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The WHO Global Information System on Alcohol and Health (GISAH) provides easy and rapid access to a wide range of alcohol-related health indicators. It is an essential tool for assessing and monitoring the health situation and trends related to alcohol consumption, alcohol-related harm, and policy responses in countries. For country profiles, maps, reports, and links please see the theme page by clicking on http://www.who.int/gho/alcohol/en/.

GISAH is overseen by a Steering Committee comprised of representatives from the WHO Department of Mental Health and Substance Abuse, the Centre for Addiction and Mental Health (Canada), Addiction Suisse (Switzerland), and Johns Hopkins

In this section:

- Levels of Consumption
- Patterns of Consumption

- Harms and Consequences
- Economic Aspects
- Alcohol Control Policies
- Prevention, Research, Treatment
- Youth and alcohol
- Key alcohol indicators relevant to Sustainable Development Goals (SDGs)
- Key alcohol indicators relevant to noncommunicable diseases
- Alcohol Policy Timeline Database of countries in the WHO European Region

National Conference for Lawyer Assistance Programs
Next Generation: Changing the Culture of the Legal Profession
September 25-27, 2018

Difficult Personality Traits Made Easy:
How to Work Well with Others Who Challenge You

September 26, 2018
3:30 p.m. – 4:45pm
Session 1

Douglas S. Querin, JD, LPC, CADC I Attorney Counselor
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Difficult Personality Traits Made Easy: How to Work Well with Others Who Challenge You
(Effectively Communicating & Interacting with Others)

A. Introduction
- Oregon Attorney Assistance Program (OAAP)
- Who we & why we're here
- Goals and objectives

B. *Some* Personal Characteristics (+ & -) – Helpful, adaptive (but sometimes problematic) styles within Legal Profession
- Pessimism & Skepticism
- Resilience
- Goal-oriented
- Competitive/adversarial
- Linear & black/white thinking
- Patient/Impatient
- Risk averse/Conflict averse
- Introspection/self-awareness
- Detail-oriented

C. *Some* Health/Well-Being issues within the Legal Profession
- Substance use
- Depression/Anxiety
- Suicide

D. Communication: How We Talk & How We Listen
- Talking - Styles
    - Passive: Premised on compliance and avoiding conflict. The Message: We are unsure of, or do not feel strongly about, our purpose or goals; may also suggest lack of interest. Result: We fail to establish connection or effectively communicate our message.
    - Aggressive: Premised on a *power-over* approach; often based on manipulation, intimidation, control, or guilt-inducing language. The Message: Although the intended message *may* be clear (if it is not lost in the delivery), the presentation is confrontational and/or can be perceived as controlling and/or disrespectful of listener. The Result: Mutual respect and trust are undercut and relationship can be damaged.

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    - "Assertive" (clear, direct, and empowering communication): Premised on mutual respect, building trust, confidence, and clarity. The Message: Direct, respectful and honors autonomy. The Result: Generally most effective in communicating our message, recommendations, opinions, or feelings as helpers and enhancing the relationship.
- Listening – Styles
    - Common listening modes
        - Competitive: Talking, not listening; not seeking to understand another's issues or point of view.
        - Passive: Interested & attentive, but without verifying the content of the communication/message of the speaker.
        - Active/Reflective: Interested & attentive … *and* seeking to verify what is being said by acknowledging, restating or paraphrasing (reflecting); paying attention to non-verbal communications – our own & others'.
- Motivational Interviewing
    - Helpful, irrespective of another's challenging personality styles/behaviors
        - Collaborative, respect, trust, genuine, confidence, empathy, nonjudgment, autonomy/self-efficacy.
    - Consistent w/ Assertive speaking & Reflective listening skills
        - Approach will vary depending on client needs and personality style. Does client need direction, guiding, coaching, or simply someone to listen?

E. Working with Clients/Behaviors, Challenging *and Otherwise*

- Challenging behavior & conflict are *generally* about … NEEDS that are threatened or have not been met: Recognition, success, control, affection, respect, security, etc.
- Some *general* realities about most clients:
    - *Their* issues and goals are why they seek help
    - Their best efforts have not worked
    - They may be anxious, apprehensive, and/or fearful
    - They may have preconceived expectations
    - Some respond to their realities in *challenging and/or unpleasant ways*
- What most clients want (and need):
    - To be respected, heard, and understood
    - To have an ally
    - To be treated as an individual
    - To be told the truth
    - To have options
    - To have hope
- Generally - *Ineffective* responses when dealing with challenging people/behavior
    - Ignoring problematic behavior
    - Responding in kind

    - Blaming, shaming, judging
    - Sarcasm
    - Embarrassing
    - Labelling or pathologizing
- Generally – *Effective r*esponses when dealing with challenging people/behavior
    - Staying centered/grounded; self-care!
    - Seeking to understand the message and underlying needs
    - Seeking to problem-solve, but alongside
    - Respecting/encouraging autonomy
    - Focusing on the behavior, not the person
    - Using effective communication
- And …. some other considerations
    - Identify issues, goals, and priorities early
    - Manage expectations; be empathic, but candid
    - Be curious, but cautious
    - W.A.I.T. = Why Am I Talking?
    - Silence can be golden
    - Avoid interrupting
    - Be careful with self-disclosures
    - Face the speaker & maintain eye contact
    - Keep an open mind; listen w/o judging
    - Reflect, summarize and ask clarifying questions, when appropriate
    - Non-verbal feedback (e.g., reflecting back, nodding, displaying *appropriate* facial expressions – demonstrate we are listening)
    - Seek to understand the speaker's feelings, needs, concerns, and/or emotional state (aka *empathy*)
    - Fidelity – doing what we say we'll do
    - Consult when necessary; refer when necessary
- Brief Comments: Clients with substance abuse issues
    - Restless, irritable & discontent
    - Often: Coexisting depression/anxiety issues
    - Often: Professional & Personal issues
    - Why seeking assistance *now*?
    - Be *careful* about:
        - Labelling (How does client self-identify?)
        - Getting ahead of client on presenting issues
    - Honor autonomy; allow client to experiment w/solutions
    - Discuss available resources: Internet, literature, support meetings, assessments, treatment options, etc.
    - Clients typically are looking for Hope
    - Suicidality (with or without substance use issues) – be alert and not timid to inquire and address the issue

- Be clear and concise; confirm understanding
- Schedule follow-up
- Consult and/or refer when necessary

#####

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Difficult Personality Traits Made Easy:
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Session 2

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DRIVING ME CRAZY: DIFFICULT PERSONALITY TRAITS

Introduction: (Engagement, Framework & Handicap)

Personality traits or disorders. Other mental illnesses

"The Wave"

Narcissistic: grandiosity, lack of empathy

Paranoid: distrust and suspicion

Schizophrenic: thinking, judgement, senses, behaviour

Bipolar: depression and elation

Antisocial: disregard for the rights of others

Histrionic: attention seeking, overemotional, seductive

Borderline: impulsivity and instability
Potentially very time consuming.
The most difficult to handle for professionals and organisations.

Counter-transference

Conclusion

Other questions, comments?

Thank-you for your interest!

If you have further issues to discuss please contact me.

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DRIVING ME CRAZY: DIFFICULT PERSONALITY TRAITS

Introduction: (Engagement, Framework, Handicap)

1) **Recognize and value the expertise of the person**, and avoid a power struggle.

As lawyer and/or counselor, you are the expert.
You tell the client, or colleague, or boss, he or she is the expert of his dissatisfaction, problem, and pain.

2) **Lower the expectation, to lessen the disappointment**.

3) **After lowering expectations, leave hope for limited but positive results.**

We can still be helpful; offer something useful. Offer a point of view, practical suggestions.
You offer the client your knowledge of law, counseling expertise, referral resources, your organization, patience, attention, understanding, empathy.

4) **Engage** the other in at least **limited collaboration**:

By simply asking "Is that OK with you? While nodding your head.
It's not deeply psychological, but it works.

5) **Set limited framework:**

Time limit, expectations, issues, participants, acceptable behaviour, etc.

6) Our **expertise**, our training, our devotion as expert lawyer and/or counselor are also our **handicap** in dealing with difficult personalities or mental illness.

Our goal is to resolve a problem to the client's satisfaction. However, some people will never be satisfied. We have to accept that this problem may be unresolvable and NOT interpret it as a failure. We must diligently, efficiently and effectively handle the problem without feeling obligated to satisfy the client who cannot be satisfied.

Our job then becomes trying to resolve what is resolvable, and **limiting the time, energy, and frustration spent by ourselves, our organization, and the client, on the futility of the unresolvable.**

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PERSONALITY TRAITS OR DISORDERS; OR OTHER MENTAL ILLNESSES

As lawyer and/or counselor, the most common exposure we have to mental illness, I think, is from clients, colleagues, bosses, with personality disorders. We'll discuss the most likely ones to contact us, primary traits, and suggestions on how to handle the situation.

The difference between traits and disorders is the intensity, number of traits under one disorder category, constancy or repetition over time, effect on functioning. As counselor, with our time limited, goal-oriented contact; it doesn't matter if we're dealing with a trait or disorder, or other mental illness, so I won't explain DSM**,** the manual of psychiatric diagnosis. Do NOT diagnose; an apparent mental illness may only be a situational reaction to specific stressors. The signs or symptoms are similar. The ways we can handle the situation are also similar.

They can be very intelligent and present well, so on first impression, can convince others of the validity of their concern.

It's tempting to avoid these people, but if we do, the situation explodes elsewhere.

(Otherwise, my advice would be to just avoid them as much as possible).

Try to avoid adopting their panic, sense of urgency, while calmly empathising with their point of view.

Also, there often is a real issue underneath the excessive presentation. When looked at calmly and objectively, certain aspects can be resolved.

"The Wave"

Our clients' fixed ideas or perceptions that seem crazy to us may seem real, true, obvious, and important to them. Harshly denying or discounting them may even unconsciously feel life threatening.

So, like with a wave, smoothly join, ride on the surface in their direction, and, staying afloat, and move back out. This applies to all clients with mental illness or those showing traits of mental illness due to specific stressors. The details differ according to the traits, which we'll now see.

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Narcissistic: grandiosity, lack of empathy

Disparaging, enraged.

The cliché is that the Narcissist loves himself, thinks a lot of himself.

Unconsciously, the opposite is true, hence the constant need for outside adoration, adulation, because it's not generated internally. They are unable to empathize with others, though they will claim to, and may believe that they are. They need the cheering crowd, but have no true feeling toward the individuals forming it.

When you suspect the narcissistic personality, use the key phrase "you must be disappointed". They are almost always disappointed. So they will think you understand them. Acknowledge their desire to save the cause and their disappointment that you cannot help them with it.

Clarification is difficult, they talk around issues.

As counselor, you are dealing with a situation, not treating them, *per se*. You can acknowledge their sense of importance (and of their cause), entitlement; while pointing out limits of the system or aspects of the situation that they may ignore, and, again, empathizing with their disappointment. Otherwise, their disappointment can be expressed as rage.

For example: "The whole system isn't fair? I'm not against you fighting the system, but I can't. I can ensure you have due process, not change the system. Those are my limits."

Exploitive, masked by charm. (Could attract others, at first.)

Actually, like most mental illnesses, we all have and need aspects of them to function. Only the exaggeration is disabling. A healthy dose of narcissism allows us to seek social approval… a healthy dose of paranoia allows us to protect ourselves from threats of danger. This brings to another potential difficulty, the paranoid personality.

Paranoid: distrust and suspicion.

Blames others, hostile.

Don't deny their point of view but don't reinforce it. Acknowledge that they see the situation that way but state that you can not conclude the same thing without objective proof.

The kernel of truth of the problem gets distorted, reinterpreted, to conform to their belief.

Delusions follow internal logic, believable. They will point out your faults. Agree with the correct, disagree with the incorrect.

Ask them what they suggest, that is realistically possible, to diminish their discomfort, fear, perceived danger.

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For example: I believe that you are afraid that this employee is trying to kill you, although I cannot conclude that he will. Would you feel safer if another employee were assigned to you?

For example: You are right not to trust me, you don't know me and I work for the same organisation you think is against you. I believe that I can be objective yet empathetic, because that is my job. I certainly understand that you don't believe it. Taking into account your distrust of me, how do you think I can help you?

For example: Everyone is watching us through the window? OK, I don't see them, but would you like me to close the blinds?

As a counselor, we sometimes use a bit of humour to defuse a tense situation. NOT with the paranoid, especially no sarcasm, irony. They won't get it, and will interpret it negatively. They will however, use sarcasm against you, hopefully you can tolerate it. Do NOT roll your eyes, pointedly sigh, etc. You can however, directly express without attacking, "I understand that our perceptions are different, and that we can't prove our point to each other. So, what can we do to help?"

Be straight, honest, to the point, not defensive. Stare back into their intense gaze. Show that you are not afraid of their anger.

That's it for paranoid for now.

Oh, and by the way, pay attention to their doorknob comments, made at the end of the interview or after what should be the end.

Schizophrenic: Thinking, judgement, senses, behaviour

NOT multiple or split personality.

Our colleagues from the universities or those who work with students may have more experience with this, since schizophrenia often first presents when the person is in their early twenties.

- **Early warning signs: Thinking and perception**
  - Decreased concentration
  - Decreased memory
  - Feelings of persecution
  - Feeling of being ridiculed
  - Feeling of being talked about
  - Religious preoccupations (previously non-existent)
  - Hearing voices
  - Seeing things

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Schizophrenics tend to be concrete thinkers. Do not use metaphors, abstract arguments in your conversations with them. Turn off radio and avoid other distractions during interview.

If the client exhibits signs of delusions or hallucinations, handle similar to delusions from other conditions, such as paranoid that we just discussed. Without reinforcing nor denying the delusion: "I see you're scared, what can we do to help you feel safer?" With schizophrenics: "Can I call your doctor, family..?" If the person has already been diagnosed, a directive reminder to take their medication can be very helpful. Many carry fast-acting Atavan and other medications with them.

Quick assessment of danger: If the client is hearing voices, you ask "What is the voice saying?" Your reaction is different if the voice is telling them to eventually sit in a corner, or if it's telling them to jump out a window immediately.

If early symptoms are low energy, lack of initiative, social withdrawal, difficulty concentrating, flight of ideas, the schizophrenic probably will not present to your office, though the family might. If so, investigate the grain of truth of the problem, taking into account and explaining the difference of perception between the schizophrenic and other sources.

Refer for treatment (medication, skills training, stress management, for client; supportive counselling, case management, and psycho-education for client and family).

Bipolar: Depression and elation

Major affective disorder, bipolar type, is what used to be called manic depression. This is typified by cyclical episodes ranging from severe depression to extreme elation.

(My topic today is not suicidal risk, so I won't delve, except to remind you, as tempting as it is to blame yourself, it is NEVER your fault if someone kills himself, it is his choice, based on a lifetime of personality traits.)

The sufferer of a depressive episode typically has low energy, low desire, feels hopeless, can't envision a better future, and is unlikely to summon enough energy and initiative to make an appointment and show up.

The sufferer of a manic episode in the extreme elation phase typically has flight of thoughts, can't concentrate, can't sleep, is impulsive, and is unable to formulate clear concerns.

As counselors and lawyers, we receive Bipolar clients primarily from those going through the Mild, Moderate, or Severe phase of the Manic episode. Think of 10 page E-mail concerns sent at 3 a.m. (Although borderlines and obsessive-compulsives also send 10 page 3 a.m. e-mails, and these techniques can work with them as well)

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Try to limit the length, range and import of the concern. Try to "detoxify" the situation (empathize but limit), and deal with the grain of truth underlying the issue.

Solution focussed: What are the one or two most important issues of these 20 concerns that you would like me to deal with?

A manic phase usually lasts about 6 weeks. Sometimes I purposefully delay handling a particular client, so that the client has less manic energy to appeal or add other issues by the time I deal with them.

Antisocial: disregard for the rights of others

Looks for an advantage.

You can't change their behaviour but be aware of it and limit it. They have no guilt, no remorse. They lie, threaten, and are potentially dangerous. You check facts. As lawyer and/or counselor, you can't work with untruthful information. Natural human tendency for us to ignore and hope it goes away. More helpful in the long term, to confront and validate veiled threat. "Did I understand right? You plan to blow up this place?" Do NOT hesitate to inform security, administration, etc.

Histrionic: attention seeking, overemotional, seductive

Presents as a hysterical cliché. Try to avoid rewarding negative behaviours (i.e. giving more attention because starts to cry at end of interview). Offer to refer to a social worker or other resources to help them with the dramatic scenarios they present. Try to avoid overtly reacting to the seductiveness.

Obsessive Compulsive Disorder: Anxiety

Invasive thoughts triggering repetitive behaviour based on core beliefs.

Cognitive-Behavioural Therapy approach and medication to lower anxiety and depression help.

The facts of the concern are usually very truthful, although the belief of the grave consequence may be exaggerated.

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Borderline: impulsivity and instability

Potentially very time consuming. I find this to be the most difficult to handle for any client service role, work context, or social context.

More and more frequent because our society encourages it. Our society promotes rights without responsibilities and the media will easily give attention.

We used to have hysterics because society was repressed. Now we have borderlines because society sets fewer limits, responsibilities. (Almost non-existent in highly structured Asian societies.)

Disorganized, acting out, emotionally labile, impulsive.

Primitive fear of engulfment or abandonment. Defence: clinging, distancing.

Primitive lack of stable object constancy. Defence: Splitting; idealization and devaluation.

Borderlines are experts at splitting. He is horrible, but you are perfect, my saviour.

Be aware of the hook; It is very nice to be put on a pedestal (only you can help me) (you're better than the others). They idealize you and invite you to get too close but when you do they will reject you, and demonize you.

They are unconsciously afraid of being rejected, abandoned; but equally terrified of being overwhelmed, smothered by the other. Finding balance between interpersonal closeness and distance is impossible. They can not accept their own "negative" feelings, and project them onto you. As counselor, you are an accepting, helpful person. You may find yourself feeling guilty because you have an urge to reject, avoid the Borderline, while often thinking about, discussing him. The strength of the projective identification can be used as a diagnostic tool. They can not set their own internal limits: Not on their behaviour, nor on the sense of where their thoughts, feelings end, and yours begin. They will assign to you their unconscious unacceptable thoughts and feelings. If you start to feel like a victim, or angry at the client, or notice yourself ruminating about this one case, put your antennas up, it could be a sign that you're dealing with a Borderline.

Concretely, assign one contact person and warn the team of the situation, to avoid splitting.

Allow the assigned person the opportunity of supervision, consultation to avoid losing objectivity, acting out counter-transference, either overtly rejecting or being seduced by the idealization.

Remain firm, business like, no compliments that could be interpreted as seductive.

