***Dr. Ammar Yaseen Mansour***

***The Spinal Reflex: A Novel Physiological Perspective***

***(The Upper Motor Neuron Circuit)***

*"The brain is not just a spectator but the conductor of the reflex orchestra—without it, the music descends into chaos."*

*[video](https://youtu.be/FfnqDm9K_4k)*[*To watch a brief video explaining the modern physiology of the spinal reflex,  
click this link:*](https://youtu.be/FfnqDm9K_4k)

*This section presents a groundbreaking reinterpretation of spinal reflex physiology, challenging traditional models by centering the****brain as the supreme regulator****of reflex arcs. This model will certainly collide with heated traditionalists, yet it bridges gaps in understanding reflex pathophysiology that segmental theories strain to explain.*

*Below is a detailed analysis of this innovative framework, contrasted with classical theory.*

***Core Thesis: The Brain as the Central Integrator***

*I posit that the spinal reflex is not a segmental, self-contained circuit but a****brain-dependent process****. Key assertions include:*

1. ***Dominance of the Brain****:*
   * *In normal physiology, the brain hierarchically controls all sensory input (Sensory Afferent) and motor output (Motor Efferent). It analyzes data, makes decisions, and issues context-specific motor commands.*
2. ***Reflex Purpose and Specificity****:*
   * *Reflexes gain functional meaning (e.g., direction, intensity, coordination) only through cortical oversight. Without the brain, reflexes lack adaptive purpose.*
3. ***Pathological Implications****:*
   * *Upper Motor Neuron (UMN) lesions disrupt this hierarchy, leading to uncoordinated "reflexive movements" (e.g., spasticity, clonus). These are not true reflexes but distorted spinal responses unleashed by absent supraspinal control.*

***The Innovated Spinal Reflex Circuit***

*The proposed circuit integrates six components, with the brain as the pivotal hub:*

| ***Component*** | ***Role*** | ***Anatomical Correlate*** |
| --- | --- | --- |
| ***1. Sensory Receptors*** | *Specialized detectors for stimuli (e.g., heat, pain)* | *Skin, muscles, tendons* |
| ***2. Afferent Sensory Fiber*** | *Transmits signals to spinal ganglia* | *Axons of dorsal root neurons* |
| ***3. Ascending Tracts*** | *Relays sensory data to specialized brain centers* | *Spinothalamic, dorsal columns* |
| ***4. Brain Processing*** | *Analyzes input, formulates context-appropriate motor response* | *Cortex, thalamus, basal ganglia* |
| ***5. Descending Motor Tracts*** | *Delivers efferent commands to spinal cord* | *Corticospinal, rubrospinal tracts* |
| ***6. Lower Motor Neuron (LMN)*** | *Executes motor command via efferent fibers to target organs* | *Anterior horn of spinal cord* |

***Critical Departure from Tradition****:*

* ***Absence of Interneurons****: Rejects the classical "interneuron relay" model. Interneurons are mere signal conduits, not decision-makers.*
* ***Brain as Reflex Architect****: The brain tailors responses to stimulus nature/location (e.g., hand withdrawal from heat vs. foot reflex to a prick). This ensures specificity and adaptiveness absent in spinal-centric models.*

***Pathophysiological Insights: UMN Lesions Reinterpreted***

*The novel model clarifies enigmatic UMN syndromes:*

1. ***Hyperreflexia and Clonus****:*
   * *After UMN lesions, spinal circuits operate without inhibitory cortical input. "Involuntary movements" arise from****unchecked spinal hyperreflexes****—not true reflexes but chaotic, unmodulated outputs.*
2. ***Loss of Coordination****:*
   * *Subordinate spinal elements (e.g., interneurons) lack the brain’s skill to integrate multisensory data. This results in discoordinated movements (e.g., spastic synergies).*
3. ***Rehabilitation Implications****:*
   * *Retraining focused on cortical plasticity (e.g., neurofeedback) may restore top-down control better than peripheral interventions.*

***Theoretical Foundations: Speed and Specificity***

*The model addresses perceived limitations of brain-involved reflex arcs:*

* ***Neural Conduction Speed****:*

*Here, despite the multiplicity of synaptic relays I propose, I harbor no doubt regarding either transmission speed or processing immediacy. The intelligence I speak of in this context is that of the organism—not human cognition. The distinction between the two is profound.* ***Neural conduction along axons and across synapses operates at velocities far exceeding what we were taught for decades, and through mechanisms altogether different from those traditionally described.***

