

# LF1 Pathophysiology exam questions 2020

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Last update: Tuesday, 22 Nov 2022 at 8.59 am.

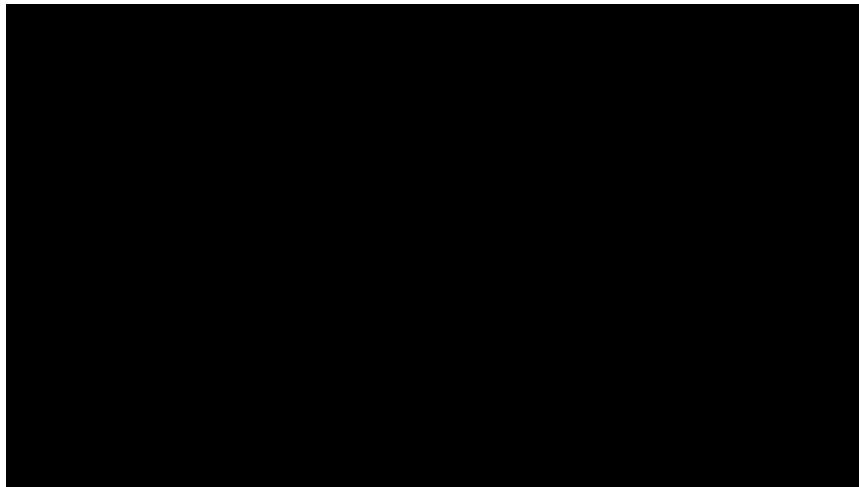
- The FUNDAMENTAL QUESTIONS are in **BOLD**
- **Timestamps** of the exact time of the video where the answer is hidden will be added soon.

## GENERAL

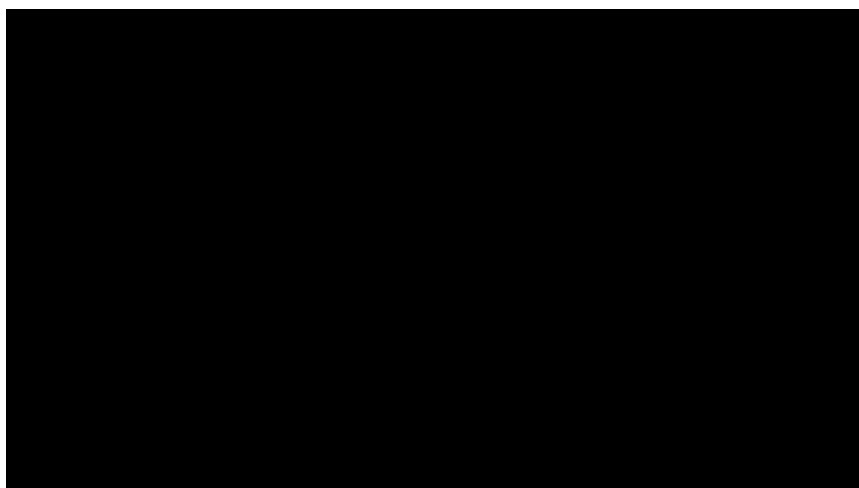
- 1. Definitions: disease, symptom, syndrome, etiology, pathogenesis - explain using examples.**
- 2. Role of biological rhythms and time in the pathogenesis of diseases; Mechanisms of Compensation and Decompensation, Insufficiency and Failure of functions - explain on examples**
- 3. Tissue damage due to mechanical forces, crush syndrome.**
- 4. Consequences of immobilization: whole body(organism) vs. immobilization of its parts**
- 5. Damage to the human body caused by ionizing and UV radiation.**
- 6. Pathogenesis of poisoning: cyanides, organophosphates, carbon monoxide, nitrates**
- 7. Pathogenesis of poisoning: methanol and ethylene glycol, paracetamol, Amanita phalloides.**
- 8. Pathophysiology of smoking**
- 9. The effect of ethanol on the organism**
- 10. Inheritance of pathological conditions and diseases; pathological variants of genes in the etiology and pathogenesis of diseases, mosaicism**
- 11. Multifactorial mechanisms in the development of pathological conditions, genetic polymorphism, penetration of genetic burden**
- 12. Stress reaction and its phases**
- 13. Cell damage in the pathogenesis of diseases: apoptosis, necrosis, autophagy, proteinopathies**
- 14. Tumor growth and tumor spread, interactions between tumor and organism, paraneoplastic syndromes**
- 15. Congenital and acquired immune deficiencies**
- 16. Immune mechanisms in the pathogenesis of diseases, disorders of immune tolerance**
- 17. Anaphylactic reaction, anaphylactic shock**



## **18. Inflammation - local and systemic signs of inflammation, SIRS, CARS, MODS**



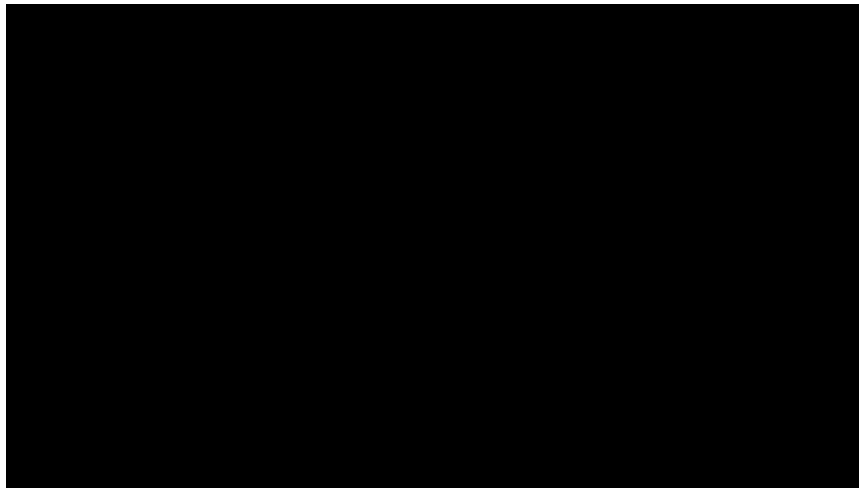
## **19. Sepsis and septic shock**





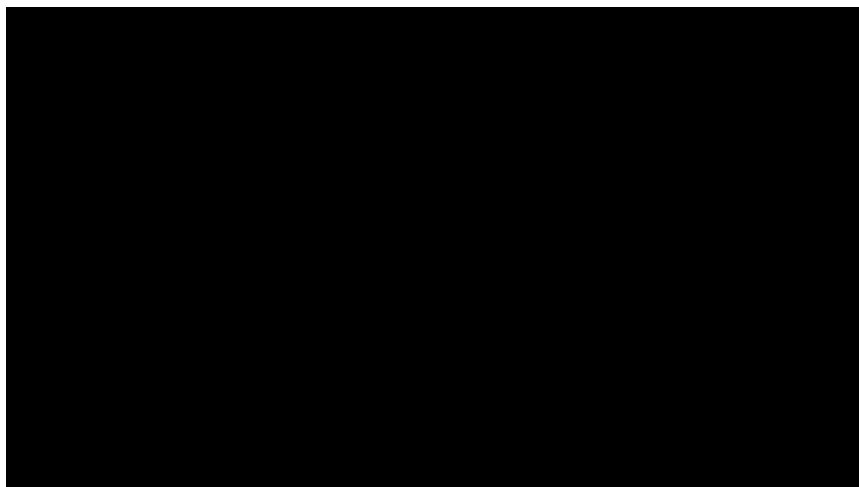
## **20. Healing of damaged tissues, healing disorders**