Confront with consequences of their actions, firmly resisting their attempts to make you responsible. Be consistent with limits.

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Dealing with borderlines is similar to dealing with 2-4 year olds, or adolescents. Temper tantrums and acting out, are tempting to give in to. In the long run, it is most helpful to maintain firm consistent boundaries with logical consequences. Yet, avoid parental authoritarian role, the consequences are theirs, not yours.

"We have an appointment tomorrow from 3 to 4 PM, to take your concerns seriously. If you hurt yourself tonight, and end up in emergency, that is your choice. It would be unfortunate, but you would not be helping your concerns to be taken seriously. You can choose to not hurt yourself tonight, and be able to have your concerns addressed seriously tomorrow from 3 to 4 pm."

Allow the consequence to happen, and be their responsibility. "You are 45 minutes late, you have 15 minutes left of your allotted time with me, how would you like to spend it?" "No. I am not being mean, I am respecting your choice to come late and so limit our time."

Focus on their behaviour, here and now. Gently confront them with the conflicting stories/behaviours they present. Engage their observing ego; get them to think about their actions.

Also limit content. Do not re-examine old issues, nor all their details, if possible.

(This is a similar technique as with obsessive compulsives and bipolars in manic phase.)

Document concisely but well to protect yourself. After idealizing you they will demonize you and possibly lodge a complaint against you.

They may try to blame you for their impulsive self-harm behaviour. Please remember that their behaviour is based on their personality, notwithstanding any trigger they may try to blame on you.

Counter-transference

Counter-transference: Our reaction based on our own personal issues, thoughts, feelings, rather than the clients'. Our counter-transference may be triggered more strongly when faced with clients' more intense personality traits, such as exhibited in clients with mental illness. For example, as counselors we may think of ourselves as saviours. So it may be difficult to set limits, to decide we can no longer help. We may find it hard to not be liked, and take it personally. Or, we may ignore real danger.

We're all experienced seasoned professionals. More importantly, we're human beings. Trust your gut. If it somehow just doesn't feel right, get consultation.

Acknowledge blind spots, use consultation with "team", colleagues, management, legal advisor, Human Resources, mental health resources such as, social worker, psychologist, psychiatrist, other lawyer/counselors, etc.

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CONCLUSION

In conclusion**,** we looked at handling aspects of people suffering from difficult personality traits or disorders, or other mental illnesses that you are most likely to encounter.

In general, ride the wave. Like with a wave, smoothly join it, ride on the surface in its direction, and, staying afloat, move back out.

Be empathetic and acknowledge their perception (without agreeing to it, if false).

Try to resolve the kernel of truth at the root of the concern, without getting caught up in their perception of the intensity and severity of the issue.

Document well.

Reasonably accommodate.

But set and respect limits, including your own time and effort.

Trust your gut, consult if necessary.

Please contact me if you have further issues to discuss regarding:
DRIVING ME CRAZY: DIFFICULT PERSONALITY TRAITS.

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Professionals' Track Treatment and Post-Treatment LAP Monitoring:

"Teamwork Creates Highly Reliable Outcomes"

CoLAP 2018, Charleston, SC

Greg Skipper MD, Medical Director, Professionals Treatment Program (PTP)
Santa Monica, CA

Buddy Stockwell, Executive Director, Louisiana Judges and Lawyers Assistance Program
Mandeville, LA

PART ONE

PROFESSIONALS' TRACK TREATMENT

Dr. Greg Skipper

Substance Use Disorders = Addiction

ASAM Definition:

Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors.

Addiction is characterized by inability to consistently abstain, impairment in behavioral control, craving, diminished recognition of significant problems with one's behaviors and interpersonal relationships, and a dysfunctional emotional response. Like other chronic diseases, addiction often involves cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death.

Alcohol Use – most significant

NSDUH data – among Americans >18

- 86% drank in lifetime
- 70% drank in past year
- 56% drank in past month
- 27% **binge** use of alcohol in past month
- 7% **binge** drinking >5 times in past month
- 6.2 % have **Alcohol Use Disorder (AUD)**

- **Of those with AUD 6.7% received any form of treatment**

Substance Use Disorders – are deadly (2017)

~71,000 deaths from drug overdoses

~88,000 deaths from alcohol-related causes (overdoses, ALD, DUI, etc.)

= ~159,000 deaths from direct use of alcohol or drugs

Not counting indirect causes including: accidents, homicides, suicides, GI bleeding, dementia, cancer caused by alcohol or drugs, tobacco NOT included (WHO report – alcohol contributes to >200 diseases)

Places addiction as **third most common cause of death** under cardiovascular 832,000 and Cancer 595,000

(World Health Organization (WHO). *Global Status Report on Alcohol and Health.* p. XIII. 2014 ed)

Public Addiction Treatment – poor reputation

- 13,200 specialty treatment programs in the US
- 31% treat less than 200 patients per year
- 74% primarily government funded (private insurance <12%)

Sources – NSSATS and D’Aunno et al

Who Refers To Treatment

Source	1990	2016
Criminal Justice	38%	61%
Employers/EAP	10%	4%
Welfare/CPS	8%	17%
Hospital/Physician	4%	3%

Treatment System (Public/Private)

Modality	1975	1990	2015
Residential	64%/81%	39%/69%	9%/32%
Outpatient	27%/18%	59%/19%	79%/52%
Methadone	9%/1%	10%/2%	8%/0%
Buprenorphine	0/0	0/0	22%/16%

What do patients receive? (Public/Private)

Modality	
Group Therapy	98%/98%
Individual Therapy	52%/85%
Medications	50%/85%
Employment Counseling	17%/35%
>1 urine drug screen	9%/10%

Staff Survey of Treatment Programs

- Staff Turnover
  - Counselor turnover - >50% per year
  - 60% of directors were in the job less then 1 year
- Staff Composition
  - 54% had no physician
  - 34% had part-time physician
  - 395 had a nurse (part or full-time)
  - Primary professional group – unlicensed ”counselors”

Treatment Compliance - Low

- >50% of outpatient drop out of treatment within one month
- >50% of court-ordered patient do not complete treatment

Relapse Rates High

- About 60% relapse within 6 months following treatment discharge by public programs

- About 50% relapse within 6 months following treatment discharge by private programs

Professionals' Programs

- FAA HIMS Program – began 1975
- Physician Health Programs – began 1979
- Lawyer Assistance Programs, other Health Professionals Programs (nurses, pharmacists, dentists, veterinarians, respiratory therapists, chiropractors, podiatrists, … - 31 different health professional boards) – began in the 1980's – 90's

Professionals’ Programs

- Public trust at issue
- More resources available for “best care”
- ASAM Criteria for “Safety Sensitive Workers”

So What Is “Best Care”

- Thorough Evaluation
- Individualized Treatment
- Long-Term Monitoring

“Best Care”: Treatment Intensity

- How do we treat cancer or heart disease?
- Do we start with minimum and increase treatment if there is a relapse?
- Do we seek best treatment from the start?
- Is it safe to work while in addiction treatment? Public trust?

Thorough Evaluation

To understand breadth and depth of all relevant issues:

- other addictions,
- psychiatric disorders,
- family system issues,
- personality problems, etc.

Individualized Treatment

Individual components, for example:

- Pain management,
- Specialized treatment for anxiety or OCD,
- Treatment of PTSD,
- Attachment disorder

Individualized duration of treatment:

- 90 days is the standard of care

Professionals' Treatment

Being with peers:

- Reduces shame
- Prevents celebrity patient syndrome
- Promotes mutual support

Professionals' Treatment

Special Needs Addressed:

- What to tell and who to tell when returning home
- Meeting with partners, regulatory board, etc. – practice role play
- Questionnaires – Do you lie on questionnaires? What to say? Practice
- Running into clients/patients at AA meetings
- Professional boundary issues
- Social media
- LAPs – What are they and what they offer

Professionals' Treatment

Special Topics to be considered:

- Work/Life balance
- Applying for new job "Role play interviews"
- Professional barriers to being in recovery
- Etc.

Does it work? Yes!

Physicians – best studied

- Blueprint Study – 904 physicians – outcomes after 5 years of monitoring – 79% total abstinence rate
- Of the 21% who relapsed only 1/3 relapsed a second time
- 96% kept their license and returned to work
- <1% deaths during 7.2 years average following signing monitoring agreement

Long-Term Monitoring

- Very important
- Critical to long-term, relapse-free recovery
- Is clinically-based and supported by data
- Is provided by Peer-Support Professionals' Programs
- PHPs, NRPs, LAPs

PART TWO

POST-TREATMENT RECOVERY MONITORING
via
PEER-SUPPORT PROFESSIONALS' PROGRAMS

Buddy Stockwell

The Purpose of Peer-Support Monitoring

- Clinically-based service to support long-term recovery
- Specialized to meet the needs of Safety Sensitive Workers transitioning out of treatment
- Useful to prove fitness to practice in licensure and employment cases, or other cases with third-party issues
- Dramatically increases the probability of long-term recovery without relapse

“Relapse” is *NOT* Part of Recovery!

Relapse:

- Not tolerated by Licensing Boards
- Not tolerated by Public (placed at risk)
- Not a benign event clinically or professionally
- Not required by the disease itself
- Not likely with sufficient treatment and monitoring support
- Not necessary to achieve quality, long-term sobriety

Relapse-Free Success Rates

Alcoholics Anonymous:	7%
Outpatient:	20 to 40%
30 Day Inpatient:	50%
90 Day Residential with post-monitoring:	85%

JLAP 2016-2017 No-Relapse Success Rate: 97%

JLAP compliance demonstrates by clear and convincing evidence that the impairment has been *removed*, as required by Louisiana Supreme Court Rule XIX 24(E)(3).

JLAP Monitoring: *Who Needs It?!*

- Persons with Substance Use Disorders or other Mental Health Conditions that can impair executive function and impact fitness to practice

- In cases involving Third Parties such as Discipline, Bar Admissions, and Law Firms that require comprehensive JLAP Recovery Monitoring to facilitate reliable Recovery and also protect the Public

- Is ALSO clinically appropriate in **purely voluntary cases**

Teamwork with Treatment Facility

Basic Ingredients for Reliable Monitoring Outcomes:

- Use of facilities/clinicians with ASAM SSW specialization
- Multi-Disciplinary Assessment including co-morbidity
- Professionals' track treatment
- Communication/collaboration with treatment team
- Individualized Discharge Recommendations
- Personalized Monitoring Agreement
- Ongoing communication with treatment team as needed
- Reassessment if needed

Categories of Monitoring Agreements

- Substance Use Disorder Recovery Monitoring
- Substance Use Disorder Diagnostic Monitoring
- Substance Use and Mental Health Disorder Monitoring
- Pure Mental Health Disorder Monitoring

Substance Use Disorder Monitoring

- Requires Total Abstinence
- Drug Screening (minimum 13 EtG Urine and 2 PEth Blood annually)
- AA or SMART Meetings Minimum 3x Week
- AA or SMART Sponsor
- JLAP-Trained Peer Monitor
- Monthly Self Reports
- Monthly Peer Monitor Reports
- Must comply with all other discharge recommendations such as aftercare, psychiatric care, therapy, etc.
- Reporting back to referral agency where appropriate

The “Small Print” in SUD Monitoring

In Addition to Basic Discharge Recommendations:

- Acknowledgement of Diagnosis
- Responsibility to know drug screening protocols and medication mgt
- Monitoring interruptions and travel
- May be called in to meet with Director, Board and Staff
- Waivers of Confidentiality as applicable
- Possibility for extension if not stable at completion
- Relapse Protocol: clinically addressed (new assessment)

Substance Use Disorder Monitoring Duration*

- In cases of Moderate to Severe SUDs (chemical dependency) the *minimum* length of monitoring is five (5) years

- In cases of Mild SUDs (substance abuse) the minimum length of monitoring is one (1) year and a maximum of two (2) years (assuming no additional concerns are raised during the monitoring period)

* *See*: FSPHP Guidelines @ *fsphp.org*

Substance Use Disorder Monitoring: Relapse

- Relapse per Substance Use *and/or* Other Behavioral Issues
- Protocol Is Clearly Set Forth in the Monitoring Agreement
- Relapse is Addressed Clinically
- Behavior/Attitude Adjustment: Meet with JLAP Staff As Needed
- Positive Screen: Updated Multi-Disciplinary SSW Assessment
- Complete All Relapse Recommendations (Treatment, etc.)
- Execute New Monitoring Agreement Post-Treatment

After Assessment: Varied Relapse Responses

- Complete existing Monitoring Agreement with period of increased screening/meetings (rare)
- New Monitoring Agreement with period of increase screening/meetings (unusual)
- Complete JLAP-approved relapse-track treatment (could be inpatient or outpatient depending) and then execute new Monitoring Agreement based upon new Discharge Recommendations (typical)
- Case-By-Case Basis
- Multiple Relapses: Possible Lifetime Monitoring

When is There No Way Forward?

In rare SUD cases, all assessment, treatment and monitoring efforts fail:

- Personality Disorders that cannot be overcome
- Other co-morbidity that sabotages recovery efforts
- “Constitutionally incapable” of recovery
- Irresolvable anger and resentment issues
- Trauma, PTSD, and other issues that don’t respond to care
- Want to use substances more than be a lawyer

Post-Recovery Monitoring Fellowship

Those who have completed the Recovery Monitoring Program Often:

- Serve as Volunteer Peer-Monitors for JLAP
- Establish and Maintain Lawyer-only Support Groups
- Are Peer-Sponsors (AA or other recovery program)
- Speak and tell their stories of Recovery
- Demonstrate that Monitoring can ensure fitness to practice
- Are dedicated to the Fellowship of the Spirit amongst peers in Recovery

Substance Use Disorder “Diagnostic Monitoring”

- Often involves aggressive substance screening
- Includes meeting monthly with a JLAP Volunteer Peer Monitor
- Substance screening alone, is not a diagnostic tool
- DM must be indicated after a reliable Multi-Disciplinary Assessment
- DM is a “Rule Out” tool indicated by the Assessment
- Duration ranges from one (1) to two (2) years

Substance Use Disorder “Diagnostic Monitoring” Categories

- “Gray Zone” cases where signs and symptoms don’t fully match diagnostic criteria, but are very highly suspect
- Treatment years ago with no interval of documented recovery
- Treatment at a non-JLAP approved facility
- Alcohol/drug related past conduct with no documented interval of recovery
- Violation of abstinence requirement requires updated assessment for new recommendations

“Mental Health Only” Monitoring

When there is no SUD component, the duration of monitoring is one (1) to five (5) years depending upon variables such as:

- Severity of symptoms and level of impairment
- Prior history including compliance with treatment and medication management
- Responsiveness to treatment, stabilization of symptoms, and
- Projected timeframe for realization of maximum treatment and/or monitoring
- Benefit to the participant

“Mental Health Only” Monitoring

Baseline components of Mental Health Monitoring:

- All doctor/therapist appointments maintained
- Medication taken as prescribed
- Providers utilize ASAM SSW standards in administering medications
- Updates from providers after each visit (check-the-box JLAP form)
- Notification of any medication adjustments
- Notification of any fitness-to-practice concerns
- Monthly check-in with assigned JLAP Case Manager

HONORING THE SOCIAL CONTRACT

Practicing Law is a Privilege, Not a Right

Jean-Jacques Rousseau

1762 Book by Jean-Jacques Rousseau:

Social Contract origins of society and the legitimacy of the authority of the state over the individual

The Social Contract deems that individuals have consented, either explicitly or tacitly, to surrender some of their freedoms and submit to the authority of the ruler or magistrate (or to the decision of a majority), in exchange for protection of their remaining rights

Origins

- Freedom v. dependence
- Collective v. personal will
- Governance
- Agreement

Overarching Issue: What are the collective's legitimate interests?

Standards for Professionals

The **“Social Contract”** demands standards be established for certain state licenses to practice a profession, and it also requires certifying fitness for duty in such professions

Pilots, Doctors, Nurses, Attorneys and other SSWs

Common Frames . . . Professional Ethics

- License exchanged for permission, status
- Accepted by competent party, aware of risk
- Establishes society’s claim on fit and competent practitioners

Common Frames . . . Ethics & Law

- Some rights are subject to regulation
- State can distinguish a right from privilege
- No free-standing right, absent state recognition
- Can’t be arbitrary, but state has leeway

Social Contract: Proving Fitness-For Duty

- Established Professionals' Programming for SSWs
- Specialized clinical assessment, treatment, and monitoring
- Published, professional and clinical standards
- Establishes nexus between illness, loss of function
- Maintains communication between experts and community

Social Contract Conclusions

- The Social Contract applies to lawyers, doctors, nurses and pilots, etc.
- LAPs, PHPs, NRPs, and HIMS professionals' programs are necessary
- Rights to SSW licenses are *conditional*
- JLAP services are an offer to satisfy the condition of fitness to practice
- Coercion is not the relevant construct for mandated LAP participation
- Court-ordered LAP participation honors the Social Contract
- Proper Context is **AN OFFER, AS OPPOSED TO COERCION**

PART THREE

COMMON CONTROVERSIES in PROFESSIONALS' PROGRAMMING

What are Common Complaints?

- Fear that confidentiality is not reliable (will report me to discipline)
- Lack of due process (control and trust issues)
- Rigid criteria for evaluation/treatment (seek to manage own care)
- Excessive cost for evaluation/treatment
- “Sending lawyers out of state” for eval and treatment
- Assessments are “rigged” to always require treatment
- JLAP poisons the assessment to create diagnoses
- Excessive length of stay for treatment
- “One size fits all” mentality (e.g. the 90-day treatment standard)

Solutions For Complaints

- At the Outset: Compassionate offer of a "*Choice*"
  - We know this is difficult for you and we understand
  - These are your alternatives
  - We are a professionals' program with specific clinical standards
  - Our clinical standards are specialized and not negotiable
  - You have a choice to take advantage of our services, or not

- Explain that evaluation/treatment providers are approved based on objective guidelines and shared criteria.
- Diagnosis and length of stay are "case-by-case" per the treating clinicians and NOT controlled by the JLAP/LAP.

Solutions For Complaints Cont.

- “Lack of Due Process”
  - This is a clinical/scientific process, not a legal proceeding
  - Rules of Evidence and Advocacy are not applicable
  - “Second Opinion” assessment is always available
- “Fear of Report to Discipline”
  - JLAP cannot report you; JLAP is confidential and privileged by law
  - Confidentiality can only be waived by client (Some LAPs/PHPs differ)
- “Arbitrary or Biased” evaluation/treatment program criteria
  - Show the established criteria used (FSPHP Guidelines)
  - Offer stand-alone assessment not affiliated with treatment centers
  - Show data supports criteria per statistical outcomes and studies

Solutions For Complaints Cont.

