

Stahl's Illustrated

Index

- 12-step fellowships, 141
- aberrant behavior, 2
- abstinence, 4, 6–7: acamprosate, 52; disulfiram, 56; familial support, 140; mutual support groups, 141; naltrexone, 54, 73; and reduced-risk drinking, 48–9; smoking, 85, 94; from stimulant use, 109; topiramate, 57
- abuse, defined, 2
- acamprosate, alcohol abstinence, 52–3
- acetylcholine (ACh), 16, 78, 151
- acute withdrawal, mechanism of, 30–1
- addiction, 1–2: neurobiology of, 24–5; patterns of, 6–7; risk factors for, 5
- addiction cycle, 4, 28–9
- aggression, impulsive, 149–51
- alcohol, 35: consumption and risk of AUD, 41; mechanism of action in the VTA, 36–7; mechanism of dopamine increase, 14; monitoring and follow-up, 60; pattern of addiction, 6–7; pharmacological treatments, 50–7; psychosocial treatment, 51; recommended drinking limits, 40; reduced-risk drinking, 48–9; screening methods, 42–3; standard drink, 38–9; treatment strategies, 44–7; withdrawal syndrome, treatment of, 58–9
- alcohol withdrawal syndrome (AWS), treating, 58–9
- alpha 4 beta 2 nicotinic receptors, 78–81
- amotivational syndrome, long-term marijuana use, 116
- AMPA/NMDA receptor ratio, 26–7
- amphetamine, 99–103
- amygdala: CRF activation during acute withdrawal, 30–1; and flashbacks, 127; impulsive aggression, 150–1; role in reward system, 18–19, 23; stress circuit, 28–9
- anterior cingulate cortex (ACC), 25, 151
- anticonvulsants, 57, 107, 151
- antidepressants, 9, 50, 65, 75, 107
- atypical antipsychotics, aggression, 151
- AUDIT (Alcohol Use Disorders Identification Test), 42–3
- aversion therapy, 136–7
- barbiturates, 123
- “bath salts,” 131
- behavioral addictions see impulse control disorders (ICDs)
- behavioral therapies, 136–7
- benzodiazepines (BZs): for alcohol withdrawal, 50, 59; alternative to barbiturates, 123; for opioid withdrawal, 75

- brain stress system, 28–9
 brief intervention for smoking cessation, 83
 buprenorphine, 70–1: DEA DATA 2000
 waiver to prescribe, 72; opioid
 withdrawal treatment, 65, 67, 74–5
 bupropion, smoking cessation, 85, 94–5
- cannabinoids (CBs), 16–17: actions on
 reward circuits, 114; mechanism of
 dopamine increase, 14; retrograde
 neurotransmitters, 115
 clonidine/naltrexone, 74–5
 clonidine, opioid withdrawal, 74–5
 club drugs, 128–9
 cocaethylene, 106
 cocaine, 99–100: effects and treatment, 105;
 and ethanol interaction, cocaethylene,
 106; experimental treatments, 110–11;
 pharmacological treatment, 107;
 progression of abuse, 104; route of
 administration, 103; vs.
 methamphetamine, 101–2; withdrawal
 symptoms, 109
 cocaine esterase (CocE), 111
 cognitive behavioral therapy (CBT), 135–6
 community reinforcement, 136–7
 comorbid psychiatric illness and substance use,
 treatment issues, 8–9
 compulsion/compulsivity, 4, 6: categorization
 of disorders of, 146; drug addiction as
 disorder of, 4, 144; neurobiology of,
 24–5; obsessive compulsive disorder,
 143, 146, 155; stress circuit
 implicated in, 28–9
 conditioning, 23, 56, 104, 127, 151
 contingency management, 136–7
 corticotropin releasing factor (CRF), 28–31,
 33
 craving, 4, 6, 7, 23–5, 144: bupropion
 alleviating, 94; cue exposure therapy,
 137; methadone suppressing, 69;
 nicotine patches controlling, 90
- cue exposure, 136–7
- delta-9-tetrahydrocannabinol (THC), 114, 119
 delta opioid receptors, 63
 dependence, defined, 2
 “designer drugs,” 125
 diagnostic criteria *see* DSM-V proposed criteria
 dimethyltryptamine (DMT), 125
 disorders of impulsivity and compulsivity, 143:
 gambling disorder, 147; hair pulling,
 skin picking and OCD, 155;
 hypersexual disorder, 152; impulsive
 aggression and IED, 149; proposed
 DSM-5 categorization of, 146;
 pyromania and kleptomania, 148;
 similarities between SUDs and ICDs,
 144–5
 disulfiram, alcohol abstinence, 56
 dopamine (DA) and reward circuit, 12–18:
 actions of alcohol, 36–7, 54; actions of
 nicotine, 78–81, 94; actions of
 opioids, 62; and compulsive
 use/addiction, 25; conditioning
 mechanism, 23; and stimulant abuse,
 100–4; tolerance and acute
 withdrawal, 30–1
 dopamine transporter (DAT), 14, 101–2
 dorsal striatum, 13, 23–5
 dorsolateral prefrontal cortex (DLPFC), 13, 19,
 21, 25
 drinking behavior and risk of AUD, 41
 drinking limits, 40
 dronabinol, marijuana withdrawal, 119
 drug administration route, 82, 103
 DSM criteria for SUDs, similarities to
 ICDs, 145
 DSM-V proposed criteria: hair pulling and skin
 picking, 155; hypersexual disorder,
 152; for ICDs, 146, 155; for SUDs, 3,
 146
 dynorphin (Dyn), 30–2, 63
 dysphoria, 6, 7, 32, 63–4, 144

