen}| can cause delirium and unreal sense experiences. In small doses, they cause euphoria and hyperactivity. Hallucinogens are toxic, can cause fever, antagonize serotonin, arouse sympathetic nervous system, and

are non-addictive. Dimethoxytryptamine, LSD, marijuana, mescaline, peyote, and psilocybin are hallucinogens [Earleywine, 2002] [Grinspoon and Bakalar, 1993].

amanita muscaria
Norse legends describe mushroom-derived drugs {amanita muscaria} {fly agaric}.

atropine
Atropa-belladonna alkaloid {atropine} dilates pupils, is poisonous, and causes flying illusions.

belladonna
Atropa-belladonna drugs {belladonna} can cause flying sense qualities, but are poisons.

beta-carboline
Harmine, tetrahydroharmine, and harmaline {beta-carboline} can inhibit monoamine oxidase, which breaks down DMT.

cannabis
Drugs {cannabis} {delta-9-tetrahydrocannabinol} (THC) (delta-9-THC) {cannabinoids} can prolong time.
human
Body makes anandamide and 2-arachidonoylglycerol cannabinoids, which bind to hippocampus cannabinoid receptors and affect memory. Cannabinoids increase dopamine release.
types
Oleamide is hypnotic. Hallucinogens {marijuana} {hashish} can be in China [-2737], Iran {beng}, Morocco {kif}, South America {dagga}, and India {bhang} {gangha} {charas}. Marijuana distorts time and causes objective feelings about self, light feelings, clear-perception feelings, and then lapses into sleep. Marijuana is non-addictive. Marijuana comes from hemp-species resin [Earleywine, 2002] [Grinspoon and Bakalar, 1993].

dextromethorphan
Cough suppressants {dextromethorphan} can bind to NMDA receptors to prevent NMDA binding. High concentrations can cause hallucinations.

dimethoxytryptamine
Drugs {N,N-dimethyltryptamine} {dimethoxytryptamine} (DMT) {tryptamine} can make world seem to shrink or expand. DMT is main drug in ayahuasca. DMT makes 5-HT-serotonin system excited, especially at cerebrum-layer-5 presynaptic 5-HT2A receptors. DMT can cause religious ecstasy.

heroin
Morphine acetylation makes alkaloid opiate {heroin}.

lysergic acid
Drugs {lysergic acid diethylamide} (LSD) can excite 5-HT-serotonin system, especially at cerebrum-layer-5 presynaptic 5-HT2A receptors. LSD can cause cosmic consciousness. People on LSD feel out of time and space and so unified with nature. They can feel holy or insightful or have good moods [DeBold and Leaf, 1967] [Doblin, 1991] [Masters and Houston, 1967] [Pahnke, 1963] [Pahnke, 1967] [Pahnke, 1971].

methamphetamine
3-methylene-dioxy-methamphetamines {methamphetamine} (meth) (MDMA) {ecstasy, drug} are amphetamines and hallucinogens. MDMA can damage serotonin neurons. MDMA is analeptic and causes age regression. It can cause love feelings. It is addictive.

mescaline
Peyote mescal-button alkaloids {mescaline} can be stimulants and cause feeling heightened experience. Mescaline phenylethylamine excites the 5-HT-serotonin system, especially at cerebrum-layer-5 presynaptic 5-HT2A receptors.

MK-801
Drugs {MK-801} can bind to NMDA receptors and prevent NMDA binding.

peyote drug
Peyote plants make chemical mixtures {peyote} milder than mescaline.

psilocybin
Teonanacatl drugs {psilocybin} can give mystical experiences. People on psilocybin feel out of time and space, and so unified with nature, and can feel holy and insightful or have good moods [Doblin, 1991] [Earleywine, 2002] [Grinspoon and Bakalar, 1993] [Masters and Houston, 1967] [Pahnke, 1963] [Pahnke, 1967] [Pahnke, 1971].

salvinorin A
Salvia-divinorum mint diterpene {salvinorin A} binds to kappa-opioid receptors and causes hallucinations in Mazatek ceremonies in Mexico.

teonanacatl
Sacred Aztec mushrooms {teonanacatl} are from Mexico [-1000].

BIOL>Medicine>Drug>Kinds>Mental Illness

antipsychotic
Phenothiazine (Thorazine) schizophrenia drugs {antipsychotic}| act on nucleus accumbens to fill dopamine-D2 receptors. Clozapine (Clorazil), olanzapine (Zyprexa), and risperidone (Risperdal) are not phenothiazines but bind to dopamine-D2-receptor active sites.

anxiolytic drug
Anxiety-reducing neuromodulators {anxiolytic drug, anxiety} increase affinity of GABA for GABA neuroreceptors and enhance GABA-mediated synaptic potentials. Benzodiazepine anti-anxiety drugs affect anxiety-control system. Bony fish and higher animals have anxiety-control systems.

lithium carbonate
Drugs {lithium carbonate} {lithium drug} can decrease norepinephrine effects and help depression and mania. Lithium is less effective against depression alone.

schizophrenia-causing drug
Drugs {schizophrenia-causing drug} can cause schizophrenia. Drugs {apomorphine} can worsen schizophrenia. Drugs {levodopa} can release brain dopamine and cause paranoid schizophrenia or worsen schizophrenic symptoms.

anti-opiate
Drugs {anti-opiate} {opiate antagonist} can compete for opiate receptors but have no metabolic effect. Anti-opiates can stop auditory hallucinations. Naloxone is an opiate antagonist.

BIOL>Medicine>Drug>Kinds>Mental Illness>Anticonvulsant

anticonvulsant
Drugs {anticonvulsant}| can be for psychomotor epilepsy. Anticonvulsants include carbamazepine and phenytoin.

dilantin
Drugs {dilantin} {diphenylhydantoin} can treat epilepsy.

BIOL>Medicine>Drug>Kinds>Mental Illness>Antidepressant

antidepressant drug
Imipramine {antidepressant drug}| can relieve depression by prolonging time noradrenaline and serotonin stay in synapses, by inhibiting membrane epinephrine, norepinephrine, dopamine, and serotonin transport back into cells and preventing pre-synaptic neuron re-uptake into vesicles. Iproniazid (Niamid) inhibits monoamine oxidase to prevent noradrenaline and serotonin breakdown.
types

Selective serotonin re-uptake inhibitors, such as Prozac, affect only serotonin. Selective noradrenaline re-uptake inhibitors, such as Strattera, affect only noradrenaline. Tricyclic antidepressants, such as Elavil, affect both.

Monoamine oxidase inhibitors, such as Nardil, prevent enzymes from reacting with noradrenaline and serotonin. Wellbutrin and Serzone affect related reactions.

effects

People are not likely to misuse antidepressant drugs.

biology

Tryptophan is a serotonin precursor.

atypical antipsychotic

Drugs {clozapine} (Clozaril) {atypical antipsychotic} can weakly block dopamine receptors and affect glutamine receptors.

buspiron

Drugs {buspiron} can excite serotonin-IA receptors.

dopamine antagonist

Drugs {dopamine antagonist} can compete for dopamine receptor but have no metabolic effect themselves.

indoleamine

Aminated indoles {indoleamine} {indolamine} include serotonin, LSD, and psilocybin and affect serotonin system {5-HT system}.

monoamine oxidase

Oxidases {monoamine oxidase}| (MAO) {MAO-A gene} can inactivate catecholamines, such as norepinephrine, dopamine, and serotonin. Drugs {monoamine oxidase inhibitor} {MAO inhibitor} can inhibit monoamine oxidase and keep monoamine concentration high. Monoamine oxidase inhibitors can control aggression.

tricyclic antidepressant

Monoamine oxidase inhibitors {tricyclic antidepressant} can treat endogenous depression.