*For further validation, readers may consult my articles:*[*'Neural Transmission: Between Deficient Heritage and Present Innovation'*](https://drive.google.com/open?id=1HYCsolqvWnlD9dbmqKzKc1wSo6CnFxwn) *& ['Neural Transmission Across Synapses](https://drive.google.com/file/d/1zsVbsJKN-JefkMdGBJcRKbBzjX4ly24S/view?usp=share_link)****['](https://drive.google.com/file/d/1zsVbsJKN-JefkMdGBJcRKbBzjX4ly24S/view?usp=share_link)***

* ***Evolutionary Logic****:*
  + *Hyperreflexia ≠ "True Reflexes": These represent distorted spinal reactions — not preserved evolutionary reflexes.*
  + *Only* ***select reflexes persisting after UMN lesions****(e.g., Babinski sign) qualify as evolutionary vestiges. These are primitive patterns unmasked by lost cortical inhibition, not "pure" spinal reflexes.*

***Contrasting Paradigms: Traditional vs. Innovated Model***

| ***Aspect*** | ***Traditional Model*** | ***Innovated Model*** |
| --- | --- | --- |
| ***Reflex Initiation*** | *Spinal interneurons* | *Sensory receptors → Brain* |
| ***Decision-Making*** | *Segmental spinal circuits* | *Cortical/subcortical centers* |
| ***Role of Brain*** | *Passive observer* | *Active commander* |
| ***UMN Lesion Phenomena*** | *"Release" of pre-existing reflexes* | *Emergence of pathological hyperreflexes* |
| ***Clinical Example*** | *Knee-jerk (monosynaptic)* | *Heat-withdrawal (brain-integrated)* |

***Conclusion: Implications for Neuroscience***

*This paradigm shift redefines spinal reflexes as****hierarchically organized, brain-supervised processes****. It offers:*

1. ***Mechanistic Clarity****: Explains UMN pathology as a failure of top-down modulation.*
2. ***Research Directions****: Urges study of corticospinal dialogue in reflex arcs.*
3. ***Clinical Relevance****: Advocates for neuromodulation therapies targeting cortical plasticity in spasticity.*

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| ***The Innovated Physiology of the Spinal Reflex***  ***(The Upper Motor Neuron Circuit)***  *[video](https://youtu.be/FfnqDm9K_4k) For details, see linked video:*  ***Core Tenets of the Innovated Model***  *M*y *theory redefines spinal reflexes as brain-supervised processes, rejecting the classical segmental view. The sequence is:*   1. *Afferent Sensory Impulses*    * *Terminate at sensory neurons (spinal ganglia).* 2. *Ascending Neural Tracts*    * *Relay impulses to specialized brain centers.* 3. *Brain Processing*    * *Analyzes data, formulates context-specific motor decisions.* 4. *Upper Motor Neuron (UMN) Command*    * *Receives conclusions and issues precise motor orders.* 5. *Descending Motor Pathways*    * *Deliver efferent commands via corticospinal tracts.* 6. *Lower Motor Neuron (LMN) Execution*    * *Executes orders at target organs (muscles/glands).*   *"The brain is the conductor—without it, reflexes lack purpose, direction, and precision."*  ***Key Innovations vs. Traditional Model***   | *Aspect* | *Traditional Model* | *Innovated Model* | | --- | --- | --- | | *Reflex Initiation* | *Spinal interneurons* | *Sensory receptors → Brain* | | *Decision Authority* | *Segmental spinal circuits* | *Cortical/UMN integration* | | *Role of UMN* | *Absent/Passive* | *Central commander* | | *Response Specificity* | *Stereotyped* | *Contextually tailored* | | *Speed Justification* | *"Rapid" spinal loops* | *Faster neural transmission claimed* |   ***Pathophysiological Implications***   * *UMN Lesions → Pathological "Reflexive Movements": Loss of brain oversight unleashes unmodulated spinal outputs (e.g., spasticity, clonus).* * *Hyperreflexia ≠ "True Reflexes": These are distorted spinal reactions, not preserved evolutionary reflexes.* * *Clinical Insight: Spasticity therapies should target cortical re-engagement (e.g., neurostimulation).*   ***Theoretical Foundations***   1. *Brain as Reflex Architect:*    * *Assigns purpose, logic, and spatial specificity.* 2. *Passive Spinal Elements:*    * *LMNs/interneurons merely relay commands—"completely neutral and passive".* 3. *Neural Speed Defense:*    * *Synaptic transmission is faster than traditionally taught (refer to my articles on neural conduction).*   ***Conclusion: Paradigm Shift***  *This model positions the brain as the non-negotiable center of spinal reflexes:*   * *Reflexes gain functional meaning only through cortical integration.* * *UMN lesions expose primitive spinal patterns—not "released" reflexes.* * *Validates top-down neuromodulation for spasticity management.*   *"The spinal reflex is not a segmental automation but a brain-orchestrated symphony."*  *……………………………………………………………………………….* |