## **21. Regulation of intravascular and extravascular volume and osmolarity - pathophysiological aspects**



## **22. Dehydration of the organism**

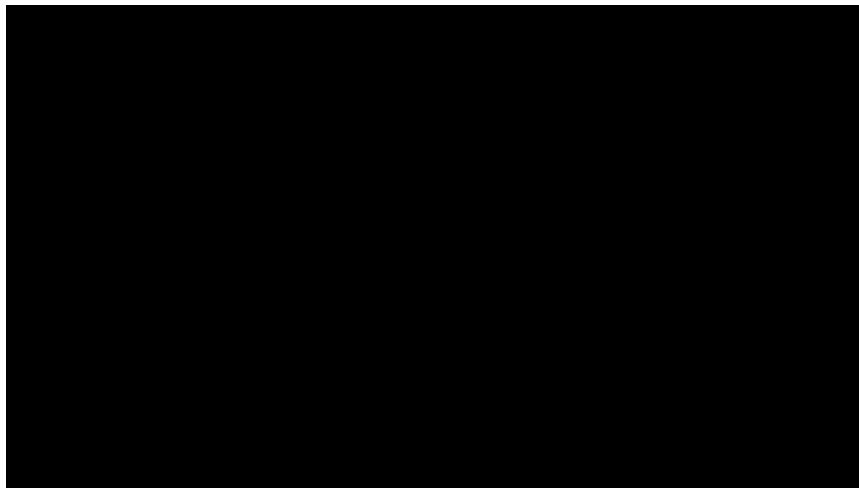
isotonic dehydration



hypotonic dehydration

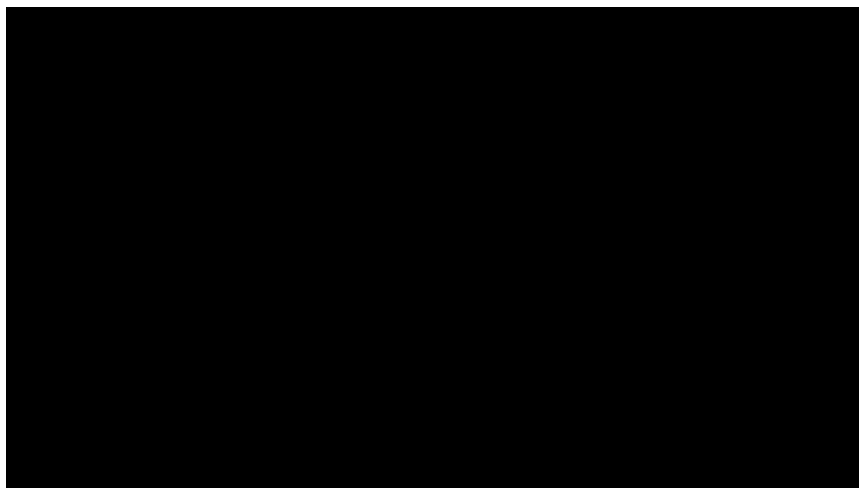


hypertonic dehydration



### **23. Hyperhydration of the organism, edema, ascites, hydrothorax**

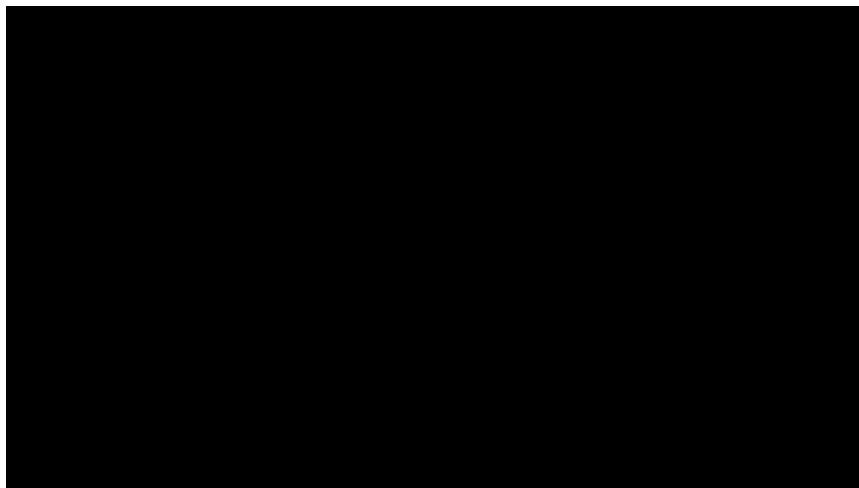
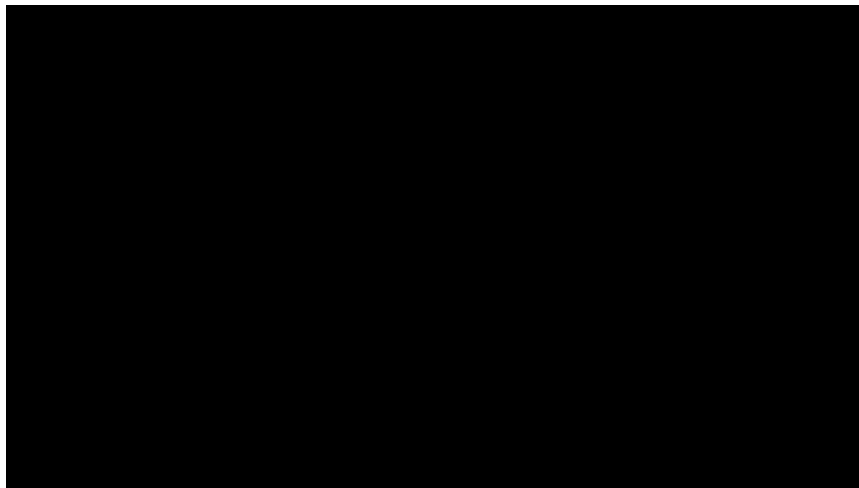
isotonic hyperhydration



hypotonic hyperhydration



hypertonic hyperhydration



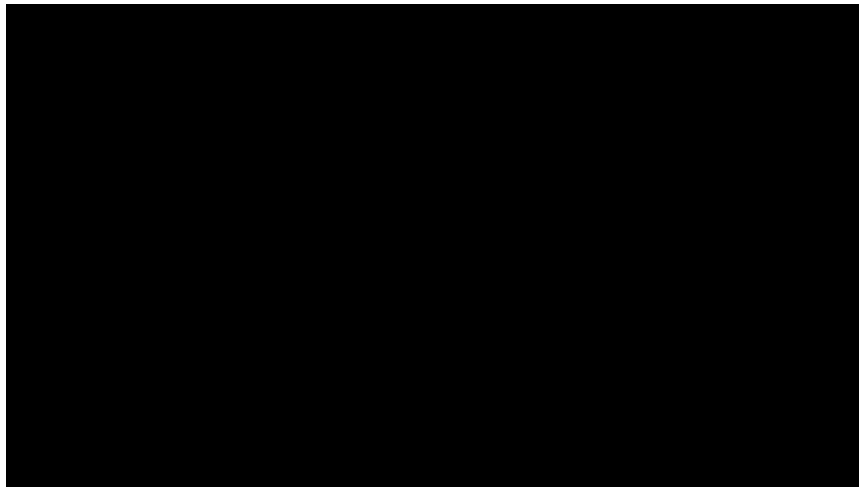
**24. Disorders of sodium and chloride balance**

**25. Disorders of potassium balance, ECG manifestations**

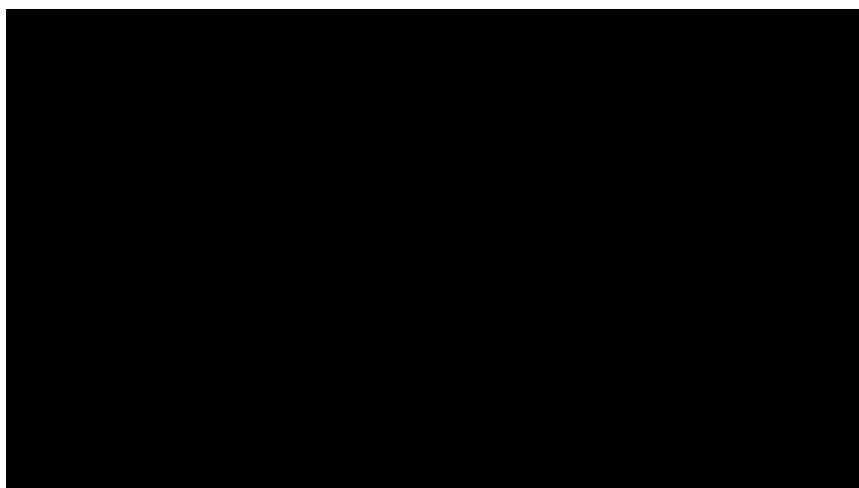
**26. Disorders of calcium and phosphate balance**



## **27. Overview of acid-base balance disorders, compensation mechanisms**

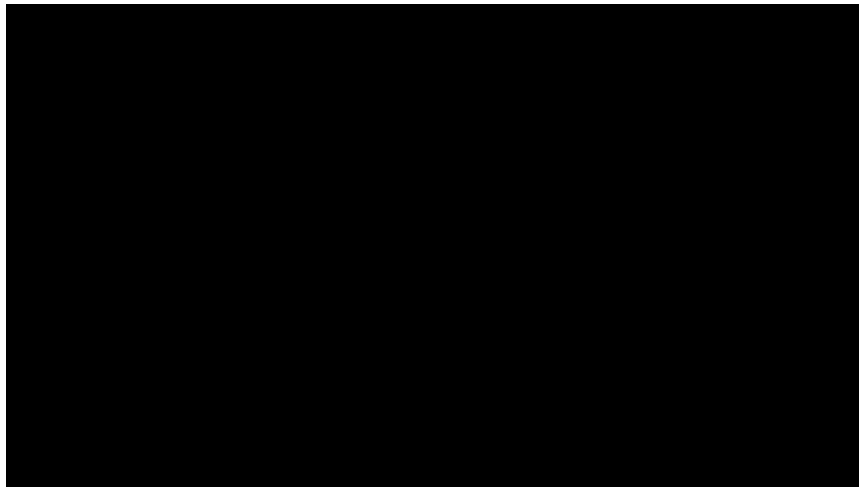


## **28. Acidemia and acidosis - definitions and examples**



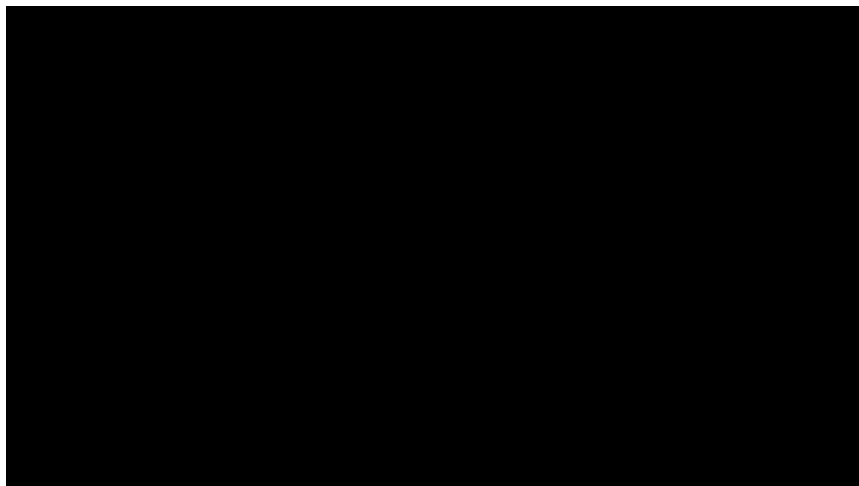


## **29. Alkalemia and alkalosis - definitions and examples**



## **30. Hypoxia - classification, compensation, examples**

Hypoxia



## **31. Tissue ischemia, reperfusion injury**

Ischemia



**32. Oxygen toxicity, principles of oxygen therapy**

**33. Thermoregulation disorders, fever, hyperthermia, hypothermia, application of therapeutic hypothermia**

**34. Simple starvation vs stress starvation and selective protein malnutrition vs total caloric malnutrition. cachexia**