BIOL>Medicine>Drug>Kinds>Mental Illness>Coma

insulin as drug

Blood-sugar changing drugs {insulin, drug} can induce coma. Insulin is not in use in psychiatric treatment.

Metrazol

Drugs {Metrazol} can induce coma. Metrazol is not in use in psychiatric treatment.

BIOL>Medicine>Drug>Kinds>Pain

pain drug

Pain drugs {pain, drug} include salicylates, prostaglandin affectors, and opiates.

BIOL>Medicine>Drug>Kinds>Pain>Opiate

opiate drug

Drugs {opiate drug} can make people feel exhilarated {euphoriant, opiate} {euphoriogenic, opiate} and energetic and can relieve pain. Natural opiates include opium, codeine, Demerol, heroin, morphine, nepenthe, and thebaine. Synthetic opiates include methadone, fentanyl, and oxycodone. Opiates can cause physical and psychological dependence.

effects

Opiates bind to receptors {mu opiate receptor} in ventral tegmentum area (VTA) in midbrain and nucleus accumbens (NAc) {mesoaccumbens reward system}. Opiates reduce activity in neurons that inhibit dopamine neurons, so VTA dopamine increases and goes to NAc. NAc sends GABAergic effects to other brain areas that affect prefrontal cortex. Opiates block nociceptive system.

endogenous opiates
Body makes endorphin and enkaphalin opiates that reduce pain by releasing or uptaking neurotransmitters.

opium as drug
Opium poppies make chemical mixtures {opium}. Opium is for pain relief, relaxation, and recreation in some countries. Western peoples gave opium sedative to small children. In Far East, people smoked opium.

cocaine anesthetic
Intravenous drugs {cocaine, anesthetic} can bind to opiate receptors, reduce acetylcholine and substance-P release, and reduce pain. Cocaine maintains consciousness and can be a local anesthetic [1884].
stimulant
Cocaine, from coca leaves, affects sublenticular extended amygdala. Cocaine releases norepinephrine and dopamine from vesicles. Cocaine and other such stimulants affect synaptic transporter protein and so prevent dopamine and other catecholamine uptake into presynaptic terminals. Cocaine is a stimulant and euphoriant. It is not addictive [Earleywine, 2002] [Grinspoon and Bakalar, 1993]. Butyrylcholinesterase blood protein catabolizes cocaine.

codeine
Amines {codeine} derive from opium.

fentanyl
Intravenous drugs {fentanyl} can bind to opiate receptors, reduce acetylcholine and substance-P release, and reduce pain. Fentanyl maintains consciousness.

laudanum
West Europe had opium tincture {laudanum}.

methadone
Drugs {methadone} can be heroin substitutes.

morphine
Intravenous amine alkaloid {morphine} derives from opium, binds to opiate receptors, reduces acetylcholine and substance-P release, and reduces pain. Morphine maintains consciousness.

narcotic
Drugs {narcotic}| can be opium derivatives, such as opium, cocaine, and coca leaves.

nepenthe
opiate {nepenthe}.

Novocaine
Intravenous procaine hydrochloride {Novocaine} comes from cocaine, binds to opiate receptors, reduces acetylcholine and substance-P release, and reduces pain. Novocaine maintains consciousness.

paregoric
Drugs {paregoric} can contain morphine, camphor, and aromatics.

procaine
Intravenous drugs {procaine} can remove methyl groups from DNA or prevent DNA methylation, come from cocaine, reduce acetylcholine and substance-P release, bind to opiate receptors, and reduce pain. Procaine maintains consciousness.

sufentanyl
Intravenous drugs {sufentanyl} can bind to opiate receptors, reduce acetylcholine and substance-P release, and reduce pain. Sufentanyl maintains consciousness.

thebaine

opiate {thebaine}.

BIOL>Medicine>Drug>Kinds>Pain>Prostaglandin

anti-inflammatory drug
Painkilling drugs {anti-inflammatory drug}| {COX-2 inhibitor} can inhibit cyclooxygenase-2 {cyclooxygenase} (COX) production, which builds prostaglandins, which cause inflammation.

arthritis drug
Drugs {arthritis drug} can inhibit prostaglandin synthesis.

BIOL>Medicine>Drug>Kinds>Pain>Salicylate

salicylate
Aspirin and similar drugs {salicylate} can reduce pain and fever.

acetaminophen
Modified aspirin {acetaminophen} reduces fever and pain.

aspirin
Willow-bark salicylate {aspirin} {acetylsalicylic acid} reduces fever and pain [1899]. Aspirin inhibits pyrogens. Aspirin inhibits prostaglandin synthesis.

non-steroidal anti-inflammatory drug
Aspirin, ibuprofen, Vioxx {rofecoxib}, and similar drugs {non-steroidal anti-inflammatory drug} (NSAID) inhibit cyclooxygenases.

BIOL>Medicine>Drug>Kinds>Sleep

sedative
Barbiturates and other drugs {sedative} can lower brain activity {sedation, drugs} and make people sleepy. Drugs {GABAergic drug} can bind to gamma-aminobutyric acid (GABA) receptors and increase GABA effect. Hypnotic drugs and weak tranquilizers act similarly. Going to sleep also requires GABA receptor binding that increases effect of GABA. Barbiturates are addictive and eliminate Stage-IV NREM sleep and REM sleep. Benzodiazepines, such as Valium, are addictive, reduce anxiety, and eliminate Stage-IV NREM sleep. Sedatives {gamma-amino-hydroxybutyrate} (GHB) can be for mood {euphoriogenic drug} and anxiety {anxiolytic drug, sedative}. Zolpidem (Ambien) is much less addictive.

adenosine as drug
Nucleotides {adenosine, sleep} can cause sleep.

interleukin-1
Interleukins {interleukin-1} can induce non-REM sleep.

BIOL>Medicine>Drug>Kinds>Stimulant

stimulant
Drugs {stimulant}| can make people feel energetic. Stimulants include amphetamines (Adderall), methylphenidates (Ritalin), modafinil (Provigil), cocaine, hallucinogens, LSD, mescaline, nicotine, and phencyclidine.
biology
Stimulants increase synapse dopamine concentrations by preventing forebrain presynaptic-neuron dopamine reuptake. Ephedrine and pseudoephedrine are similar to norepinephrine. Beta-blockers for hypertension bind to norepinephrine-receptor non-active sites and prevent norepinephrine binding.
effects
Stimulants decrease learning extinction. Cocaine and methampetamine are addictive stimulants.

BIOL>Medicine>Drug>Kinds>Stimulant>Classes

analeptic
Amphetamines, cocaine, and MDMA {analeptic}| can make people feel energetic.

euphoriant
Marijuana, cocaine, and opiates {euphoriant, stimulant}| make people feel exhilarated [Earleywine, 2002] [Grinspoon and Bakalar, 1993].

