Global Certificate in Nutritional Psychiatry

Nutritional Psychiatry and Prevention of Mental Disorders

A

Acetyl-L-Carnitine – A naturally occurring compound that transports fatty acids into mitochondria for energy production. Related terms: mitochondrial function, oxidative stress. Used as a supplement to improve mood and cognition; studies show modest benefit in depressive symptoms. Challenges include variability in bioavailability and limited long-term safety data.

Adverse Childhood Experiences (ACEs) – Traumatic events occurring before age 18, such as abuse or neglect. Related terms: stress-response, epigenetics. High ACE scores predict increased risk of anxiety, depression, and substance use. Prevention strategies focus on early nutrition, stable caregiving, and trauma-informed care. Implementing systematic screening can be resource-intensive.

Alpha-Linolenic Acid (ALA) – An essential omega-3 fatty acid found in flaxseed, chia, and walnuts. Related terms: EPA, DHA, plant-based omega-3. ALA serves as a precursor for longer-chain omega-3s, supporting neuronal membrane fluidity. Practical application: incorporating ALA-rich foods in vegetarian diets. Conversion efficiency to EPA/DHA is low, requiring higher intake.

Anthocyanins – Pigmented flavonoids giving berries their red-blue color. Related terms: polyphenols, antioxidant capacity. They cross the blood-brain barrier and may reduce neuroinflammation. Example: daily consumption of blueberries improves working memory in older adults. Challenges involve standardizing dosage and accounting for gut microbiota differences.

Appetite Regulation Hormones – Hormones such as leptin, ghrelin, and peptide YY that modulate hunger and satiety. Related terms: hypothalamic pathways, energy balance. Dysregulation can lead to mood swings and eating disorders. Nutritional interventions aim to stabilize hormone levels through balanced macronutrients and regular meal timing. Individual variability limits one-size-fits-all protocols.

Arginine – A semi-essential amino acid involved in nitric oxide synthesis. Related terms: vasodilation, immune modulation. Adequate arginine supports cerebral blood flow, potentially enhancing mood. Foods: turkey, pumpkin seeds, soy. Excess supplementation may exacerbate anxiety in susceptible individuals.

Astrocyte Function – Glial cells that maintain neurotransmitter balance and provide metabolic support to neurons. Related terms: glutamate clearance, lactate shuttle. Nutrients like omega-3s and B-vitamins promote healthy astrocyte activity. Research shows astrocyte dysfunction in depression, but translating findings to dietary guidelines remains complex.

Autophagy – Cellular recycling process that removes damaged proteins and organelles. Related terms: fasting, mTOR pathway. Intermittent fasting and polyphenol-rich diets can up-regulate autophagy, potentially protecting against neurodegeneration. Monitoring adherence and preventing nutrient deficiencies are practical challenges.

B

B-Complex Vitamins – Group of eight water-soluble vitamins (B1-B12) essential for energy metabolism and neurotransmitter synthesis. Related terms: methylation, homocysteine. Deficiencies are linked to irritability, cognitive decline, and depressive symptoms. Food sources include whole grains, legumes, and leafy greens. Over-supplementation of certain B-vitamins may cause neuropathy, requiring careful dosing.

Beta-Glucans – Soluble fibers found in oats, barley, and mushrooms. Related terms: gut microbiota, immune modulation. They increase short-chain fatty acid production, which influences the gut-brain axis and may reduce anxiety. Practical use: adding oat bran to breakfast cereals. Viscous texture can limit palatability for some patients.

Biogenic Amines – Neurotransmitters such as serotonin, dopamine, and norepinephrine derived from amino acids. Related terms: monoamine oxidase (MAO), tryptophan. Dietary precursors (e.g., tryptophan-rich turkey) can affect mood, but interactions with MAO inhibitors demand caution. Food-drug interactions are a key challenge in clinical practice.