**35. Obesity and metabolic syndrome**

**36. Regulation of glycemia, causes of hypoglycemia and hyperglycemia**

**37. Acute complications of hypoglycemia and hyperglycemia**

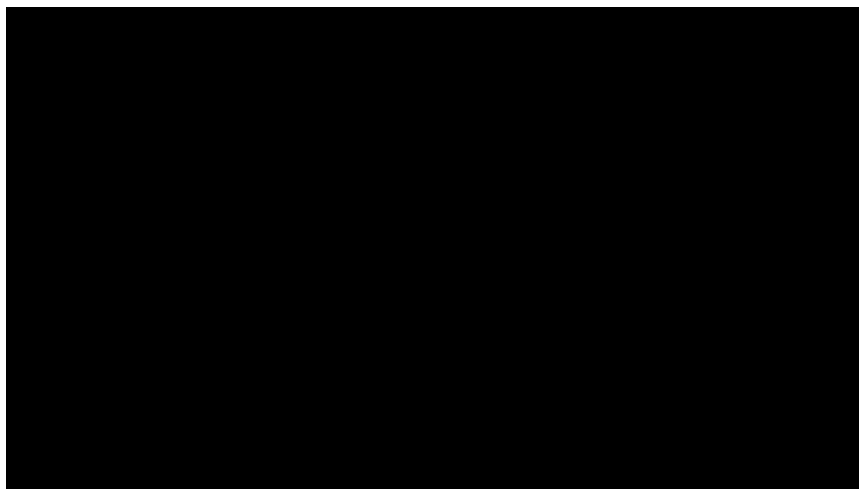
**38. Chronic complications of hypoglycemia and hyperglycemia**

**39. Dyslipidemias and their main consequences**

**40. Hypoproteinemia, dysproteinemia, paraproteinemia**

**41. Hyperuricemia, Gout.**

**42. Disorders of iron balance and distribution, iron deficiency and iron excess in the human body**



**43. Disorders of fetal development, growth disorders**

**44. Pathophysiology of aging, death of the organism**

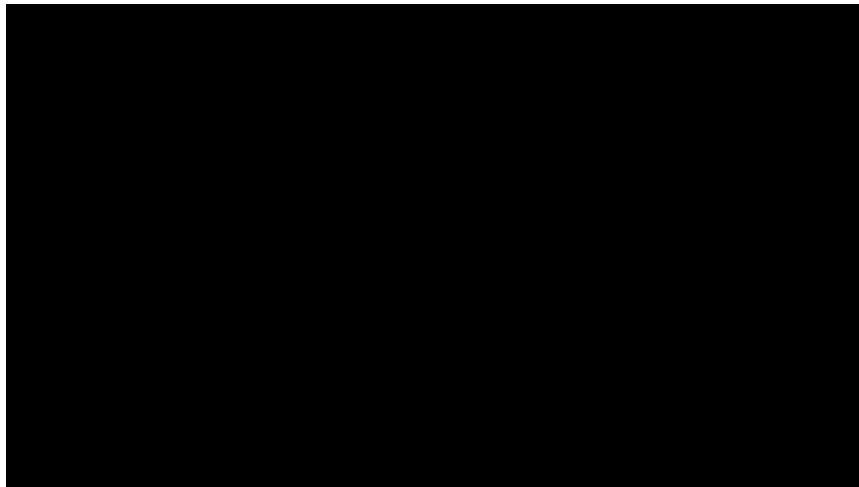
## **Pathophysiology of blood**

**45. Acute and chronic bleeding**

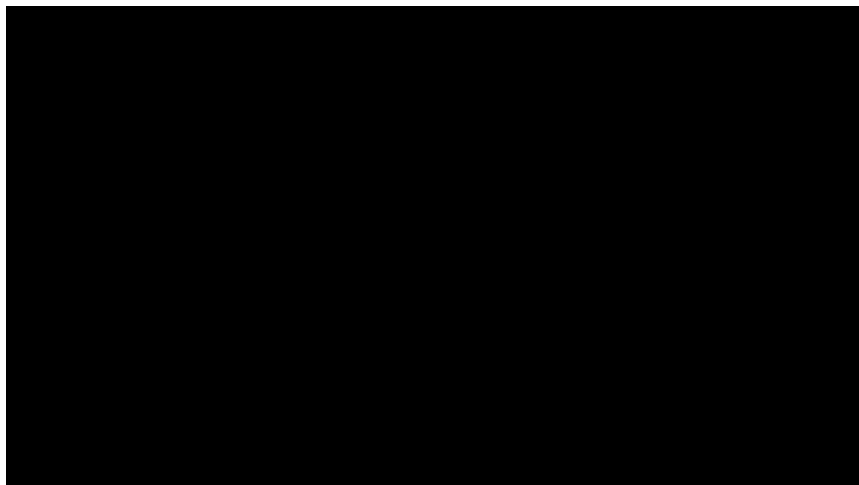




#### **46. Anemia - definition and pathophysiological classifications**



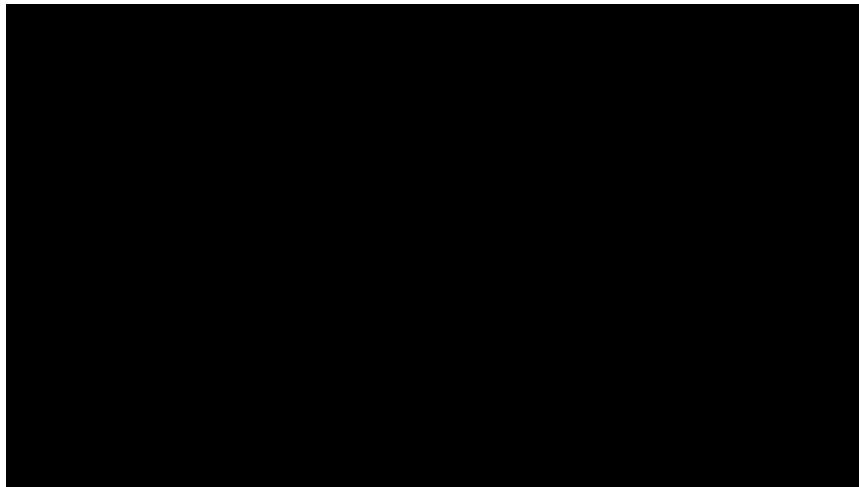
#### **47. Anemia - functional consequences, compensatory mechanisms, anemic syndrome**