BIOL>Medicine>Drug>Kinds>Stimulant>Kinds

amphetamine
Analeptics {amphetamine}| can affect glutamine binding, release norepinephrine from vesicles, and increase dopamine release in frontal lobes and limbic system. Amphetamines can cause paranoid schizophrenia or worsen schizophrenic symptoms. Amphetamines improve short-term memory and transfer to long-term memory. Amphetamine, Benzedrine, Dexedrine, MDMA, Meratran, and Ritalin are amphetamines or methamphetamines.

ayahuasca
South-American drinks {ayahuasca} can have dimethoxytryptamines and harmine, tetrahydroharmine, and harmaline beta-carbolines. Beta-carbolines inhibit monoamine oxidase, which breaks down DMT.

betel
Areca nut, betel leaf, and lime mixture {betel} is from South Pacific.

caffeine
Cacao, kola nut, tea, and coffee drugs {caffeine} can bind to adenosine-receptor non-active sites and prevent adenosine binding.

cocaine stimulant
Coca-leaf stimulant {cocaine, stimulant} can affect sublenticular extended amygdala. Cocaine releases norepinephrine and dopamine from vesicles. Cocaine and similar stimulants affect synaptic-transporter proteins and so prevent dopamine and other catecholamine uptake into presynaptic terminals. Cocaine is also a euphoriant. Cocaine is not addictive [Earleywine, 2002] [Grinspoon and Bakalar, 1993].

guarana
Stimulants {guarana} can be from Amazon region.

kava
Stimulants {kava} {keu} {kava-kava} {ava} {kawine} from South Pacific have pepper-family-plant kawine resins.

methylphenidate
Stimulants {methylphenidate} can reduce narcolepsy.

phencyclidine
Stimulants {phencyclidine} (PCP) {angel dust} can cause hallucinations and dissociation. PCP attaches to NMDA-receptor PCP receptor and so inhibits NMDA binding.

theobromine
Mild stimulants {theobromine} can come from cacao plant.

theophylline
Mild stimulants {theophylline} can come from tea.

BIOL>Medicine>Drug>Kinds>Tranquilizer

tranquilizer

Benzodiazepines and chlorpromazines {tranquilizer}| can make people feel calm. Tranquilizers attach to brain chemical receptors. Inosine and hypoxanthine are natural tranquilizers.

nicotine
Tobacco contains amine {nicotine}. Nicotine stimulates VTA dopamine cells and calms.

selective serotonin reuptake inhibitor
Prozac and similar tranquilizers {selective serotonin reuptake inhibitor} (SSRI) can inhibit presynaptic-neuron serotonin resorption.

BIOL>Medicine>Drug>Kinds>Tranquilizer>Phenothiazine

phenothiazine
Chlorpromazine, Largactil, Thorazine, and haloperidol (Haldol) tranquilizers {phenothiazine} can block limbic-system and basal-ganglia dopamine-D2 receptors but not block other receptors. Phenothiazines can control hallucinations, delusions, and schizophrenia. Side effects can include restlessness in legs {akathisia}, involuntary movements {tardive dyskinesia}, and Parkinsonism.

chlorpromazine tranquilizer
Hiazines {chlorpromazine, tranquilizer} can block dopamine neurotransmitters. Chlorpromazine is also an ataraxic. Chlorpromazine relieves anxiety, depression, and obsession in schizophrenics.

BIOL>Medicine>Drug>Kinds>Tissue

tissue drugs
Drugs {tissue drugs} can affect tissues.

sulfonylurea
Glimeperide and glipizide {sulfonylurea} are effective against type 2 diabetes. Metformin is for milder cases.

BIOL>Medicine>Drug>Kinds>Tissue>Blood

statin
Lovastatin, pravastatin, and other drugs {statin} can lower blood cholesterol and hs-CRP. Simvastatin and atorvastatin (Lipitor) are stronger. Tumstatins are type-IV-collagen fragments, bind to endothelium aVb3 integrin, and promote angiogenesis. Endostatin and angiostatin are similar.

warfarin
Bis-hydroxycoumarin {warfarin} {coumadin} prevents blood clotting. In high doses, it can be rat poison.

BIOL>Medicine>Drug>Kinds>Tissue>Blood>Pressure

diuretic
Chlorothiazides and similar drugs {diuretic} can lower blood pressure by excreting blood water.

acetylcholinesterase inhibitor
Enalapril and lisinopil {acetylcholinesterase inhibitor} (ace inhibitor) can lower blood pressure by inhibiting enzyme that breaks down acetylcholine.

beta-blocker
Atenolol and metoprolol {beta-blocker} can lower blood pressure by bind to norepinephrine-receptor non-active sites to prevent norepinephrine binding.

calcium-channel blocker
Diltiazem and verapamil {calcium-channel-blocker} can lower blood pressure by inhibiting membrane calcium-ion channels.

BIOL>Medicine>Drug>Kinds>Tissue>Cancer

cancer drug
Methotrexate and other drugs {cancer, drug} can be for chemotherapy {5-FU} {6-mercaptopurine} {azetomicin} {cyclophosphamide}. Hormones can treat cancer {hormone therapy}. Radioactive chemicals can kill cancer cells {radiation therapy}.

methotrexate
Drugs {methotrexate} can be for chemotherapy.

BIOL>Medicine>Drug>Kinds>Tissue>GI Tract

Dramamine
Drugs {Dramamine} can relieve motion sickness.

emetic
Drugs {emetic}| can cause throwing up.

enema
Drugs {enema}| can cause defecation.

Kaopectate
Drugs {Kaopectate} can be for diarrhea.

laxative
Drugs {laxative}| can help constipated people defecate more easily.

BIOL>Medicine>Drug>Kinds>Tissue>GI Tract>Stomach

bromo
Bromide solutions {bromo} can relieve upset stomach.

milk of magnesia
Magnesium hydroxide {milk of magnesia} neutralizes stomach acid.

sodium bicarbonate
Bicarbonate of soda {sodium bicarbonate} neutralizes stomach acid.

BIOL>Medicine>Drug>Kinds>Tissue>Muscle

digitalis
Drugs {digitalis, drug} can treat heart disease.

magnesium ion
Excess magnesium ions {magnesium, ion} can block nerve activity.

nerve gas
Gases {nerve gas}| can affect acetylcholine metabolism.

TH inhibitor
Drugs {TH inhibitor} can slow increased chorea or athetosis movements of hyperkinesis.

vasoconstrictor
Endothelium contains 21-amino-acid peptides {vasoconstrictor}| that constrict blood vessels.

vasodilator
Drugs {vasodilator}| can relax blood-vessel smooth-muscle cells and so make openings wider.

BIOL>Medicine>Drug>Kinds>Tissue>Muscle>Ataraxic

ataraxic drug
Chlorpromazine, reserpine, Miltown, Equanil, and meprobamate {ataraxic drug} are muscle relaxers.

chlorpromazine ataraxic
Hiazines {chlorpromazine, ataraxic} can block dopamine neurotransmitter, are tranquilizers and ataraxics, and can relieve anxiety, depression, and obsession in schizophrenics.

reserpine
Sarpaganda, snakeroot, and rauwolfia alkaloid {reserpine} can tranquilize without drowsiness, cause low blood pressure, and interfere with vesicle catecholamine storage.