Blood–Brain Barrier (BBB) – Selective barrier that protects the brain from toxins while allowing essential nutrients. Related terms: endothelial cells, permeability. Certain nutrients (e.g., DHA, choline) cross the BBB via specific transporters. Inflammation or chronic stress can compromise BBB integrity, increasing vulnerability to psychiatric disorders. Restoring barrier function through diet is an emerging research area.

Brain-Derived Neurotrophic Factor (BDNF) – Protein that supports neuronal survival, growth, and synaptic plasticity. Related terms: neurogenesis, exercise. Diets rich in flavonoids, omega-3s, and zinc elevate BDNF levels, correlating with improved mood. Measuring serum BDNF is useful for monitoring treatment response, yet assay variability limits clinical utility.

Broccoli Sprouts – Young broccoli plants containing high concentrations of sulforaphane. Related terms: phase-II detoxification, oxidative stress. Sulforaphane activates Nrf2 pathways, reducing neuroinflammation. Daily inclusion of a handful may benefit patients with mild depressive symptoms. Taste and preparation time can hinder consistent consumption.

C

Calcium – Essential mineral for neuronal signaling and neurotransmitter release. Related terms: NMDA receptor, muscle contraction. Low calcium status is associated with anxiety and irritability. Dairy, fortified plant milks, and leafy greens provide bioavailable calcium. Excessive supplementation may cause renal stones, underscoring the need for balanced intake.

Caloric Restriction – Reducing daily energy intake without malnutrition. Related terms: longevity, metabolic adaptation. Evidence suggests modest caloric restriction improves mood and cognition, possibly via enhanced neuroplasticity. Implementation requires individualized planning to avoid nutrient deficits and mood destabilization.

Casein – Milk protein containing bioactive peptides. Related terms: opioid-like peptides, gut permeability. Some individuals with autism or anxiety exhibit sensitivity to casein, leading to increased intestinal inflammation. An elimination diet may reduce symptoms, but careful monitoring is required to prevent calcium deficiency.

Carnitine – Compound involved in fatty acid transport into mitochondria. Related terms: energy metabolism, oxidative stress. Supplementation may alleviate fatigue in depressive patients, yet high doses can cause gastrointestinal upset. Food sources include red meat and fish; vegetarians may need fortified alternatives.

Carnitine Acetyltransferase – Enzyme that facilitates acetyl-group transfer, influencing brain energy metabolism. Related terms: acetyl-CoA, neurotransmitter synthesis. Enhancing its activity through diet (e.g., acetyl-L-carnitine) may support cognition, but robust clinical trials are limited.

Casein-Free Diet – Elimination of dairy proteins to reduce potential inflammatory triggers. Related terms: food sensitivity, gut-brain axis. May improve mood in a subset of patients with dairy intolerance. Nutritional counseling is essential to replace lost calcium and vitamin D.

Choline – Essential nutrient for phosphatidylcholine synthesis and acetylcholine production. Related terms: liver function, methylation. Adequate choline supports memory and mood regulation. Eggs, soybeans, and liver are rich sources. Many adults consume below recommended levels, prompting consideration of fortified foods.

Chromium – Trace mineral that enhances insulin signaling. Related terms: glucose metabolism, mood swings. Chromium deficiency can exacerbate depressive symptoms via dysregulated blood sugar. Whole-grain breads and broccoli provide modest amounts; supplementation should be guided by lab testing.

Cognitive Reserve – Brain's resilience to pathological damage, built through lifelong learning and nutrition. Related terms: neuroplasticity, education. Diets rich in antioxidants and omega-3s contribute to reserve, potentially delaying onset of psychiatric disorders. Measuring reserve is indirect, relying on neuropsychological testing.

Coenzyme Q10 (CoQ10) – Mitochondrial electron carrier with antioxidant properties. Related terms: oxidative phosphorylation, neuroprotection. Supplementation may reduce fatigue and depressive symptoms in patients with mitochondrial dysfunction. Food sources are limited; supplementation is common, yet high doses may interact with anticoagulants.

