

Depression

Depression is a brain disorder caused by disrupted chemical signals — serotonin (a brain messenger that steadies mood and sleep), norepinephrine (a brain messenger that powers alertness and motivation), and dopamine (a brain messenger that creates pleasure and reward) — often triggered by genes, stress, or both, leading to persistent sadness, loss of interest, and physical symptoms that can become life-threatening if suicidal thoughts arise.

THE ONE-LINE TRUTH

Depression is a medical condition in which the brain's mood and motivation systems stop working properly, causing persistent sadness, loss of interest, and changes in sleep, appetite, energy, and thinking that last at least two weeks.

The chain — how it unfolds

1. Genetics, stress, trauma, medical illness, or other triggers lower serotonin, norepinephrine, and dopamine production or increase their reuptake in the brain. — why: This is the upstream break — when these chemical messengers drop below the level needed to keep mood, motivation, and thinking circuits working, the whole system starts to fail.
2. You feel sad, empty, or hopeless most of the day, nearly every day, for at least two weeks. — why: Low serotonin and norepinephrine mean the limbic system, the emotion center, cannot stabilize mood, so sadness becomes constant instead of coming and going like it normally does.
3. You lose interest or pleasure in activities you used to enjoy, called anhedonia — hobbies, time with friends, even favorite foods feel flat or meaningless. — why: Low dopamine means the brain's reward circuit stops working, so nothing feels good or worth doing anymore — the brain cannot generate the feel-good signal that makes life enjoyable.
4. Your sleep changes — you might sleep much more than usual, called hypersomnia, or wake up at three or four in the morning and cannot fall back asleep, called early morning awakening, or have trouble falling asleep at night, called insomnia. — why: Low serotonin disrupts the hypothalamus, which sets your sleep-wake cycle, called the circadian rhythm, so your brain loses its normal day-night signal and sleep becomes chaotic.

5. Your appetite and weight change — you might eat much less and lose weight without trying, or crave comfort foods and gain weight. — why: The hypothalamus also controls hunger and satiety signals, and when serotonin is low, these signals break down — some people lose appetite completely, while others overeat to try to feel better, called emotional eating.
6. You feel exhausted and slowed down — even small tasks like getting dressed or making a meal feel impossibly hard, and you might move or speak more slowly than usual, called psychomotor retardation. — why: Poor sleep and poor nutrition starve the brain and body of energy, and low norepinephrine means the brain's alertness and motivation circuits cannot activate, so you feel physically and mentally drained all the time.
7. You cannot concentrate, remember things, or make decisions — reading, working, or even following a conversation becomes difficult. — why: The prefrontal cortex, the thinking and planning part of the brain, needs serotonin, norepinephrine, and dopamine to focus and process information, and without them, cognitive function drops — this is sometimes called brain fog in depression.
8. You feel worthless, guilty, or like a burden to others — even blaming yourself for things that are not your fault or for being depressed itself. — why: The overactive amygdala, the emotion center, amplifies negative thoughts, and the underactive prefrontal cortex cannot regulate them, so your brain gets stuck in loops of self-blame and hopelessness that feel completely real even though they are distorted by the illness.

Spot it — what you see, and why

- Feeling sad, empty, or hopeless most of the day, nearly every day: The brain's messenger chemicals — serotonin (a signal that steadies mood), norepinephrine (a chemical that gives you energy and motivation), and dopamine (the reward messenger) — drop too low. When these messengers run low, the circuits that make you feel hope and pleasure shut down, so everything feels gray and pointless.
- Loss of interest or pleasure in activities you used to enjoy: The nucleus accumbens and ventral striatum (the brain's reward center, deep inside your head) stop responding to fun or meaningful activities because dopamine levels are too low. It's like the 'like' button in your brain is broken — nothing lights up anymore.
- Trouble sleeping (sleeping too much or too little): Depression scrambles the suprachiasmatic nucleus (the brain's master clock in the hypothalamus) and lowers melatonin (the sleep hormone). Some people cannot fall asleep or wake up too early; others sleep all the time trying to escape the low mood.
- Feeling tired or having very low energy almost every day: Low serotonin and norepinephrine slow down your brain and body signals. Your brain is also working overtime trying to manage the chemical imbalance, draining energy like a phone battery stuck at 10 percent all day.