BIOL>Medicine>Drug>Kinds>Tissue>Skin

rubbing alcohol
Isopropyl alcohol {rubbing alcohol} is for cleaning skin.

BIOL>Medicine>Drug>Kinds>Tissue>Skin>Itch

antihistamine
Drugs {antihistamine} can block histamine chemical reactions and reduce allergy symptoms.

calomel lotion
Hemimorphite and zinc ointment {calomel} {calamine lotion} relieves skin itching.

cortisone
Drugs {cortisone} can be corticosteroids.

histamine inflammation
Body chemicals {histamine, itch} can cause inflammation.

BIOL>Medicine>Drug>Kinds>Tissue>Skin>Moistener

glycerin
Chemicals {glycerin} can moisten dry skin.

humectant
Chemicals {humectant}| can moisten skin.

petrolatum
Petroleum-hydrocarbon gels {petrolatum} can keep moisture in dry skin.

BIOL>Medicine>Drug>Kinds>Tissue>Skin>Soother

emollient
Chemicals {emollient}| can soothe skin.

lanolin
Chemicals {lanolin} can soothe skin.

liniment as drug
Chemicals {liniment}| can soothe or heal skin.

unguent
Gels {unguent}| can soothe skin.

BIOL>Medicine>Medical Examination

diagnosis
Patient characteristics can be disease symptoms {diagnosis}|.

stool as feces
Patients can supply feces {stool, feces}|.

syndrome
Physical and mental disease features are in groups {syndrome, medicine}|.

BIOL>Medicine>Medical Examination>Parts

auscultation
Examinations include listening to chest and abdominal sounds {auscultation}|.

breast examination
To discover breast lumps, with arms lowered then raised, look for breast-size, shape, or contour changes {breast examination}. Look for skin puckering or dimpling. Press nipple and look for discharge. Lie down on bed, put pillow under shoulder, put same-side hand under head, and then press against breast with small circular motions to detect lumps. Put same-side arm at side, and feel in armpit and breast to detect lumps. Examine one week after menstrual period. If you feel lumps, they are probably not cancerous but go to doctor to be sure.

pelvic examination
Legs can be in stirrups for external-genitalia examination {pelvic examination}, cervix and vagina visualization through speculum, and uterus and ovary palpation. Pelvic examinations should be once a year.

percuss
Tapping chest {percuss}| checks lung function.

BIOL>Medicine>Medical Examination>Eye Exam

eye exam
Exams {eye exam} can test for cataracts, glaucoma, and macular degeneration.

Axis
Axis is degrees at which to put cylindrical lens to give patient best vision. Axis is from 1 to 180 degrees.

Sphere
At Axis degrees, Sphere is diopters that give patient best vision. Plano or Pl {Plano} equals 0 diopters.

Cylinder
For Axis degrees plus or minus 90 degrees in the perpendicular direction, Cylinder is diopters that give patient best vision.

diopters
Sphere and Cylinder state lens strength in positive or negative diopters. Positive lenses enlarge, and negative lenses diminish. Lens strength is sum of Sphere diopters and Cylinder diopters. Higher positive is stronger. High-minus means lens is thicker at edge. High-plus means lens is thicker in middle.

Lens diopters add to eye diopters to result in total diopters. Nearsighted eyes have negative diopters, and glasses have positive diopters. Farsighted eyes have positive diopters, and glasses have negative diopters.

Prism and Base
Prism and Base can correct eye-muscle-problem altered eye orientations, but eye exams typically do not need to measure them.

face shape

Oval faces have rounded foreheads and chins, and chins and foreheads are similar in size {face shapes}. Rounded faces have circular foreheads and chins, and chins and foreheads are similar in size, with full cheeks. Square faces have wide foreheads, cheeks, and jaws, with angular jaws. Triangle faces have wider foreheads with small and rounded chins.

frames

Oval faces need geometric or round frames. Rounded faces need rectangular, navigator, square, or geometric frames. Square faces need round or oval frames. Triangle faces need square, navigator, rectangular, or geometric frames.

pupil dilation for eye exam

Dilating pupil {pupil dilation, eye}| {dilation, eye} allows looking at retinal periphery.

BIOL>Medicine>Medical Examination>Eye Exam>Oculus

oculus dexter

Prescriptions give lens shape for right eye {oculus dexter} (O.D.). For bifocals, prescription states distance vision (D.V.) and near vision (N.V.).

oculus sinister

Prescriptions give lens shape for left eye {oculus sinister} (O.S.).

BIOL>Medicine>Medical Examination>Eye Exam>Cylinder

plus-cylinder form

Because diopters add, the same prescriptions can have two forms. Cylinder can be always positive {plus-cylinder form}.

minus-cylinder form

Because diopters add, the same prescriptions can have two forms. Cylinder can be always negative {minus-cylinder form}. For minus-cylinder form, Sphere is higher, and Axis is 90 degrees less or more than plus-cylinder form.

BIOL>Medicine>Medical Examination>Eye Exam>Lens

glasses

Lenses {glasses} can be single vision for near or far focus, bifocal, or trifocal.

material

Lenses can be glass, plastic, high-index, or polycarbonate. Glass is heavy and does not absorb UV light. Plastic is light but does not absorb UV light. High-index combines plastic and polycarbonate and absorbs UV light. Polycarbonate absorbs UV light.

polarization

Lens polarization can reduce glare.

coating

Scratch-resistant coatings are harder than plastic. Anti-reflective coatings reduce reflections. UV protection coats glass or plastic to absorb UV light. High-index and polycarbonate do not need UV coating, because they absorb ultraviolet light.

shape

Lenses have flat surfaces outside and curved surfaces towards eye, in meniscus shape.

shape: Spheric

Spheric means inner and outer surfaces are spherical, and outer surface has more curvature. Aspheric means spherical lenses have non-spherical edges, to maintain clear vision through lens edges.

shape: Atoric

Atoric means inner and outer surfaces change from spherical, and outer surfaces have less curvature.

frames

Oval frames have oval lenses. Geometric frames have oval tops and circular bottoms. Round frames have circular lenses. Square frames have square lenses. Rectangular frames have rectangular lenses. Navigator frames have trapezoid lenses slanted along nose. Aviator frames have trapezoid lenses with curved lower edges. Frames can be plastic or metal, including titanium. Colors are silver, gold, brown, black, and red.

bifocal lens
Lenses {bifocal lens}| can have higher magnification for reading in bottom half and regular magnification for driving in top half.

trifocal lens
Glasses {trifocal lens} can have reading in bottom third, computer in middle third, and driving in top third, or be progressive trifocals with no lines between thirds.

contact lens
People can use lenses {contact lens}| that adhere to cornea. Contact lenses are safer in contact sports and are good lenses for magnifying and for correcting astigmatism. They can clean at night. People can replace soft lenses yearly, quarterly, monthly, or weekly. They fit closer to eye and so move less and fall out less. Soft lenses can be daily-wear or extended-wear. Rigid gas-permeable lenses are harder and allow sharper vision.