- "ecstasy," 125
 endocannabinoids, 115
 endogenous opioids, 49, 54, 62–3
 enkephalin, 28, 36–7, 62–3
 epigenetic mechanisms, 5, 33
 exogenous opioids, 63
- family therapy, 140
 flashbacks, hallucinogen abuse, 127
 follow-up: alcohol use disorder, 60; opioid withdrawal, 67; smoking cessation, 84
 food addiction, 154
 "foxy" (5-methoxydiisopropyltryptamine), 125
 freon, "huffing" of, 131
- GABA (gamma aminobutyric acid), 14, 16–19, 22–3: acamprosate effects, 52; alcohol effects, 36–7; and anxiety/panic attacks in MWS, 32; nicotine effects, 78–9; role in tolerance and acute withdrawal, 30–1; sedative hypnotics, 122–3; topiramate effects, 57
- gambling disorder, 147
 genetic contributions to addiction, 5
 glutamate (glu), 16, 30: acamprosate effects on, 52; action of club drugs, 128; and acute withdrawal, 31; and alcohol action in the VTA, 36–7; and development of addiction, 26–7; and nicotine action in the VTA, 78–9; topiramate's effects on, 57
- goal-directed behavior, output of reward system, 22
 gum, nicotine replacement therapy, 88–9
- hair pulling disorder, 146, 155
 hallucinogens, 124–5: long-term effects, 127; mechanism of action, 126–7
 huffing, 131
 hypersexual disorder, 152
- impulse control disorders (ICDs), 143: criteria for SUBs applicable to, 145; food addiction, 154; intermittent explosive disorder (IED), 149; Internet addiction, 153; pathological gambling, 147; proposed DSM-5 categorization of, 146; pyromania and kleptomania, 148; versus SUDs, 144
- impulsion/impulsivity: brain circuits implicated in, 28–9; impulsive aggression, 149–51; progression to compulsivity, 4
- impulsive aggression, 149–51
 intermittent explosive disorder (IED), 149
 Internet addiction, 153
 interpersonal therapy (IPT), 139
 intoxication, 4, 6, 7: effects of phencyclidine (PCP), 129; symptoms of hallucinogenic, 125; symptoms of marijuana, 116; symptoms of opioid, 64; treatment of stimulant, 105
- irritability, 7, 32, 75, 105, 119, 151
- kappa opioid receptors, 63
 ketamine, 128–9
 kleptomania, 148
- long-term potentiation (LTP), 27
 lozenges, nicotine replacement therapy, 88, 93
 LSD (D-lysergic acid diethylamide), 125
- marijuana, 7, 113: actions on reward circuits, 114; effects of, 116; pattern of addiction, 6–7; pharmacological treatment, 117; psychosocial treatment, 118; and retrograde neurotransmission, 115; withdrawal symptoms, 119
- MDMA (3,4-methylene-dioxymethamphetamine), 125, 127
- mephedrone in "bath salts," 131
 mesolimbic dopamine pathway, 12–13

