

Mitochondria In Health And Disease

[#mitochondrial health](#) [#mitochondrial dysfunction](#) [#mitochondrial disease](#) [#cellular energy](#) [#metabolic health](#)

Explore the critical role of mitochondria in maintaining overall health and their involvement in the progression of various diseases. This deep dive covers everything from optimal mitochondrial function for cellular energy production to the impact of mitochondrial dysfunction on chronic conditions, offering insights into metabolic health and potential interventions for improving cellular vitality.

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Mitochondria In Health And Disease

How do mitochondria contribute to health and disease? - Peter McGuire - How do mitochondria contribute to health and disease? - Peter McGuire by National Human Genome Research Institute 65,368 views 3 years ago 1 hour - Peter McGuire, Ph.D, is an investigator in NHGRI's Medical Genomics and Metabolic Genetics Branch. Throughout his career, Dr.

Intro

What is metabolism?

Multifaceted mitochondria: battery, factory, armory, signal station, assassin Metabolism battery and factory

Mitochondria and popular culture

How many mitochondria are in cells? White blood cell -30-100

Where did mitochondria come from? Endosymbiotic hypothesis

Why did mitochondria develop?

What do mitochondria look like?

Chemiosmotic Hypothesis for Oxidative Phosphorylation eukaryote mitochondria

Supercomplex formation

How does ATP work?

Anatomy of a mitochondrion: mtDNA

Ancient mitochondrial mutations: Mitochondrial haplogroups

The migration of humankind (women) out of Africa

Clinical case

Mitochondrial disease (MD)

Pathophysiology of mitochondrial disease

Genes that are important for mitochondrial function are from 2 sources

mtDNA heteroplasmy and threshold effects

Mitochondrial Genetics: heteroplasmy

Diagnosis

Treatment

Baby's DNA mix revealed

Summary: Mitochondrial disease ...

Mitochondrial Diseases: Everything You Need to Know - Mitochondrial Diseases: Everything You Need to Know by Medical Centric 30,118 views 1 year ago 4 minutes, 27 seconds - Chapters 0:00

Introduction 1:45 Causes of **Mitochondrial Disease**, 2:22 Symptoms of **Mitochondrial Disease**, 2:57 Diagnosis of ...

Introduction

Causes of Mitochondrial Disease

Symptoms of Mitochondrial Disease

Diagnosis of Mitochondrial Disease

Treatment of Mitochondrial Disease

Mitochondria - The Key To Disease and Mental Health with Dr. Martin Picard - Mitochondria - The Key To Disease and Mental Health with Dr. Martin Picard by Metabolic Mind 395,647 views 7 months ago 53 minutes - Emerging evidence suggests **mitochondrial**, dysfunction can cause or contribute to many psychiatric and neurologic disorders.

Introduction to Dr. Martin Picard

What Are Mitochondria and Where Are They?

Ecosystem of Mitochondria

Mitochondria and Disease

Genetics and Mitochondria

Lifestyle Choices for Poor Mitochondrial Health

Impact of Psychological States on Mitochondria

Medications and Mitochondrial Dysfunction

How to Improve Mitochondrial Function

Conclusion

A groundbreaking way to stop mitochondrial disease - A groundbreaking way to stop mitochondrial disease by TEDMED 78,375 views 5 years ago 14 minutes, 41 seconds - For many parents, the decision of when and if they will have a baby is influenced by biological factors outside of their control.

Intro

What is DNA

What is mitochondrial DNA

Women who carry mitochondrial disease

How can we help

Challenges

What can be done

Proof of concept

First setbacks

Changing the timing

Modified procedure

Three parent IVF

What do these treatments mean

Our goal

Mitochondria in Physical and Mental Health - Martin Picard, PhD - Mitochondria in Physical and Mental Health - Martin Picard, PhD by Metabolic Mind 3,754 views 1 year ago 12 minutes, 14 seconds - Martin Picard, PhD, is an Associate Professor of Behavioral Medicine at Columbia University and a leading expert on ...

Intro

What are mitochondria

Life in Consciousness

What do mitochondria look like

mitochondria are more than powerhouses

problem reductionism

Mitochondria Health Index

Summary

The Role of Nutrition Care In Mitochondrial Health - ASPEN 2021 - The Role of Nutrition Care In Mitochondrial Health - ASPEN 2021 by Nestlé Nutrition Institute 74,256 views 2 years ago 1 hour, 28 minutes - The role of the **mitochondria**, is pivotal to maintenance of robust cellular function in **health and disease**.. This program reviews the ...