D

DHA (Docosahexaenoic Acid) – Long-chain omega-3 fatty acid critical for neuronal membrane fluidity. Related terms: EPA, phospholipids. Higher DHA status correlates with lower risk of depression and anxiety. Primary sources: fatty fish, algal oil. Vegetarian patients often rely on algae-derived supplements; compliance can be affected by taste.

Dietary Inflammatory Index (DII) – Scoring system that quantifies the inflammatory potential of a diet. Related terms: cytokines, chronic disease. High DII scores predict elevated CRP and greater depressive symptomatology. Practical use: counseling patients to lower DII by increasing fruits, vegetables, and omega-3s. Requires detailed dietary assessment, which can be time-consuming.

Dietary Fiber – Indigestible carbohydrate that fuels gut microbiota. Related terms: short-chain fatty acids, gut permeability. Soluble fiber (e.g., psyllium) promotes production of butyrate, which supports the gut-brain axis and may alleviate anxiety. Over-consumption can cause bloating; gradual increase is recommended.

Docosahexaenoic Acid/Eicosapentaenoic Acid Ratio (DHA/EPA) – Balance of two omega-3 fatty acids influencing inflammation and mood. Related terms: fish oil, lipid metabolism. A higher DHA proportion is associated with better cognitive performance, while EPA may be more potent for mood regulation. Formulating supplements with optimal ratios is an ongoing research focus.

Double-Blind Randomized Controlled Trial (RCT) – Gold-standard study design for evaluating interventions. Related terms: placebo effect, statistical power. Many nutritional psychiatry studies employ double-blind RCTs to assess efficacy of supplements like curcumin. Limitations include high dropout rates and difficulty blinding taste-masked foods.

Early Life Nutrition – Nutrient intake during prenatal and infant periods. Related terms: epigenetic programming, neurodevelopment. Adequate omega-3s, iron, and folate during pregnancy are linked to reduced risk of later psychiatric disorders. Public health initiatives focus on fortification and supplementation programs. Socioeconomic disparities pose implementation challenges.

Epigenetics – Heritable changes in gene expression without DNA sequence alteration. Related terms: DNA methylation, histone acetylation. Nutrients like folate, B12, and choline provide methyl groups that can modify stress-responsive genes. Translating epigenetic findings into dietary prescriptions remains experimental.

Essential Amino Acids (EAAs) – Nine amino acids that must be obtained from diet. Related terms: protein synthesis, neurotransmitter precursors. EAAs such as tryptophan and tyrosine are direct substrates for serotonin and dopamine, respectively. Balanced intake supports mood stability; however, excess protein can increase gut fermentation, potentially aggravating anxiety.

Fermented Foods – Foods processed by beneficial microbes (e.g., yogurt, kefir, kimchi). Related terms:

probiotics, gut microbiota diversity. They deliver live cultures that may improve gut barrier function and reduce depressive symptoms. Incorporating a serving daily is practical, but individual tolerance to histamine can be a barrier.

Folate – B-vitamin (B9) involved in one-carbon metabolism and DNA synthesis. Related terms: homocysteine, methylation cycle. Low folate is a risk factor for major depressive disorder; supplementation can augment antidepressant response. Leafy greens, legumes, and fortified grains are primary sources. Folate deficiency is common in low-income populations, requiring targeted outreach.

Glutamate – Principal excitatory neurotransmitter in the CNS. Related terms: NMDA receptor, excitotoxicity. Excess extracellular glutamate contributes to neuroinflammation and mood disorders. Nutrients that support astrocytic clearance (e.g., magnesium) may mitigate excitotoxic risk. Monitoring dietary glutamate (e.g., MSG) is controversial due to limited evidence of harm at typical intake levels.

Glutathione – Major intracellular antioxidant. Related terms: oxidative stress, N-acetylcysteine (NAC). Adequate glutathione protects neurons from oxidative damage associated with depression. NAC supplementation can raise glutathione levels and has shown modest antidepressant effects. High doses may cause gastrointestinal discomfort.