- “Arbitrary” in selecting evaluation/treatment programs
  - JLAP onsite inspection every 2 - 3 years to re-certify centers
  - FSPHP Clinical Guidelines are objectively used
  - Collect post-treatment patient feedback
  - Address any concerns
  - Transparency
- “Excessive Cost” for evaluation/treatment
  - Professionals’ Programming standards are not based on ability to pay
  - Establish a scholarship fund to help the truly needy
  - Identify treatment centers that will offer cash discounts
  - Look for alternatives (increase LOS but maintain criteria and reliability)
  - Emphasize that the “Social Contract” requires fitness to practice

Solutions For Complaints Cont.

- "Sending Lawyers Out of State" for evaluation and treatment
  - Identify all in-state options
  - Add several out of state options too
  - Helps to have at least 10 options overall
  - Take into account special co-morbidity needs as well
  - Explain why every city does not have a Professionals' Track Facility

- "Excessive Length of Stay" for treatment
  - Explain why a "Fail First" attenuated treatment model can't be used
  - Stakes are very high; too much is better than too little and a relapse
  - *Baseline* standard of care is 90 days of inpatient
  - LOS should be individualized based on patient progress
  - Ongoing evaluation by treatment team and feedback to patient

There Will Always be Complaints

All high-functioning professionals have an inherent predisposition to seek control and manage outcomes as they personally see fit

In addition, lawyers expect an opportunity to negotiate a “better deal” and they often resent rigid standards and want a “debate”

Developing best practices in managing complaints is critical via compassion, education, and patience

The person may choose to reject professionals’ programming today, but leave them knowing they are **always welcome back tomorrow**

FINAL OBSERVATIONS

SPECIALIZED TEAMWORK MAKES THE DIFFERENCE!

"When Professionals' Track Treatment Programs and fully-developed Peer Professionals' Monitoring Programs like JLAP work together . . ."

THE RESULTS ARE EXCEPTIONAL!

The Goal of Professionals' Track Treatment and JLAP Monitoring:

Healthy Professionals at Their Best!

QUESTIONS?

THANK YOU!

Greg Skipper MD, Medical Director
Professionals Treatment Program (PTP)
Santa Monica, CA

Buddy Stockwell, Executive Director
Louisiana Judges and Lawyers Assistance Program, Inc.
Mandeville, LA

Reward Deficiency Syndrome (RDS) and Addiction in the Brain

Lyle R. Fried, CAP, ICADC, CHC

Session Description

- This session will look at the process of addiction and RDS as well as related research findings
- How based on that research some important tools have been developed to improve the lives of those recovering from addiction.
- They include genetic testing to diagnose addiction predisposition and severity, tests to evaluate compliance with treatment medications and abstinence from substance abuse, and holistic interventions that can normalize reward circuitry homeostasis during recovery.

AMA's Definition of Disease

- The American Medical Association has defined a disease as (1) an impairment of the normal functioning of some aspect of the body, (2) characteristic signs and symptoms, and (3) harm or morbidity.

THE DISEASE MODEL OF ADDICTION

- Addiction is defined as a disease by most medical associations, including the American Medical Association and the American Society of Addiction Medicine.
- Like diabetes, cancer and heart disease, addiction is caused by a combination of behavioral, environmental and biological factors. Genetic risks factors account for about half of the likelihood that an individual will develop addiction.
- Addiction involves changes in the functioning of the brain and body. These changes may be brought on by risky substance use or may pre-exist.
- The consequences of untreated addiction often include other physical and mental health disorders that require medical attention. If left untreated over time, addiction becomes more severe, disabling and life threatening.

ASAM's Definition of Addiction

Addiction is a primary, chronic disease of brain reward, motivation, memory, and related circuitry. Dysfunction in these circuits leads to characteristic biological psychological social and spiritual manifestations. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors.

August 15,2011

What is the difference between Reward Deficiency Syndrome (RDS) and Addiction?

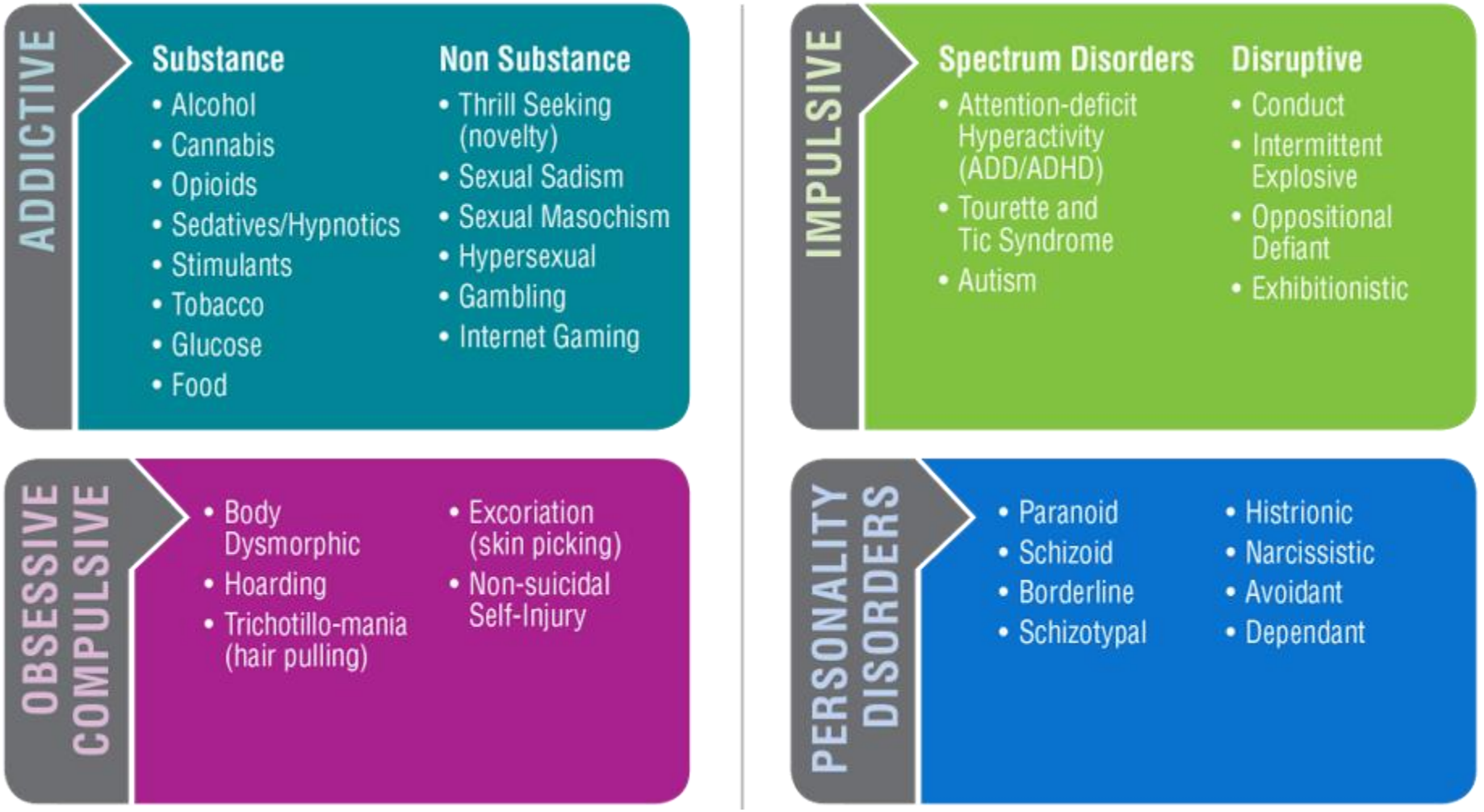
What is the difference between Reward Deficiency Syndrome (RDS) and Addiction?

- All addictions have a common neurochemical thread which is both genetic (*DNA),* and epigenetic (environmental influences).
- Dopamine deficiency is the common pathway
- That's how transfer of drug and non-drug addictions occur
- Non-drug addictions include behaviors like food, sex and gaming.
- Substance and non-substance addictions are a subsets of RDS.

REWARD DEFICIENCY SYNDROME (RDS)

- RDS is a relative failure of the dopaminergic system which plays a major part in brain reward mechanisms.
- The syndrome, has been linked to dopaminergic dysfunction; **acute excess or chronic deficit of dopamine release** in the brain reward circuitry.
- This deficiency includes various conditions, (such as drug and alcohol abuse, smoking, obesity, pathological gambling, attention deficit hyperactivity disorder), in which the subject seems to be unusually concerned to achieve reward.
- Polymorphisms (gene variants) of a number of reward genes including serotonin, endocannibinoids, GABA, glutamate and dopamine have all been correlated with **chronic dopamine deficiency** and reward-seeking behaviors.

Reward Deficiency Syndrome: A Function of the Reward Genes.



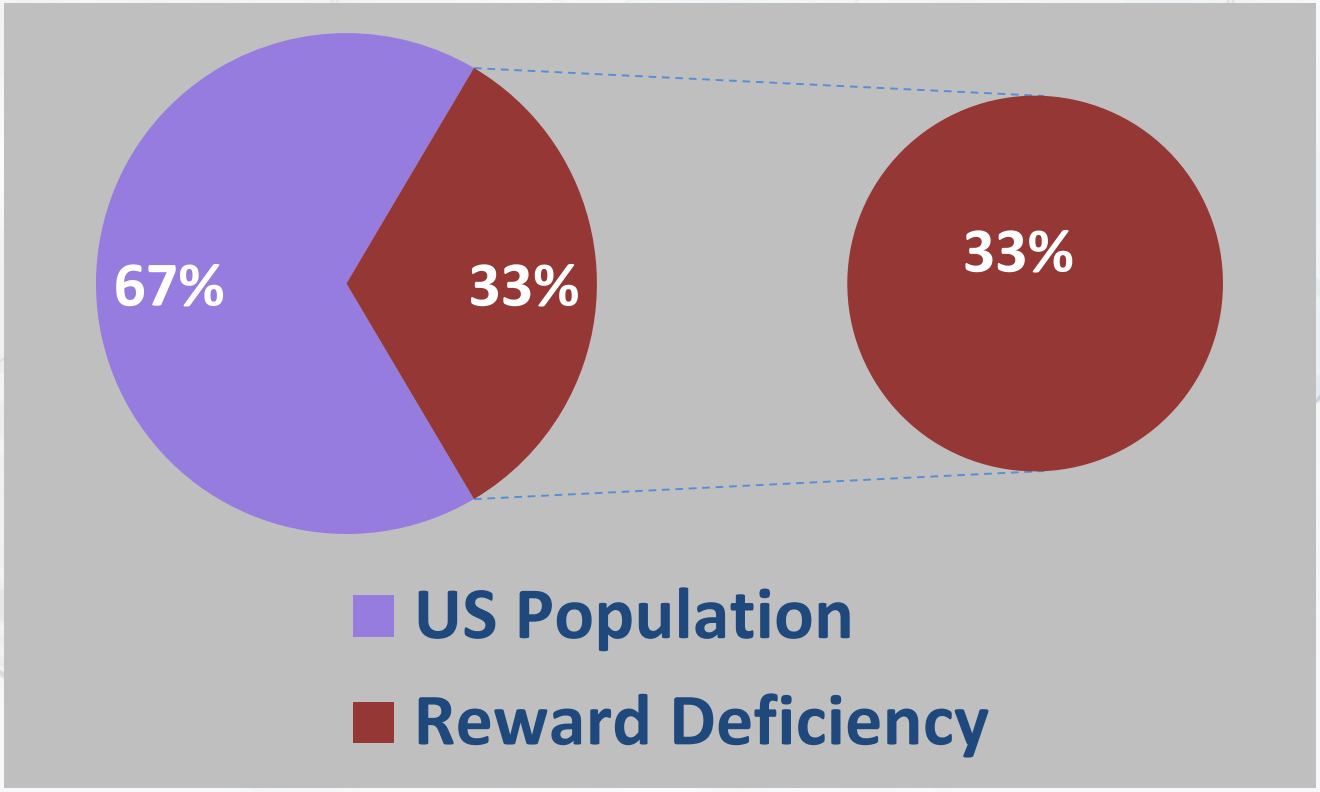
“Reward Deficiency Solution System” consisting of the following:

- Genetic Addiction Risk Score GARS
- Comprehensive Analysis of Reported Drugs (CARD)
- Dopamine Agonist Therapy (KB220z, etc.)
- Pre/post mRNA analysis of gene expression
- Many holistic and psychological additions (yoga, massage, dopamine boosting foods, meditation, trauma therapy, brain spotting, etc.)
- 12 step programs and traditions

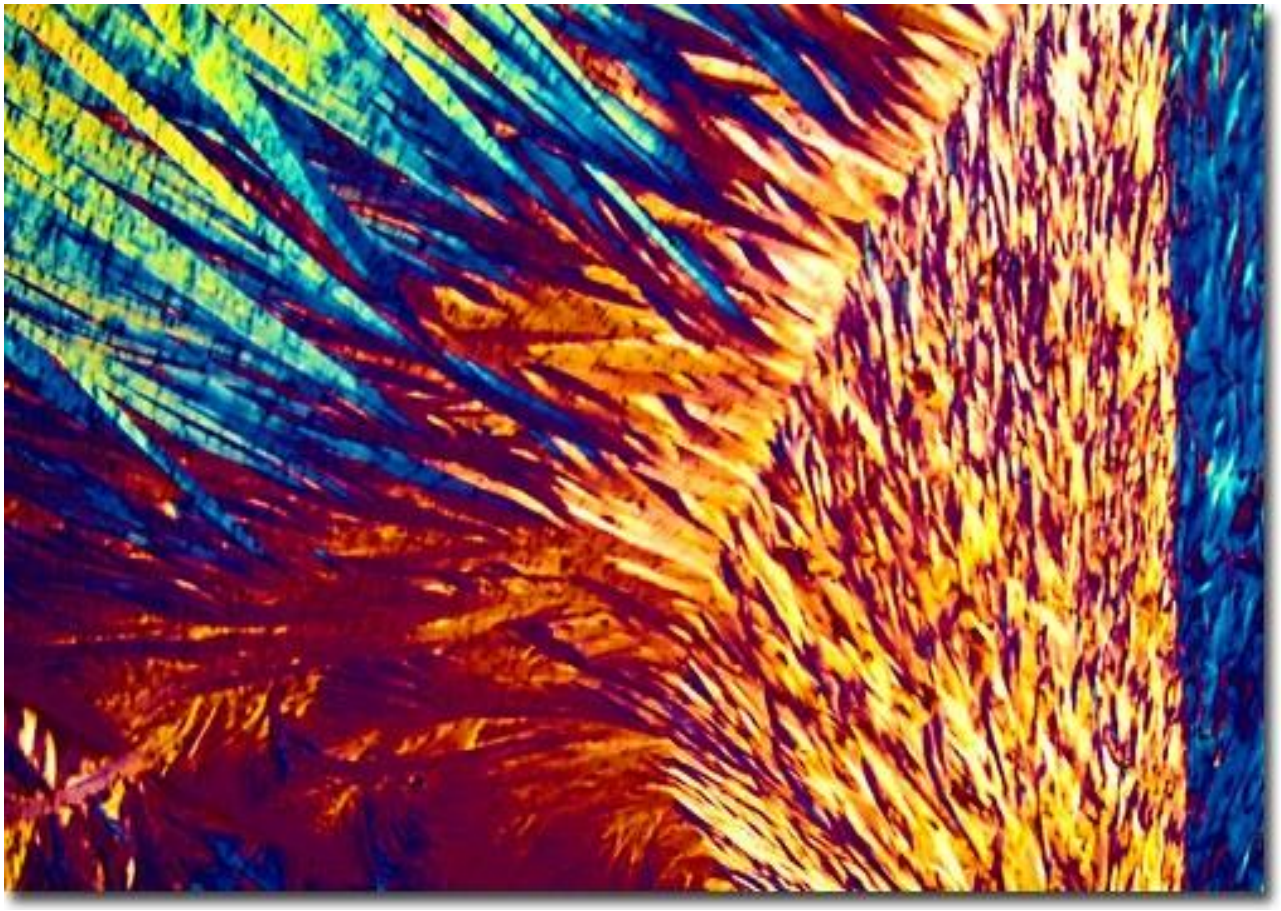
To induce “tonic dopamine homeostasis” in recovery

REWARD DEFICIENCY SYNDROME within the US POPULATION

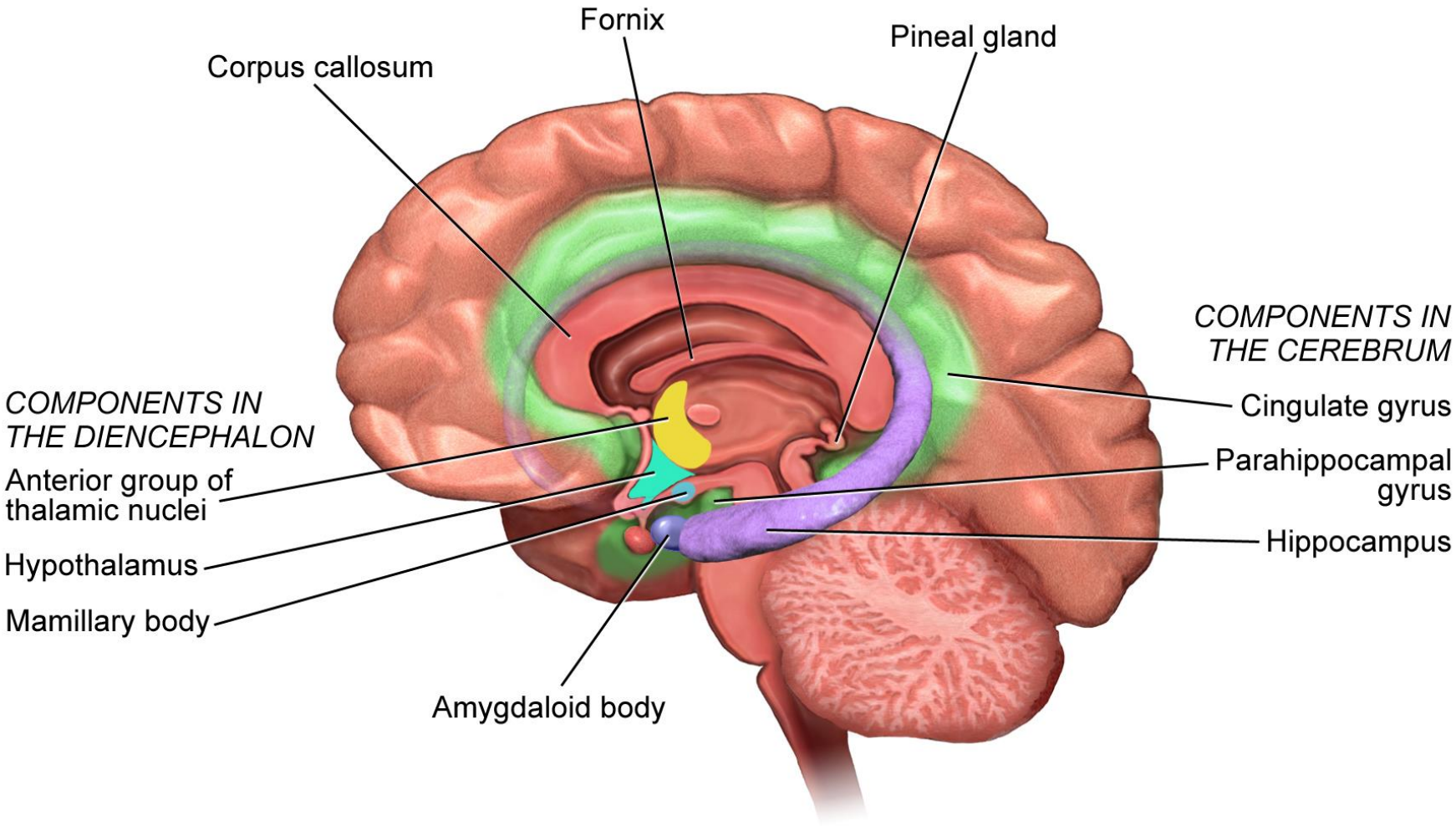
There are over 110,000,000 people in the U.S. alone who have a genetic variant that would put them at risk for addiction.