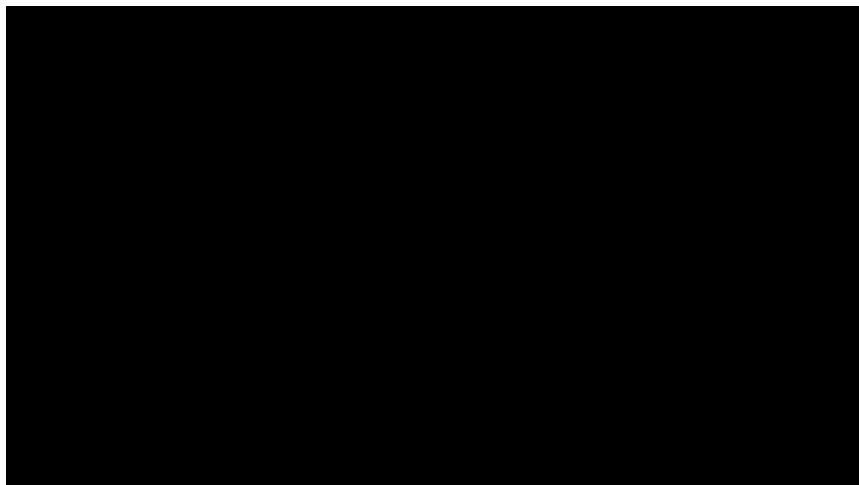
#### **48. Normocytic anemias**



#### **49. Microcytic anemias**



#### **50. Macrocytic anemias**



**51. Hemolytic disease of the newborn, common anemias in childhood, extramedullary hematopoiesis**

**52. Failure of hematopoiesis, aplastic crisis, aplastic anemia, myelophthisis, myelofibrosis**

aplastic anemia



**53. Polycythemia - classification by causes, hyper-viscosity syndrome**

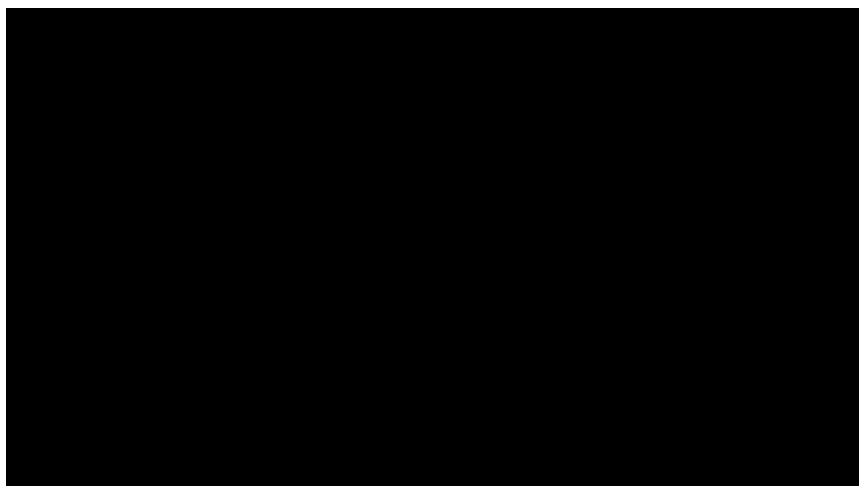
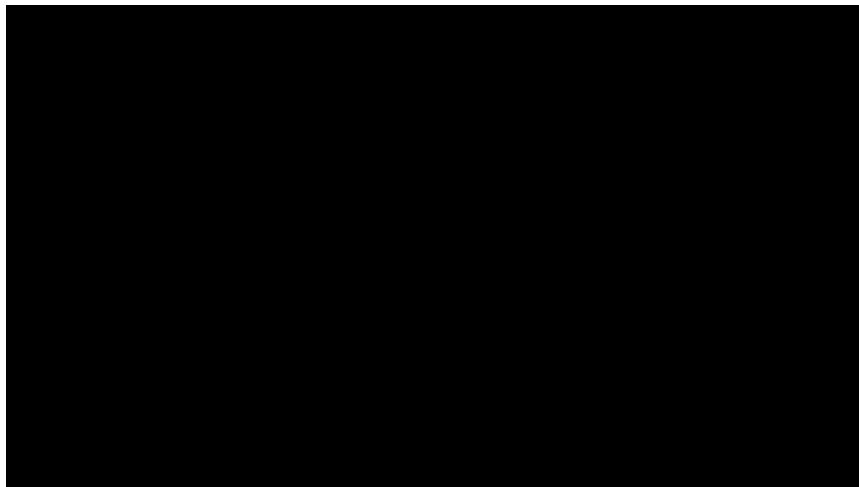
**54. Acute and chronic leukemias, myelodysplastic syndrome**

**55. Lymphomas and lymphoproliferative diseases**

**56. Multiple myeloma and other plasma cell-derived proliferative syndromes (MGUS, Waldenström's hypergammaglobulinemia)**

**57. Pathophysiology of posttransfusion complications and bone marrow transplantation, GvHD**

**58. Disorders of primary and secondary hemostasis**

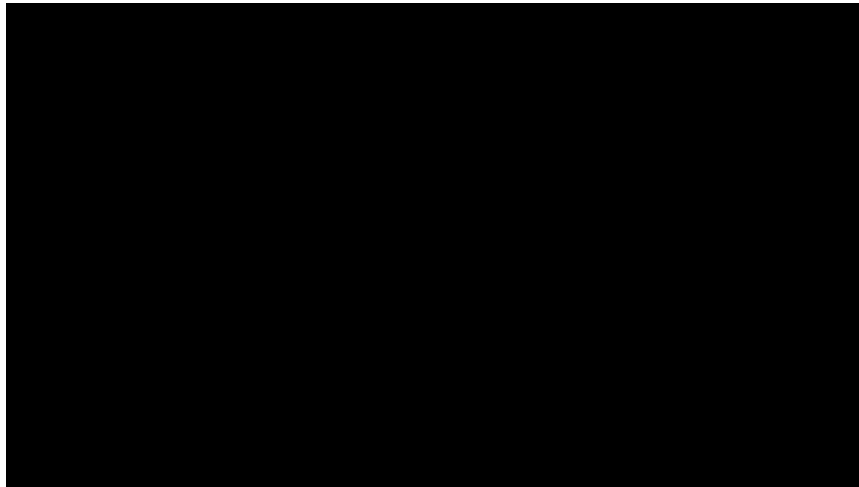


**59. Thrombocytopenias and thrombocytopathies**

Thrombocytopenia

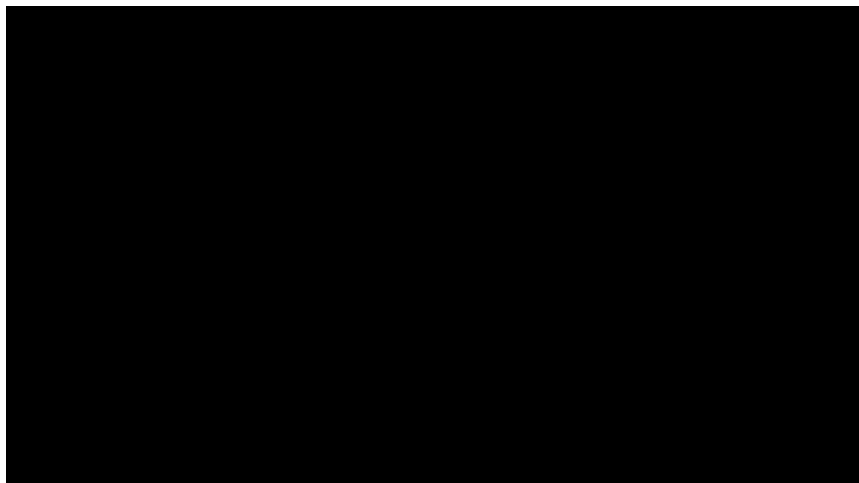


Thrombocytopathy



## 60. Coagulopathies

Coagulopathy



**61. Acute hematology - thrombotic thrombocytopenic purpura, hemolytic uremic syndrome, disseminated intravascular coagulopathy**

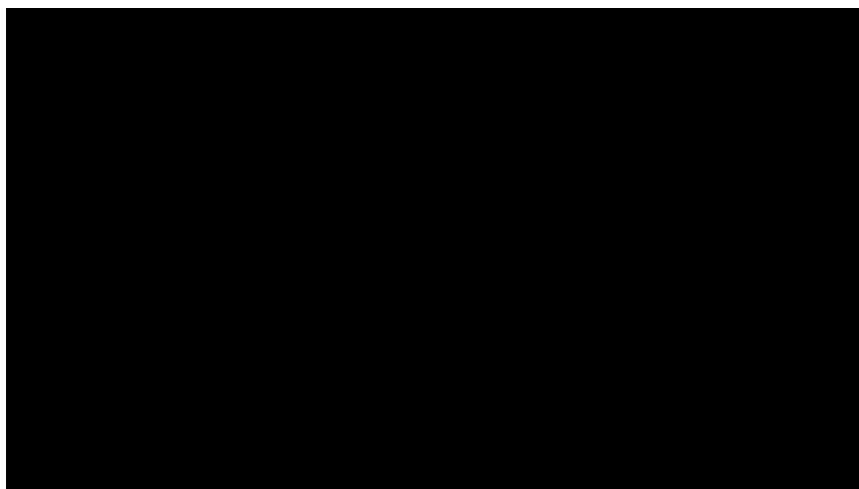
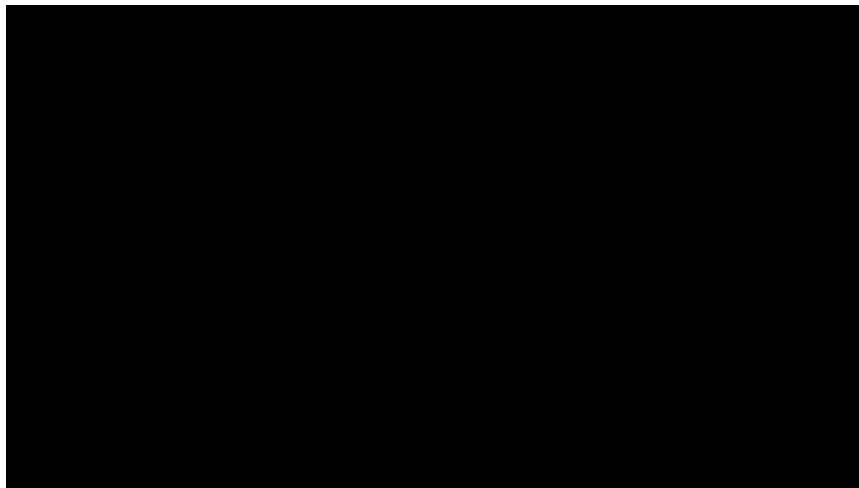
**62. Thrombophilias, risk factors for thrombosis**



**63. Pathophysiology of the spleen - splenomegaly, hypersplenism, consequences of splenectomy, anatomical v functional asplenia**

## **Pathophysiology of the circulatory system**

**64. Primary and secondary hypertension**



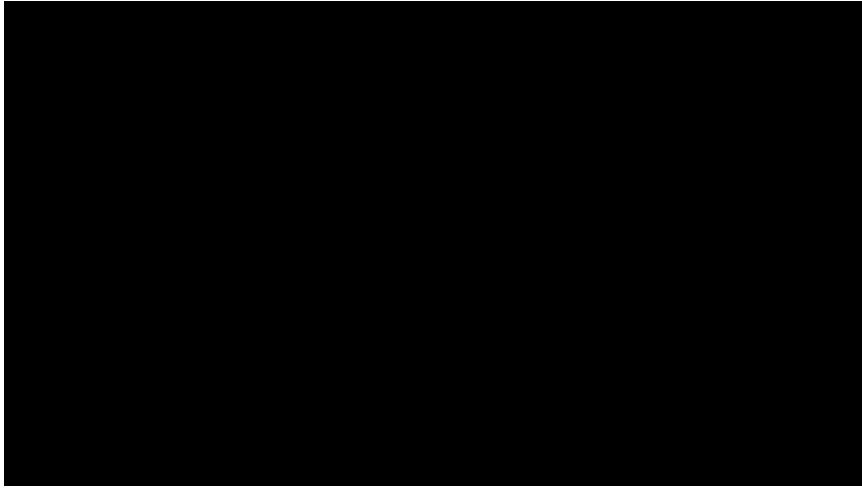
**65. Acute and chronic consequences of systemic hypertension**