Gut Microbiota – Community of trillions of microorganisms residing in the gastrointestinal tract. Related terms: dysbiosis, short-chain fatty acids. Diversity and composition influence the production of neuroactive metabolites (e.g., GABA, serotonin). Dietary patterns rich in fiber, polyphenols, and fermented foods promote a balanced microbiome. Antibiotic exposure and poor diet can disrupt this ecosystem, increasing psychiatric risk.

Gut-Brain Axis – Bidirectional communication network linking the gastrointestinal tract and central nervous system. Related terms: vagus nerve, cytokines. Nutritional interventions that modulate gut microbiota (prebiotics, probiotics) can alter mood and cognition. Clinical translation is limited by inter-individual variability and lack of standardized biomarkers.

HPA Axis (Hypothalamic-Pituitary-Adrenal Axis) – Central stress-response system. Related terms: cortisol, CRH. Chronic activation leads to elevated cortisol, which can impair hippocampal function and mood regulation. Nutrients such as magnesium, omega-3s, and adaptogenic herbs may attenuate HPA overactivity. Assessing cortisol rhythms in practice requires salivary testing protocols.

Helicobacter pylori – Bacterium linked to gastric inflammation. Related terms: gut permeability, micronutrient absorption. Infection can reduce absorption of B12 and iron, contributing to fatigue and depressive symptoms. Eradication therapy combined with nutritional support can improve mental health outcomes. Screening is not routine, limiting identification.

Iron – Mineral essential for oxygen transport and neurotransmitter synthesis. Related terms: ferritin, anemia. Iron deficiency is associated with cognitive impairment and depressive symptoms, especially in women of

childbearing age. Heme iron (red meat) is more bioavailable than non-heme sources (legumes). Over-supplementation risks oxidative stress; thus, individualized dosing is crucial.

Ketogenic Diet – High-fat, low-carbohydrate regimen that induces ketosis. Related terms: beta-hydroxybutyrate, neuroprotection. Emerging evidence suggests ketogenic diets may improve mood in bipolar disorder by stabilizing neuronal excitability. Practical hurdles include strict adherence, risk of nutrient deficiencies, and potential lipid profile alterations.

Kynurenine Pathway – Metabolic route converting tryptophan to neuroactive metabolites (e.g., quinolinic acid). Related terms: inflammation, NMDA agonist. Chronic inflammation shunts tryptophan toward kynurenine, reducing serotonin synthesis and increasing neurotoxic compounds. Anti-inflammatory diets and omega-3 supplementation can favorably modulate this pathway. Biomarker measurement requires specialized labs.

L

Lactobacillus – Genus of probiotic bacteria commonly found in fermented dairy. Related terms: gut health, GABA production. Certain strains increase GABA concentrations, potentially reducing anxiety. Clinical trials show modest improvements in stress scores after daily consumption of Lactobacillus-rich yogurts. Strain specificity and survivability through the GI tract are ongoing research concerns.

Leptin – Hormone produced by adipocytes that signals satiety. Related terms: energy homeostasis, reward pathways. Leptin resistance, common in obesity, is linked to depressive symptoms via dysregulated dopaminergic signaling. Nutritional strategies emphasizing low-glycemic foods and adequate protein can improve leptin sensitivity. Monitoring requires serum assays, which are not routinely covered by insurance.

Magnesium – Mineral involved in over 300 enzymatic reactions, including NMDA receptor modulation. Related terms: anxiety, sleep quality. Magnesium deficiency correlates with increased anxiety and depressive episodes. Sources include nuts, seeds, leafy greens, and whole grains. Oral supplementation (e.g., magnesium glycinate) is well tolerated, yet high doses can cause diarrhea.

Medium-Chain Triglycerides (MCTs) – Saturated fats with 6-12 carbon atoms, rapidly metabolized into ketones. Related terms: cognitive energy, coconut oil. MCT oil may enhance mental clarity in patients with mild cognitive impairment. Practical use involves adding 1-2 teaspoons to smoothies. Excess intake may lead to gastrointestinal upset and elevated LDL cholesterol in some individuals.