BIOL>Medicine>Medical Examination>Instruments

sphygmomanometer
Devices {sphygmomanometer}| can measure blood pressure in arm.

stethoscope
Instruments {stethoscope}| can help listen to heart.

BIOL>Medicine>Medical Examination>Tests

autopsy
People can examine dead bodies for diseases or criminal acts {autopsy}|.

biopsy
Surgical procedures {biopsy}| can remove small tissue pieces from inside body using large needles.

endoscopy
Instruments {endoscopy}| can provide light when inserted in incision or opening for viewing stomach, duodenum, and esophagus.

karyotype
Displays {karyotype}| can show chromosomes.

patch test
Allergy tests {patch test}| can be on skin.

proctoscopy
Instruments {proctoscopy}| {colonoscopy} {sigmoidoscopy} can view colon directly. Feces can have blood, indicating colon cancer or hemorrhoids.

roentgenogram
X-rays {roentgenogram}| can check lungs for degeneration and bones for fractures.

Schick test
Tests {Schick test}| can check immunity to diphtheria.

scratch test
Allergy tests {scratch test}| can be on skin.

tuberculin test
Tuberculosis tests {tuberculin test} are at one year old and once a year thereafter.

Wassermann test
Tests {Wassermann test}| can be for syphilis.

BIOL>Medicine>Medical Examination>Tests>Circulatory

angiography
Fluorescein can check blood vessels for leaks or hemorrhage {angiography}|.

blood tests
Kidney disease, liver disease, diabetes, electrolytes, proteins, lipids, and cells cause blood changes {blood, tests}.
kidney disease
Kidneys excrete blood nitrogen {blood urea nitrogen} (BUN) in urea. Kidneys excrete muscle-catabolism product {creatinine}. Kidneys have filtration rate {estimated glomerular filtration rate} (eGFR). Tests {BUN/creatinine ratio} can measure dehydration.
liver disease
Hemoglobin catabolism products {bilirubin} can indicate liver or gall-bladder problems. Other tests are liver protein {albumin, blood test}, liver and immune-system protein {globulin, blood test}, liver or kidney imbalance {albumin/globulin ratio}, liver disease or inflammation {aminotransferase} (AST) {alanine aminotransferase} (ALT), and bile duct, liver, or bone metabolism {alkaline phosphatase}.
diabetes
High glucose concentration after fasting indicates diabetes.
electrolytes
Sodium, potassium, chloride, calcium, and carbon-dioxide concentrations can indicate thyroid and adrenal diseases.
proteins
High protein concentration {total protein} indicates inflammation, infection, or bone disease. Low hemoglobin concentration indicates anemia. High hemoglobin concentration indicates polycythemia.
lipids
Triglycerides, total cholesterol, and high-density lipoprotein (HDL) are lipid tests. Low-density lipoprotein (LDL) is total minus high-density minus triglycerides divided by 5. Total cholesterol can divide by HDL {chol/HDLC ratio}.
cells
Few precipitated cells in hematocrit indicate anemia. Platelet concentration {platelet count} indicates clotting problems. White blood cells include neutrophils, lymphocytes, monocytes, eosinophils, and basophils. Other tests are cell concentration {complete blood count} (CBC) {red blood cell count} {white blood cell count}, red-blood-cell volume {mean corpuscular volume} (MCV), hemoglobin in red blood cells {mean corpuscular hemoglobin} (MCH) {mean corpuscular hemoglobin concentration} (MCHC), red-cell volume variation {red cell distribution width} (RDW), and platelet age {mean platelet volume} (MPV).

cardiogram
Methods {cardiogram}| measures heart signals.

C-reactive protein test
Blood proteins {C-reactive protein} (CRP) {high sensitive C-reactive protein} (hs-CRP) can indicate chronic inflammation and correlate with atherosclerosis.

electrocardiogram
Devices can measure heart electric signals {electrocardiogram}| (ECG).

BIOL>Medicine>Medical Examination>Tests>Women

colposcopy
Instruments {colposcope} can be for direct cervix observation {colposcopy}.

female hormone test
Hormone tests {female hormone test} can look for approaching menopause.

mammography
Breast X-rays {mammography}| can detect breast cancer.

Pap smear
Speculums can collect cervical cells {Pap smear}| for examination for cancer, recommended once a year or two.

thermography
Breast-cancer detection can be by temperature {thermography}.

BIOL>Medicine>Medical Examination>Tests>Prenatal

pregnancy-associated plasma protein A
Before 13 weeks, testing maternal blood serum can check protein level {pregnancy-associated plasma protein A} (PAPP-A). Testing includes checking human chorionic gonadotropin (hCG).

chorionic villus sampling
At 10 to 13 weeks, testing placenta {chorionic villus} can check trisomies and other chromosome defects {chorionic villus sampling}.

nuchal translucency test
At 11 to 13 weeks, ultrasound testing {nuchal scan} {nuchal translucency test} can check fluid behind neck {nuchal fold} {nuchal translucency}. Trisomies tend to make high fluid. After 13 weeks, lymphatic system drains fluid.

maternal triple screening test
At 15 to 20 weeks, testing maternal blood serum can check alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), and unconjugated estriol (uE3) {maternal triple screening test}. For elevated protein levels, other tests can check trisomies and other chromosome defects.

maternal quadruple screening test
At 15 to 20 weeks, testing maternal blood serum can check alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), unconjugated estriol (uE3), and inhibin A hormone {maternal quadruple screening test}. For elevated protein levels, other tests can check trisomies and other chromosome defects.

amniocentesis
At 16 to 20 weeks, inserting a needle through abdomen into amniotic sac can withdraw 20 ml to test fetal cells for trisomies and other chromosome defects {amniocentesis}.

percutaneous umbilical cord blood sampling
At 17 to 20 weeks, testing umbilical cord blood can check trisomies and other chromosome defects {percutaneous umbilical cord blood sampling} {cordocentesis}.

BIOL>Medicine>Medical Treatments

prophylaxis
disease prevention and health maintenance {prophylaxis}|.

resuscitation
Processes {resuscitation}| can restore consciousness or life.

BIOL>Medicine>Medical Treatments>Chemicals

depilatory
hair remover {depilatory}|.

diuresis
Chemicals {diuresis}| can increase urine volume.

BIOL>Medicine>Medical Treatments>Devices

bedpan
bed toilet bowl {bedpan}|.

cast
Plaster sheaths {cast}| can be around broken bones.

diathermy
Electrodes can heat tissues {diathermy} using high-frequency electric current.

feeding tube
Tubes {gavage} {feeding tube}| through nose, pharynx, and esophagus can deliver liquid food to stomach.

iron lung
Polio patients can have breathing apparatuses {iron lung}|.

prosthesis
Devices {prosthesis}| can aid motion.

respirator
Devices {respirator}| can aid breathing.

truss for hernia
Supports {truss, hernia}| can treat hernia.

BIOL>Medicine>Medical Treatments>Bleeding

bloodbank
donated-blood repository {bloodbank}|.

cauterize
burning tissue {cauterize}|.

compress
Pressure on soft pads {compress}| on wounds can stop bleeding.

tourniquet
Tightened bands {tourniquet}| can close arm or leg blood vessels.