*In other contexts, you can also read the following articles:*

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| *[video](https://youtu.be/ClqHfY65WQI)* | [*The Spinal Reflex, New Hypothesis*](https://drive.google.com/file/d/1Nh0yxWLf3gPOlSKdftIZykUjb3xpsPBe/view?usp=sharing) *of Physiology* |
| *[video](https://youtu.be/qlgZUbWVXzs)* | [*The Hyperreflexia, Innovated Pathophysiology*](https://drive.google.com/file/d/14TlTu_9KrF0DGbEDE_VgCpYdSAzBMVU7/view?usp=sharing) |
| *[video](https://youtu.be/kwwsHHKh0AQ)* | [*The Spinal Shock*](https://drive.google.com/file/d/1qQ6Ch-mVj1boww9SAhkPVTwFhX2kVoXR/view?usp=drive_link) |
| *[video](https://youtu.be/rBk0X29hs6w)* | [*The Spinal Injury, the Pathophysiology of the Spinal Shock, the Pathophysiology of the Hyperreflexia*](https://drive.google.com/open?id=1qQ6Ch-mVj1boww9SAhkPVTwFhX2kVoXR) |
| *[video](https://youtu.be/rBk0X29hs6w)* | [*Upper Motor Neuron Lesions, the Pathophysiology of the Symptomatology*](https://drive.google.com/file/d/1kwE-QYZWVzHsadu0wFL4Ckl5o2hGaxMe/view?usp=sharing) |
| *[video](https://youtu.be/G6my9xo1iM8)* | [*The Hyperreflexia (1), the Pathophysiology of Hyperactivity*](https://drive.google.com/file/d/1YOWvqNtk818HbIQVaevYI-dwIk4Bonsj/view?usp=sharing) |
| *[video](https://youtu.be/q1mMORyoNLY)* | [*The Hyperreflexia (2), the Pathophysiology of Bilateral Responses*](https://drive.google.com/file/d/1Gd85ZcKFIMG_0H6QeE7mez4-XvP1o2OV/view?usp=sharing) |
| *[video](https://youtu.be/5iViwU_y3-M)* | [*The Hyperreflexia (3), the Pathophysiology of Extended Hyperreflex*](https://drive.google.com/file/d/18soM_THFCzezkfBfBEG9UdoO0qWHLGlz/view?usp=sharing) |
| *[video](https://youtu.be/PteMImPyZ0A)* | [*The Hyperreflexia (4), the Pathophysiology of Multi-Response Hyperreflex*](https://drive.google.com/file/d/1xRj0t5guxfzMsl3b0aeg6SHdWCwlQIEw/view?usp=sharing) |
| *[video](https://youtu.be/crbdk1RTU64)* | [*The Clonus, 1st Hypothesis of Pathophysiology*](https://drive.google.com/file/d/1WoXzIR5GdtpjYZ-4UjfFt62Kat6rn8K8/view?usp=sharing) |
| *[video](https://youtu.be/DKdPe-RJsn4)* | [*The Clonus, 2nd Hypothesis of Pathophysiology*](https://drive.google.com/file/d/1YOWvqNtk818HbIQVaevYI-dwIk4Bonsj/view?usp=sharing) |
| *[video](https://youtu.be/1nP8K8aW3uE)* | [*The Clonus, Two Hypotheses of Pathophysiology*](https://drive.google.com/file/d/1YOWvqNtk818HbIQVaevYI-dwIk4Bonsj/view?usp=sharing) |
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| *[video](https://youtu.be/jqfp4e2t9jU)* | [*The Nerve Transmission through Neural Fiber, Personal View vs. International View*](https://drive.google.com/open?id=1HYCsolqvWnlD9dbmqKzKc1wSo6CnFxwn) |
| *[video](https://youtu.be/6ChlKWK4OLs)* | [*The Nerve Transmission through Neural Fiber (1), The Action Pressure Waves*](https://drive.google.com/open?id=1OPh2-qAwl2LqWLxdKY_WhJdFAKmCbbcC) |
| *[video](https://youtu.be/_ayskJT4v5c)* | [*The Nerve Transmission through Neural Fiber (2), The Action Potentials*](https://drive.google.com/open?id=1T3EBNAcw_a5S4AoTJRdbOUpY0tVCtU4Y) |