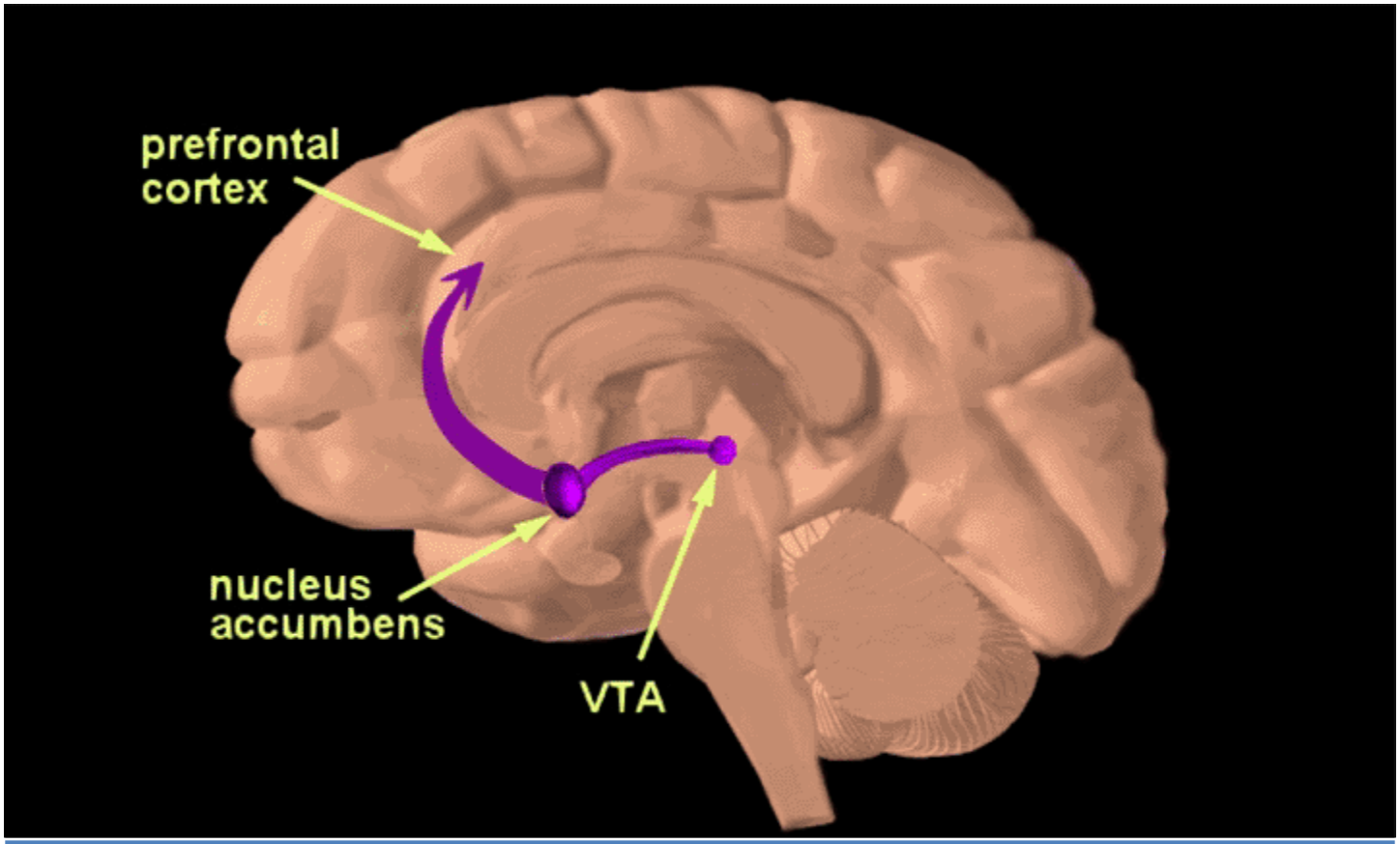


DOPAMINE



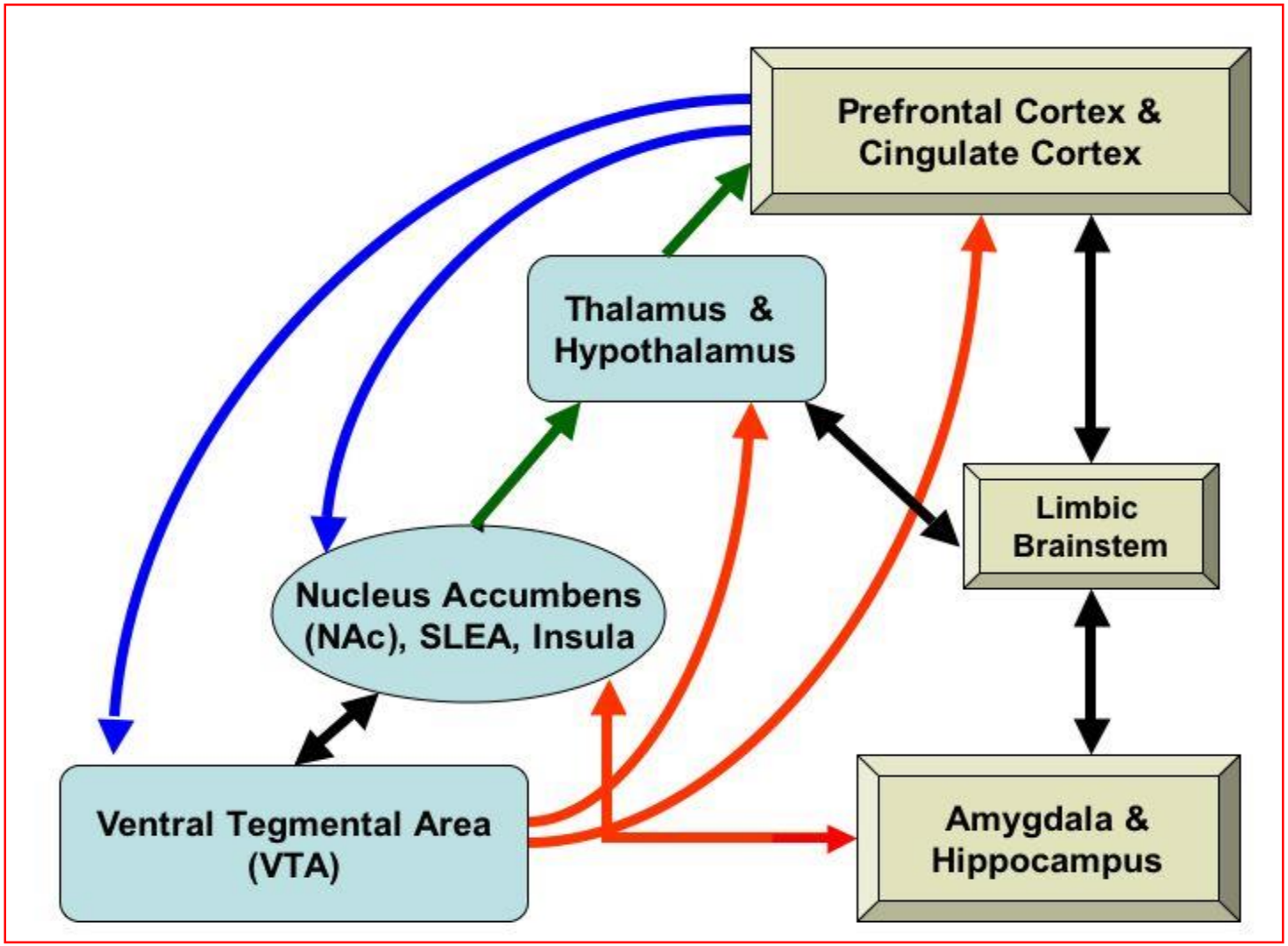
The Limbic System





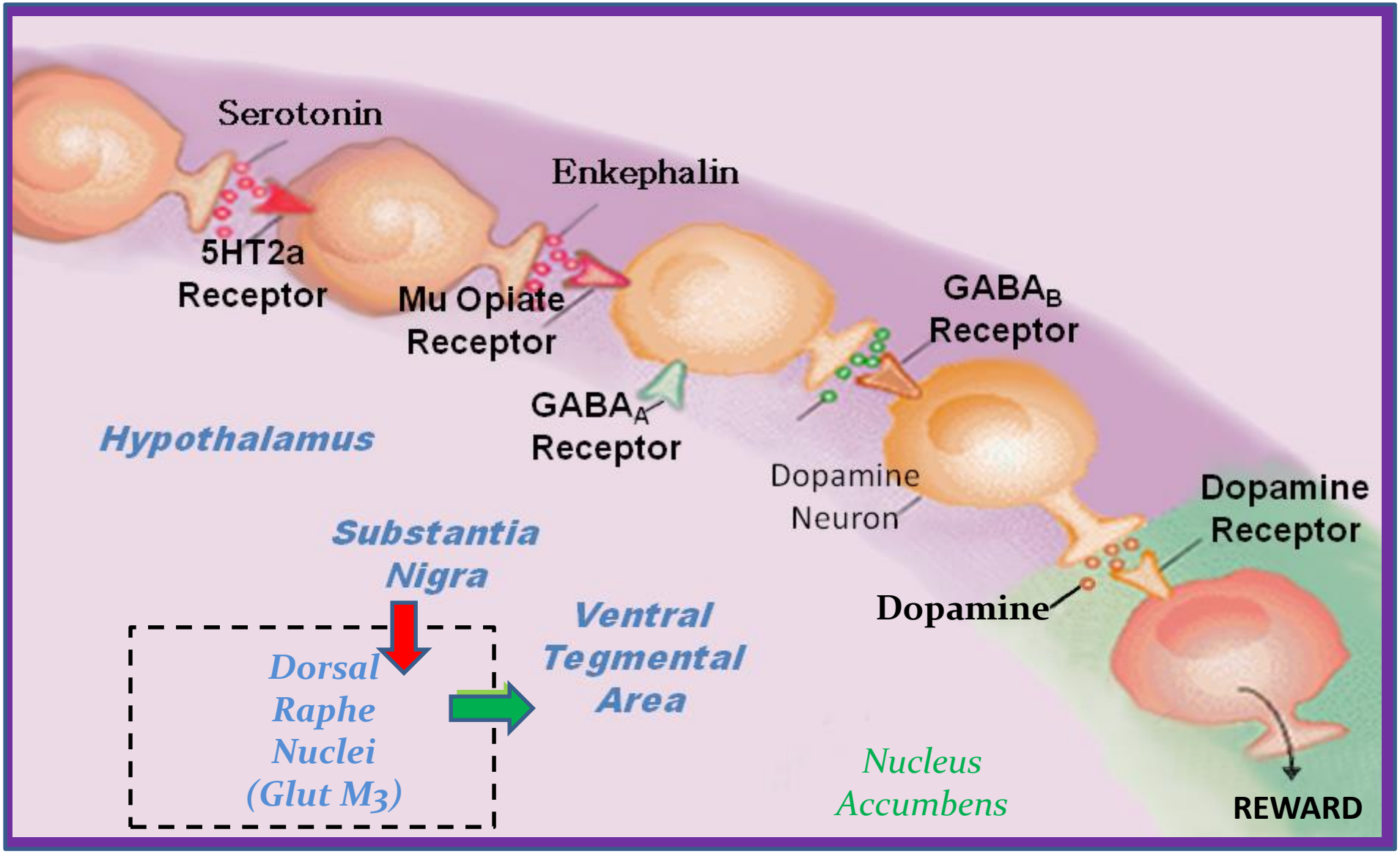
One pathway important to understanding the effects of drugs on the brain is called the reward pathway. The reward pathway involves several parts of the brain, some of which are highlighted in this image: the ventral tegmental area (VTA), the nucleus accumbens (NA), and the prefrontal cortex (PFC). When activated by a rewarding stimulus (e.g., food, water, sex), information travels from the VTA to the nucleus accumbens and then up to the prefrontal cortex.

BRAIN REWARD CIRCUITRY



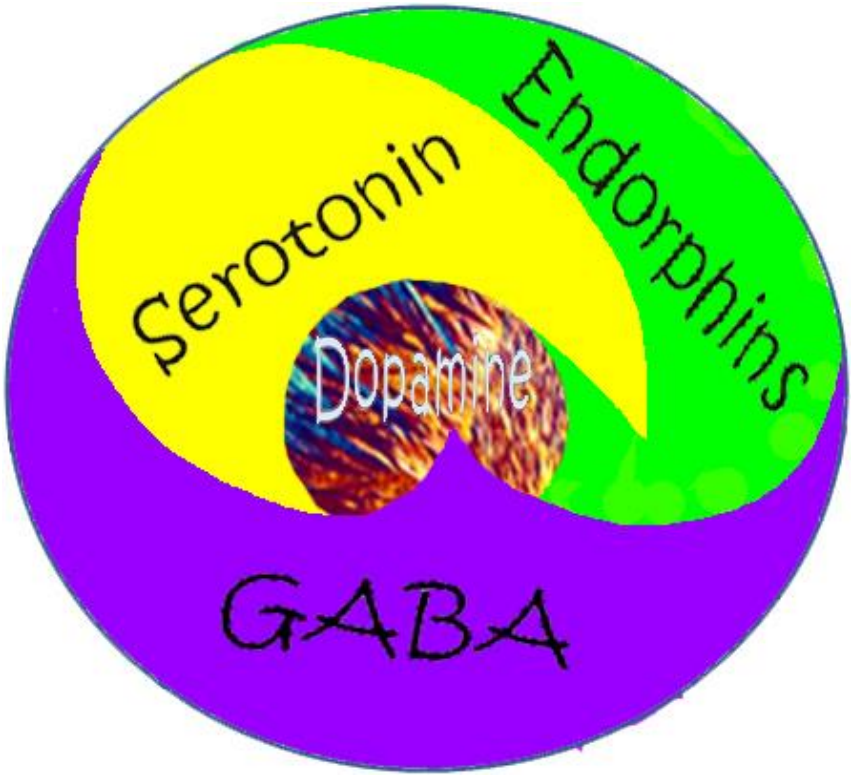
How does Dopamine get released in the brain to enhance well being, motivation and reduce stress?

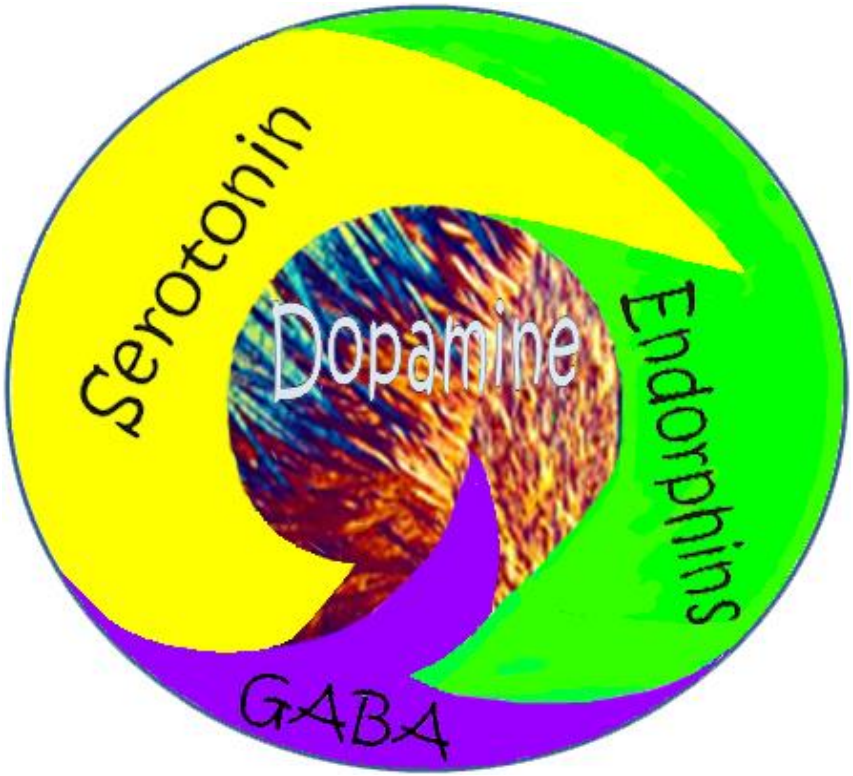
- A neurotransmitter is a chemical messenger which carries messages between neurons
- Dopamine is a neurotransmitter
- The interaction of neurotransmitters (like serotonin, canabinoids, endorphins, GABA and glutimate) cause the net release of dopamine in the reward site of the brain, the Nucleus Accumbens.
- Stress induces the release of the stress molecule Norepinephrine and Dopamine blocks it's effects.
- The release of dopamine also causes feelings of well being, motivation and pleasure.