BIOL>Medicine>Medical Treatments>Wound

lavage
washing {lavage}|.

poultice
Warm soothing gel cloths {poultice}| can go on wounds.

BIOL>Medicine>Medical Treatments>Cancer

chemotherapy
Azetomicin, cyclophosphamide, methotrexate, 5-FU, and 6-mercaptopurine {chemotherapy}| can kill cancer cells.

radiotherapy
Radiation {radiotherapy}| can destroy tumors.

BIOL>Medicine>Medical Treatments>Genetic

gene therapy
Altered cells can go into body {gene therapy}|. Gene therapy can repair genes by recombining with good gene, adding good gene, or blocking RNA by antisense molecules or ribozymes.

types
Bone-marrow hematopoietic cells that make blood cells can grow in culture, where retroviruses change them for return to bone marrow.

Skin fibroblast cells can grow in culture for return under skin or to peritoneum.

Liver hepatocyte cells can grow in culture for return to liver, spleen, or portal vein.

Skeletal-muscle-tissue stem-cell satellite cells that remain beside muscle fiber can regenerate. They can grow in culture for return to muscle. Most skeletal-muscle-tissue stem-cell myoblasts fuse to make multinucleate muscle fibers.

Retroviruses can infect living blood-vessel-lining endothelia using catheters or lung-lining cells using aerosols.

Lymphocytes {tissue-infiltrating lymphocyte} (TIL) can enter solid tumors and kill them if interleukin-2 lymphocyte growth factor is present.

T cells modified with adenosine-deaminase gene help children with severe combined immunodeficiency.

somatic-cell nuclear transfer
Nucleic acid from egg cells can transform into somatic cells {therapeutic cloning} {somatic-cell nuclear transfer} (SCNT). Egg ooplasm can change somatic-cell nucleus to state similar to embryonic cell.

BIOL>Medicine>Medical Treatments>Injection

hypodermic
Needles {hypodermic}| can inject solutions under skin or into muscle.

intrathecal injection
Chemical injections {intrathecal injection} can go into fluid around spinal cord.

BIOL>Medicine>Medical Treatments>Stimulation

brain stimulation
Stimulating brain {brain stimulation} can treat Parkinsonism.

Tadoma
Blind and deaf people can receive hand stimulation {Tadoma} to perceive speech.

vagus nerve stimulation
Nerve stimulation {vagus nerve stimulation} can treat epilepsy.

BIOL>Medicine>Medical Treatments>Surgery

surgery
Surgeons can remove tissue {surgery}|. Surgery {cryo-surgery} can involve freezing tissues.

artificial cochlea
Microphones {artificial cochlea} can send signals straight to auditory nerve.

BIOL>Medicine>Medical Treatments>Surgery>Techniques

debridement
skin removal {debridement}|.

necropsy
dead-tissue removal {necropsy}|.

resection
tissue removal {resection}|.

stereotaxic surgery
Surgery {stereotaxic surgery}| can use brain coordinates.

suture
Sewing can bind two tissue pieces together {suture}|.

BIOL>Medicine>Medical Treatments>Surgery>Kinds

appendectomy
appendix removal {appendectomy}|.

dilatation and curettage
Scraping uterus wall, under anesthesia, can remove embryo {dilatation and curettage}| (D & C).

hemispherectomy
cerebral-hemisphere, white-matter, and basal-ganglia removal {hemispherectomy} {hemicerebrectomy}.

laser surgery for eye
Laser vision correction or refractive surgery {laser surgery for eye} can be laser-assisted in-situ keratomileusis (LASIK) or photo refractive keratotomy (PRK).

leucotomy
Removing small frontal-lobe regions {leucotomy} can cure depression.

lobotomy
brain-lobe removal {lobotomy}.

mastectomy
breast removal {mastectomy}|.

rhinoplasty
Plastic surgery {rhinoplasty}| can be on nose.

tonsillectomy
tonsil removal {tonsillectomy}|.

tracheotomy
Surgical procedures {tracheotomy}| can cut through neck and into trachea, to allow breathing.

trephining
Surgical procedures {trephining} can make skull holes.

tubal ligation
Cutting and tying fallopian tubes {tubal ligation}| prevents eggs from entering uterus.

vasectomy
Cutting and tying vas deferens {vasectomy}| prevents sperm from leaving testis.

BIOL>Medicine>Medical Treatments>Surgery>Instrument

catheter
Thin flexible tubes {catheter}| can lie in vessels to keep them open.

forceps
Surgical instruments {forceps}| can grasp and hold or pull.

ligature as wire
Threads or wires {ligature, medicine}| can tie blood vessels.

retractor
Surgical tools {retractor}| can pull back skin or tissue to expose area in which to operate.

trocar
Surgical instruments {trocar} can hold incisions open for endoscopic surgery.

BIOL>Medicine>Medical Treatments>Vaccination

vaccination
People can become immune to infectious disease by vaccine or toxoid {vaccination}|. Vaccines can use dead virus or bacteria. People can react to antigen but not get sick.

attentuated
Vaccines {attentuated} can use killed or harmless organisms.

subunit vaccine
Vaccines {subunit vaccine} can use only surface-protein antigen, not whole virus or bacteria.

toxoid
People can become immune to infectious disease by being infected with antigen {toxoid}| retaining antigenic property but having no ability to reproduce.

vaccine
People can become immune to infectious disease by being infected with low-toxicity antigen {vaccine}|.

BIOL>Medicine>Medical Treatments>Medical Testing

medical testing
If people have diseases, tests {medical testing} have probabilities {sensitivity, test} of finding diseases. If people do not have diseases, tests have probabilities {specificity, test} of indicating no diseases. Diseases have probabilities {prevalence, disease} in populations. Prevalence is typically less than one per thousand. Probability that people have disease if tested positive is prevalence times sensitivity divided by one minus specificity: p * se / (1 - sp).

actuarial method
Survival-function estimates {life table estimate, actuarial method} for grouped data, for example grouped by time interval, is number surviving at end divided by number at beginning minus half number censored for each interval, multiplying interval probabilities {actuarial method, test}.

attributable risk
Risk in people exposed to factor, minus risk in people not exposed, measures number of factor-caused outcomes {attributable risk}.

bias in measurement
Non-random quantities {bias, measurement} {measurement bias} can include selecting non-randomly {selection bias}, failing to account for hidden factors {confounding bias}, measuring with non-random tools, or having goals.