| *[video](https://youtu.be/55zCk35swKs)* | [*The Nerve Transmission through Neural Fiber (3), The Action Electrical Currents*](https://drive.google.com/open?id=1w62cTew8Rdr0nQnaBUvVQmhc2vNI7iTj) |
| *[video](https://youtu.be/5A-S1GgHqjk)* | [*The Function of Standard Action Potentials & Currents*](https://youtu.be/5A-S1GgHqjk) |
| *[video](https://youtu.be/GkSeiaw2vMk)* | [*The Three Phases of Nerve transmission*](https://drive.google.com/open?id=1qSxDdr6CutOhf-Jshr4khVVzjYiNX0vi) |
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| *[video](https://youtu.be/OJ7B5uYBjJU)* | *[Neural Conduction in the Synapse (Innovated)](https://drive.google.com/file/d/1zsVbsJKN-JefkMdGBJcRKbBzjX4ly24S/view?usp=share_link)* |
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| *[video](https://youtu.be/BLTTas1CF8c)* | [*Nodes of Ranvier, the Equalizers*](https://drive.google.com/open?id=1e0zPzYHnHfzR6pswcgyr5jF8rUi_yo77) |
| *[video](https://youtu.be/_uIAVuMdTvw)* | [*Nodes of Ranvier, the Functions*](https://drive.google.com/open?id=15E7qLoDIl4glTeAKBs15tvn-5Q99p1nF) |
| *[video](https://youtu.be/Aad-ynawPrs)* | [*Nodes of Ranvier, First Function*](https://youtu.be/hZ_bzG8kiFE) |
| *[video](https://youtu.be/zGRVmB0zta0)* | [*Nodes of Ranvier, Second Function*](https://youtu.be/OqH6r2qhmxY) |
| *[video](https://youtu.be/uP4QKEZsanA)* | [*Nodes of Ranvier, Third Function*](https://youtu.be/IFSf8eo8V9Y) |
| *[video](https://youtu.be/WtCIWXXP8wU)* | [*Node of Ranvier, The Anatomy*](https://youtu.be/WtCIWXXP8wU) |
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| *[video](https://youtu.be/sEuDDBoeCIA)* | [*The Wallerian Degeneration*](https://drive.google.com/open?id=1Al56zec4gm7qWRkIN1EWuXnDu6Fa-Puz) |
| *[video](https://youtu.be/CGyaV6w5594)* | [*The Neural Regeneration*](https://drive.google.com/open?id=18k3PJaNlLYsL_B6K6Mvb1Fg5gYHJJuSN) |
| *[video](https://youtu.be/1CkexgXUv2A)* | [*The Wallerian Degeneration Attacks Motor Axons, While Avoids Sensory Axons*](https://drive.google.com/open?id=16UIXUrcsMn2_pHNeDbAlIkqjwK6vVA8R) |
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| *[video](https://youtu.be/VRTXlfXutUs)* | [*The Sensory Receptors*](https://drive.google.com/open?id=1kii7l4bCrQ-Zey4sCO51mqZ5DSXUNO2H) |
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| *[video](https://youtu.be/zDgKMpNvQHI)* | [*Nerve Conduction Study, Wrong Hypothesis is the Origin of the Misinterpretation (Innovated)*](https://drive.google.com/open?id=1tEuDZryjUH1aBm9D0F9eQ9ME9KkfcpJL) |
| *[video](https://youtu.be/ERg0rdaDsZ4)* | [*Piriformis Muscle Injection\_ Personal Approach*](https://drive.google.com/file/d/1d0p-Zx0KOSG3LO29xmdH4R-vMKBgULIf/view?usp=sharing) |
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| *[video](https://youtu.be/K_4NgfxD18g)* | [*The Philosophy of Pain, Pain Comes First! (Innovated)*](https://drive.google.com/open?id=1HHkOUQnYOy2yrnl6h68dLt0fL0V6toDO) |
| *[video](https://youtu.be/LWLXuXbs4yI)* | [*The Philosophy of the Form (Innovated)*](https://drive.google.com/open?id=1qFVpN21binPozXFCcuGrf-io0nDLlBi3) |