Introduction to mitochondrial disease - Introduction to mitochondrial disease by Harvard Online 103,829 views 6 years ago 6 minutes, 22 seconds - Professor Rob Lue explains how **mitochondria**, are inherited and describes the basic characteristics of **mitochondrial diseases**,.

Does mitochondria come from mother or father?

Is mitochondria present in human body?

... many babies are born with **mitochondrial disease**,?

The Role of Mitochondria in Aging and Disease - David Sinclair - The Role of Mitochondria in Aging and Disease - David Sinclair by Serious Science 289,405 views 10 years ago 13 minutes, 28 seconds - Biologist David Sinclair from Harvard Medical School on alphaproteobacteria, reactive oxygen

species, and why the nucleus and ...

Intro

What are mitochondria

Mitochondria and DNA

The mitochondrial theory of aging

Limitations of the mitochondrial theory

Communication between nucleus and mitochondria

Marriage analogy

Restore communication

Boost Your Mitochondria Easily Add These 3 Essentials - Boost Your Mitochondria Easily Add These 3 Essentials by Dr. Joel Rosen 34,678 views 1 year ago 9 minutes, 36 seconds - In this video, Learn how to easily boost your **mitochondria**, just by adding these 3 essential ingredients. Foods High in copper: ...

If you're taking mitochondrial nutrients and still tired, learn why

Mitochondria 101 and how energy is actually made

Mitochondrial boosting supplements

3 Simple steps for cellular respiration

The first essential ingredient for boosting your mitochondria: Copper

The best sources of bioavailable copper

The second essential ingredient for boosting your mitochondria: is Vit A

Really great food sources for Vit A

The third essential ingredient for boosting your mitochondria: Magnesium

the 2 forms of magnesium we recommend: Magnesium malate, and magnesium glycinate

3 Ways to Naturally Support your Mitochondria - 3 Ways to Naturally Support your Mitochondria by Goodness Lover 18,819 views 11 months ago 6 minutes, 1 second - Are you feeling worn out and want more pep in your step? Are you looking for a way to defy the ravages of time? If so, optimizing ... Metabolic Health Expert Reveals the ROOT CAUSE of Insulin Resistance & How to FIX IT! - Metabolic Health Expert Reveals the ROOT CAUSE of Insulin Resistance & How to FIX IT! by Jesse Chappus 2,545,804 views 9 months ago 1 hour, 30 minutes - Dr. Robert Lustig is a neuroendocrinologist, New York Times bestselling author, and Professor of Pediatric Endocrinology.

Intro

The root cause of insulin resistance

What causes mitochondrial dysfunction?

The 7 types of fats (good & bad)

The truth about trans fats on nutrition labels

Is there a good reason to drink milk?

Metabolic health matters most

Is your calcium supplement clogging up your blood vessels?

The problem with algae oil for vegans

The top 2 amino acids missing from a vegan diet

Does eating fish provide enough omega-3s?

Is radiation damaging your health?

Air pollution destroys the mitochondria

Fructose inhibits your mitochondria

Understanding amylose vs. amylopectin

Fiber keeps your gut happy!

How fasting impacts the gut bacteria

The diet Rob follows

Keep your insulin down

FATS That Kill You vs FATS That Save You | Dr. Robert Lustig - FATS That Kill You vs FATS That Save You | Dr. Robert Lustig by Maku Holomah 182,951 views 6 months ago 11 minutes, 39 seconds - Tune in to the Robert Lustig Podcast as we delve into the fascinating world of fats and their profound impact on our **health**,!

The TOP FOODS You Need to Eat & Avoid to Fix Your Mitochondria & METABOLIC HEALTH | Dr. Rob Lustig - The TOP FOODS You Need to Eat & Avoid to Fix Your Mitochondria & METABOLIC HEALTH | Dr. Rob Lustig by Jesse Chappus 161,984 views 5 months ago 2 hours, 46 minutes - Today you're getting a deep dive with Dr. Robert Lustig! Rob is a neuroendocrinologist, New York Times bestselling author, and ...

Fructose is the enemy, not glucose

45% of Americans have fatty liver

The root cause of insulin resistance

The history of sugar

Is there a good reason to drink milk?

Sugar is poison!

