

Periodic Table of the Intoxicants

At the heart of all rewarding experiences, whether natural or drug-induced, lies the brain neurotransmitter **dopamine**. Dopamine helps us attend to, learn, and then predict rewards that are important for survival by enabling a very specific but crucial component of reward known as **incentive salience**. So dopamine is more a chemical of "wanting" than it is "pleasure," or "liking." To create a full pleasurable experience, the brain uses chemicals besides dopamine such as glutamate, GABA, endogenous opioids, and endocannabinoids. Nevertheless, certain drugs and behaviors are addictive because they cause inappropriately large and fast increases in dopamine signaling that overwhelm the normal reward-learning process and give that drug or behavior greater value than more functional behaviors.

We can arrange all dopamine-releasing drugs and behaviors into a "Periodic Table" much the way chemists do with elements - by their class, structure, and properties. The drugs and behaviors below are arranged by their categories (rows) and potency, abusability, or harm (left to right). A person with a problem with a drug or behavior in one category may develop a problem with any of the other drugs or behaviors on the table. Use of that drug or behavior (or even exposure to associated stimuli) may cause relapse to the original drug of choice. This is the phenomenon of **cross-addiction**.

1 ns* AI ethanol																	2 CII C cocaine											
				3 ns Cf caffeine	4 otc* N nicotine																							
5 CI Cb cannabinol	6 CI Mj THC	7 CI Ha hashish	8 CI Sp cannibicyclo													9 ns Ab thujone	10 CI Ib ibogaine	11 CI Ms mescaline	12 CI Ps psilocybin	13 CI 2c DOC	14 CI Dp DPT	15 CI Dt DMT	16 CI L LSD					
17 ns No nitrous ox.	18 otc Dx DXM	19 CI/ns Sa salvinorin	20 CIII K ketamine	21 CI Pc phencycl.													22 otc* Ep ephedrine	23 CIV Mo modafinil	24 CIV Ff phenentermine	25 CII Ri methyphen.	26 CI Kh cathinone	27 CI Ba MDPV	28 CI X MDMA	29 CI/II A amphetam.	30 CI/II Me methamph.			
31 CV Ly pregabalin	32 CIV Sm carisoprodol	33 CIV Am zolpidem	34 CIV So zaleplon	35 CIV Lu eszopiclone	36 CIV Ch chl. hydrate	37 CI/III G GHB	38 CI Q methaqual.	39 CIV Pb phenobarb.	40 CII Sb secobarbital	41 CIII Fb butalbital	42 CIV Cz chlordiaz.	43 CIV Oz oxazepam	44 CIV Tz temazepam	45 CIV Lz lorazepam	46 na Rz flunitraz.	47 CIV Dz diazepam	48 CIV Hx triazolam	49 CIV Kz clonazepam	50 CIV Xz alprazolam									
51 CIII* Bu buprenorph.	52 ns Na nalbuphine	53 CIV St butorphanol	54 CIV/ns Ul tramadol	55 ns Kr mitragynine	56 CIV Tw pentazocine	57 na Dv propoxyph.	58 CII O opium	59 CIII Co codeine	60 CIII Vi hydrocod.	61 CII Ox oxycodone	62 CII Dm meperidine	63 CII M morphine	64 CI H heroin	65 CI Ko desomorph.	66 CII Di hydromorph.	67 CII Op oxymorph.	68 CII* Md methadone	69 CII Fe fentanyl	70 CII(v) Ca carfentanil									
71 ns An amyl nitrite	72 ns/Rx Po propofol	73 ns/Rx Ih inhal. anes.	74 ns Cl chloroform	75 ns De diethyl ether	76 ns Pe petrol gases	77 ns Ae aerosols	78 ns Or org solvents													79 CIII Ts testosterone	80 CIII Bs boldenone	81 CIII Ds methandro.	82 CIII Ns nandrolone	83 CIII Ss stanozolol	84 CIII Os oxymethol.	85 CIII As oxandrolone	86 CIII(v) Fs trenbolone	87 CIII Hs fluoxymest.