| *[video](https://youtu.be/sYFlZ-2EM20)* | [*Pronator Teres Syndrome, Struthers-Like Ligament (Innovated)*](https://drive.google.com/open?id=103EXeNX0ekUNDZjyLyU1pJLaz_sSyAia) |
| *[video](https://youtu.be/wofEWjGJFS0)* | [*Ulnar Nerve, Congenital Bilateral Dislocation*](https://drive.google.com/file/d/1V2mKzzV_RjoCYoJ0LRBelClJmiRv-ZnX/view?usp=sharing) |
| *[video](https://youtu.be/9u9yDd8NIoE)* | [*Posterior Interosseous Nerve Syndrome*](https://drive.google.com/open?id=1JsmICiXRYKNbYg3CiW9YlZm4pRBJ5SOB) |
| *[video](https://youtu.be/yLyRSiN2EEo)* | [*The Multiple Sclerosis: The Causative Relationship Between The Galvanic Current & Multiple Sclerosis?*](https://drive.google.com/file/d/1M0GTyJSsuc9ZWo8FnHPensmcptwHr0mR/view?usp=sharing) |
| *[video](https://youtu.be/6XkNgguYEz4)* | [*Cauda Equina Injury, New Surgical Approach*](https://drive.google.com/file/d/1Pux0iKaOxZxkVPYAZzJmVfWeu2Oz-mVC/view?usp=sharing) |
| *[video](https://youtu.be/ZlNvPM0fh8A)* | [*Carpal Tunnel Syndrome Complicated by Complete Rupture of Median Nerve*](https://drive.google.com/file/d/1sHhWsaH47QJ5PzCDWlFd2KqiExBcONyl/view?usp=sharing) |
| *[video](https://youtu.be/rJoXOrr_IIE)* | [*Biceps Femoris' Long Head Syndrome (BFLHS)*](https://drive.google.com/file/d/14y1g0Y9ThOqYRwJOsh1e5FIuxUurYDgJ/view?usp=sharing) |
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| *[video](https://youtu.be/2twXxX6T9zY)* | [*Barr Body, The Whole Story (Innovated)*](https://drive.google.com/open?id=1MsjgYESiWd3slc7i9s9mSiwOAnWFfrys) |
| *[video](https://youtu.be/VsmAEwMexmE)* | [*Adam's Rib and Adam's Apple, Two Faces of one Sin*](https://drive.google.com/open?id=1SEtq6SqQxNHHOn0q4TqrS2mhVumXNQv5) |
| *[video](https://youtu.be/jjl8SMMkLeA)* | [*Adam's Rib, could be the Original Sin?*](https://drive.google.com/open?id=10CEzaQ2cbFr6CQI-d8VTur7Ekq2VnyF0) |
| *[video](https://youtu.be/Ofn55E_fYJI)* | [*Barr Body, the Second Look*](https://drive.google.com/file/d/1-aKUsKo4-IIkdd9BsKK70iYutlycSwl6/view?usp=sharing) |
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| *[video](https://www.youtube.com/watch?v=kj9OggVj50E)* | [*Who Decides the Sex of Coming Baby?*](https://drive.google.com/file/d/1fxYwPRwuwGr5sv183v1m7LEwx24jpjf0/view?usp=sharing) |
| *[video](https://youtu.be/byGU-uDGAzM)* | [*Boy or Girl, Mother Decides!*](https://drive.google.com/open?id=1Mq5x5lqJ1givipdwAjcFyHAkEqdiJIdH) |
| *[video](https://youtu.be/L0Odkd-9ZHY)* | [*Oocytogenesis*](https://drive.google.com/file/d/1UR57GGSvkorIaZCrBbjwWT2FCngu4x21/view?usp=sharing) |
| *[video](https://youtu.be/AA252qjldLk)* | [*Spermatogenesis*](https://drive.google.com/file/d/1dFhcEwK7X9_80oogfleEqy34PmuYHTb6/view?usp=sharing) |
| *[video](https://youtu.be/kQQxHeSzUn4)* | [*This Woman Can Only Give Birth to Female Children*](https://drive.google.com/file/d/1RLsOrpSIqwaR8FpwVi4fg5ep1G5JqIg_/view?usp=sharing) |
| *[video](https://youtu.be/PYJtcfPs8mI)* | [*This Woman Can Only Give Birth to Male Children*](https://drive.google.com/file/d/1AuNzWbVMNIb48U34jkaDUveEqXXiPZGp/view?usp=sharing) |