The INSANE Mitochondria, Glucose, & Heart Benefits of Vigorous Exercise | Dr. Rhonda Patrick -

The INSANE Mitochondria, Glucose, & Heart Benefits of Vigorous Exercise | Dr. Rhonda Patrick

by FoundMyFitness Clips 501,060 views 3 months ago 9 minutes, 9 seconds - Vigorous exercise (defined as more than 80% max heart rate) has unique longevity & metabolic benefits. It's definitely something ...

Tired? Optimize your mitochondria for more energy - Tired? Optimize your mitochondria for more energy by Dr. Robin Lewis 159,407 views 11 months ago 17 minutes - In today's episode, I deep dive into the nutritional and lifestyle ways you can support your **mitochondria**,. Why? Our **mitochondria**, ...

Robert Lustig, MD on Fatty Liver, Sugar, Metabolic Syndrome, & Ozempic - Robert Lustig, MD on Fatty Liver, Sugar, Metabolic Syndrome, & Ozempic by Emery Pharma 222,905 views 6 months ago 35 minutes - Dr. Ana Najafi interviewing Professor Robert Lustig on the topics related to metabolic **health**,, non-alcoholic fatty liver **disease**, ...

"Cancer is a metabolic disease" – Dr Thomas Seyfried reveals stunning non-toxic cancer therapies. -

"Cancer is a metabolic disease" – Dr Thomas Seyfried reveals stunning non-toxic cancer therapies. by BizNewsTv 343,078 views 9 months ago 49 minutes - Over a decade ago, Dr Thomas Seyfried, a trailblazer in the arena of conquering cancer, published his groundbreaking book ...

Fix YOUR Mitochondrial Function BOOST Your LONGEVITY | 5 WAYS - Fix YOUR Mitochondrial Function BOOST Your LONGEVITY | 5 WAYS by Lift'N'Balance 13,465 views 1 year ago 18 minutes - Is BETTER **Mitochondrial**, Function the Secret to Longevity ? Join the Longevity Challenges - <https://www.patreon.com/liftnbalance> ...

Mitochondrial diseases - Mitochondrial diseases by nature video 203,645 views 7 years ago 3 minutes, 24 seconds - Mitochondrial diseases, are a group of disorders caused by genetic mutations. In this animation, Nature Video finds out how these ...

7 Ways To Boost Mitochondrial Health To Fight Disease - 7 Ways To Boost Mitochondrial Health To Fight Disease by Jonas Kuehne MD 28,750 views 3 months ago 18 minutes - Mitochondrial, dysfunction is at the root of many **diseases**, ranging from cancer to diabetes. This video explains how **mitochondria**, ...

Mitochondria

Medications

Diet

Supplements

Alcohol

Fasting

Sleep

Near Infrared Radiation

Cause of CHRONIC DISEASE: Mitochondrial Dysfunction | Steven Gundry - Cause of CHRONIC DISEASE: Mitochondrial Dysfunction | Steven Gundry by Dhru Purohit Show Clips 6,320 views 1 year ago 14 minutes, 57 seconds - Mitochondria,—they're the microscopic powerhouses hiding within most cells that have huge consequences for our **health**,, ...

A Mitochondrial Etiology of Common Complex Diseases - A Mitochondrial Etiology of Common Complex Diseases by UCLA CTSI 86,959 views 6 years ago 59 minutes - Douglas C. Wallace, Ph.D. Director, Center for **Mitochondrial**, and Epigenomic Medicine (CMEM) Professor, Department of ... The Key Paradigms in Western Medicine

Symbiotic Bacteria

Coupling Efficiency

Classes of Mutations

Cancer Mutations

Somatic Mutations

Tissue Specific Symptomatology

Energy Sensing

Bioenergetics Mitochondrial Oxidative Phosphorylation

Hypertrophic Cardiomyopathy

Nuclear Cytoplasmic Interaction

Learning and Memory Study

High Altitude

Nucleus

Cardiac Effects

Behavior

Catecholamines

Transcription of the Hippocampal Genes

Mitochondria Trap

Bioenergetic Decline

How to Heal Your Mitochondria - How to Heal Your Mitochondria by Dr. Kelli Ritter 13,251 views 1 year ago 9 minutes, 49 seconds - This is a quick video on **mitochondrial health**, - why it's important to have healthy **mitochondria**, and then a few tips on how to heal ...