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Controlled Substances Act (1970) Schedules:

CI - drug has a high potential for abuse and dependency and no accepted legitimate medical use; unsafe and illegal for prescription, use, and/or possession

CII - drug has a high potential for abuse and dependency but an accepted medical use; strictly restricted prescribing and possession

CIII - drug has a significant potential for abuse and dependency but accepted medical use; restrictions on prescribing and possession

CIV - lower potential for abuse and dependency relative to CIII; accepted medical use; prescribing and possession restrictions apply

CV - lowest potential for abuse and dependency relative to CIV; accepted medical use; restrictions apply

88 ns* Mi media	89 ns Rl relationships	90 ns Cd codepend.	91 ns Pf performance	92 ns Sh shopping	93 ns Cu cults	94 ns F food/sugar	95 ns* Gm gambling	96 ns* Sx sex	97 ns* Rg rage
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ns - not scheduled
ns/Rx - not scheduled, prescription required
otc - available over the counter
(v) - veterinary use only
na - not available in the US
* additional legal restrictions apply (ex. age of consumer, place of acquisition or performance of behavior, limited quantities for purchase, prescriber required to have special certification, or the drug or behavior involves additional criminal restrictions due to risk of public harm)



SEDATIVE/HYPNOTIC	1.	Al	ethanol (beer, wine, distilled spirits)
MAJOR STIMULANT	2.	C	cocaine (cocaine salt/base, "crack")
MINOR STIMULANTS	3.	Cf	caffeine (coffee, tea, cola, chocolate)
effects: incr concentration & heart rate, anxiety, decr fatigue	4.	N	nicotine (tobacco, Nicorette, E-cigs)
CANNABINOIDS	5.	Cb	cannabinol (CBN)
effects: decr anxiety, elevated mood, analgesia, appetite stimulation, sedation, paranoia, psychosis	6.	Mj	tetrahydrocannabinol (THC), cannabis
	7.	Ha	hashish (BHO: butane hash oil, "dabs")
	8.	Sp	cannabicyclohexanol ("Spice," "K2")
ENTHEOGENS	9.	Ab	thujone (wormwood, absinthe)
effects: perceptual & psychic distortions, euphoria, visual hallucinations, heightened thought processes, synesthesia, personally profound mystical experiences	10.	Ib	ibogaine (<i>Tabernanthe iboga</i>)
	11.	Ms	mescaline [<i>Lophophora</i> (peyote) cactus]
	12.	Ps	psilocybin (<i>Psilocybe spp</i> mushrooms)
	13.	2c	2,5-dimethoxy-4-chloroamphetamine (DOC)
	14.	Dp	<i>N,N</i> - dipropyltryptamine (DPT)
overdose: nausea, anxiety, panic attacks, psychosis	15.	Dt	<i>N,N</i> - dimethyltryptamine (DMT)
	16.	L	lysergic acid diethylamide (LSD)
DISSOCIANTS	17.	No	nitrous oxide (N ₂ O, laughing gas, "whippets")
effects: dissociative anesthesia, hallucinations, depersonalization	18.	Dx	dextromethorphan (DXM, Robitussin)
overdose: psychotomimesis, agitation, delirium, psychosis, seizures, coma	19.	Sa	salvinorin A (<i>Salvia divinorum</i>)
	20.	K	ketamine (Ketalar)
	21.	Pc	phencyclidine (PCP, angel dust, "sherm")
MAJOR STIMULANTS	22.	Ep	ephedrine (<i>Ma huang</i>)
effects: incr alertness, awareness, locomotion, motivation, endurance; incr heart rate & blood pressure; euphoria, anorexia, sweating, dilation of pupils & bronchioles	23.	Mo	modafinil (NuVigil)
	24.	Ff	phentermine (Phen-Fen)
	25.	Ri	methylphenidate (Ritalin, Concerta)
overdose: anxiety, insomnia, bruxism, paranoia, hallucinations, delusions, hyperpyrexia, cardiac arrest, stroke, death	26.	Kh	cathinone (<i>khat</i>)
	27.	Ba	methylenedioxypropylvalerone (MDPV)
	28.	X	methylenedioxymethamphetamine (MDMA)
	29.	A	amphetamine (Dexedrine, Adderall, crank)
	30.	Me	methamphetamine (Desoxyn, crystal meth)
SEDATIVE/HYPNOTICS	31.	Ly	pregabalin (Lyrica)
effects: relaxation, decr anxiety; sleep induction; CNS depression; euphoria; anticonvulsant, anesthesia; decr inhibitions, incr confidence, tolerance	32.	Sm	carisoprodol (Soma)
	33.	Am	zolpidem (Ambien)
	34.	So	zaleplon (Sonata)
	35.	Lu	eszopiclone (Lunesta)
	36.	Ch	chloral hydrate (Noctec)
overdose: dizziness, slurred speech, confusion, decr coordination, decr reaction time, nausea, vomiting, impaired judgment, anterograde amnesia ("blackouts"), coma, aspiration pneumonia, respiratory depression, apnea	37.	G	gamma-hydroxybutyrate (GHB, Xyrem)
	38.	Q	methaqualone (Quaalude)
withdrawal effects: sweating, agitation, insomnia, hallucinations, dysphoria, seizures, delirium tremens	39.	Pb	phenobarbital (Luminal)
	40.	Sb	secobarbital (Seconal)
	41.	Fb	bitalbital (Florinal, Fioricet, Egesc)
	42.	Cz	chlordiazepoxide (Librium)
	43.	Oz	oxazepam (Serax)
	44.	Tz	temazepam (Restoril)
	45.	Lz	lorazepam (Ativan)
	46.	Rz	flunitrazepam (Rohypnol)
	47.	Dz	diazepam (Valium)
	48.	Hz	triazolam (Halcion)
	49.	Kz	clonazepam (Klonopin)
	50.	Xz	alprazolam (Xanax)