- Changes in appetite or weight (eating much more or much less than usual): The hypothalamus (the control center for hunger and fullness deep in the brain) gets thrown off by low serotonin and dopamine. Some people lose all appetite; others eat more, especially sweets and carbs, trying to boost those feel-good chemicals.
- Trouble concentrating, remembering things, or making decisions: The prefrontal cortex (the front of the brain that handles thinking, planning, and memory) slows down when serotonin and norepinephrine are low. It's like trying to run a computer with not enough power — everything lags and freezes.

Red flags — act now

- Thoughts of suicide, a plan to hurt yourself, or telling others you want to die
- Hearing voices or seeing things that are not there (psychotic depression)
- Complete inability to care for yourself — not eating, not getting out of bed, not speaking
- Rapid weight loss or severe malnutrition from not eating
- New confusion, severe memory loss, or fast worsening of thinking (may signal severe depression or another medical cause)

Treat it — in this order

1. Safety assessment and suicide risk plan → Identifies whether the person is in immediate danger of self-harm and creates concrete steps to stay safe — remove guns and pills from the home, write down a friend's phone number to call, agree to go to the emergency room if thoughts of suicide get stronger. This stops depression from reaching its deadliest outcome.
2. Selective serotonin reuptake inhibitor (SSRI, like sertraline, escitalopram, or fluoxetine) or serotonin-norepinephrine reuptake inhibitor (SNRI, like venlafaxine or duloxetine) → Blocks the pump that pulls serotonin (and norepinephrine in SNRIs) back into storage after they are released. This raises the level of these mood messengers in the synapse (the gap between brain cells) and slowly restores the mood system. Takes 4 to 6 weeks to work because the brain needs time to grow new receptors and rewire circuits.
3. Cognitive behavioral therapy (CBT) or interpersonal psychotherapy (IPT) → CBT teaches the person to catch automatic sad, self-blaming thoughts (like 'I'm worthless') and test them against reality. It also changes avoidance behaviors (like skipping social events). This rewires how the brain responds to stress and builds new neural pathways in the prefrontal cortex. IPT focuses on healing relationship problems that trigger or worsen depression.

4. Fix sleep schedule (same bedtime and wake time every day, even on weekends) and add regular aerobic exercise (30 minutes, 5 days a week) → A steady sleep-wake schedule resets the circadian rhythm (the body's internal 24-hour clock controlled by the suprachiasmatic nucleus in the brain). Exercise releases endorphins (natural feel-good chemicals) and brain-derived neurotrophic factor (BDNF, a protein that helps brain cells grow and connect). Both support serotonin balance and reduce the fatigue and low mood that fuel depression.
5. Stop all drug and alcohol use → Removes substances that disrupt the brain's chemical balance. Alcohol suppresses GABA (the brain's main calming signal) rebound and worsens depression. Stimulants cause dopamine crashes. Cannabis disrupts serotonin and motivation circuits. Stopping these allows the brain's natural mood system to heal.

Your top priorities at the bedside

1. Complete a suicide risk assessment using a screening tool like the Columbia Suicide Severity Rating Scale; remove access to firearms, pills, or other lethal means if any suicidal thoughts are present — why: Suicide is the most preventable cause of death in depression; the brain's frontal lobe (which controls impulse control) does not work properly in severe depression, so removing easy methods saves lives during the highest-risk period
2. Ask about all current medications, alcohol use, and when the last dose of any psychiatric medication was taken; watch for signs of serotonin syndrome (confusion, fast heart rate, high blood pressure, sweating, muscle twitching) if the patient is on multiple antidepressants — why: Combining certain antidepressants (especially SSRIs with MAOIs or too many serotonin drugs together) causes serotonin syndrome, a dangerous buildup of serotonin in the brain that can cause seizures, high fever, and death; also, stopping antidepressants suddenly causes withdrawal symptoms
3. Check vital signs, weight, and hydration status; look at skin turgor (pinch test) and mucous membranes to assess for dehydration — why: Severe depression shuts down appetite and thirst signals from the hypothalamus (the brain's control center); patients may not eat or drink for days, causing dangerous dehydration, electrolyte imbalances, and malnutrition that can damage the heart and kidneys