Mitochondrial physiology in health and disease: Biogenesis, growth and function, Fleming Dela - Mitochondrial physiology in health and disease: Biogenesis, growth and function, Fleming Dela by The Physiological Society 9,726 views 7 years ago 28 minutes - This talk was given at The Biomedical Basis of Elite Performance East Midlands Conference Centre, Nottingham, UK 6-8 March ...

Biogenesis of Mitochondria

Mitochondria Are Organized in Networks

How Does Citrate Synthase Respond to Training

Effect of Nitrate Supplementation

Improved Mitochondrial Function

Change in the Mitochondrial Enzyme Activity

Membrane Potential

Type 2 Diabetes

Conclusion from the Type-2 Diabetes

Critical Concepts in the Nutritional Support of Mitochondria - Critical Concepts in the Nutritional Support of Mitochondria by Functional Formularies 63,254 views 10 months ago 1 hour, 3 minutes - There are several dietary and microbial factors that influence **mitochondrial health**,. As **mitochondria**, suffer from excess oxidative ...

Boosting MITOCHONDRIAL Health in Aging Adults [2023] - Boosting MITOCHONDRIAL Health in Aging Adults [2023] by Lance Hitchings 10,328 views 3 months ago 17 minutes - It's all about the **mitochondria**,! What they are, how they go downhill, how it impacts aging and what you can do about. I've talked a ...

3.5 Keys to Improving Mitochondrial Health - 3.5 Keys to Improving Mitochondrial Health by Physionic 103,950 views 5 months ago 21 minutes - *Standard Tier:* Access to the Premium Video Library, Full Study Analyses (+ Summaries), Insider Podcast, , Research Reviews, ...

How Do Mitochondria Respond To Health And Disease? | Eric Gordon, MD - How Do Mitochondria Respond To Health And Disease? | Eric Gordon, MD by The Energy Blueprint 7,483 views 2 months ago 1 hour, 15 minutes - In this podcast, Dr. Gordon and I discuss: , The fascinating history of alternative medicine trends and how this knowledge helps ...

Intro

Guest Intro

The differences between being healthy and chronically fatigued or chronically ill

The danger of jumping on the latest FAD

Improving resilience

Healthy vs chronically ill – how the mitochondria functions

The mitochondrial response to danger

Mitochondria control of physiology and disease: beyond ATP - Mitochondria control of physiology and disease: beyond ATP by NIH VideoCast 73,714 views 6 years ago 57 minutes - Mitochondria, control of physiology and **disease**,: beyond ATP Air date: Wednesday, March 7, 2018, 3:00:00 PM Category: WALIS ...

Intro

Acknowledgements Chandel Lab

What is the function of the respiratory chain in normal versus cancer cells?

Bioenergetic and biosynthetic functions of mitochondria.

Mitochondria as signaling organelles.

Mitochondrial respiration linked biological functions.

Mitochondrial DNA encodes 13 subunits of

Loss of TFAM (mtDNA) decreases oncogenic Kras-driven lung tumorigenesis.

Metformin inhibits the
Metformin inhibits mitochondrial complex I of cancer cells to reduce tumorigenesis.
AOX rescues the biosynthetic functions of complex III.
Mitochondrial respiration linked biological functions in different cell types in vivo.
is necessary for IL-2 induction.
Mitochondrial ROS are necessary for T cell activation.
Loss of mitochondrial complex III does not impair Treg proliferation and activation state.
Inducible loss of complex III in Tregs enhances tumor immunity.
Mitochondrial complex III deficiency causes widespread gene deregulation in Tregs.
Mitochondrial complex III deficiency decreases genes associated with Treg function.
Phylogenetic tree of the α -ketoglutarate dependent dioxygenases.
2-hydroxyglutrate (L-2HG) levels increase due to increase in NADH/NAD⁺ ratio.
2-HG/KG and Succinate/LKG ratio control DNA methylation.
2-hydroxyglutarte (L-2HG) levels are dependent on complex III.
2-HG is sufficient to decrease Nrp1/Tigit expression without altering FoxP3 expression.
Mitochondria are signaling organelles.
Mitochondrial Protector: AMPK - Mitochondrial Protector: AMPK by Dr. Eric Berg DC 149,705 views 2 years ago 4 minutes, 58 seconds - This powerful enzyme protects your **mitochondria**, and increases your energy. Learn how to boost it! The Benefits of Intermittent ...
Introduction: What is AMPK?
How to boost AMPK
Share your success story!
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