Methylation Cycle – Biochemical pathway that transfers methyl groups for DNA, neurotransmitter, and lipid synthesis. Related terms: SAMe, homocysteine. Nutrients such as folate, B12, B6, and choline are critical cofactors. Impaired methylation is implicated in mood disorders; supplementation with SAMe has shown antidepressant effects. Balancing methyl donors is complex, as over-methylation may trigger mania in bipolar patients.

Microbiota-Derived Tryptophan Metabolites – Compounds such as indole-propionic acid generated by gut

bacteria. Related terms: serotonin precursor, anti-oxidant. These metabolites can cross the BBB and influence neuroinflammation. Diets rich in tryptophan and prebiotic fibers support beneficial production. Analytical techniques are still developing, limiting routine clinical assessment.

Mindful Eating – Practice of paying full attention to the experience of eating. Related terms: stress reduction, satiety cues. Incorporating mindfulness can lower emotional eating and improve nutrient choices, thereby indirectly supporting mental health. Training requires guided sessions; self-practice adherence varies widely.

Mitochondrial Biogenesis – Process of creating new mitochondria, essential for cellular energy. Related terms: PGC-1α, oxidative phosphorylation. Nutrients such as resveratrol, CoQ10, and omega-3s stimulate biogenesis, potentially improving brain energy metabolism. Translating cellular findings to behavioral outcomes remains a research gap.

Monounsaturated Fatty Acids (MUFAs) – Fatty acids with one double bond, found in olive oil and avocados. Related terms: lipid profile, inflammation. MUFAs improve membrane fluidity and may reduce depressive symptoms when replacing saturated fats. Dietary counseling to increase MUFA intake is straightforward, yet cultural preferences can affect acceptance.

N

N-Acetylcysteine (NAC) – Precursor to glutathione with antioxidant properties. Related terms: oxidative stress, glutamate modulation. Clinical trials demonstrate NAC reduces depressive symptoms and cravings in substance-use disorders. Dosage typically ranges 600-1200 mg twice daily. High doses may cause nausea; liver function monitoring is advisable.

Neurogenesis – Formation of new neurons, primarily in the hippocampus. Related terms: BDNF, exercise. Omega-3 fatty acids, flavonoids, and physical activity synergistically promote neurogenesis, correlating with mood improvement. Direct measurement in humans is invasive; surrogate markers like serum BDNF are used.

Neuroinflammation – Inflammatory response within the CNS. Related terms: cytokines, microglia activation. Diets high in refined sugars and saturated fats amplify neuroinflammation, while omega-3s and polyphenols attenuate it. Anti-inflammatory dietary patterns (e.g., Mediterranean) have shown efficacy in reducing depressive scores. Individual variability in inflammatory markers challenges standardization.

Neurotransmitter Synthesis – Biochemical process generating serotonin, dopamine, norepinephrine, and others. Related terms: amino acid precursors, co-factors. Adequate intake of tryptophan, tyrosine, B-vitamins, and minerals is essential. Deficiencies can manifest as mood lability. Tailoring diets to support specific neurotransmitter pathways requires detailed dietary analysis.

Niacin (Vitamin B3) – Vitamin involved in NAD+/NADH redox reactions. Related terms: energy metabolism, pellagra. Low niacin status can lead to irritability and depressive symptoms. Sources include poultry, fish,

and fortified cereals. High doses may cause flushing; gradual titration mitigates this effect.

Omega-3 Index – Biomarker reflecting EPA and DHA levels in red blood cell membranes. Related terms: cardiovascular risk, mental health. An index ≥8 % is associated with lower depression risk. Dietary counseling aims to raise the index through fish consumption or algae supplements. Testing is not universally covered, limiting widespread adoption.

Omega-6 Fatty Acids – Polyunsaturated fats found in vegetable oils. Related terms: arachidonic acid, pro-inflammatory eicosanoids. Excess omega-6 relative to omega-3 can promote inflammation, potentially worsening mood disorders. Balancing the ratio (ideally Oxidative Stress – Imbalance between free radicals and antioxidants. Related terms: lipid peroxidation, antioxidant enzymes. Elevated oxidative stress is observed in depression and schizophrenia. Antioxidant-rich foods (berries, leafy greens) and supplements (vitamin C, E) can mitigate damage. Over-supplementation may paradoxically become pro-oxidant.