- metabotropic glutamate receptor (mGluR), 36–7
- methadone, 65, 67–9, 74–5
- methamphetamine, 99–105, 109
- methylenedioxypyrovalerone (MDPV), 131
- methylone in “bath salts”, 131
- methylphenidate, 99–103
- misuse, defined, 2
- monitoring of AUD patients, 60
- motivational enhancement therapy (MET), 138
- motivational interviewing, 138
- motivational withdrawal syndrome (MWS), 32
- mu opioid receptor (MOR), 14, 16: actions of
 - alcohol, 36–7, 54; buprenorphine, 70;
 - methadone, 69; naloxone, 71;
 - naltrexone, 54, 73; reinforcement role, 63
- multiple substance use, 9, 27
- N*-methyl-D-aspartate (NMDA), 26–7, 36–7, 52, 129
- naloxone, 71, 75
- naltrexone: for alcohol use disorder, 54–5;
 - kleptomania treatment, 148; for opioid use disorder, 67, 73; opioid withdrawal treatment, 74–5
- nasal inhalers, 88, 92
- nasal sprays, 88, 91
- National Institute on Alcohol Abuse and Alcoholism (NIAAA), 40–1, 43
- neurobiology of reward and drug
 - addiction, 11: acute withdrawal, 30–1; addiction cycle and brain stress system, 28–9; compulsive use/addiction, 24–5; conditioning to reward cues, 23; dopamine and reward, 12–15; goal-directed behavior, turning reward into, 22; loss of control over drug use, 26–7; motivational withdrawal syndrome (MWS), 32; neurotransmitter regulation of mesolimbic reward, 16; reactive reward system, 18; reflective reward system, 19; relapse, 33; substrates for reinforcing effects of drugs, 17; temptation vs. willpower, 20–1; tolerance development, 30–1
- neuropeptide Y (NPY), 30–2
- neurotransmitters, 16, 17, 30–1:
 - endocannabinoids as retrograde, 115;
 - endogenous opioid, 63; involved in symptoms of MWS, 32
- nicotine, 77: actions in the VTA, 78–9; alpha 4 beta 2 nicotine receptors, 80–1; brief intervention for smoking cessation, 83; dopamine increase, mechanism of, 14; effects of, function of delivery mode, 82; management strategy, 84; pattern of addiction, 6–7; pharmacological treatment, 85, 94–7; psychosocial treatment, 86–7; replacement therapy, 88–93
- nicotine replacement therapy, 82, 85, 88:
 - nicotine gum, 89; nicotine inhalers, 92;
 - nicotine lozenges, 93; nicotine nasal spray, 91; nicotine patch, 90
- nicotine vaccine, 85
- nicotinic receptors, 14, 78–81
- NMDA (*N*-methyl-D-aspartate)
 - receptors, 26–7, 36, 37, 52, 129
- norepinephrine (NE), 28, 30–3, 94, 101, 125
- nucleus accumbens (NAc), reward
 - system, 12–14, 16–22: action of opioids on, 62–3; actions of hallucinogens, 124–5; actions of marijuana on, 114; actions of nicotine on, 79; actions of stimulants on, 100; bupropion's effects, 94; implicated in relapse, 33
- obesity, 154
- obsessive compulsive disorder (OCD), 143, 146, 155