| *[video](https://youtu.be/__xbNXe8qNU)* | [*This Woman Can Give Birth to Female Children More Than to Male Children*](https://drive.google.com/file/d/1vTtka8UuJNytX_ENOuMNnf3Tdjlh62pu/view?usp=sharing) |
| *[video](https://youtu.be/M5bRtMwcj94)* | [*This Woman Can Give Birth to Male Children More Than to Female Children*](https://drive.google.com/file/d/1D91xR5HCmVGdOSTBEiWOV6nz2gvxxrpS/view?usp=sharing) |
| *[video](https://youtu.be/BXtbeYa6Nek)* | [*This Woman Can Equally Give Birth to Male Children & to Female Children*](https://drive.google.com/file/d/1EkNaarumQgOwxLQicLFd8Ab4nGWWzej9/view?usp=sharing) |
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| *[video](https://youtu.be/zmAQkMtKkME)* | [*Eve Saved Human Identity; Adam Ensured Human Adaptation*](https://drive.google.com/file/d/1UDzf2KjgQgOFEfJG9eKlIdrrpgafkNls/view?usp=sharing) |
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| *[video](https://youtu.be/H6GaaNu7U3s)* | [*Coronavirus (Covid-19): After Humiliation, Is Targeting Our Genes*](https://drive.google.com/file/d/1qlQnlS-PBrSVan0HWubuMQzwnFwFP9UY/view?usp=sharing) |
| *[video](https://youtu.be/H6GaaNu7U3s)* | [*Coronavirus (Covid-19): After Humiliation, Is Targeting Our Genes*](https://drive.google.com/file/d/1qlQnlS-PBrSVan0HWubuMQzwnFwFP9UY/view?usp=sharing) |
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| *[video](https://youtu.be/ioktmQKsUNM)* | [*The Black Hole is a (the) Falling Star?*](https://drive.google.com/open?id=1yYTgQsQy08U2l9IurwiCX543yakWkIok) |
| *[video](https://youtu.be/QiL2et83B6Q)* | [*Mitosis in Animal Cell*](https://drive.google.com/file/d/1pekYoORykP7Bbl6o-VMAI8pJPcj1JVYh/view?usp=sharing) |
| *[video](https://youtu.be/PHOY1qlw0AM)* | [*Meiosis*](https://drive.google.com/file/d/1-a1NFgX0ndKYY6GRrEBJSmCpEBiOXnzx/view?usp=sharing) |
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| *[video](https://youtu.be/8OIvbXZ0xM4)* | [*Universe Creation, Hypothesis of Continuous Cosmic Nebula*](https://drive.google.com/file/d/1Hs27xIEXwX7Yb9a5XvoiM_Qk5o3ufmUg/view?usp=sharing) |
| *[video](https://youtu.be/UPyZWXSon3Y)* | [*Circulating Sweepers*](https://drive.google.com/file/d/1FIZvJF67F5te_ye8V1mZDx_aVtF2k8tc/view?usp=sharing) |
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| *[video](https://youtu.be/wB1F9p8PICE)* | [*Pneumatic Petrous, Bilateral Temporal Hyperpneumatization*](https://drive.google.com/file/d/1lbewP5eC703bxcRw0VZV2W1x4OY9oStV/view?usp=sharing) |
| *[video](https://youtu.be/Z2D0HCZgDqY)* | [*Congenital Bilateral Thenar Hypoplasia*](https://drive.google.com/file/d/1UVKs2UyHbSpiwbEqWugkA881FUIot06M/view?usp=sharing) |
| *[video](https://youtu.be/pftu_ZNUy9w)* | [*Ulnar Dimelia, Mirror hand Deformity*](https://drive.google.com/file/d/15EJ_xT13PAwDhw3GEypnt0gqBzvzvVug/view?usp=sharing) |
| *[video](https://youtu.be/72J4c7Gof-g)* | [*Surgical Restoration of a Smile by Grafting a Segment of the Gracilis Muscle to the Face*](https://drive.google.com/file/d/14AZMJJjeaVTdPn3wxPn7e2XqlRGdOPzq/view?usp=drive_link) |