**66. Pulmonary hypertension**

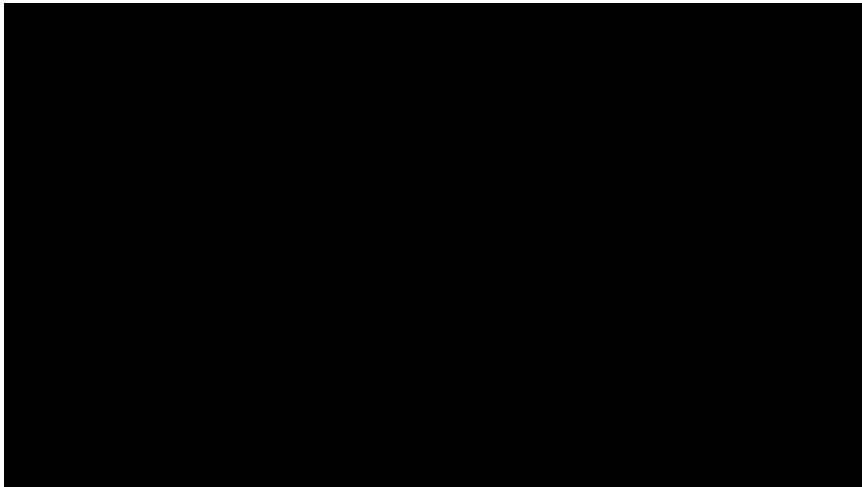
**67. Portal hypertension**

**68. Increase in central, peripheral and pulmonary venous pressure**

## 69. Collapse of circulation, circulatory shock - classification and phases of shock

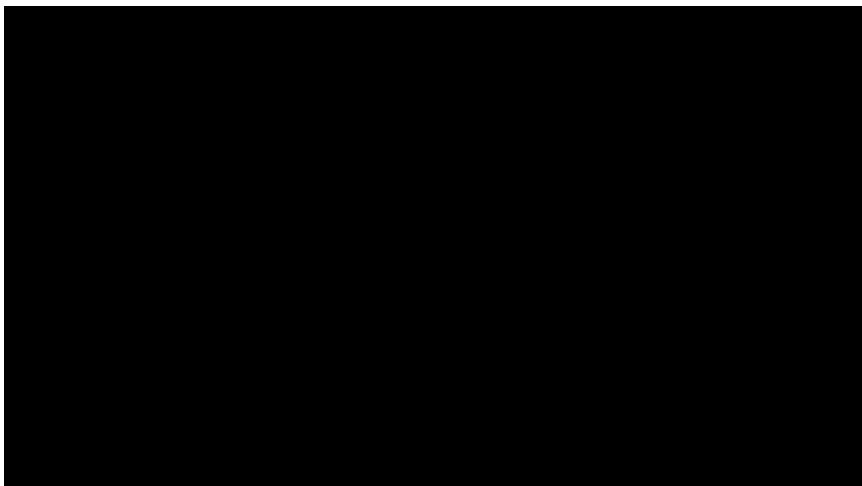


phases of shock



## 70. Hypovolemic and distributional shock

hypovolemic shock



distributive shock





table comparing different types of shock

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**72. Thrombosis and thromboembolisms**

A large black rectangular box redacting the content of the table.

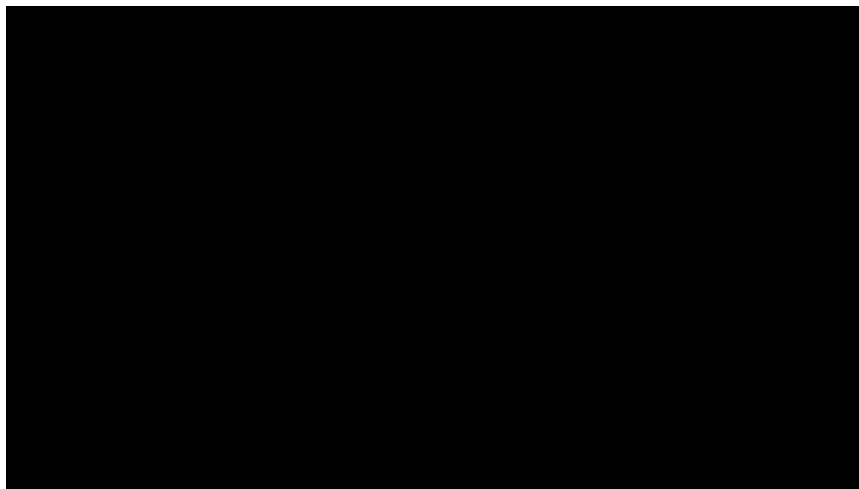
**73. Atherosclerosis**



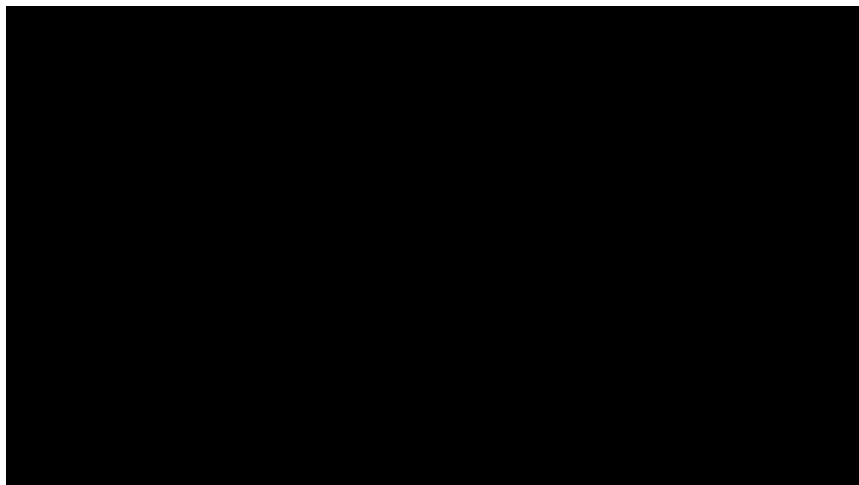


## **74. Venous insufficiency, disorders of lymphatic circulation**

venous thrombus



lymphedema

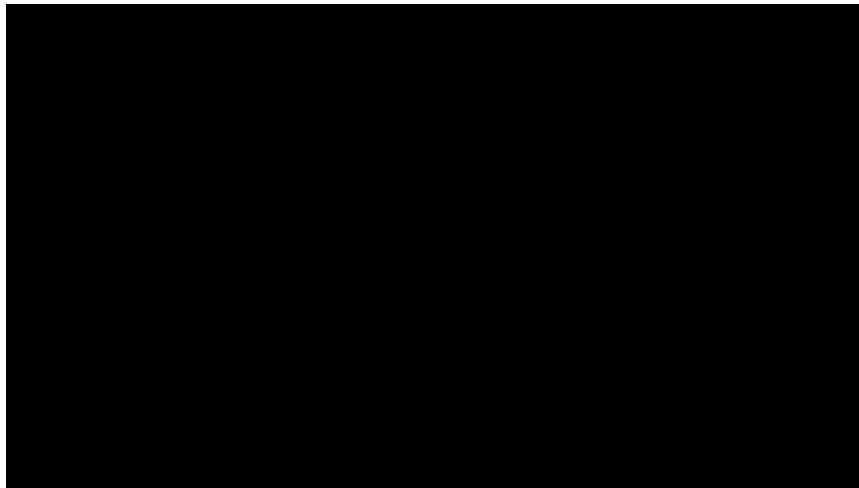


## **Pathophysiology of the heart**

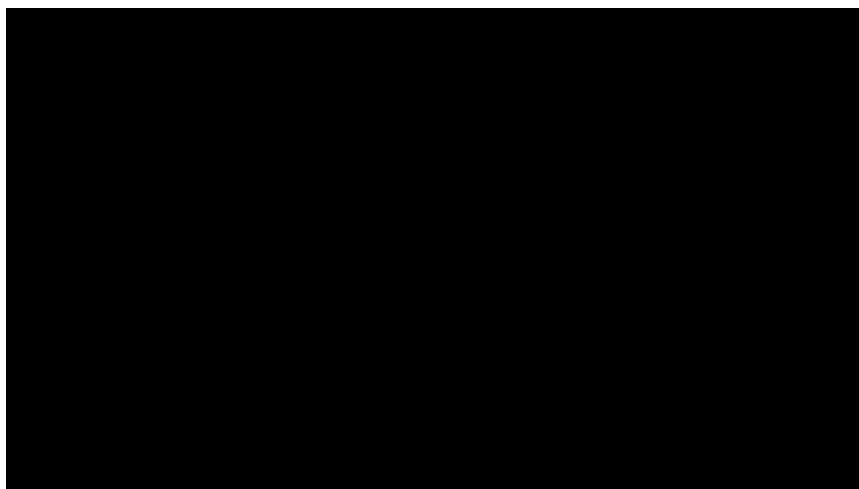
**75. Ischemic heart disease - basic clasifications (acute coronary syndrome, stable angina pectoris)**