Serotonin
5HT2a Receptor
Enkephalin
Mu Opiate Receptor
GABA$_A$ Receptor
GABA$_B$ Receptor
Hypothalamus
Dopamine Neuron
Dopamine Receptor
Dopamine
Substantia Nigra
Dorsal Raphe Nuclei (Glut M3)
Ventral Tegmental Area
Nucleus Accumbens
REWARD

Brain Reward Cascade

- Unhappy Brain
- Happy Brain







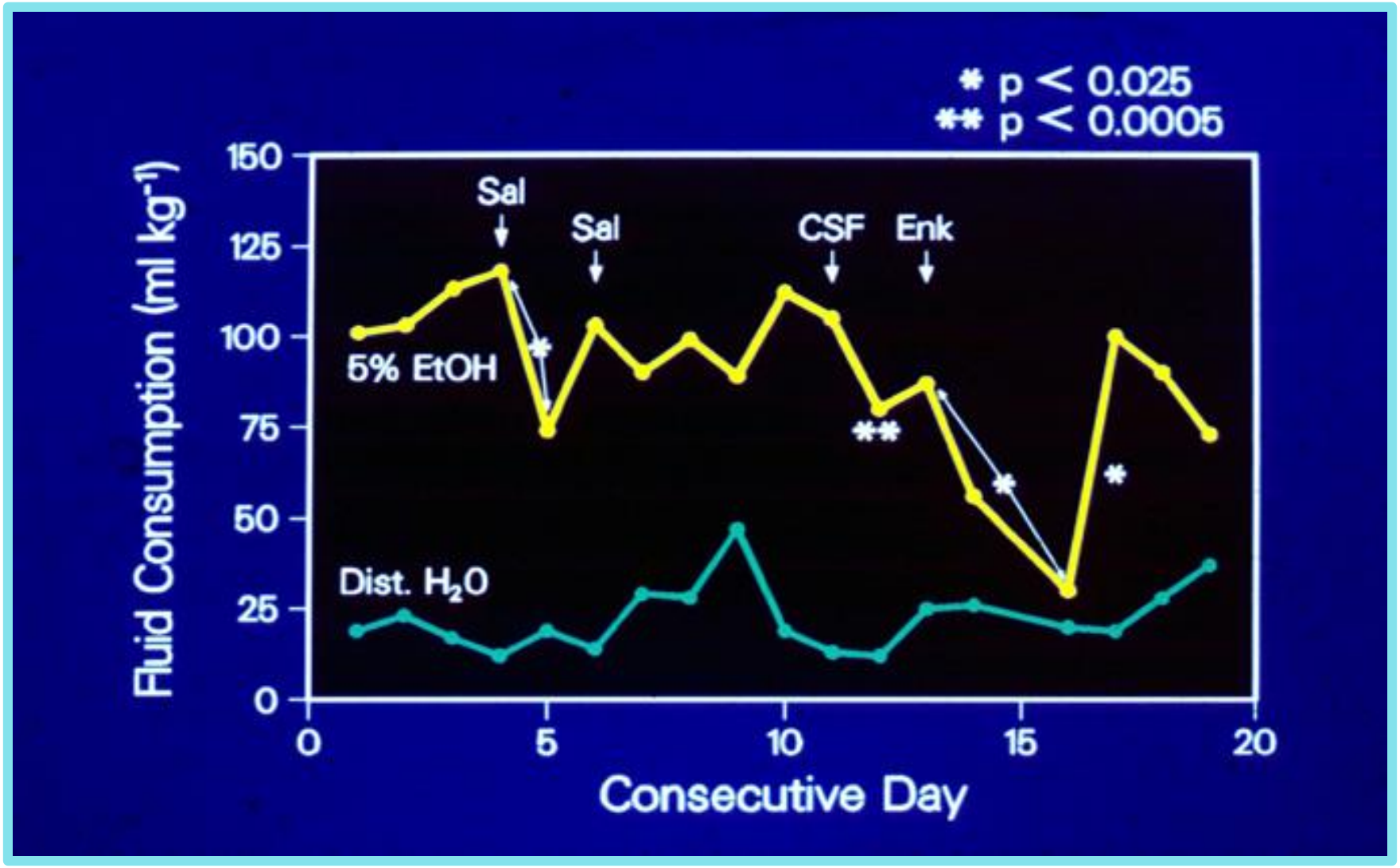
- About 1 in 3 people carry the gene defect …
  But if you are SMART …
  Possible genetic link between RDS and Higher IQ

- "You are so smart why do you _____?"

In the absence of neurotransmitters there is **NO** capacity to feel pleasant feelings.

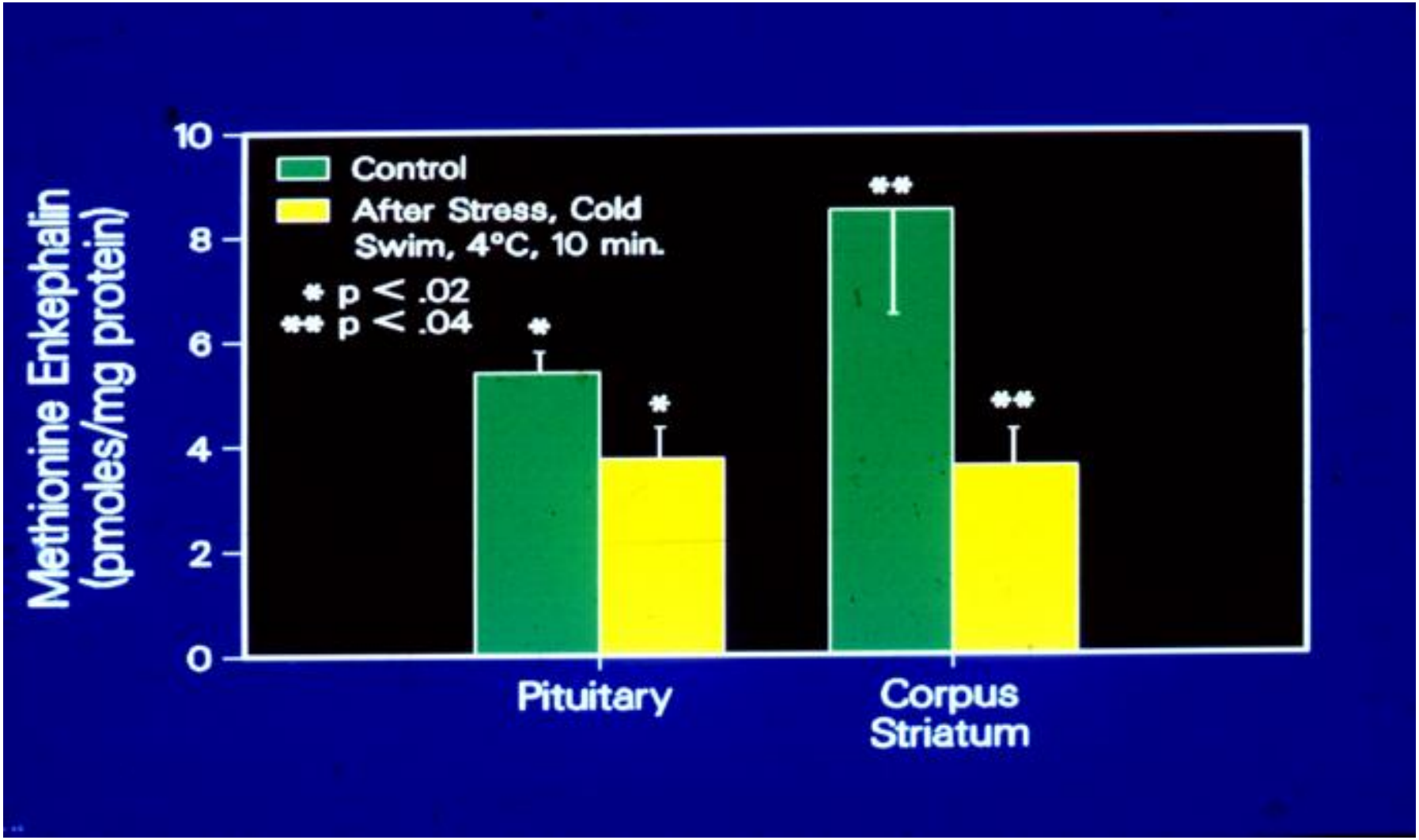
In the absence of neurotransmitters you **experience cravings, anxiety, depression, and more.**

Endorphins stop cravings without changing normal thirst



Blum et al. PNAS 1983

Stress lowers brain endorphins and increases craving behavior

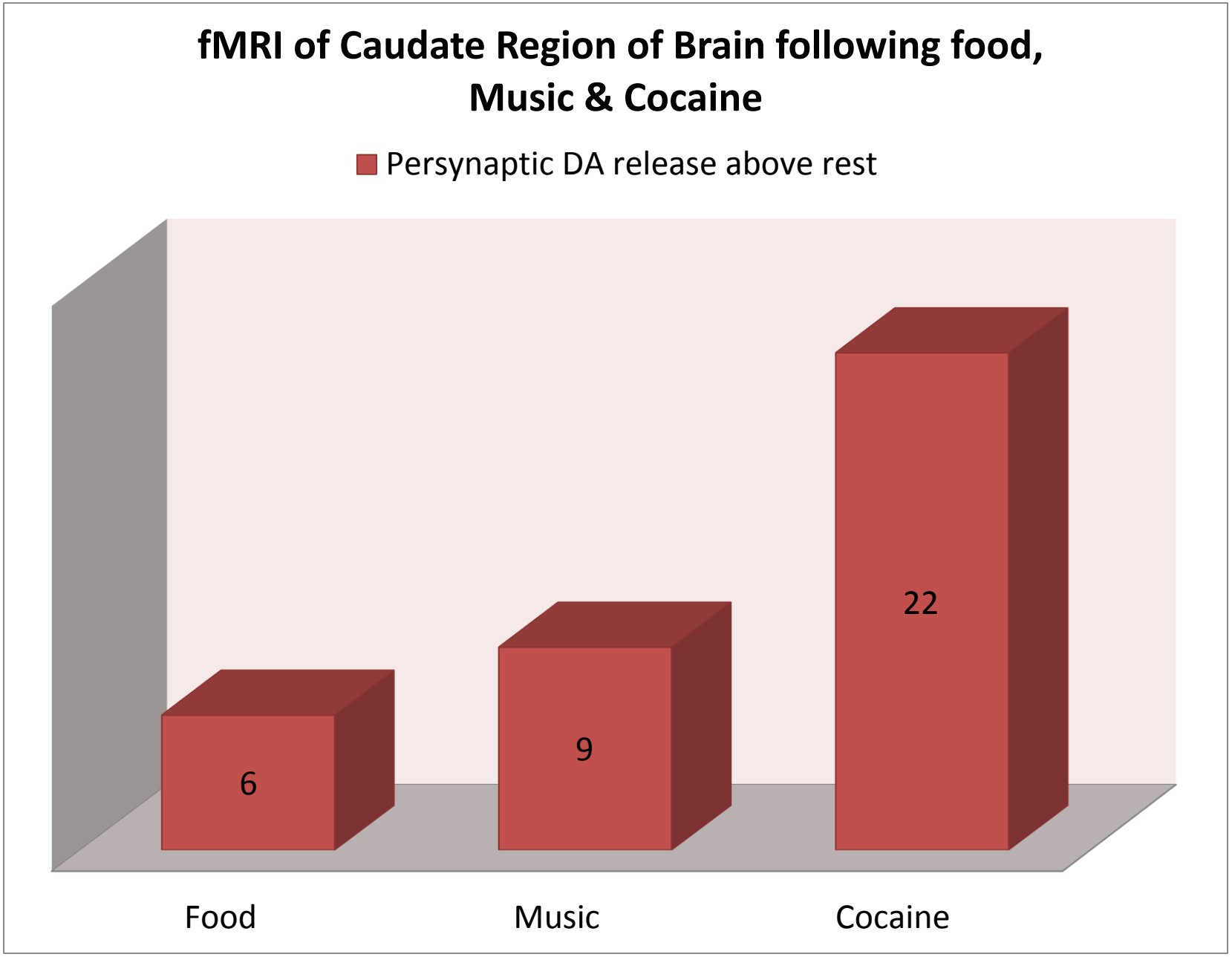


Stress Affects Several Neurotransmitters

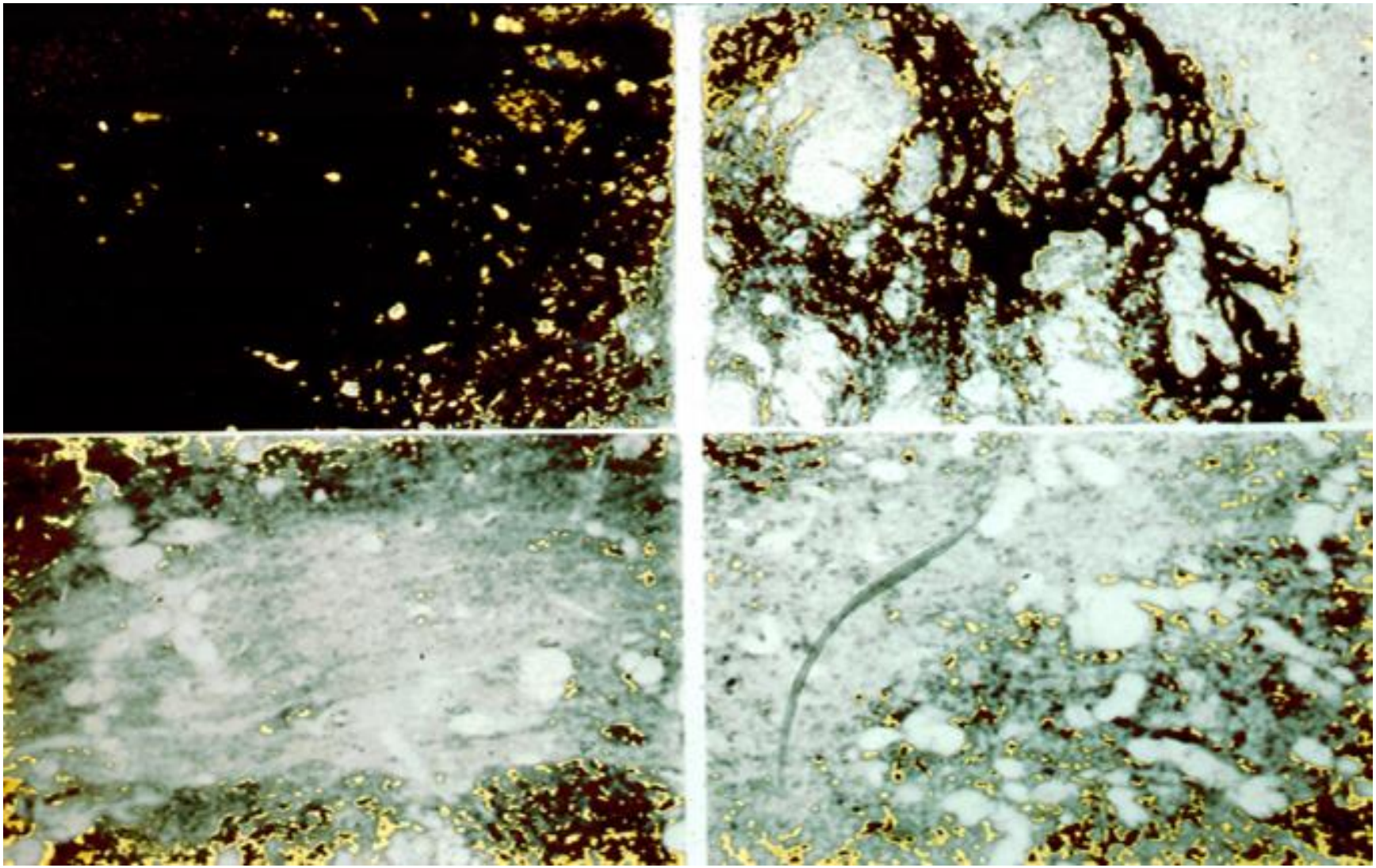
Increased stress elevates cortisol, adrenaline and other factors. Elevated stress hormones decreases happy, relaxed “chill” neurotransmitters. This leads to additional cravings for dopamine.

Sources of Stress

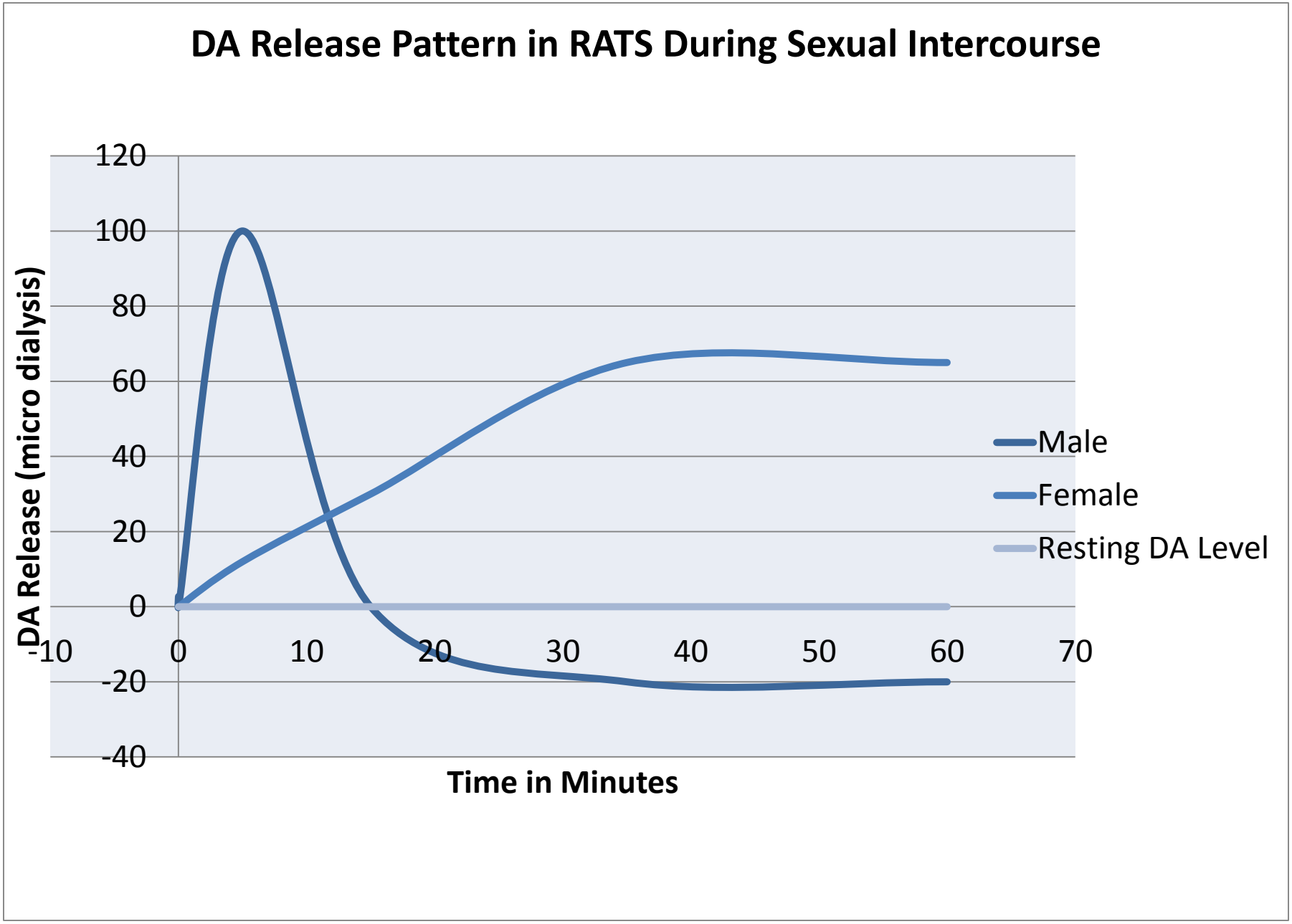
- **Fear** and uncertainty
- **Poor sleep**
- The **death** of a loved one
- **Divorce**
- Loss of a **job**
- Increase in **financial** obligations
- Having a heavy workload or **too much responsibility**
- **Attitudes and perceptions**
- Getting married/**Relationships**
- Moving to a new home
- Chronic illness or injury
- **Emotional problems** (depression, anxiety, anger, grief, guilt, low self-esteem)
- Taking care of an elderly or sick family member
- **Traumatic event**, such as a natural disaster, theft, rape, or violence against you or a loved one

