Symptom / Effect	Amino Acid	Normal	Deficien	Excess
Angina pectoris and heart failure	Histidine	1		
Anorexia	Lysine		-1	
Anxiety	Tryptophan		-1	
Arginase activity in the liver	Arginine	1		
Asthma	Histidine	1		
Behavioral changes	Phenylalanine		-1	
Binds lead in the body	Lysine	1		
Blood glucose and insulin instability	Valine		-1	
Bone development in children	Lysine	1		
Cardiovascular system	Threonine	1		
Cataract-related problems	Phenylalanine		-1	
Central nervous system	Threonine	1		
Certain forms of erectile dysfunction	Arginine	1		
Cold sores	Lysine		-1	
Component of muscle metabolism	Arginine	1		
Confusion	Phenylalanine		-1	
Depression	Tryptophan		-1	
Depression	Phenylalanine		-1	
Dizziness	Lysine		-1	
Dysplasia	Lysine		-1	
Emotional agitation	Phenylalanine		-1	
Enhances immune function	Arginine	1		
Enlargement of the liver and kidneys	Methionine			1
Excessive iron accumulation (may lead to liver necrosis)	Methionine			1
Excessive muscle tension	Phenylalanine			1
Gallbladder cancer	Tryptophan			1
Growth retardation	Lysine		-1	
Growth retardation and weight stagnation	Methionine			1
Heartburn	Histidine	1		
Helps prevent fatty liver	Threonine	1		
Helps reduce muscle rigidity	Phenylalanine	1		
Helps with weight reduction	Methionine		-1	
Hyperactivity	Phenylalanine			1
Chronic pain	Phenylalanine	1		
Imbalance and dysfunction of the central nervous system	Valine		-1	
Impaired memory	Phenylalanine		-1	
Improves heart function	Isoleucine	1		
Improves liver function	Isoleucine	1		
Improves muscle function	Leucine	1		
Improves skeletal muscle function	Isoleucine	1		
Improves walking ability in rheumatoid arthritis	Phenylalanine	1		
Improves walking ability in rheumatoid arthritis	Phenylalanine	1		
Increased total cholesterol and LDL cholesterol	Methionine			1
Increases fat metabolism	Lysine	1		
Increases plasma insulin levels	Valine	1		
Increases sperm production in men	Arginine	1		

Inflammatory conditions	Phenylalanine	1		
Influences skin, hair and eye pigmentation	Phenylalanine	1		
Insomnia	Tryptophan		-1	
Liver and pancreatic disorders	Valine		-1	
Liver damage	Tryptophan			1
Liver dysfunction	Arginine	1		
Long-term deficiency damages the brain	Valine		-1	
Loss of appetite	Methionine			1
Loss of appetite	Lysine		-1	
Lowers blood cholesterol levels	Methionine		-1	
Lowers blood pressure	Histidine	1		
Maintains healthy liver function	Threonine	1		
Maintains nitrogen balance in the body	Valine	1		
Maintains skin hydration	Threonine	1		
Multiple sclerosis	Phenylalanine	1		
Nausea	Tryptophan		-1	
Nitrogen imbalance	Valine		-1	
Nutritional anemia	Lysine		-1	
Parkinson's disease	Phenylalanine	1		
Partially stimulates the nervous system	Threonine	1		
Prevention and treatment of liver diseases	Methionine	1		
Prevention of anemia	Histidine	1		
Prevents muscle catabolism (muscle breakdown)	Isoleucine	1		
Promotes blood vessel dilation	Histidine	1		
Promotes blood vessel healing	Lysine	1		
Promotes regeneration and healing of skin and bones (after	Leucine	1		
Protects cell membranes	Threonine	1		
Putrefactive processes in the large intestine	Tryptophan			1
Recovery after physical exercise	Methionine		-1	
Reduced sexual desire	Phenylalanine		-1	
Reduces appetite	Phenylalanine	1		
Reduces body fat	Leucine	1		
Reduces dizziness	Leucine	1		
Reduces everyday stress	Tryptophan	1		
Reduces pain similarly to endorphins	Leucine	1		
Reduces the toxicity of harmful substances	Methionine		-1	
Reduces the urge to overeat	Tryptophan	1		
Regenerates damaged and exhausted tissue after exercise o	Isoleucine	1		
Regenerates muscles	Isoleucine	1		
Regulation of metabolism	Histidine	1		
Rehabilitation after injuries	Arginine	1		
Release of glucagon and growth hormone	Arginine	1		
Relieves vomiting during pregnancy	Histidine	1		
Revitalization of hair follicles and hair	Methionine		-1	
Revitalizes nails and skin	Methionine		-1	
Slows muscle loss after exercise	Arginine	1		
Stabilization of blood glucose levels	Valine	1		

Stimulates growth hormone production	Leucine	1		
Stimulates insulin release	Arginine	1		
Supports collagen production	Arginine	1		
Supports detoxification	Methionine		-1	
Supports hemoglobin production	Isoleucine	1		
Supports muscle growth	Arginine	1		
Supports proper digestive and intestinal function	Threonine	1		
Supports the immune system	Threonine	1		
Supports the lymphatic system	Methionine	1		
Supports the pancreas	Methionine	1		
Supports the spleen	Methionine	1		
Symptoms similar to hypoglycemia	Leucine	1	-1	
Treatment of allergic diseases	Histidine	1		
Tremor	Phenylalanine			1
Tremor of the limbs	Valine		-1	