P

Palmitoylethanolamide (PEA) – Endogenous fatty acid amide with anti-inflammatory properties. Related terms: mast cell stabilization, neuroprotection. Preliminary studies suggest PEA reduces anxiety and improves sleep. Found in egg yolk and soy; supplementation is available. Long-term safety data are limited.

Pancreatic Enzyme Supplementation – Use of digestive enzymes to aid nutrient absorption. Related terms: malabsorption, steatorrhea. Patients with celiac disease or pancreatic insufficiency may benefit, improving intake of essential fatty acids and vitamins that influence mood. Dosage must be individualized; excessive use can cause gastrointestinal irritation.

Parabens – Preservatives commonly found in processed foods and cosmetics. Related terms: endocrine disruption, gut microbiota. Chronic exposure may alter hormone balance, potentially affecting mood. Reducing intake involves choosing fresh, minimally processed foods. Evidence linking parabens directly to psychiatric outcomes remains inconclusive.

Phenylalanine – Essential amino acid precursor to tyrosine and catecholamines. Related terms: phenylketonuria (PKU), neurotransmission. In PKU patients, uncontrolled phenylalanine can lead to severe cognitive deficits. For the general population, adequate phenylalanine supports dopamine synthesis, influencing motivation and pleasure. High protein diets increase phenylalanine intake, but excess is rarely problematic.

Phytochemicals – Bioactive plant compounds including flavonoids, carotenoids, and glucosinolates. Related terms: antioxidant, anti-inflammatory. Regular consumption of phytochemical-rich foods (e.g., berries, cruciferous vegetables) is linked to lower depression prevalence. Standardizing intake is challenging due to variability in food composition and cooking methods.

Polyphenols – Subclass of phytochemicals with strong antioxidant activity. Related terms: resveratrol, catechins. Polyphenols modulate gut microbiota and reduce neuroinflammation. Clinical trials with green

tea catechins show modest anxiety reduction. Bioavailability is low; pairing with fats can improve absorption.

Prebiotics – Non-digestible fibers that selectively stimulate beneficial gut bacteria. Related terms: inulin, fructooligosaccharides (FOS). Prebiotic intake enhances production of short-chain fatty acids, influencing the gut-brain axis and potentially alleviating depressive symptoms. Dosage of 5-10 g daily is typical; sudden increase may cause gas and bloating.

Probiotic Strains – Specific bacterial species used for therapeutic purposes. Related terms: Lactobacillus rhamnosus, Bifidobacterium longum. Certain strains have demonstrated anxiolytic effects in randomized trials. Selecting the appropriate strain and dose is critical; not all probiotics are equal.

Protein Quality – Measure of amino acid composition and digestibility. Related terms: PDCAAS, DIAAS. High-quality proteins (e.g., whey, soy) provide all essential amino acids, supporting neurotransmitter synthesis. In low-income settings, incomplete protein sources may require complementary combinations (e.g., beans + rice). Monitoring for excessive protein intake is necessary to avoid renal strain.

Psychobiotics – Live organisms that, when ingested in adequate amounts, produce mental health benefits. Related terms: gut-brain axis, stress resilience. Evidence suggests specific strains reduce cortisol and improve mood. Commercial products vary widely in strain count and viability. Clinical guidelines are still emerging.

Q10 Coenzyme (CoQ10) – See Coenzyme Q10 entry.

R

Raspberry Ketone – Phenolic compound found in raspberries, marketed for weight management. Related terms: catecholamine metabolism, appetite suppression. Limited evidence supports any direct mental health benefit. Consumers should be cautioned about unverified claims and potential interactions with stimulant medications.

Resveratrol – Polyphenol present in grapes and red wine. Related terms: sirtuin activation, anti-inflammatory. Resveratrol may enhance BDNF expression and protect against stress-induced depression in animal models. Human studies show modest mood improvement; bioavailability is low, requiring formulation strategies (e.g., liposomal delivery).