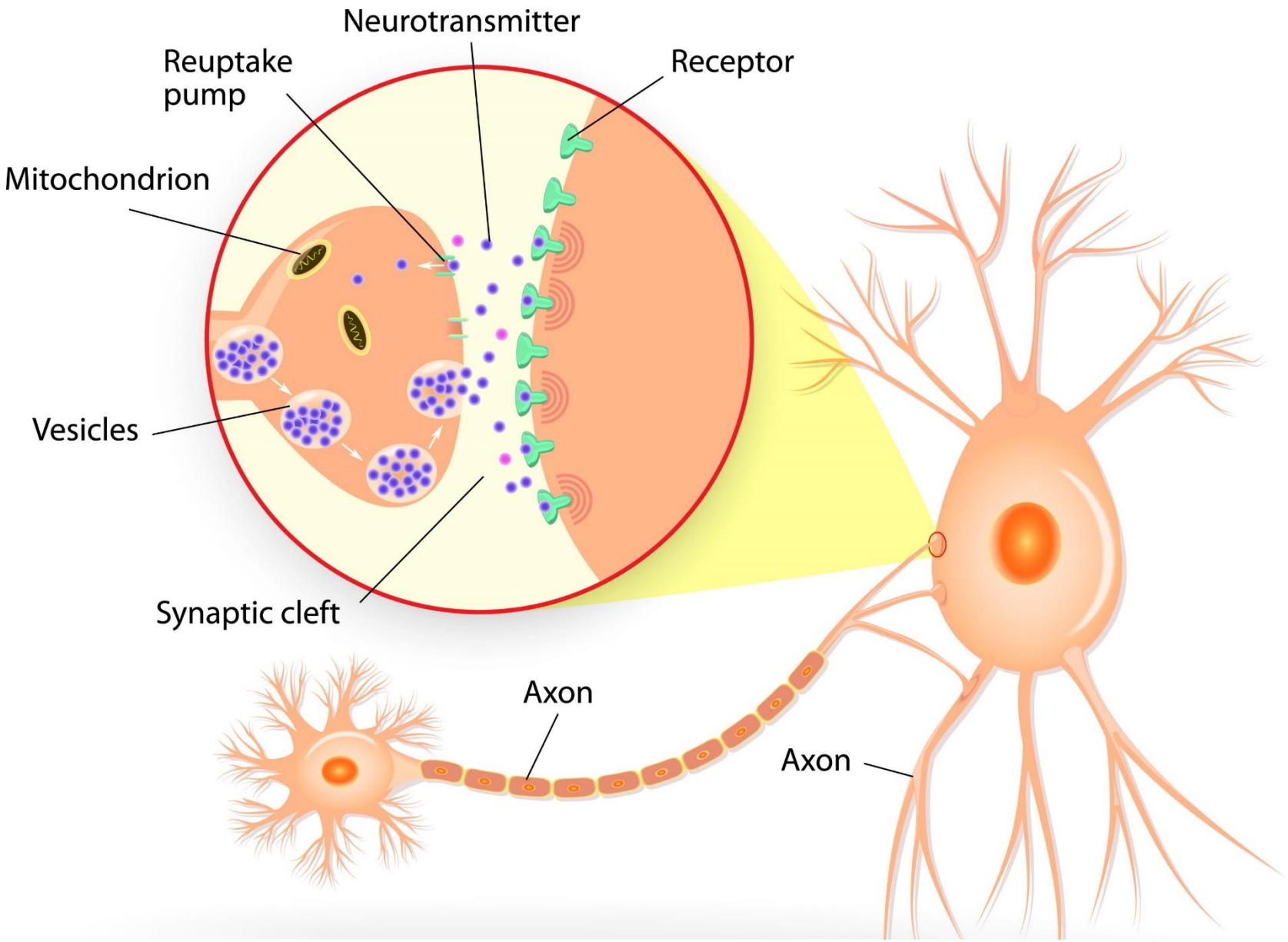

fMRI of Caudate Region of Brain following food, Music & Cocaine
Persynaptic DA release above rest
6
9
22
Food
Music
Cocaine

Chronic use lowers brain endorphins

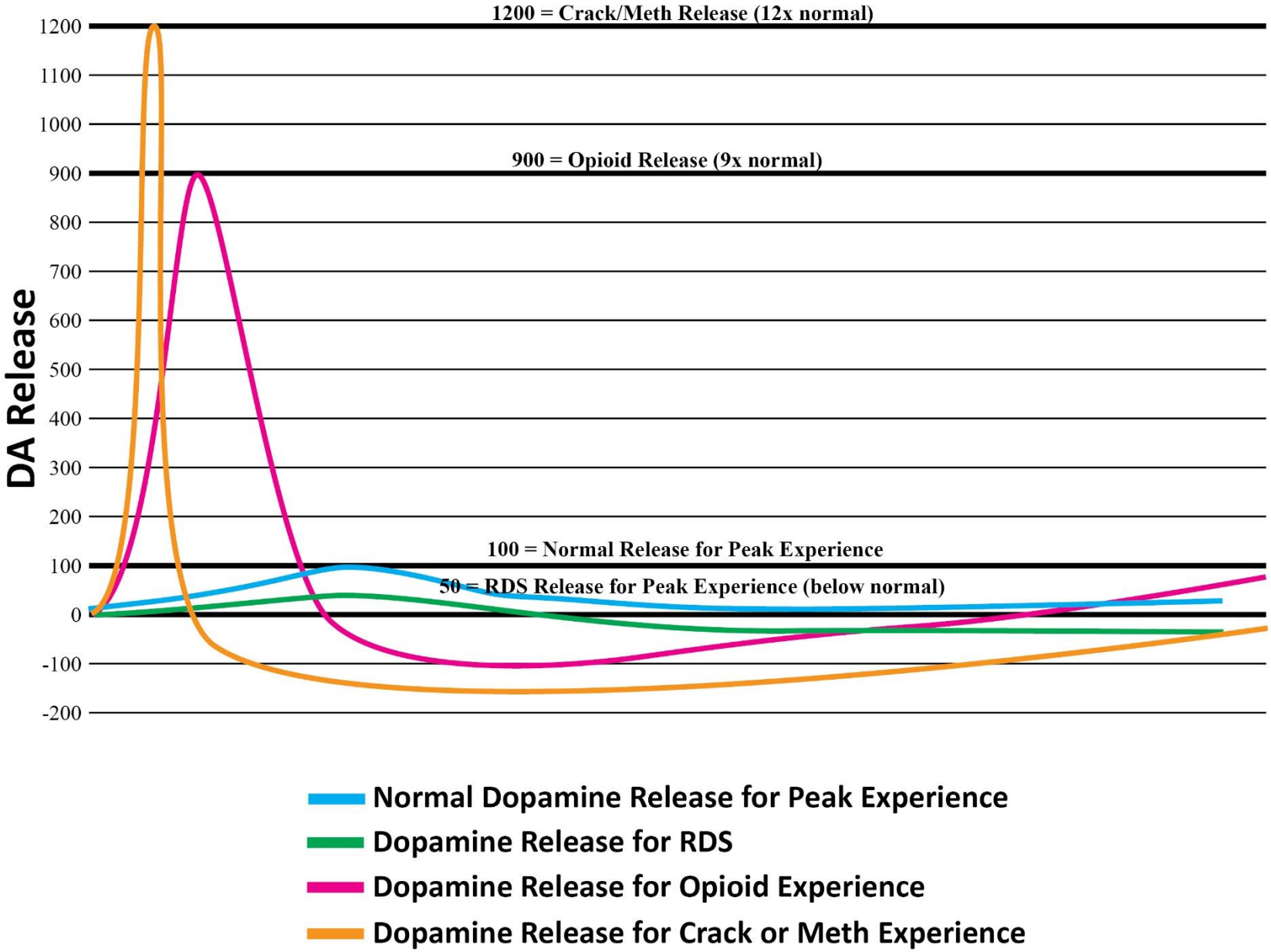


"Too much of a good thing can be toxic"


DA Release Pattern in RATS During Sexual Intercourse
DA Release (micro dialysis)
120
100
80
60
40
20
0
-20
-40
-10
0
10
20
30
40
50
60
70
Time in Minutes
Male
Female
Resting DA Level


Neurotransmitter
Reuptake pump
Receptor
Mitochondrion
Vesicles
Synaptic cleft
Axon
Axon

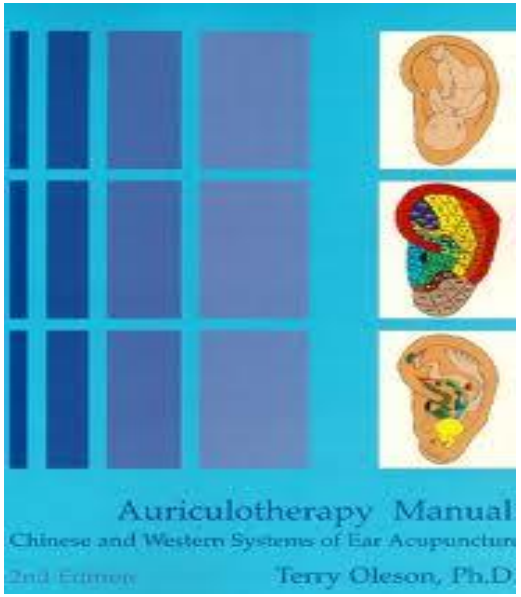
Dopamine Processes



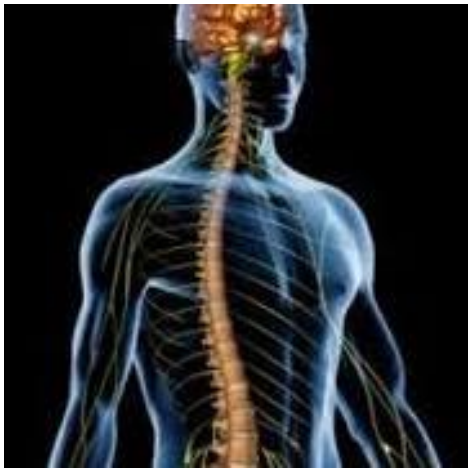
What are the common neurochemical mechanisms between drugs and non-drug addictive behaviors?

- Opiate antagonists like naloxone block alcohol effects.
- Lower brain endorphins result in higher alcohol drinking.
- Raising brain endorphins by preventing it's breakdown reduces alcohol drinking.
- All addictive behavior drug and non-drug cause the acute release of brain dopamine.

Treatment protocols based in NEUROSCIENCE



- **Cranial Nerve Stimulation / Auriculotherapy *Decreases Cravings**


- **Chiropractic manipulation stimulates maximum neurotransmitter production in the Limbic Tissue Factory**

- **Corrective chiropractic care for pre-existing pain disorders & injuries.**

Amino Acid/Neuro-Nutrient Supplementation

genetically formulated to provide maximum results based on your GARS™ Test results. The different formulations were scientifically developed based on the genetic risk variants a person might carry.

ENDOGEN™	This genetically based patented formula has been developed to provide real precision supplementation to help overcome ENDORPHIN deficit due to gene(s) impairments leading to reward deficiency or overall lack of well-being.
EQUIGEN™	This genetically based patented formula has been developed to provide real precision supplementation to help overcome DOPAMINE deficit due to gene(s) impairments leading to reward deficiency or overall lack of well-being.
GABAGEN™	This genetically based patented formula has been developed to provide real precision supplementation to help overcome GABA deficit due to gene(s) impairments leading to reward deficiency or overall lack of well-being.
METAGEN™	This genetically based patented formula has been developed to provide real precision supplementation to help overcome SEROTONIN and DOPAMINE deficits due to gene(s) impairments leading to reward deficiency or overall lack of well-being.
POLYGEN™	This genetically based patented formula has been developed to provide real precision supplementation to help overcome SEROTONIN, ENDORPHIN, GABA and DOPAMINE deficits due to gene(s) impairments leading to reward deficiency or overall lack of well-being.
SEROGEN™	This genetically based patented formula has been developed to provide real precision supplementation to help overcome SEROTONIN deficit due to gene(s) impairments leading to reward deficiency or overall lack of well-being.

GARS™ (Genetic Addiction Risk Score)

In 1990 Dr. Kenneth Blum (UT-San Antonio) and Dr. Ernest Noble (UCLA) found the first clear association between a specific gene and addictive behaviors. In that groundbreaking study, a DNA variant of the DRD2 gene was associated very significantly with severe alcoholism. Nearly 30 years and thousands of studies later, the field of psychiatric genetics is now firmly established, and Dr. Blum has developed the first researched-based genetic test called the Genetic Addiction Risk Score (GARS™)

The GARS™ score describes a person's genetic predisposition to Reward Deficiency Syndrome (RDS).

Reward Deficiency Syndrome is marked

The GARS™ score describes a person's genetic predisposition to Reward Deficiency Syndrome (RDS).

Reward Deficiency Syndrome is marked by reward-seeking, addictive, impulsive and compulsive behaviors. Genetic research links certain established DNA variations within genes to these behaviors. Within the brain, neurotransmitters signal the release of dopamine in the reward system of the brain, where pleasure originates. Dopamine is a molecule required for well-being, stress reduction, good decision making, normal cravings, memory, cognition, and motivation for a healthy lifestyle.

WHAT DOES THAT MEAN?

People continually lacking dopamine don't feel satisfaction in their lives, have difficulty coping with stress, and carry elevated risk for behaviors that are known to increase dopamine in the pleasure centers of the brain.

Genetic Addiction Risk Score (GARS™)

⇒ Dopamine D1 Receptor Gene	(DRD1)
⇒ Dopamine D2 Receptor Gene	(DRD2)
⇒ Dopamine D3 Receptor Gene	(DRD3)
⇒ Dopamine D4 Receptor Gene	(DRD4)
⇒ Dopamine Transporter Gene	(DAT1)
⇒ Serotonin Transporter Gene	(5HTTLPR)
⇒ Mu-Opiate Receptor Gene	(OPRM1)
⇒ GABA-B^3 Receptor Gene	(GABRB3)
⇒ Monoamine Oxidase A Gene	(MAOA)
⇒ Catecholamine Methyltransferase Gene	(COMT)

WHY TEST KNOWN ADDICTS WITH GARS

DENIAL
Many patients in treatment programs deny that they have a biological problem and are therefore able to control addictions. Providing real evidence genetically (GARS™) to predict risk for both substance and non-substance severity helps remove DENIAL.

GENOGRAM CONFIRMATION
In most chemical and non-chemical dependency programs the patients are usually asked to provide a family history of addiction called a GENOGRAM. Offering the GARS™ Test to family members is the best way to confirm the risk of addiction in the family.

GUILT
A very common response from people already addicted is a profound sense of shame and guilt. Providing biological and genetic (GARS™) evidence to predict risk for both substance and non-substance severity helps remove GUILT.

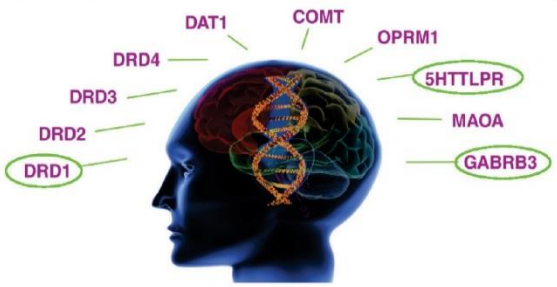
MEDICATION ASSISTED TREATMENT (MATS) DOSING
Certain genetic variations tested by the GARS™ Test, will result in dosing consequences. For example, higher doses of Buprenorphine (a MAT) may be needed to prevent a relapse to street heroin.

RESOURCE ALLOCATION
Stepped care models aimed at matching treatment intensity to defined patient characteristics is a common approach to resource allocation. For example, placing the individual in Home 1 or Home 2 (more intense) is subject to feasibility, validity, effectiveness, and cost-effectiveness. GARS™ testing will negate guessing and provide a genetically based method of real RESOURCE ALLOCATION methodology.

PRO-DOPAMINE REGULATION
Inducing what has been termed “dopamine homeostasis (balance)” across the brain reward circuitry is the best way to treat all addictive behaviors. GARS™ testing of an addicted person provides an exact mirror into the brain’s chemical messenger function (receptor number and chemical production) and can lead to personalized addiction medicine based on PRO-DOPAMINE REGULATION.

Mother

eport has determined you carry RISK VARIANTS in the genes ci



testing helps identify genetic deficits that are present at birth, reveali
low dopamine function. The GARS™ Test unlocks the genetic informati
of a person's predisposition to addictive behaviors and pairs the perso
with a customized neuro-nutrient formulation that works to balance
brain dopamine.

GARS SCORE: 3

DRD1 | GABRB3 | 5-HTT-LINKED

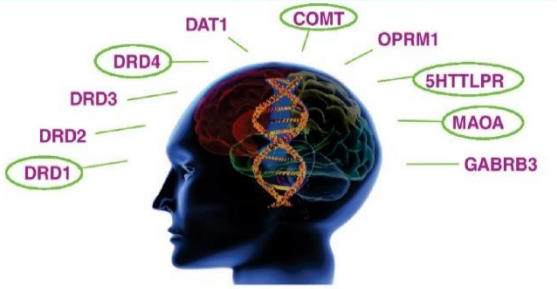
Recommended restoreGen Formulation:

POLYGEN™

This genetically based patented formula has been developed to provide real precision supplementation to help overcome SEROTONIN, ENDORPHIN, GABA and DOPAMINE deficits due to gene(s) impairments leading to reward deficiency or overall lacl of well-being.