**76. Myocardial ischemia - causes, manifestations, consequences**

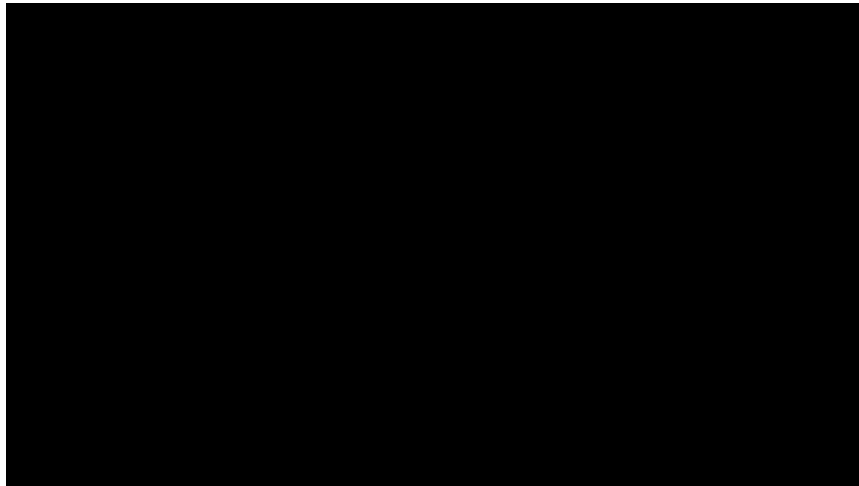


**77. Acute myocardial infarction - types, clinical manifestations, diagnosis**

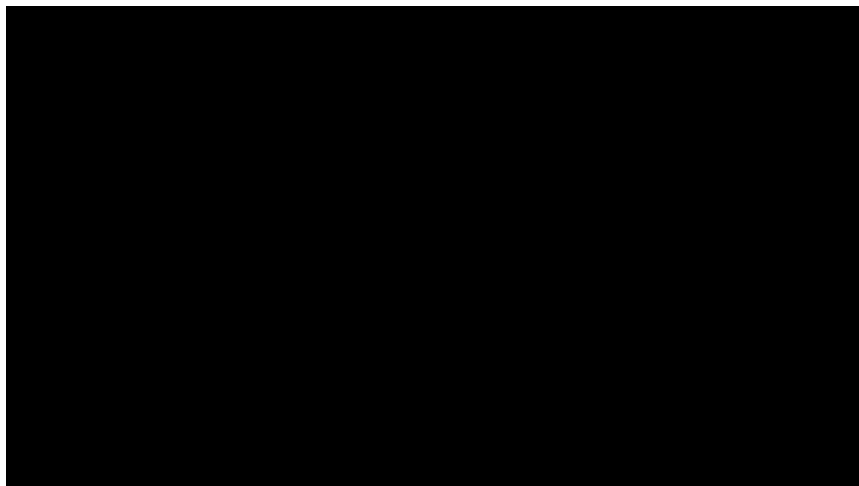


**78. Acute and chronic complications of myocardial infarction**

**79. ECG changes and mechanisms of their formation during ischemia and myocardial infarction**



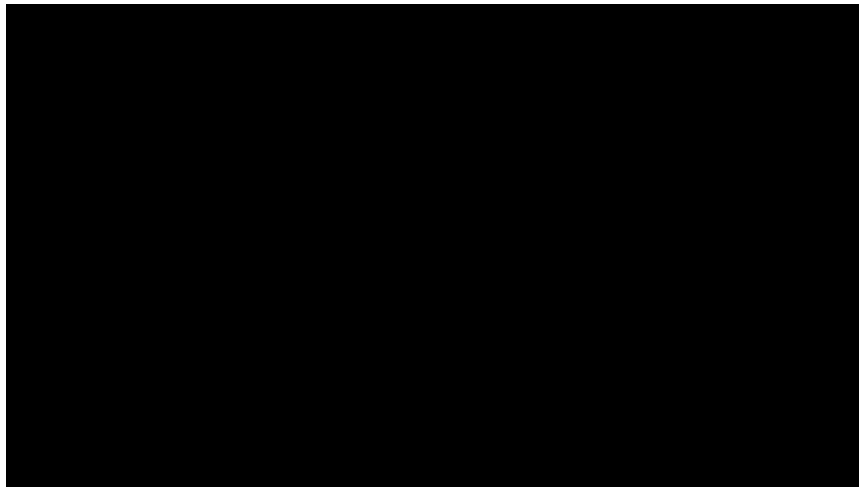
**80. Arrhythmias - classification, causes and mechanisms of origin, circulatory consequences**



**81. Supraventricular arrhythmias**



## **82. Atrioventricular blocks**



## **83. Ventricular arrhythmias**

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## **84. Causes and consequences of acute and chronic heart failure**

## **85. Left-sided and right-side heart failure**

## **86. Systolic and diastolic heart failure (with reduced and preserved ejection fraction)**

## **87. Congenital heart defects**

## **88. Acquired valve defects**

## **89. Endocarditis, myocarditis, pericarditis**

## **90. Cardiomyopathies**

# **Pathophysiology of respiratory system**

## **91. Ventilation - its regulation and disorders**

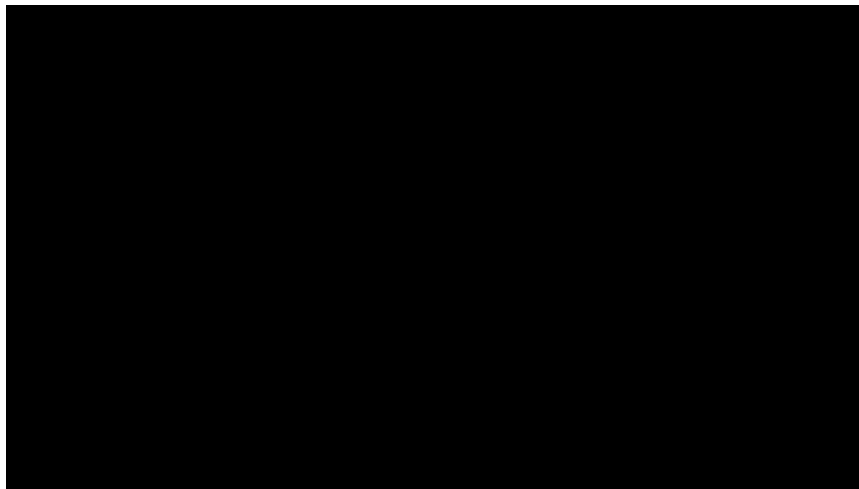
## **92. Changes in the ventilation perfusion ratio, diffusion disorders**

## **93. Obstructive vs restrictive lung disorders - comparison, causes, manifestations seen in spirometry**



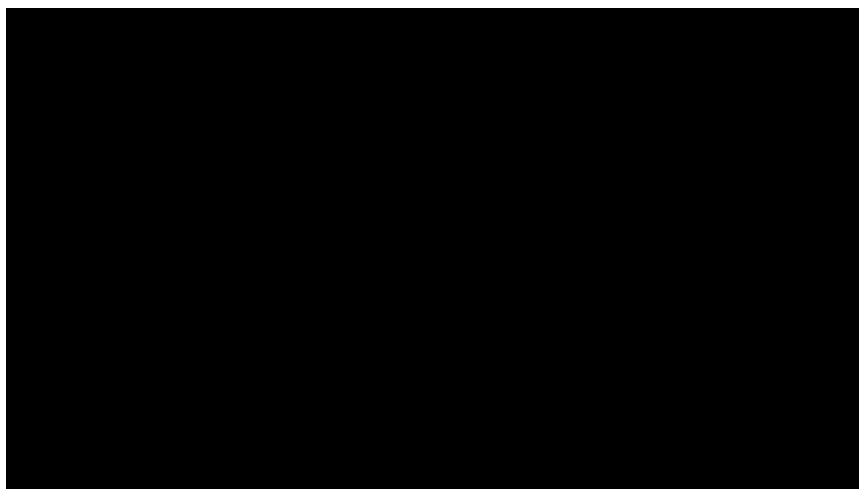
**94. Dyspnoea - pathophysiological basis**

**95. Acute and chronic upper airway obstruction, sleep apnea syndrome**



**96. Atelectasis and collapse of the lungs, pneumothorax**

**97. Chronic obstructive pulmonary disease**



[https://www.wikilectures.eu/w/Obstructive\\_and\\_restrictive\\_lung\\_diseases](https://www.wikilectures.eu/w/Obstructive_and_restrictive_lung_diseases)

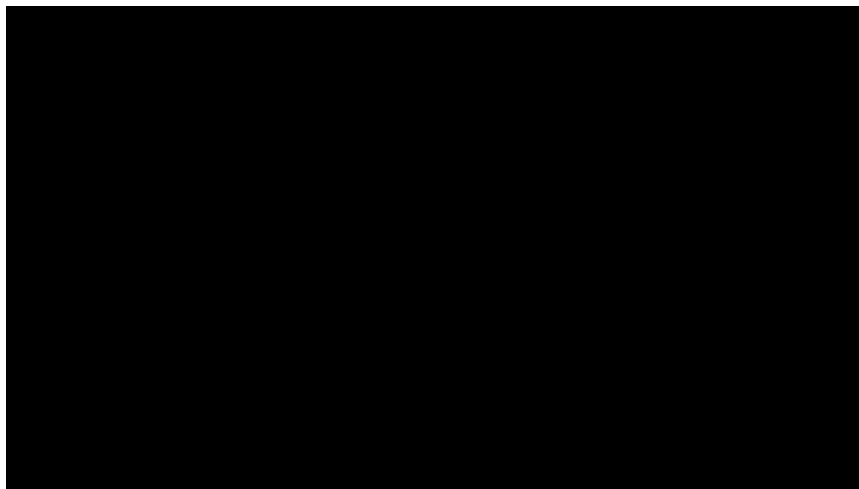
**98. Genetic diseases - cystic fibrosis, alpha1-antitrypsin deficiency, primary ciliary dyskinesia (Kartagener's syndrome)**