- opioid receptors, 16, 37, 54, 63, 69, 70, 73, 147
- opioids, 61: actions on reward circuits, 62; endogenous opioid neurotransmitters, 63; mechanism of dopamine increase, 14; pattern of addiction, 6–7; pharmacological treatment, 65, 68–73; psychosocial treatment for OUD, 66; screening for misuse of, 64; treatment settings, 67; withdrawal treatment, 74–5
- orbitofrontal cortex (OFC), 19, 21, 25, 151
- panic, 32, 116, 125
- pharmacological treatment: for alcohol use disorder, 50, 52–7; for alcohol withdrawal syndrome (AWS), 58–9; for marijuana use disorder, 117; for opioid use disorder, 65; for stimulant use disorder, 107
- phencyclidine (PCP), 128–9
- precursor proteins, 63
- prefrontal cortex (PFC), 13, 19, 21: and compulsive use/addiction, 24–5; and goal-directed behavior, 22; hypoactivity in impulsive aggression, 151; hypoactivity in obese patients, 154; and loss of control over drug use, 26–7
- pregnancy: and nicotine replacement therapies, 88; and reduced-risk drinking, 49
- prescription opioids, overdose from, 61
- pro-opiomelanocortin (POMC), 63
- pseudo-addiction, 2
- psychiatric illness and comorbid substance use, treatment issues, 8–9
- psychosocial treatment, 133–4: 12-step facilitation/fellowships, 141; for alcohol use disorder, 51; behavioral therapy, 136–7; cognitive behavioral therapy (CBT), 135–6; family therapy, 140; interpersonal therapy (IPT), 139; for marijuana use disorder, 118; motivational enhancement therapy (MET), 138; for nicotine dependence, 86–7; for opioid use disorder, 66; for stimulant use disorder, 108
- pyromania, 148
- reactive reward system, 18–19, 21, 27, 154
- recommended drinking limits, 40
- reduced-risk drinking, 48–9
- reflective reward system, 19, 21–2, 25, 27
- reinforcement, 4, 12, 16, 30: and alpha 4 beta 2 nicotine receptors, 80–1; and dopamine increase, 15, 103; and glutamatergic dysfunction, 27; mu receptors in the VTA, 63; substrates, 17
- relapse, 33
- reward circuits: activated in addiction, 28–9; dopamine mesolimbic pathway, 12–13; marijuana and THC actions on, 114; opioid actions on, 62; stimulant actions on, 100
- risk factors: for addiction, 5; for relapse, 33
- screening methods: alcohol use disorder, 42–3; opioid misuse, 64
- sedative hypnotics, 122–3
- serotonin (5HT), 16: and dysphoria, 32; and hallucinogens, 124–7; regulation of aggression, 151
- SERT (serotonin transporter), 126–7
- skin picking disorder, 155
- smoking cessation: brief intervention, 83; management strategy, 84; nicotine replacement therapy, 88–93; pharmacological treatment, 85, 94–7; psychosocial treatment, 86–7
- SSRIs (selective serotonin reuptake inhibitors), 50, 151–2
- standard drinks, 38–9

- stimulants, 99: abuse potential, 103; actions on reward circuits, 100; cocaethylene, 106; cocaine vs. methamphetamine, 101–2; effects and treatments, 105; experimental treatments, 110–11; mechanism of dopamine increase, 14; pattern of addiction, 6–7; pharmacological treatments, 107; progression of abuse, 104; psychosocial treatment, 108; synthetic, “bath salts,” 131; withdrawal from, 109
- stress: brain circuit implicated in addiction, 28, 29; during acute withdrawal, 31; neurotransmitters linked to, 32; relapse trigger, 27, 33; risk factor for addiction, 5, 33
- striatum, 13, 15, 22–5
- substance use disorders (SUDs): and comorbid psychiatric illness, 8–9; proposed DSM-V criteria, 3, 146; similarities with ICDs, 144–5
- support groups, 141
- synthetic drugs, 125, 131
- telephone quit lines, smoking cessation, 87
- temptation vs. willpower, 20–1
- thalamus, 13, 22, 25
- THC (delta-9-tetrahydrocannabinol), 114, 119
- tolerance, 2, 6–7; development of, 30–1; hallucinogens, 127
- topiramate, 50, 57, 59
- trends for getting high, 130–1
- trichotillomania (hair pulling disorder), 146, 155
- tricyclic antidepressants (TCAs), 9, 50, 107
- Twelve-Step Facilitation (TSF), 141
- twelve-step fellowships, 141
- vaccines: cocaine dependence, 110, 111; nicotine dependence, 85
- varenicline, smoking cessation, 85, 96–7
- ventral tegmental area (VTA), 12, 14, 16, 17, 28: actions of alcohol in, 36–7; actions of nicotine in, 78–9; and actions of opioids, 62–3; and drug-induced craving, 24–5; and loss of control over drug use, 27; reactive reward system, 18; and temptation, 20–1
- ventromedial prefrontal cortex (VMPFC), 13, 19
- vesicular monoamine transporter (VMAT), 102
- voltage-sensitive calcium channels (VSCC), 36, 37
- willpower vs. temptation, 20–1
- withdrawal, 4: acute, mechanism of, 30–1; alcohol withdrawal syndrome, 58–9; marijuana, 119; motivational withdrawal syndrome, 32; opioids, symptoms of, 64; opioids, treatment of, 67, 74–5; stimulants, 109