Father

eport has determined you carry RISK VARIANTS in the genes ci



testing helps identify genetic deficits that are present at birth, reveali
low dopamine function. The GARS™ Test unlocks the genetic informati
of a person's predisposition to addictive behaviors and pairs the perso
with a customized neuro-nutrient formulation that works to balance
brain dopamine.

GARS SCORE: 6

COMT | DRD1 | DRD4
MAOA | 5-HTT-LINKED

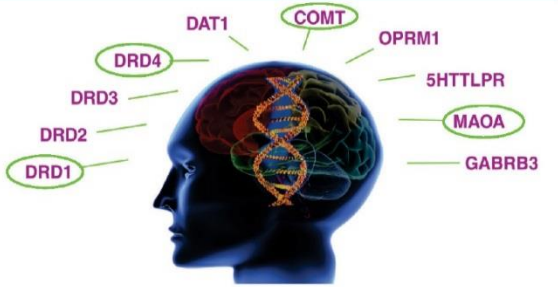
Recommended restoreGen Formulation:

METAGEN™

This genetically based patented formula has been developed to provide real precision supplementation to help overcome SEROTONIN and DOPAMINE deficits due to gene(s) impairments leading to reward deficiency or overall lack of well-being.

Daughter

eport has determined you carry RISK VARIANTS in the genes ci



testing helps identify genetic deficits that are present at birth, reveali
low dopamine function. The GARS™ Test unlocks the genetic informati
of a person's predisposition to addictive behaviors and pairs the perso
with a customized neuro-nutrient formulation that works to balance
brain dopamine.

GARS SCORE: 4

COMT | DRD1 | DRD4
MAOA

Recommended restoreGen Formulation:

EQUIGEN™

This genetically based patented formula has been developed to provide real precision supplementation to help overcome DOPAMINE deficit due to gene(s) impairments leading to reward deficiency or overall lack of well-being.

Mother	Father	Daughter
The mother had expressed explosive anger and lingering animosity and resentments… I was disproportionately angry, even at social injustice or something I would see on TV, issues that didn't affect me. It spilled over into my personal relationships. Less than 1 week on the aminos, I noticed this had stopped and I was much calmer all the way around. Now, weeks later, it just keep getting better and I am simply happier.	The father had expressed binge drinking, admitted it was interfering with life and relationships… I found myself simply not drinking in situations that I used to drink in. I had one of my most stressful weeks ever… my first thought was to get some wine, but immediately I realized I didn't really want, or need it. I found that I was calmer than normal and no longer saw alcohol as a desirable response to the things in my life that used to lead to drinking.	Blackout drinker who entered residential treatment… At first I didn't feel any different, but on day 4, I woke up feeling substantially better. I was excited for the day ahead. Something that I had not experienced in a very long time. I had actual joy and spontaneously smiled upon seeing my friends and treatment team. I had also been a very angry person up to this point. The smallest inconvenience would send me into a rage. I was hypersensitive and judgmental of other people with little empathy. This, too, had started to reverse.

Daughter continued…

I was suddenly concerned for others and felt the urge to try and help them to feel better. My thoughts were less clouded. I was able to separate logical decisions from emotional ones. I didn't worry about the building collapsing or another client breaking down and potentially harm me. I rode all the way across town over several bridges on a two lane road without the fear of careening off the bridge to my death, or the oncoming cars hitting us on purpose. My unsubstantiated anxieties were melting away. I became more open to spirituality as well as theories and opinions that differed from my own. It was incredible.

As time went on the effects continued to improve my moods, cognitive function, as well as psychiatric stability. I started to notice that my physical cravings as well as mental obsessions over using substances to numb my feelings had practically disappeared. I was able to identify feelings that had previously eluded me, and was willing, sometimes excited to work through them in healthy ways. Even my craving for nicotine was diminishing.

It was unlike any psychiatric therapy or medication that I had tried in the past. I was experiencing real peace and happiness. I had regained motivation and a sense of purpose. It was like Equigen was the key to the door of a mental, emotional, physical and psychological classroom that I had never before been able to access. My neurotransmitter levels had been brought up to the correct concentrations and it allowed me to open up to learning how to work through my other issues that had been blocked before. It changed my life on levels that I had never even imagined that it would.

I will forever be grateful for the amino acid treatment and plan to continue to use it for the rest of my life. I highly recommend it to everyone I come in contact with that is experiencing difficulties. It is the best tool I have ever had in my battle with mental health as well as my addictions. I am healthier than I have ever been in my entire life on all levels and it is in no small measure a direct result of the GARS testing and Equigen.

Summary Guide: What Your Genetics Can Tell You

Based on your genetics, we have identified that you carry risk variants in the following genes:

Genetic Variants	Addictive Behavior Risks
you have the **G** allele of the dopamine **COMT**	**Substance Misuse:** Opiates/Opioids, Alcohol, Cannabis, Glucose, Stimulants (Cocaine), Nicotine **Non-Substance Misuse Behaviors:** ADHD, Oppositional Defiant, Pathological Aggression, Panic Disorder, Anxiety, OCD, Internet Gaming
you have the **A** allele of the **DRD1** receptor gene	**Substance Misuse:** Alcohol & Nicotine **Non-Substance Misuse Behaviors:** Novelty Seeking
you have the **C** allele of the **DRD3**	**Substance Misuse:** Cocaine & Glucose **Non-Substance Misuse Behaviors:** ADHD, OCD, Pathological Aggression
you have the **G** allele of the **OPRM1**	**Substance Misuse:** Opiates/Opioids, Alcohol, Glucose, Nicotine, Cocaine **Non-Substance Misuse Behaviors:** Overeating, Stress, PTSD
you have the **S** or **LG** allele of the **5-HTTLPR**	**Substance Misuse:** Opiates/Opioids, Alcohol, Cocaine, Cannabis, Nicotine, Glucose **Non-Substance Misuse Behaviors:** ADHD, PTSD, Pathological Aggression
you carry the **4R** of **MAOA** gene	**Substance Misuse:** Opiates/Opioids, Alcohol, Nicotine, Glucose **Non-Substance Misuse Behaviors:** Harm Avoidance, ADHD, Novelty Seeking
you have an over-expressed **181** allele of the **GABRB3**	**Substance Misuse:** Alcohol **Non-Substance Misuse Behaviors:** PTSD
you have the **C** allele or **7R** allele of the **DRD4** receptor gene	**Substance Misuse:** Opiates/Opioids, Alcohol, Cannabis, Glucose, Nicotine **Non-Substance Misuse Behaviors:** ADHD, Novelty Seeking, Conduct Disorder, Hypersexuality, Pathological Aggression

COMT
Catechol-O-Methyltransferase

Risk allele: G (rs4680)

Increased risk for:

- **SUBSTANCE: RDS behaviors including dependence on alcohol, cannabis, glucose, opiates/opioids, stimulants, and nicotine dependence**
- **NON-SUBSTANCE: RDS behaviors including ADHD, oppositional defiant, pathological aggression, panic disorder, anxiety, OCD, and internet gaming**

RECOMMENDED NUTRIENTS:

Increase:

Rhodiola root extract (3% Rosavins)

CLINICAL IMPACT:

A person with double copies of the Val variant (G/G at rs4680) metabolizes dopamine at up to four times the rate of their double Met counterpart. Val carriers are linked to increased risk for numerous substance and non-substance related reward deficiency behaviors.

FUNCTION:

Under normal conditions, the COMT gene provides instructions for making an enzyme called catechol-O-methyltransferase. ***This enzyme destroys the dopamine molecule in the synapse*** and helps maintain appropriate levels of neurotransmitters (dopamine and norepinephrine) in the brain.

DESCRIPTION:

The COMT gene is located on chromosome 22 at q11.2, and the version of the enzyme found in brain neuronal cells is membrane-bound catechol-O-methyltransferase (MB-COMT). Variant rs4680 (chr22: 19963748) is the variant of interest. When guanine (G) is at this position in COMT, the resulting enzyme has the amino acid valine (Val) at codon 158; when adenine (A) is at this position, the resulting enzyme has methionine (Met) at codon 158 (is often denoted as Val158Met). MB-COMTs with Val destroy dopamine better than enzymes with Met, leading to lowered dopamine availability and function (hypodopaminergia). There have been over 2400 studies involving the COMT gene.

DRD1
Dopamine Receptor D1

Risk allele: A (rs4532)

Increased risk for:

- **SUBSTANCE: RDS behaviors including alcohol and nicotine dependence**
- **NON-SUBSTANCE: RDS behaviors including novelty seeking**

RECOMMENDED NUTRIENTS:

Increase:

L-Phenylalanine

L-Tyrosine

N-Acetyl-Cysteine

CLINICAL IMPACT:

DRD1 regulates neuron growth and development, mediates some behavioral responses, and modulates dopamine receptor D2-mediated events. Presence of the risk variant reduces gene expression, ultimately lowering the number of available D1 dopamine receptors and thus the balance between D1 and D2 receptor activity in the brain. D1 neurons are informally called part of a 'go' pathway in the brain, while D2 neurons are in the 'no-go' pathway. When D2 neurons are activated, they discourage action -- telling you to wait, to stop, to do nothing. Perturbing the D1/D2 balance can affect craving behaviors. For example, periodic (not chronic) heavy alcohol consumption acts upon D1 neurons, making them much more excitable (they activate from less and less stimulation). When these neurons are excited, you then crave more alcohol and find yourself reaching for another bottle. A cycle is created: drinking induces easier activation, and easier activation causes more drinking.

FUNCTION:

Under normal conditions, this gene encodes the most abundant dopamine receptor in the central nervous system: ***the D1 subtype. While the D2, D3, and D4 receptor subtypes inhibit adenylyl cyclase*** activity, the D1 receptor stimulates a critical brain molecule adenylyl cyclase, which activates cyclic AMP (required for proper nerve brain function).

DESCRIPTION:

DRD1 is located at chromosome 5 q35.1, and the risk variation of interest is rs4532 in the DRD1 gene promoter (chr5:175443147). The nucleotide guanidine (G) has been replaced by adenine (A). Roughly a quarter of the human population carries one or two copies of this risk variant allele, and over 1600 peer-reviewed studies involving the DRD1 gene have been published; carriers demonstrate an increased risk for many substance abuse and novelty seeking reward deficiency behaviors.

DRD2
Dopamine Receptor D2 Taq 1A Polymorphism

Risk allele: A (rs1800497)

Increased risk for:

- **SUBSTANCE: RDS behaviors including addiction to alcohol, cannabis, nicotine, opioids, heroin, cocaine, and glucose**
- **NON-SUBSTANCE: RDS including ADHD, conduct disorder, gambling, hypersexuality, novelty seeking, pathological aggression, and PTSD**

RECOMMENDED NUTRIENTS:

Increase:

L-Phenylalanine

L-Tyrosine

N-Acetyl-Cysteine

CLINICAL IMPACT:

A reduced number of D2 dopamine receptors in the brain leads to a deficit in dopamine signaling. People experience less pleasure and decreased well-being, instead of feeling satisfaction and happiness in ordinary behaviors like eating, reproduction, and work. The Taq A1 variant has been associated with addictive, compulsive, and impulsive behaviors and carriers demonstrate increased risk for substance abuse relapse, hospitalization, and mortality. Carriers of the A1 variant may also have a higher fat-cell percentage in their body.

FUNCTION:

The DRD2 gene encodes the D2 subtype of the dopamine receptor. Opposite to the D1 receptor subtype, ***the activated D2 receptor inhibits adenylyl cyclase activity*** thereby reducing the intracellular concentration of the second messenger cyclic AMP. DRD2 is located in close proximity to ANKK1, Ankyrin Repeat and Kinase Domain Containing 1, which is involved in signal transduction. Inheriting the Taq A1 genetic variant in ANKK1 equates to a 30 to 40 % lower density of dopamine D2 receptors.

DESCRIPTION:

DRD2 is located at chromosome 11 q23.2 and the risk variant of interest (rs1800497) is downstream at chr11:113400106 where the nucleotide guanine (G) has been replaced with adenine (A). More than 4000 published studies are related to DRD2. In 1990, inspired by a reported genetic association of Taq A1 with depressed Amish subjects, Geneus Health founder Kenneth Blum, Ph.D. discovered the first genetic association with severe alcoholism - foundational work within the field of behavioral genetics. Initially Taq 1A (rs1800497) was thought to be within the DRD2 gene, but as sequencing technology advanced the location was corrected to exon 8 of the nearby ANKK1 gene. This risk allele is found in approximately 100 million people in the USA, with the highest frequecy in Native Americans (85%) and the lowest frequency in Western European Jews (6%).

DRD3
Dopamine Receptor D3

Risk allele: C (rs6280)

Increased risk for:

- **SUBSTANCE: RDS behaviors especially cocaine-seeking and food intake**
- **NON-SUBSTANCE: RDS including ADHD, OCD, and pathological aggression**

RECOMMENDED NUTRIENTS:

Decrease:

Glutamine

Increase:

DL-Phenylalanine

Passion Flower

CLINICAL IMPACT:

Under normal conditions, D3 receptors modulate reward seeking behavior by modulating dopamine release. This can reduce feelings of pleasure, particularly pleasure in food, as well as cocaine-seeking behavior. This is accomplished via reduced dopamine release into synapses between neuronal cells. A cytosine variant at rs6280 alters this balance. The variant imparts increased risk of impaired brain functions which tend to promote the development of physical dependence on alcohol, increase the number of fat cells formed following a high-fat diet, and increase susceptibility to cocaine dependence. This gene is a therapeutic target for schizophrenia, all addictions, and Parkinson's disease.

FUNCTION:

The DRD3 gene encodes the D3 subtype of the five (D1-D5) dopamine receptors. As with D2 receptors, ***the activated D3 receptor inhibits adenylyl cyclase.***

DESCRIPTION:

DRD3 is located at chromosome 3 q13.31, with the risk variant (rs6280) at 3:114171968. Having a cytosine (C) instead of thymine (T) at this location intensifies the effect of dopamine, magnifying the 'high' observed with alcohol and cocaine to dangerous levels. This receptor is localized in the older, more emotionally bent, limbic areas of the brain, including the pituitary gland, the olfactory bulb (smell) and the nucleus accumbens (cravings, aversions, reward). There are almost 800 published studies related to this gene, which demonstrate increased risks for alcohol, cocaine, and heroin dependence as well as RDS behaviors including ADHD, OCD, and even pathological aggression.

DRD4
Dopamine Receptor D4

Risk allele: C (rs1800955) and DRD4 ≤ 7R (long variant rs761010487)

Increased risk for:

- **SUBSTANCE: RDS behaviors including opiate, alcohol, cannabis, glucose, and nicotine dependence**
- **NON-SUBSTANCE: RDS behaviors including ADHD, novelty seeking, conduct disorder, hypersexuality,pathological aggression**

RECOMMENDED NUTRIENTS:

Increase:

DL-Phenylalanine
L-Tyrosine
N-Acetyl-Cysteine
NADH
Rhodiola root extract (3% Rosavins)

CLINICAL IMPACT:

The longer alleles may have afforded some survival advantages in our genetic past, around 40,000 years ago. Compared to sedentary populations, the frequency of the ≥7R variant is much higher in nomadic populations, suggesting an association with modern day 'novelty seeking' behaviors. Of note, parenting quality in combination with the ≥7R variant has been associated with appropriate decision making as early as age 4. Thus, with early knowledge of the ≥ 7R variant, childhood intervention might reduce the chances of developing future substance and non-substance RDS behaviors.

FUNCTION:

The DRD4 gene encodes the dopamine receptor subtype D4. The underlying brain mechanism is D2-like, in which ***the activated D4 receptor inhibits the enzyme adenylate cyclase.***

DESCRIPTION:

DRD4 is found on chromosome 11 at p15.5. Two different variants within this gene are measured in the GARS™ test. The first a single base (rs1800955) at 11:636784-521 affects personality based on the presence of C or T, where cytosine is the risk variant. The second variant (rs761010487) is a more complex series of up to 11 repeats of the same 48 base sequence within exon 3. The number of repeats varies in each person, based on what was inherited. Fewer than 7 repeats (<7R) in this sequence is categorized as a 'short' variant and having 7-11 (≥7R) repeats is categorized as the 'long' (risk) form of the variant. Many of the 1200+ published studies on DRD4 have linked these two risk variants to neurological and psychiatric conditions.

OPRM1
Opioid Receptor Mu 1

Risk allele: G (rs1799971)

Increased risk for:

- **SUBSTANCE: RDS behaviors including alcohol, food, opiate/opioid, and nicotine dependence**
- **NON-SUBSTANCE: RDS including overeating, inability to cope with stress, and PTSD behaviors**
- **Reduced response to opioids**

RECOMMENDED NUTRIENTS:

Increase:

DL-Phenylalanine
L-Tyrosine
N-Acetyl-Cysteine
NADH
Rhodiola root extract (3% Rosavins)

Decrease:

Glutamine

CLINICAL IMPACT:

Carriers of the G allele have a reduced response to opioids, leading to less than adequate pain relief and increased dosage requirements for analgesia. The prototypical synthetic opioid is morphine. When morphine binds to the MOR, it causes a physiological response (pain relief and dopamine reward). Carriers of the risk allele require larger doses to achieve the same response, but too much potent addictive morphine can lead to overdose and death. Over-prescription of opioids (297 million in 2016) for pain relief is linked to a growing opioid epidemic in the U.S., where one overdose death occurs every 17 minutes.

FUNCTION:

Opioids exert their pharmacological actions through three opioid receptors: mu, delta and kappa (encoded by OPRM1, OPRD11, and OPRK1, respectively). A family of natural opiate-like chemicals released by neurons (enkephalins, dynorphins, and endorphins), activate opioid receptors in the brain, as do synthetic opiate compounds. ***The mu opiate receptor (MOR) controls pain, and is also very involved in the regulation of dopamine release in the reward area of the brain.***

DESCRIPTION:

The mu (μ) opioid receptor is encoded by OPRM1, located on chromosome 6 at q24-q25. This class of opioid receptors has strong affinity for the circulating enkephalins and beta-endorphins in the brain. When MOR is activated because it binds to a circulating opiate, one result is the suppression of GABA, an inhibitory neurotransmitter, allowing for dopamine to be released at the reward site. The risk variant of interest in OPRM1 is rs1799971 where the guanine (G) allele replaces adenine (A) at chr6:154039662. There are over 1800 studies on the MOR variants. These primarily relate to substance use disorder, but also link MOR variation to RDS addictive behaviors like overeating, inability to cope with stress, and PTSD.

