The Key Mechanisms Linking Diet and Mental Health Transcript

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Introduction to Nutritional Psychiatry

Hey, I'm Dr. Uman Naidu. Have you been feeling highly stressed with low energy and absolutely low mood? This video can help you. It explains the mechanisms behind what can helps you eat better to feel better.

Hi, I'm Dr. Uma Naidu.

Inflammation and Mood

I am a Harvard-trained nutritional psychiatrist and I wanted to talk to you today about the key mechanisms in nutritional, lifestyle and metabolic psychiatry explained.

The first one is inflammation. Now what is Inflammation? How it works is that chronic stress, poor diet or illness can activate the immune system leading to high levels of inflammatory chemicals like cytokines.

What it means is that these chemicals disrupt brain signaling, alter mood regulation and can trigger depression like symptoms. Another mechanism is oxidative stress.

How does that work? It's an imbalance between harmful molecules or free radicals and protective antioxidants which damages cells, proteins and DNA.

Oxidative Stress and Antioxidants

What is means, is too much oxidated stress harms brain cells lowers energy and increases depression risk. Antioxidant-rich foods, fruits, vegetables and omega-3s help restore that balance.

An additional mechanism is mitochondrial dysfunction. Mitochondria are the cells' batteries. Oxidative stress and poor nutrition impair their ability to produce energy efficiently.

Mitochondrial Dysfunction and Energy

What it means is that low brain energy supply may lead to fatigue, poor concentration and mood disturbances. Yet one more mechanism is tryptophan kinuramine metabolism.

And how that works is that trypophane normally used to make serotonin, which is a feel-good chemical, gets diverted under stress and inflammation into this pathway, producing neurotoxic metabolites instead of serotonin.

Tryptophan-Kynurenine Pathway

What does that mean? Less seratonin and more toxic byproducts lead to high depression risk and mood instability. gut microbiome and gut microbiota. How this mechanism works is that trillions of microbes in the gut produce chemicals that influence the brain via the vagus nerve, immune system and hormones.

Diet rapidly shifts the microbiomes balance. What also happens is a more diverse, fiber-rich diet feeds good microbes, reducing inflammation and improving mood.

Gut Microbiome and Depression

A western-style diet fuels bad microbes increasing depression risk Another mechanism is neurogenesis and BDNF. Neurogenosis is the growth of new brain cells.

BdNf is a protein that helps brain cell survive and form new connections. Both are sensitive to diet and stress. And what that means is that healthy diets increase B. D. N. F and neuro genesis, supporting learning memory and emotional resilience.

Core diets reduce these processes, making depression more likely. Epigenetics, how does this work?

Neurogenesis and BDNF

Diet and lifestyle can switch genes on or off without changing DNA itself. Nutrients like folate, polyphenols and omega-3s affect this process. What it means is that food literally influences gene expression that regulates brain plasticity, stress response and inflammation.

Obesity and metabolic dysfunction. How this works is excess body fat promotes inflammation, insulin resistance and hormonal imbalance.

Epigenetics and Gene Expression

What is means that obesity creates a cycle of poor metabolic health. More inflammation and oxidative stress leads to higher depression risk. And last of all, emotional immunity is not a formally recognized medical term in clinical guidelines.

However, the concept is used in psychoneuroimmunology to describe the bi-directional relationship between emotional states and immune system activity.

Obesity and Metabolic Dysfunction

Emotional states such as stress, anxiety and positive emotions can modulate immune function, influencing cytokine production, lymphocyte activity and inflammatory responses.

Conversely, immune system status can affect emotional well-being and cognitive function as demonstrated by changes in mood and behavior in neuro-compromised states.

Emotional Immunity and Psychoneuroimmunology

Positive emotional states and psychosocial resilience are associated with enhanced immune responses and reduced inflammation, while chronic negative emotions and stress are linked to suppressed immunity and increased risk of illness.

The interplay between emotion and immunity is dynamic. with emotional states explaining a significant proportion of variants in immune markers over short time frames.

This relationship underpins the therapeutic potential of psychosocial interventions to improve the immune-related health outcomes. So in summary, emotional immunity refers to the capacity of emotional states to influence immune system activity and vice versa, with implications for stress, resilience, disease risk and overall health.