Cox regression

Statistical methods {Cox regression} {proportional hazards model} can analyze survival data as multiple regression, for quantitative data, or multiple logistics, for qualitative data. Surviving also depends on treatment weights Cn and prognostic variables Xn. Proportional hazard model is: ln(l(t)) = C0(t) + C1*X1 + C2*X2 + ... + Cn*Xn.

definitive cure
For same age and sex, cured-patient survival rate can be similar to healthy-people survival rate {cure}. Age-corrected survival divides actual survival in each interval by survival for healthy people of same age and sex. Curve can become horizontal {point of definitive cure} {definitive cure point}.

efficacy
treatment effectiveness {efficacy, treatment effectiveness}|.

exposure
People have disease risk {exposure, risk}| when factor is present.

factor of study
Studies have quantifiable independent variables {factor, study}.

hazard function
Patients have probability functions {hazard function} of failing to survive for some years or past an age.

hypothesis of study
Hypotheses {hypothesis, study} typically state that two treatments are no different in outcome. Studies can be only descriptive.

incidence
Populations can have new cases over times {incidence, population}. New cases divided by population measures probability {incidence rate} that people will have disease during that time.

modification by factor
Third variables can affect relation between factor and outcome {modification, study}.

odds ratio
Probabilities {odds ratio} that people who have disease also have factor approximates relative risk, if risk is less than 1/100.

outcome
Studies have quantifiable dependent variables {outcome, study}.

prevalence
number with disease or factor divided by number in population {prevalence, population}.

relative risk
Factor-strength measures {relative risk} can be ratio between risk when factor is present {exposure, factor} and risk when factor is absent.

reliability of test
Repeated measurements can have small range, with no oscillations or trends {reliability, study}.

research question
Disease studies {research question} can determine number of people affected, typical stages {natural history, disease stages}, outcomes {prognosis, disease}, causes {etiology, disease}, or treatment effectiveness {efficacy, treatment}. Studies often compare two treatments.

risk in testing
If factor is present, outcome has probability {risk, study}.

risk factor
If factor is present, outcome risk {risk factor} can increase.

sample of population
Regions and groups have populations {reference population} {source population}. Source-population subsets {sample frame} can be about sex, age, or other variable. Studies are about random reference-population subsets {sample, study} that have similar sample frames.

survival function
Over time, people have decreasing survival probability {survival function}| {survival analysis}. Survival-function estimates for ungrouped data, for example, individual patients, multiply probability of surviving interval by probability of surviving next interval, for all intervals {Kaplan Meier Survival Curve} {product limit}. Kaplan-Meier curve falls rapidly between 70% and 30% surviving and ends below 50% survival. Survival-function estimates for grouped data, for example, grouped by time interval, are number surviving at end divided by number at beginning minus half number censored for each interval, multiplying interval probabilities {life table estimate, survival} {actuarial method, survival}.

tests
Tests {log rank test} can have null hypothesis that there is no difference in survival between two groups. Mortality rate in one group is typically always higher than mortality rate in another group, and mortality-rate ratio can stay constant over time {proportional hazards}. If ratio is high enough, difference in groups is significant. Tests {stratified log-rank test} can compare two groups if there is another variable. Tests {generalized Wilcoxon test} can give more weight to early deaths.

validity of test
Tests can correctly check if hypothesis is true or false {validity, study}. Studies can use unbiased measurements {internal validity}. Studies can use random samples {external validity}.

BIOL>Medicine>Medical Treatments>Case Study

case-control study
People descriptively study {case-control study} subjects with diseases.

cross-sectional study
People study {cross-sectional study} subjects that have all factors and/or outcomes.

ecologic study
People descriptively study {ecologic study} subjects as interacting groups.

longitudinal study
People descriptively study {longitudinal study} subjects over periods and check for factors and outcomes.

BIOL>Medicine>Medical Treatments>Clinical Trial

clinical trial
Subjects can be patients and test hypothesis {clinical trial}.

community intervention
Subjects can be healthy, have factor, and test hypothesis {community intervention trial}.

field trial
Subjects can be healthy and test hypothesis {field trial}.

BIOL>Medicine>Oriental Medicine

Oriental medicine

Traditional medicine {Oriental medicine}| {Chinese medicine} {traditional medicine} {folk medicine} uses extracts from minerals, plants, and animals.

uses

Traditional medicine treats colds, coughs, indigestion, and other acute diseases, as well as high blood pressure, liver problems, kidney problems, and other chronic diseases.

number

1300 traditional medicines are common.

sources

More than 70 minerals are in use. Commercial production is mainly of 300 species. More than 38,000 species, from 296 plant families, are in use, including 22 marine-algae species. More than 403 animal species are in use, including 34 marine-animal species. Special sources are gecko, ginseng, and others {Acanthopanax gracilistylus} {ngu gia bi} {Polygonum multiflorum} {ha thu o} {xuyen tam lien}.

forms

Traditional medicines are dried plants and animals, extracts, jellies, powders, and tablets. Extracts can use water, salt water, rice-washing water, black-bean-washing water, milk, alcohol, vinegar, ginger juice, or honey.

processing

Collecting, preparing, and storing affect drug quality. Water is for washing, soaking, and covering. Boiling in water, or water with bran, sand, or alcohol added, makes extracts. Fire can dry, ash at less than 100 degrees C, or burn to ashes. Bran, sand, or alcohol can be in mixture.

purity

Contamination, deterioration with age, exposure to heat or light, and adulteration are possible.

side effects

Active agents can cause side effects. Chemicals included in preparations can cause side effects. Contamination or deterioration can cause side effects.

standardization

Concentrations and dosages have large ranges.

seven reactions

Treatments can use one drug, such as ginseng {seven reactions, Oriental medicine}. Treatment can use two drugs with similar effects. Treatments can use two drugs with different effects. Treatments can use two drugs that decrease each other's toxicity or strength. Treatments can use two drugs, with one that decreases other's function. Treatments can use two drugs, one for cure and one that blocks first's toxicity. Treatments can use two drugs with opposite effects.

BIOL>Biology>History>Medicine

Ali ibn Rabn Tabari [Tabari, Ali ibn Rabn] or Ali Bin Rabn Tabari [Tabari, Ali Bin Rabn]

physician
Persia/Baghdad, Iraq
860
Paradise of Wisdom [860: about Indian and Greek medicine]
He lived 838 to 923.

Thomas Syndenham [Syndenham, Thomas]

physician
Londin, England
1660 to 1682
Epistolary Dissertation to Dr. Cole [1682]; On Hysteria [1682]
He lived 1624 to 1689 and described diseases accurately. Hysteria in women and hypochondrias in men are similar. Hysterical symptoms often accompany depression. He invented opium tincture {laudanum, Syndenham} [1660].

Ignaz Philipp Semmelweis [Semmelweis, Ignaz Philipp]

biologist
Hungary/Vienna, Austria
1847 to 1861
Etiology, Concept, and Prophylaxis of Childbed Fever [1861]
He lived 1818 to 1865 and started hand washing in chlorine solution [1847].

Louis Pasteur [Pasteur, Louis]
biologist
Paris, France
1855 to 1883
Germ Theory and its Application to Medicine and Surgery [1878]
He lived 1822 to 1895 and studied yeast and fermentation [1855], developed pasteurization [1864], and developed rabies vaccine [1883]. Organic molecules can have chirality. Cells come from cells, with no spontaneous generation.

Rudolf Virchow [Virchow, Rudolf]
biologist
Germany
1858
Cell Pathology [1858]
He lived 1821 to 1902 and studied cell theory. Cells arise from each other over continual generations {Omnis cellula e cellula}.

Joseph Lister [Lister, Joseph]
biologist
England
1866 to 1877
He lived 1827 to 1912, used carbolic acid on wounds to prevent infection [1866], and studied bacteria, antiseptics, heat sterilization, and operative techniques [1877].

David Ferrier [Ferrier, David]
physician
Britain
1873 to 1890
Experimental researches in cerebral physiology and pathology [1873]; Croonian Lecture: Experiments on brain of monkeys (second series) [1875]; Croonian Lectures on Cerebral Localisation [1890]
He lived 1843 to 1928 and developed operations to treat brain injuries and diseases. Cerebral functions are in fixed brain areas.