DAT1
Dopamine Active Transporter 1

Risk allele: <9 repeats (variable number tandem repeat rs28363170)

Increased risk for:

- **SUBSTANCE: RDS behaviors including heroin, alcohol, cocaine, and nicotine dependence**
- **NON-SUBSTANCE: RDS behaviors, particularly ADHD, depression (anhedonia), and PTSD**

RECOMMENDED NUTRIENTS:

Increase:

DL-Phenylalanine
L-Tyrosine
N-Acetyl-Cysteine

Decrease:

Cysteine
NADH
Rhodiola root extract (3% Rosavins)

CLINICAL IMPACT:

After dopamine is released by a pre-synaptic neuron, DAT1 quickly clears excess dopamine from the synapse so that the neurotransmitters no longer bind to, nor exert signals within, the post-synaptic neuron. Having fewer than 9 repeats in sequence is considered a risk variant for hypodopaminergia (low dopamine function) because maximal expression of DAT1 equates with increased ability to clear dopamine. Carriers of the < 9R are more prone to both substance and non-substance RDS addictive behaviors.

FUNCTION:

The dopamine active transporter 1 gene (DAT1, also known as SLC6A3) encodes a membrane-spanning protein that ***mediates the reuptake/recycling of dopamine from the synapse***. The dopamine transporter helps regulate the level of neurotransmitter present in the synapse and controls how long a signal resulting from neurotransmitter release lasts.

DESCRIPTION:

The DAT1 gene is located on chromosome 5 at p15. Like DRD4, this gene has an important variable number tandem repeat (VNTR), in this case located at the far end of the gene (rs28363170). A series of 40 bases repeated less than 9 times (≤ 9R) is associated with maximum expression/activity of the transporter. The regional brain distribution of the DAT1 is similar to DRD2: high dopamine-containing neurons within the limbic system. Maximum expression of the DAT1 gene is found in a part of the brain called the Substania Nigra (a brain region which fine tunes dopamine release at the reward center). There are over 2500 studies concerning the role of the DAT1 gene and predisposition towards mental disorders and substance abuse.

5-HTT-LINKED
Polymorphic Region

Risk allele: long L variant with G (rs25531) and/or short variant S (variable tandem number repeat rs4795541)

Increased risk for:

- **SUBSTANCE: RDS behaviors including alcohol, opiate/opioid, nicotine, cocaine, cannabis, and glucose dependence**
- **NON-SUBSTANCE: RDS behaviors including ADHD, PTSD, and pathological gambling**

RECOMMENDED NUTRIENTS:

Increase:

5-Hydroxytryptophan
Chromium Salts
Coenzyme Q10

CLINICAL IMPACT:

This transporter is the target of many antidepressant medications which affect serotonin transport. The long allele LA increases ***SLC6A4*** transcription in human cell lines; more serotonin transporters equate to less serotonin signaling in the synapse, as the neurotransmitter is recycled swiftly. Due to conflicting study outcomes, research has increasingly shifted to contrasting individuals with two copies of long allele A form (LA / LA) against all other allele combinations based on the presumption that this genotype will lead to the highest serotonin recycling rates. Some studies have revealed that the risk forms (S and LG) relate to predisposition for affective disorders, depressive responses to life stress, hyperactivity, and slowed brain activity.

FUNCTION:

The serotonin transporter SLC6A4 (synonyms SERT or 5-HTT) is a transmembrane protein encoded by the SLC6A4 gene. ***This transporter moves serotonin from the synaptic cleft back into the presynaptic neuron for re-cycling***. A variable number sequence repeat in the promoter affects the rate of SLC6A4 expression and thus capacity for serotonin recycling.

DESCRIPTION:

The SLC6A4 variant rs4795541 is commonly known as 5-HTTLPR and is a sequence length variant in the promoter region of SLC6A4 (chromosome 17). 5-HTTLPR variants are categorized into two primary types: long alleles (L alleles) and short alleles (S allele) where the L allele typically has 16 repeats of a characteristic 43 base sequence, and the S allele typically has 14 repeats of this sequence. The single base variant rs25531 A/G (adenine or guanine), found within the same region, further modulates activity of the long form. The L genotype is thus sub-categorized as either LA or LG. Individuals with the long-rs25531(A) allelic combination (LA) have higher serotonin transcription levels than those with the long-rs25531(G) or the short allele (S). Since the polymorphism was identified in the mid-1990s, more than 4,000 reports on 5-HTTLPR have been published, including many related to behavioral, pharmacogenetic and RDS behaviors.

MAOA
Monoamine Oxidase A

Risk allele: 3.5 and 4R (variable number tandem repeat rs768062321)

Increased risk for:

- **SUBSTANCE: RDS behaviors particularly alcohol, opiates, nicotine, and food dependence**
- **NON-SUBSTANCE: RDS behaviors include harm avoidance, novelty seeking, and ADHD**

RECOMMENDED NUTRIENTS:

Increase:

5-Hydroxytryptophan
Chromium Salts
Coenzyme Q10
L-Tyrosoine
DL-Phenylalanine
NADH
N-Acetyl-Cysteine

Decrease: Passion Flower

CLINICAL IMPACT:

This gene has been associated with a variety of psychiatric disorders, including antisocial behavior. The 4R have been associated with risk for with Alzheimer's disease, aggression, panic disorder, bipolar affective disorder, major depressive disorder, and ADHD. There are over 900 studies on the MAOA gene showing risk for substance abuse and RDS behaviors.

FUNCTION:

MAOA, is an enzyme that in humans is encoded by the MAOA gene. This gene is one of two highly similar genes which encode mitochondrial enzymes responsible for breaking down target amines, including dopamine, norepinephrine, and serotonin. ***In essence, MAOA is a key enzyme for normal brain function because it degrades neurotransmitters and other chemical messengers.***

DESCRIPTION:

The MAOA gene is located on only the X chromosome at p11.3. The variant of interest is a series of 30 bases repeated a varying number of times in the promoter region. There may be 2, 3, 3.5, 4, or 5 copies of the repeat sequence in tandem. The 3.5R and 4R variants are found to be more highly active than 3R or 5R. Carriers of the 3.5 and 4R may display hypodopaminergia (low dopamine function) when too much dopamine is destroyed in the nerve cell instead of released into the synaptic cleft for signaling.

GABRB3

Gamma-aminobutyric Acid Receptor Subunit Alpha-3

Risk allele: 181 (fragment size with CA dinucleotide repeats rs764926719)

Increased risk for:

- **SUBSTANCE: RDS behaviors, particularly alcohol dependence**
- **NON-SUBSTANCE: RDS behaviors including PTSD**

RECOMMENDED NUTRIENTS:

Increase:

N-Acetyl-Cysteine

Glutamate

Decrease:

Passion Flower

CLINICAL IMPACT:

GABA-A receptors fine tune dopamine release in the reward site if the brain. Risk alleles leading to increased GABA receptor activity can cause low dopamine function (hypodopaminergia). There are 74 scientific studies about this gene, with linkages to mental disorders, substance abuse, addictive behaviors, and PTSD.

FUNCTION:

GABA, the major inhibitory neurotransmitter in the brain, ***mediates neuronal inhibition by binding to the GABA-A receptor which opens an integral chloride channel.*** At least 16 distinct subunits of GABA-A receptors have been identified. GABRB3 encodes subunit alpha-3.

DESCRIPTION:

The GABRB3 gene is located on chromosome 15 at q12. The variant of interest is CA-Repeat (where cytosine and adenine are repeated in sequence multiple times in the promoter of GABRB3). Alleles are named based on their size (171-201 bases). Allele 181 is considered a risk variants because they relate to higher GABA-A activity and therefore increase neuronal inhibition in the brain.

GARS TEST RESULTS

Single Nucleotide Polymorphisms (SNPs)				
Gene	Identifiers	Risk Allele	Patient Results	Risk Allele Count
COMT	rs4680 (Val158Met)	G	A/G	1
DRD1	rs4532	A	A/A	2
DRD2	rs1800497 (Taq1A)	A	G/G	0
DRD3	rs6280	C	T/T	0
DRD4	rs1800955	C	T/T	0
OPRM1	rs1799971	G	A/A	0
Variable Tandem Number Repeats & Insertion/Deletions				
Gene	Identifiers	Risk Allele	Patient Results	Risk Allele Count
DAT1	rs28363170	< than 9 repeats	9R/10R	0
5-HTT-LINKED	rs4795541	S, LG	LG/LA	1
MAOA	rs768062321 (chrX*)	3.5R, 4R	4R	1
DRD4	rs761010487	≥ 7 repeats	4R/7R	1
Dinucleotide Repeat				
Gene	Identifiers	Risk Allele	Patient Results	Risk Allele Count
GABRB3	rs764926719	181	193/193	0

SCORE

Elevated Drug Addiction Risk >4 alleles
Elevated Alcoholism Risk >7 alleles

6

out of possible 21 for males
out of possible 22 for females

* *A genetically typical male will carry one copy of MAOA*

RestoreGen™ Efficacy

Relapse Rates with Patients going through Addiction Recovery vs. Patients Using restoreGen™		
Substance	Standard Control for a Patient*	**Patients Treated with restoreGen™**
Opioids	86%	**6%*** **
Cocaine	90%	**20%*** **
Alcohol	56%	**20.5%*** **

** Relapse based on consensus of literature ** Relapse rate calculated from Out-patient studies from 10 to 12month period *** Significance is at least P<0.01*

RestoreGen has also been studied for hoarding/shopping, PTSD, carb binging, and more.

Testimonials

49 year-old female with three DUIs and a long history of drug and alcohol abuse

"I have been taking KB220PAM for about three weeks now and I feel much less stress from every day work and most noticeably I have more motivation, am highly focused and amazingly my overall cravings are way down to almost none"

44 year-old uncontrollable female alcoholic

"'Amazing!' on the fifth day of taking KB220PAM I woke up in bed and shouted out – 'It's gone!' my husband asked, 'what is gone?' 'My cravings, my cravings!'"

39 year-old female recovering alcoholic

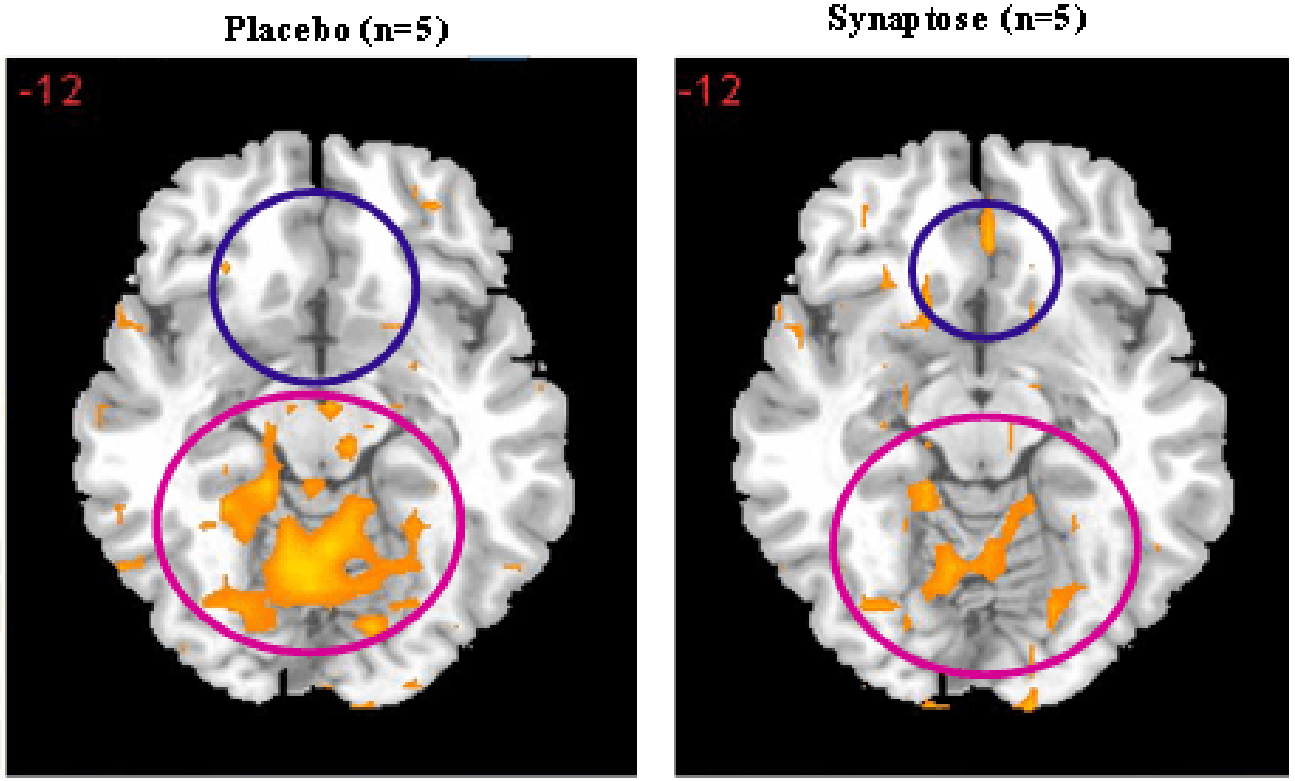
"OMG! I want to thank Dr. Blum for this amazing product –It has saved my life!"

Male abstinent heroin addict

"Within minutes of taking KB220PAM I felt an unexpected glow and feeling good not experienced for some time these days"

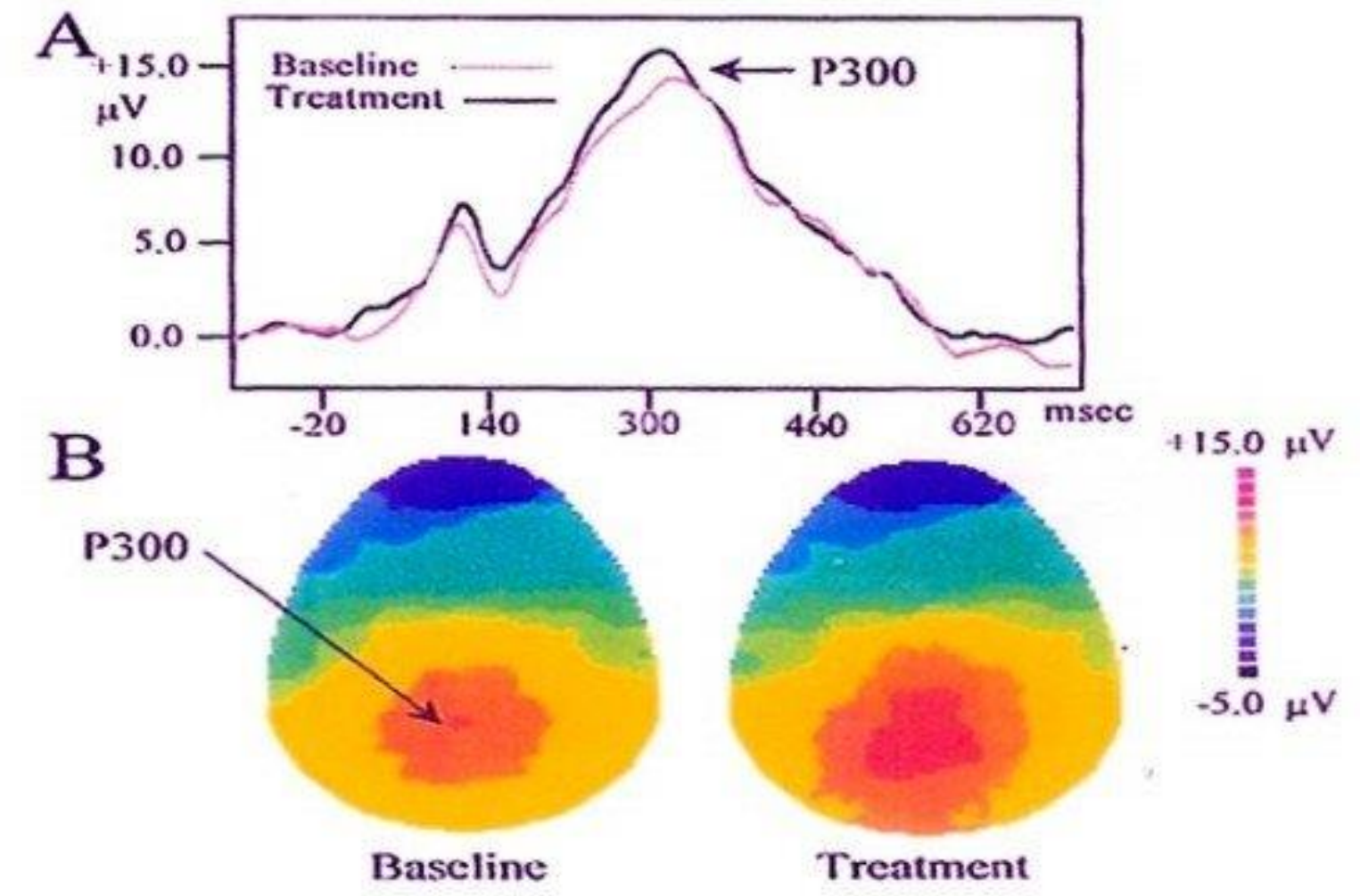
NEUROIMAGING STUDIES

Resting–State fMRI After One Dose

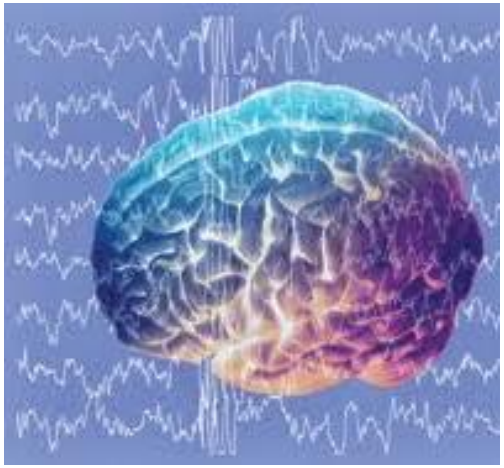


Liu *et al.* unpublished 2010.

This is a scan of the first ever fMRI study in abstinent Chinese heroin addicts after one hour of administering restoreGen™ indicating actual intense activation of the dopamine pathway in the reward site of the brain. The yellow coloration indicates activation. The hyperactivity in another part of the brain involved in emotionality is also reduce significantly following one dose of restoreGen™. So chronic use will lead to enhanced dopamine activity and as such reduced craving and regulation of the cingulated gyrus as well and reduced relapse.



Following 30 days of treatment to health volunteers restoreGen™ significantly increases brain focus and as such impacts judgment and important component in relapse prevention.



- **As a result of increased neurotransmitter production & normalized brain waves…**

✓ **cravings and withdrawals are decreased**

✓ **anxiety resolves**

✓ **depression lifts**

✓ **decision-making improves**

Treatment Protocols based in Neuroscience