Riboflavin (Vitamin B2) – Cofactor in mitochondrial energy production. Related terms: FAD, FMN. Deficiency can cause fatigue and irritability. Sources include dairy, eggs, and fortified cereals. Excess intake is generally safe, as it is water-soluble.

Ruminant-Derived Foods – Foods from cows, sheep, and goats (e.g., meat, milk). Related terms: heme iron, conjugated linoleic acid (CLA). These foods provide bioavailable nutrients critical for mental health but may also contain saturated fats. Balancing portion size is essential to avoid cardiovascular risk.

S

S-Adenosylmethionine (SAMe) – Methyl donor involved in neurotransmitter metabolism. Related terms: depression, mood stabilizer. Clinical trials report SAMe as an effective adjunct to antidepressants, often with rapid onset of action. Dosage ranges 400-1600 mg daily; gastrointestinal upset is a common side effect.

Selenium – Trace mineral with antioxidant functions. Related terms: selenoproteins, thyroid hormone metabolism. Low selenium status correlates with increased anxiety and depressive symptoms. Brazil nuts are a potent natural source; however, excessive intake can cause selenosis, so portion control is needed.

Serotonin – Primary neurotransmitter regulating mood, appetite, and sleep. Related terms: tryptophan, 5-HT receptors. Dietary tryptophan is the sole precursor; adequate intake of carbohydrates facilitates its transport across the BBB. SSRIs increase synaptic serotonin; nutrition can complement pharmacotherapy but cannot replace it.

Short-Chain Fatty Acids (SCFAs) – Metabolites (acetate, propionate, butyrate) produced by gut bacteria fermenting fiber. Related terms: gut barrier, epigenetic regulation. SCFAs influence brain function by modulating inflammation and neurotransmitter synthesis. High-fiber diets increase SCFA production; however, abrupt dietary changes may cause digestive discomfort.

Skinny-Fats – Popular term for low-fat, high-carbohydrate diets. Related terms: glycemic load, mood swings. While reducing saturated fat may benefit cardiovascular health, insufficient essential fatty acids can impair neuronal membrane composition, potentially worsening depression. Balanced macronutrient distribution is recommended.

Sleep Hygiene – Behavioral practices that promote restorative sleep. Related terms: circadian rhythm, melatonin. Adequate sleep supports emotional regulation; nutrient timing (e.g., avoiding caffeine after 2 pm) and magnesium intake can improve sleep quality. Implementing consistent routines can be difficult for shift workers.

Stevia – Natural, non-caloric sweetener derived from the Stevia plant. Related terms: glycemic index, gut microbiota. Some studies suggest stevia does not disrupt glucose metabolism, making it a preferable alternative to sugar for mood-stable diets. Taste acceptance varies, and excessive use may affect gut flora.

Stress-Responsive Nutrients – Nutrients that modulate the body's reaction to stress (e.g., magnesium, zinc, B-vitamins). Related terms: cortisol, HPA axis. Adequate intake can blunt physiological stress responses, reducing risk of anxiety and depression. Identifying individual deficiencies requires laboratory testing.

Sulforaphane – Isothiocyanate derived from cruciferous vegetables, especially broccoli sprouts. Related terms: Nrf2 activation, detoxification. Sulforaphane up-regulates antioxidant enzymes, decreasing neuroinflammation. Daily consumption of 100 g sprouts has shown mood benefits in pilot studies. Taste and preparation time may limit adherence.

Synergy – Interaction where combined nutrients produce a greater effect than individual components. Related terms: food matrix, combinatorial nutrition. Example: omega-3 fatty acids enhance the anti-inflammatory action of polyphenols. Designing synergistic meal plans requires knowledge of nutrient interactions and patient preferences.

T

Thiamine (Vitamin B1) – Essential cofactor for glucose metabolism in the brain. Related terms: Wernicke-Korsakoff syndrome, energy production. Deficiency can cause confusion, irritability, and depression. Whole grains, pork, and legumes are primary sources. Chronic alcoholism increases risk; supplementation may be required.