| *[video](https://youtu.be/Dn4vEpJYaSg)* | [*Mandible Reconstruction Using Free Fibula Flap*](https://drive.google.com/file/d/1Nv2YLBSc5TC7VFXBUVp9KAga4eUQmqfg/view?usp=sharing) |
| *[video](https://youtu.be/wLhKIBIb3gA)* | [*Presacral Schwannoma*](https://drive.google.com/file/d/1EzZ10x4KR3ep0Xp4Ldq1f2u9u8SECNP9/view?usp=sharing) |
| *[video](https://youtu.be/-q9DZFaKwF8)* | *[Liver Hemangioma: Urgent Surgery of Giant Liver Hemangioma](https://drive.google.com/file/d/1ui0t-Ao-st4GeijhyaXc1Hjbj9uYaaKy/view?usp=sharing)*  *[Due to Intra-Tumor Bleeding](https://drive.google.com/file/d/1ui0t-Ao-st4GeijhyaXc1Hjbj9uYaaKy/view?usp=sharing)* |
| *[video](https://youtu.be/MQShaLlN-Y0)* | [*Free Para Scapular Flap (FPSF) for Skin Reconstruction*](https://drive.google.com/file/d/1Z1hkl2E6N95ld1tXIYaTfvL6lw4mqQ1P/view?usp=sharing) |
| *[video](https://youtu.be/4dC-2vNDGpI)* | [*Claw Hand Deformity (Brand Operation*](https://youtu.be/4dC-2vNDGpI)*)* |
| *[video](https://youtu.be/fDjXCSHGuvA)* | [*Algodystrophy Syndrome Complicated by Constricting Ring at the Proximal Border of the Edema*](https://drive.google.com/file/d/1D-h2Ck-VdsJyA5dukbliwXwOh_-t2HUz/view?usp=sharing) |
| *[video](https://youtu.be/OKv1iogYIMA)* | [*Non- Traumatic Non- Embolic Acute Thrombosis of Radial Artery (Buerger’s Disease)*](https://drive.google.com/file/d/1ZaKpD0XVdQxY6FR44PyBeFfv_RKzXj_x/view?usp=sharing) |
| *[video](https://youtu.be/2hJw4jKCyfg)* | [*Isolated Axillary Tuberculosis Lymphadenitis*](https://drive.google.com/file/d/1aC9W8XO6UNHljyS3iAwlP2fiuH85D3Lr/view?usp=sharing) |
| *[video](https://youtu.be/rKabisSM5MQ)* | [*The Iliopsoas Tendonitis... The Snapping Hip*](https://drive.google.com/file/d/1NUslspZfeaO5W4Hu2bJPNjq7syQlgQ2t/view?usp=drive_link) |
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| *[video](https://drive.google.com/file/d/1m_O7jCbrw-oT98vb4y2hs_ztznRC5pat/view?usp=sharing)* | [*The Lone Wolf*](https://drive.google.com/file/d/1B0osXS1SW7h-xfWwCN8DN2Nk4QF4eqB5/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1fpXPiIpTxRl3IT_dMeLzFj1ZXd4Bo6p1/view?usp=sharing)* | [*The Delirium of Night and Day*](https://drive.google.com/file/d/1pKdYMAPUPrdtWBXrRXYZYlGIPg3G9Xhb/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1dOsuna7dES5isqemZgkfpJH_HIyLsiAs/view?usp=sharing)* | [*The Delirium of the Economy*](https://drive.google.com/file/d/1OtDMBt439gOf12SFE73W0Re09ldEuU9U/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1yo1yDuNxdD7i_Edi9CnaCUjmp0_A85fM/view?usp=drive_link)* | [*Ovaries in a Secure Corner… Testicles in a Humble Sac: An Inquiry into the Function of Form*](https://drive.google.com/file/d/1DeALuwHlQ_kThaVk--W_P04b9MksjiWD/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/17HUzsFJW5-QTSNdM-KrrMb3VDi9erYyp/view?usp=sharing)* | [*Eve Preserves Humanity’s Blueprint; Adam Drives Its Evolution*](https://drive.google.com/file/d/19kB5tQ9UIeaen29iyOZwZlgqG0r3IynI/view?usp=drive_link) |

*1/6/2020*