

Summary of: A comprehensive SARS-CoV-2 and COVID-19 review, Part 2: host extracellular to systemic effects of SARS-CoV-2 infection

Key findings:

- SARS-CoV-2 infection leads to metabolic and biochemical adaptations in host cells, including oxidative phosphorylation, TCA cycle, and glycolysis.
- Cellular adaptations include endoplasmic reticulum stress, unfolded protein response, mitochondrial dysfunction, and altered gene expression.
- SARS-CoV-2 infection leads to decreased mitochondrial function, increased glycolysis, and altered metabolic pathways.
- Elevated homocysteine levels are associated with endothelial damage, leading to cardiovascular symptoms.
- SARS-CoV-2 infection alters lipid metabolism, leading to increased triglycerides and free fatty acids.
- SARS-CoV-2 infection affects whole-body metabolism, leading to systemic physiological effects.
- SARS-CoV-2 infection leads to chronic inflammation, cytokine storm, and dysregulated immune response.
- SARS-CoV-2 infection leads to structural remodeling of organs, including the heart, lungs, and brain.
- SARS-CoV-2 infection leads to persistent viral presence and inflammation in the olfactory epithelium.
- SARS-CoV-2 infection leads to chronic fatigue, neurodegeneration, and vascular complications.
- SARS-CoV-2 infection leads to long-term sequelae, including PASC (Post-Acute Sequelae of COVID-19).
- SARS-CoV-2 infection leads to multi-organ dysfunction, including respiratory, cardiovascular, and gastrointestinal complications.
- SARS-CoV-2 infection leads to long-term immune changes, including elevated type I IFN and type III IFN.
- SARS-CoV-2 infection leads to long-term metabolic changes, including altered lipid metabolism.

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