Thyroid Hormones – Hormones (T3, T4) that regulate metabolism and brain development. Related terms: iodine, selenium. Subclinical hypothyroidism is linked to depressive symptoms. Adequate iodine intake (iodized salt, seaweed) and selenium support thyroid function. Over-supplementation can trigger anxiety; regular monitoring is advised.

Trace Minerals – Minerals required in minute amounts (zinc, copper, manganese, etc.). Related terms: enzymatic cofactors, oxidative defense. Zinc deficiency is associated with depressive symptoms and impaired immune function. Sources include oysters, pumpkin seeds, and legumes. Balancing trace mineral intake is crucial, as excess copper may antagonize zinc.

Trytophan – Essential amino acid precursor to serotonin. Related terms: 5-HT synthesis, mood regulation. High-tryptophan foods (turkey, cheese, nuts) can support serotonin production, especially when consumed with carbohydrates that facilitate brain uptake. Large doses can cause serotonin syndrome when combined with certain medications.

Turmeric (Curcumin) – Spice containing the bioactive curcumin. Related terms: NF-κB inhibition, neuroprotection. Curcumin exhibits anti-inflammatory and antioxidant effects, and modest trials report reduced depressive symptoms. Bioavailability is limited; formulations with piperine or liposomal delivery enhance absorption. Potential interaction with anticoagulants warrants caution.

Ubiquinol – Reduced form of Coenzyme Q10. Related terms: mitochondrial efficiency, antioxidant. Ubiquinol may improve mood in patients with chronic fatigue by supporting cellular energy. Supplements are more expensive than oxidized CoQ10 but have better absorption. Evidence specific to psychiatric outcomes remains preliminary.

Vitamin D – Fat-soluble vitamin synthesized via skin exposure to sunlight. Related terms: mood, immune modulation. Low serum 25-OH-D is consistently linked with higher rates of depression. Supplementation (1000-4000 IU/day) can improve mood in deficient individuals. Sun exposure recommendations must balance skin cancer risk.

Vitamin K2 – Fat-soluble vitamin involved in calcium metabolism. Related terms: bone health,

neuroprotection. Emerging data suggest K2 may support myelin integrity, influencing cognition. Sources include fermented foods (natto) and certain cheeses. Deficiency is rare but may be relevant in patients on long-term antibiotics.

Vitamin B12 (Cobalamin) – Essential for methylation, myelin formation, and red blood cell production. Related terms: pernicious anemia, neurological function. B12 deficiency presents with fatigue, low mood, and cognitive decline. Animal products (meat, dairy) are primary sources; vegans require fortified foods or supplements. Intramuscular injection is used for absorption issues.

Vitamin C – Water-soluble antioxidant. Related terms: collagen synthesis, cortisol reduction. Adequate vitamin C intake may lower perceived stress and improve mood. Citrus fruits, strawberries, and bell peppers are rich sources. High doses (>2000 mg) can cause kidney stones; moderate intake is advisable.

Vitamin E – Fat-soluble antioxidant protecting cell membranes. Related terms: oxidative stress, lipid peroxidation. Supplementation has shown mixed results for depression; however, adequate dietary intake (nuts, seeds) supports overall brain health. Excess supplementation can interfere with blood clotting.

W

Weight Management – Maintaining a healthy body weight through balanced nutrition and activity. Related terms: BMI, metabolic syndrome. Obesity is associated with increased inflammation and higher risk of depression. Strategies include portion control, nutrient-dense foods, and regular physical activity. Rapid weight loss can destabilize mood; gradual changes are recommended.

Whole-Food Diet – Eating pattern emphasizing minimally processed foods. Related terms: nutrient density, food synergy. Whole-food diets (e.g., Mediterranean) consistently reduce depressive symptoms and improve cognitive function. Practical implementation involves meal planning, cooking skills, and access to fresh produce. Socioeconomic barriers may limit feasibility for some populations.

Y</b