OPIATES/OPIOIDS	51.	Bu	buprenorphine (Subutex, Suboxone, Zubsolv)
effects: analgesia, euphoria, sedation, anti-tussive (decr cough), nausea, anti-diarrheal (constipation), itching/hives, urinary retention, constricted ("pinned") pupils, decr libido	52.	Na	nalbuphine (Nubain)
	53.	St	butorphanol (Stadol)
	54.	UI	tramadol (Ultram, Ultracet)
	55.	Kr	mitragynine (<i>Mitragyna speciosa</i> , "Kratom")
overdose: respiratory depression, respiratory arrest, coma, cardiovascular collapse, death	56.	Tw	pentazocine (Talwin)
	57.	Dv	propoxyphene (Darvon, Darvocet, Wygesic)
withdrawal effects: agitation, anxiety, muscle cramps, bone pain, sighing, yawning, chills, "gooseflesh," dysphoria, diarrhea, sweating, runny nose, insomnia, irritability, depression, hypertension	58.	O	opium (poppy straw concentrate, laudanum)
	59.	Co	codeine (Tylenol #3/#4, Cheracol, "Purple Drank")
	60.	Vi	hydrocodone (Vicodin, Lortab, Norco, Zogenix)
	61.	Ox	oxycodone (Percocet, Percodan, OxyContin)
	62.	Dm	meperidine (Demerol, Pethidine)
	63.	M	morphine (MS Contin, Oramorph)
	64.	H	diacetylmorphine (heroin, black tar, china white)
	65.	Ko	desomorphine ("krokodil")
	66.	Di	hydromorphone (Dilaudid)
	67.	Op	oxymorphone (Opana, Numorphan)
	68.	Md	methadone (Dolophine, Methadose)
	69.	Fe	fentanyl (Duragesic, Actiq, Sublimaze)
	70.	Ca	carfentanil (Wildnil)

INHALANTS AND ANESTHETICS	71.	An	amyl nitrite, butyl nitrite ("poppers," "snappers")
effects: dizziness, nausea, confusion, headache	72.	Po	propofol (Diprivan)
	73.	Ih	inhalational anesthetics (enflurane, isoflurane)
overdose: vomiting, fainting, asphyxiation, coma, death due to anoxia	74.	Cl	chloroform
	75.	De	diethyl ether
long-term effects: non-reversible neurotoxicity, hepatotoxicity	76.	Pe	petroleum gases (butane, propane)
	77.	Ae	aerosol propellants (difluoroethane, "duster")
	78.	Or	volatile organic solvents (paint, glue, toluene)

ANABOLIC-ANDROGENIC STEROIDS	79.	Ts	testosterone (AdroGel, Androderm, Sustenon)
effects: incr muscle mass & strength, endurance, motivation & training intensity, competitive confidence, euphoria, expression of male sex characteristics	80.	Bs	boldenone (Equipose)
	81.	Ds	methandrostenolone (Dianabol)
	82.	Ns	nandrolone (Durabolin, Deca-Durabolin)
	83.	Ss	stanozolol (Winstrol)
long-term effects: male-pattern baldness, cystic acne, testicular atrophy, gynecomastia, impotence, mood swings, stria, sexual assault, hypercholesterolemia	84.	Os	oxymetholone (Anadrol)
	85.	As	oxandrolone (Anavar/Oxandrin)
	86.	Fs	trenbolone (Finaplix)
	87.	Hs	fluoxymesterone (Halotensin)

PROCESS ADDICTIONS	88.	Mi	media (internet, video gaming, "Facebook")
Although their inclusion as bona-fide addictions is controversial (except gambling), many pleasurable behaviors can evolve into processes that resemble chemical addictions. These behaviors are believed to activate the same neural mechanisms as chemical addictions and respond to similar treatments	89.	Rl	relationships ("love addiction")
	90.	Cd	codependency
	91.	Pf	performance (extreme sports, "workaholism")
	92.	Sh	compulsive spending, "shop-aholism"
	93.	Cu	cults
	94.	Gm	pathological gambling
	95.	F	food (sugar, salt, fat, binge eating, bulimia)
	96.	Sx	sex (sexual compulsivity, pornography)
	97.	Rg	rage & violence