**99. Bronchial asthma**



[https://www.wikilectures.eu/w/Obstructive\\_and\\_restrictive\\_lung\\_diseases](https://www.wikilectures.eu/w/Obstructive_and_restrictive_lung_diseases)

### **100. Restrictive pulmonary disorders**



[https://www.wikilectures.eu/w/Obstructive\\_and\\_restrictive\\_lung\\_diseases](https://www.wikilectures.eu/w/Obstructive_and_restrictive_lung_diseases)

### **101. Causes and consequences of acute and chronic respiratory failure, classification**

### **102. Respiratory Distress Syndrome (acute respiratory distress syndrome, Newborn Respiratory Distress Syndrome)**

### **103. Pulmonary edema, pneumonias**

### **104. Pulmonary embolisms**

### **105. Pleural diseases, pleural effusions**

## **Pathophysiology of kidneys and urinary tract**

Coiled: Nephrology [https://www.youtube.com/playlist?list=PLcD7sq2YwW1PXC3oucZDIMG9mMA4w8Zl\\_](https://www.youtube.com/playlist?list=PLcD7sq2YwW1PXC3oucZDIMG9mMA4w8Zl_)



**106. Definitions and examples of causes: oliguria, anuria, azotemia, uremia, polyuria, isostenuria, hypostenuria, hyperstenuria, dysuria**

**107. Disorders of glomerular functions, nephritic and nephrotic syndrome**

**108. Acute tubular necrosis (ATN), phases of ATN**

**109. Tubulointerstitial nephritis**

**110. Proteinuria and hematuria**

**111. Acute renal injury (AKI) - prerenal, intrarenal, postrenal causes**

**112. Chronic kidney disease, end-stage renal disease, principle of dialysis**

**113. Renal endocrine disorders and renal osteopathy**

**114. Urolithiasis, disorders of the urinary tract and bladder**

## **Pathophysiology of the digestive tract, liver and pancreas**

**115. Diseases of the oral cavity - of teeth, periodontium, salivation; manifestations of systemic diseases in the oral cavity**

**116. Swallowing disorders and esophageal passage disorders**

**117. Gastroesophageal reflux disease, hiatal hernias**

**118. Disorders of gastric secretion and motility, post-gastrectomy syndromes, postprandial syndromes.**

**119. Acute and chronic gastritis**

**120. Gastric and duodenal ulcers**

**121. Maldigestion, malabsorption, malabsorption syndromes**

**122. Celiac disease**

**123. Nonspecific Inflammatory Bowel Diseases - Crohn's disease, Ulcerative colitis**

**124. Pathophysiological mechanisms of ileus, other causes of Acute Abdomen**

**125. Diarrhea, Irritable Bowel Syndrome, Pseudomembranous Colitis**

**126. Constipation, Diverticulosis, Megacolon**

**127. Colonic polyps, Colorectal cancer**

**128. Gastrointestinal bleeding**

**129. Acute and Chronic Pancreatitis, Disorders of the Exocrine Pancreas**

**130. Hepatitis, toxic and metabolic liver damage, liver steatosis, steatohepatitis**

**131. Liver Failure**

**132. Liver Cirrhosis**

**133. Jaundice**

**134. Cholestasis, Diseases of the Gallbladder and bile ducts**

## **Pathophysiology of the endocrine system**

**135. The principle of negative feedback in endocrinology, Examples of glandular and receptor disorders**

**136. Disorders of the hypothalamic-pituitary axis, Hypothalamus and pituitary gland diseases**

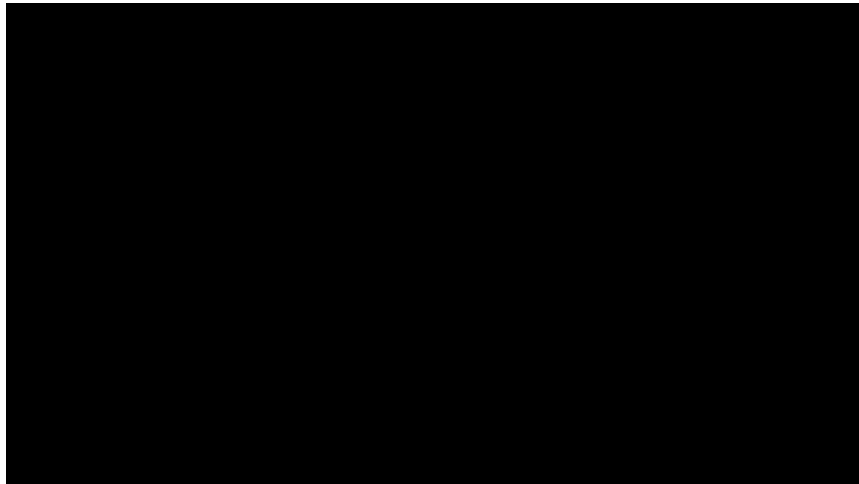
**137. Thyroid disorders, differences in children and adults**

**138. Hyperthyroidism**

**139. Hypothyroidism, goiter**

**140. Parathyroid disorders**

**141. Hyperaldosteronism, Conn's syndrome**



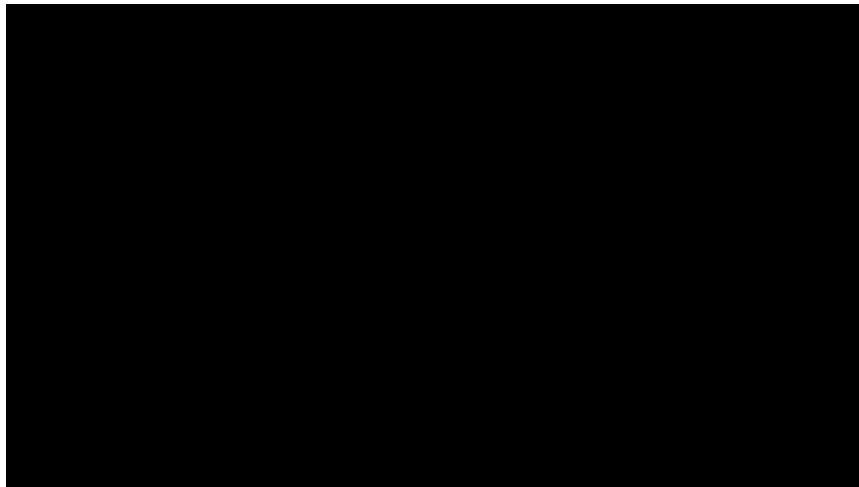
**142. Pheochromocytoma, Paraganglioma, Multiple Endocrine Neoplasia Syndromes**

**143. Hypercortisolism, Cushing's syndrome**





**144. Hypofunction of the adrenal cortex, Addison's disease, Adrenogenital syndrome**



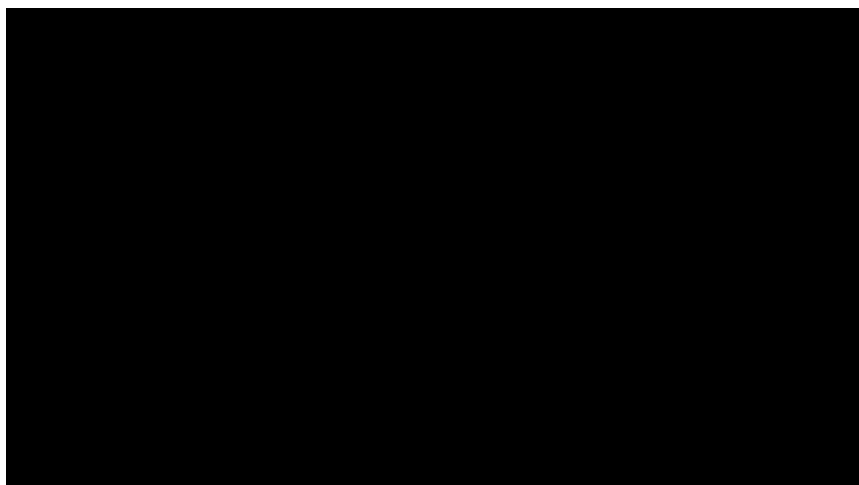
**145. Type 1 and type 2 Diabetes Mellitus**

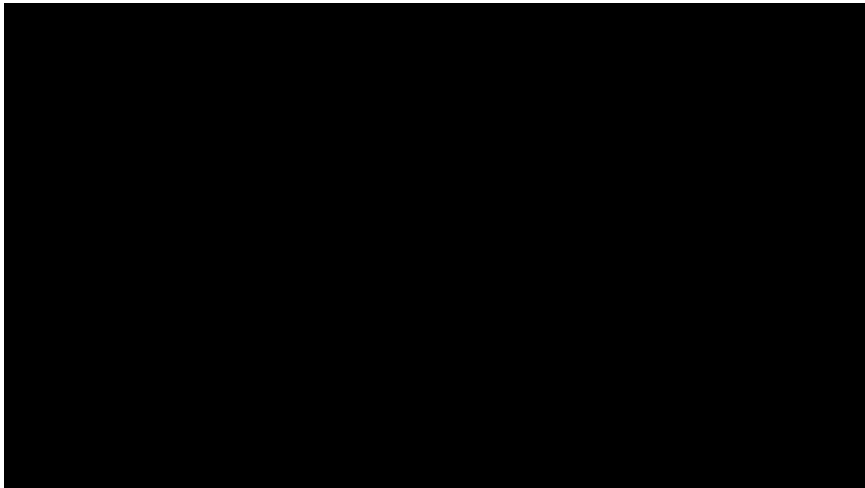
**146. Ovulation Disorders and Menstrual Disorders, Causes of Female infertility, Hirsutism and Virilization**