Carl Wernicke [Wernicke, Carl]
neurologist/psychiatrist
Germany
1874
Aphasic Syndrome [1874]
He lived 1848 to 1905, studied sensory aphasia and word-usage and word-choice disorders, and invented language brain-flow diagrams. Alcoholics often have thiamine deficiency, which can cause encephalopathy.

Robert Koch [Koch, Robert]
biologist
Wollstein, Rhineland-Palatinate, Germany
1876 to 1890
Anthrax [1877]
He lived 1843 to 1910, stained bacteria [1877], grew bacterial colonies [1890], studied anthrax [1876], tuberculosis, and cholera, and developed tuberculin test [1890]. He developed Koch's postulates about disease.

Joseph Breuer [Breuer, Joseph]
physician
Vienna, Austria
1880
Case of Anna O. [1880]
He lived 1842 to 1925, studied hysteria using hypnosis, and discussed catharsis. Vagus nerve controls breathing. Semicircular canals are for balance.

John Hughlings Jackson [Jackson, John Hughlings]
neurologist
Britain
1881 to 1887
Croonian Lectures on Evolution and Dissolution of the Nervous System [1881 to 1887]
He lived 1835 to 1911. He noted focal-epilepsy involuntary-movement sequences and deduced motor-cortex excitable-area spatial patterns. Patients can utter words or phrases under stress or during high emotion, though they cannot speak voluntarily.

Richard von Krafft-Ebing [Krafft-Ebing, Richard von]
neurologist
Germany
1886
Psychopathy of Sex [1886]
He lived 1840 to 1902 and studied syphilitic infection, which can cause insanity and paralysis.

Charles Mayo [Mayo, Charles]/William Mayo [Mayo, William]
doctor
USA
1889
Charles lived 1865 to 1939. William lived 1861 to 1939. They performed surgery at Mayo Clinic [1889].

Paul Ehrlich [Ehrlich, Paul]
doctor
Frankfurt, Germany
1891 to 1925
He lived 1854 to 1915. He used methylene blue as antimalarial drug [1891], trypan red and trypaflavin against trypanosomiasis, acriflavine as antibacterial, arsenical compounds (Carbarsone) against amoebas, arsenical compounds (Salvarsan and oxophenarsine) against syphilis bacteria [1907 to 1909]. He discovered drug resistance [1925].

Anton Breinl [Breinl, Anton]/Harold Wolferstam Thomas [Thomas, Harold Wolferstam]
doctor
Germany/England
1905 to 1909
Report on trypanosomes, trypanosomiasis and sleeping sickness [1905]
Breinl lived 1880 to 1944 {sleeping sickness, drug}. Atoxyl kills trypanosomes [1905], which cause human trypanosomiasis. Thomas studied yellow fever.

Peyton Rous [Rous, Peyton]
biologist
USA
1909 to 1910
Sarcoma of the common fowl [1910]
He lived 1879 to 1970 and discovered first oncovirus, Rous sarcoma virus [1909].

Shepherd Ivery Franz [Franz, Shepherd Ivery]
neuropsychologist
USA
1910 to 1923
Functions of the Anterior and Posterior Association Areas of the Cerebrum [1910]; Handbook of Mental Examination Methods [1912]; Nervous and Mental Re-education [1923]
He lived 1874 to 1933 and studied focal cerebral-cortex lesions, frontal-lobe functions, motor-center variability, and aphasia.

Walter Bradford Cannon [Cannon, Walter Bradford]

physiologist
USA
1911 to 1932
Mechanical Factors of Digestion [1911]; Bodily Changes in Pain, Hunger, Fear and Rage [1915 and 1929]; Wisdom of the Body [1932]
He lived 1871 to 1945 and studied psychosomatic disease and fear and rage biochemistry. Body maintains chemical and function equilibrium {homeostasis, Cannon}. Body uses feedback signals to indicate needs and to initiate action to obtain needs.

Alexander Fleming [Fleming, Alexander]
biologist
England
1928
He lived 1881 to 1955. Penicillin is antibacterial drug [1928].

Lionel Sharples Penrose [Penrose, Lionel Sharples]
physician
Britain
1933
Biology of Mental Defect [1933]
He lived 1898 to 1972 and studied mental deficiency and genetics of Down's syndrome and epiloia or tuberous sclerosis. Maternal age increases children's Down's syndrome, but paternal age does not. Subnormality is not qualitatively different than normal intelligence. Mental deficiency has many factors and causes, and people can perform well on some factors. Mental deficiency is more common in parents and relatives of people with IQ 50 or above than it is in parents of people with IQ lower than 50.

Almeida Lima [Lima, Almeida]
surgeon
Spain
1935
He performed prefrontal lobe leucotomy to cure chronic anxiety, depression with suicide risk, and obsessive-compulsive disorder [1935].

Wilder Graves Penfield [Penfield, Wilder Graves]
neurosurgeon
Canada
1938 to 1975
Cerebral Cortex of Man [1950: with Theodore B. Rasmussen]; Epilepsy and the Functional Anatomy of the Human Brain [1954: with H. Jasper]; Mystery of the Mind [1975]
He lived 1891 to 1976, studied local epilepsy, found epileptic brain-lesion locations and extents [1938], and surgically treated local epilepsy. He electrically stimulated brains to find regions needed for language, but he also elicited images and sensations, which are same dream-like sensations that patients experience when epileptic [Penfield, 1975] [Penfield and Perot, 1963]. Removing tissue did not delete sensation.

Benjamin Spock [Spock, Benjamin]
doctor
USA
1946
Baby and Child Care [1946]
He lived 1903 to 1998.

Alfred C. Kinsey [Kinsey, Alfred C.]/Wardell B. Pomeroy [Pomeroy, Wardell B.]/Clyde E. Martin [Martin, Clyde E.]
physician
USA
1948 to 1954

Sexual Behavior in the Human Male [1948]; Sexual Behavior in the Human Female [1954]
Kinsey lived 1894 to 1956. Pomeroy lived 1913 to 2001. Martin lived 1918 to ?. They studied sexual physiology and behavior.

Vernon M. Ingram [Ingram, Vernon M.]
biologist
Germany/Sweden/England
1956
sickle cell anemia protein defect
He lived 1924 to 2006. One amino-acid change in hemoglobin causes sickle cell anemia [1956].

Barry J. Marshall [Marshall, Barry J.]/J. Robin Warren [Warren, J. Robin]
biologist
USA
1982
Helicobacter pylori bacteria cause ulcers [1982].

Stanley B. Prusiner [Prusiner, Stanley B.]
biologist
USA
1982
Misshapen prion proteins cause scrapie [1982].

Robert Gallo [Gallo, Robert]/Luc Montagnier [Montagnier, Luc]
biologist
England
1985
DNA sequence of HIV published [1985].

Robert A. Weinberg [Weinberg, Robert A.]
biologist
USA
1986
He found first tumor suppressor gene, RB gene [1986].

Elliott Gershan [Gershan, Elliott]/Ronald Rieder [Rieder, Ronald]
biologist
USA
1992
Major Disorders of Mind and Brain [1992]