**147. Causes of Male infertility, Erectile dysfunction, Gynecomastia**

## **Pathophysiology of the nervous system**

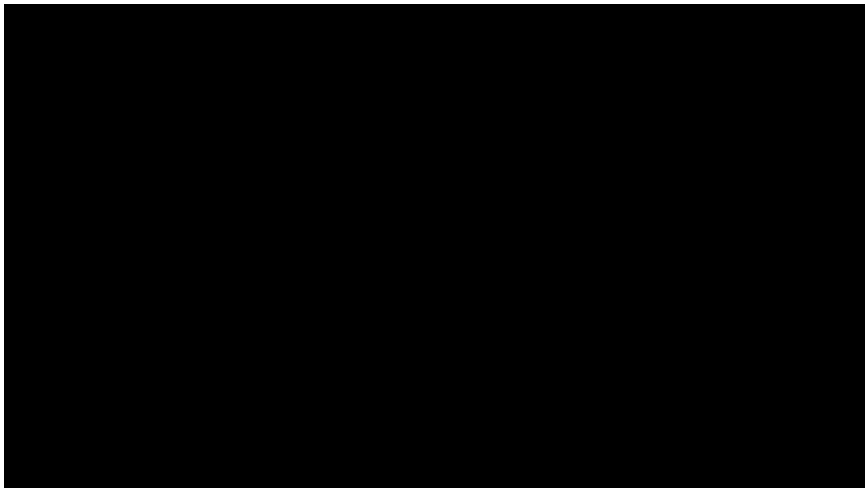
**148. Quantitative and Qualitative Disorders of Consciousness, Evaluation of the state of consciousness in children and adults, Brainstem reflexes**





**149. Short-term loss of consciousness - syncope and other causes**

transient loss of consciousness, epileptic seizure vs. syncope



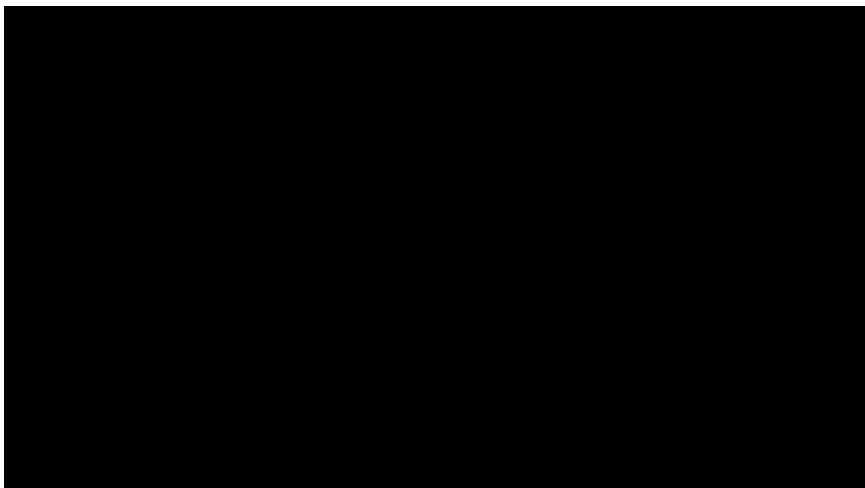
syncope classification



syncope vs. epileptic seizure



**150. Coma, Vegetative state, Locked-in syndrome, Brain Death - comparison**

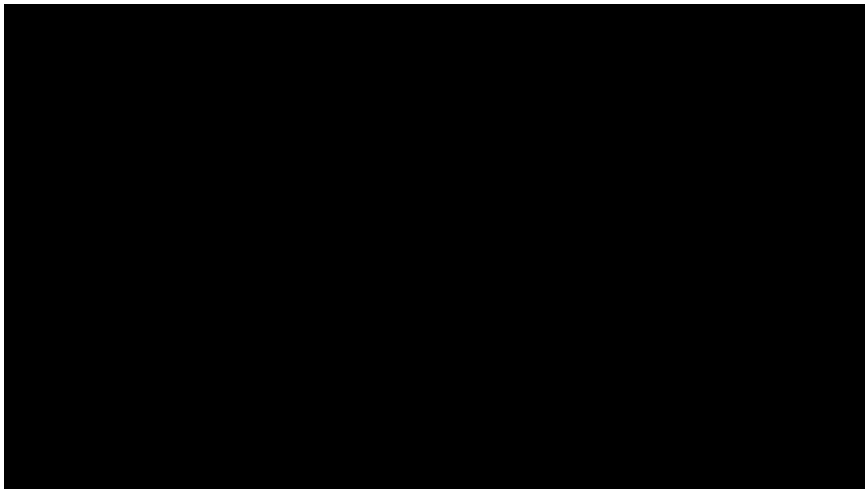


**151. Sleep Disorders: general classification, Obstructive sleep apnea**



**152. Stroke, Transient ischemic attack (TIA)**

Stroke



TIA

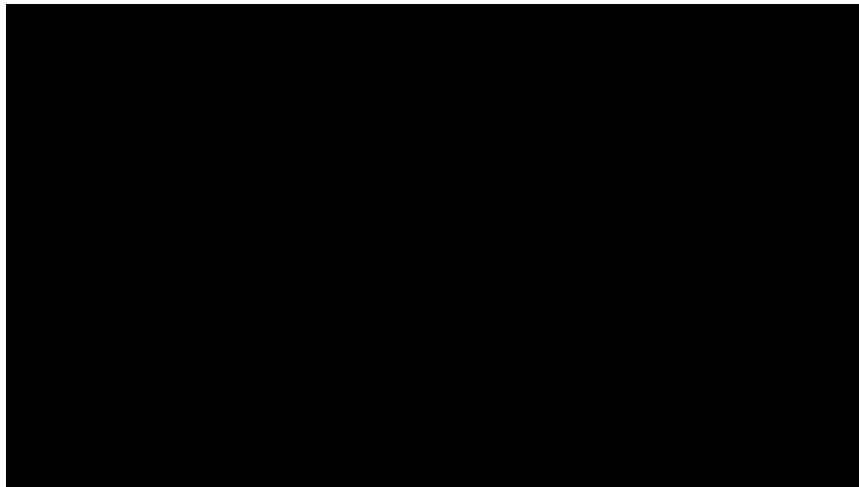


**153. Pathophysiological mechanisms of Stroke (Cytotoxic Edema, Vasogenic Edema, Excitotoxicity, Vasospasm)**

**154. Ischemic stroke**



### **155. Hemorrhagic stroke**



### **156. CNS trauma (Commotion, Contusion, Epidural and Subdural hematoma)**

### **157. Spinal Cord Injury, Lesions and Syndromes**

### **158. Intracranial hypertension**

### **159. Motor neuron Disorders, The Neuromuscular Junction Disorders**

### **160. Peripheral neuropathy, Damage and Regeneration of peripheral nerves**

### **161. Epilepsy - pathophysiological classification**

Direct timestamps:

Epileptic seizure [https://www.wikilectures.eu/w/Epileptic\\_seizure](https://www.wikilectures.eu/w/Epileptic_seizure)

Epilepsy <https://www.wikilectures.eu/w/Epilepsy>

Epileptogenesis <https://www.wikilectures.eu/w/epileptogenesis>

Status epilepticus [https://www.wikilectures.eu/w/Status\\_epilepticus](https://www.wikilectures.eu/w/Status_epilepticus)

Play video from start:



**162. Demyelination diseases, Multiple sclerosis**

**163. Basal ganglia diseases, Parkinson's disease**

**164. Disorders of the Vestibular system and cerebellum**

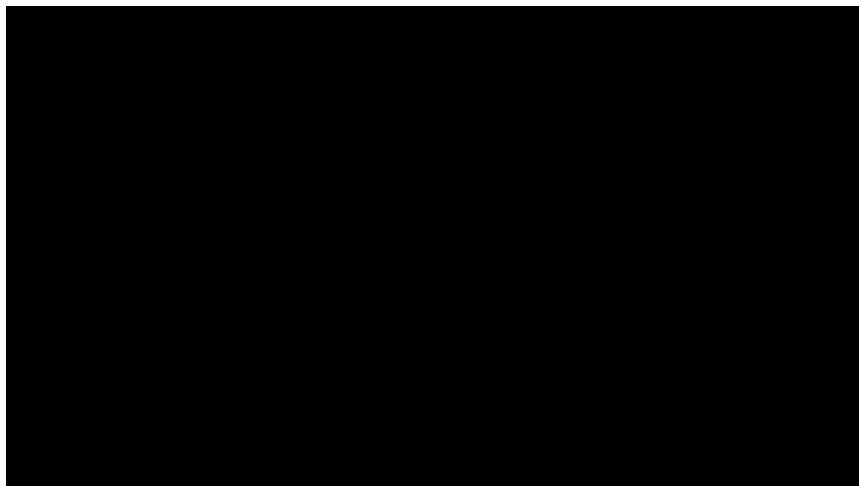
**165. Disorders of Cognitive functions, Dementia**

**166. Disorders of Hearing and Vision**

**167. Pain**

## **Pathophysiology of connective tissues**

**168. Pathophysiology of bones - Osteoporosis, Osteomalacia, Rickets**



**169. Arthritis and Arthrosis**

**170. Systemic Autoimmune Diseases - Systemic Lupus Erythematosus, Systemic Scleroderma, Sjögren's Syndrome, Polymyositis, Dermatomyositis**

**171. Myopathies, Muscle atrophy and hypertrophy, Rhabdomyolysis**