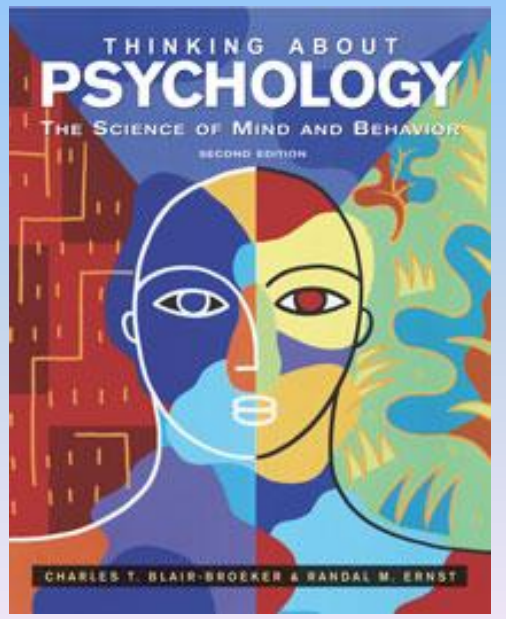
Thinking About Psychology: The Science of Mind and Behavior 2e



Charles T. Blair-Broeker

Randal M. Ernst

Module 33

Biomedical Therapies

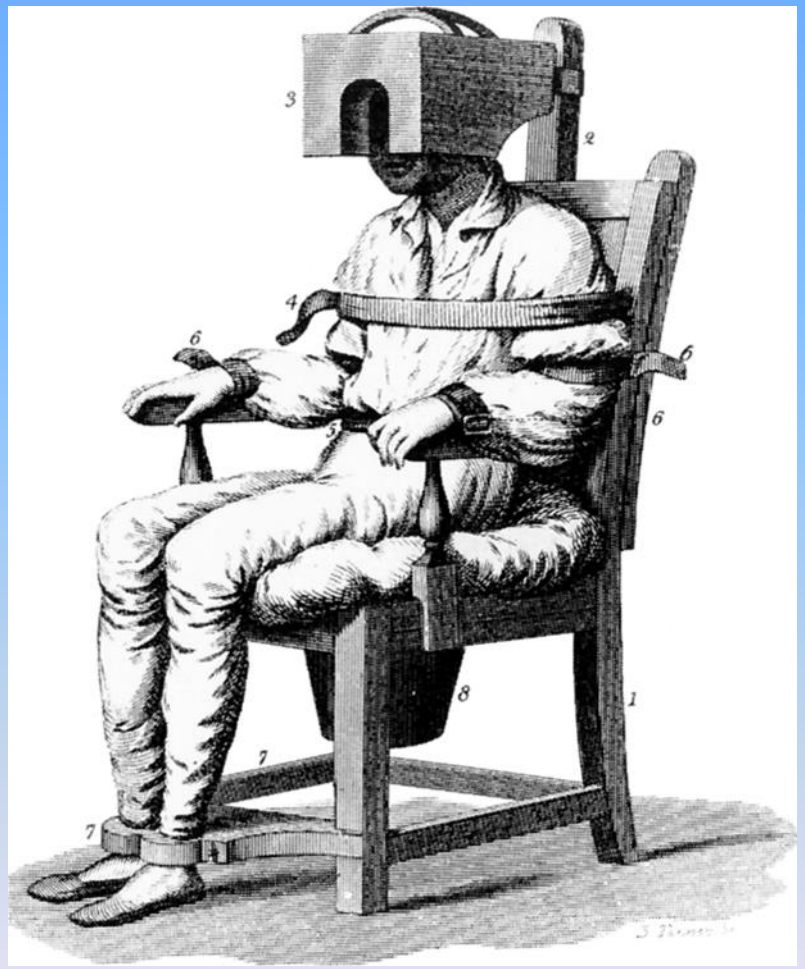
Biomedical Therapies

- Treatment of psychological disorders that involve *changing the brain's functioning* by using prescribed drugs, electroconvulsive therapy, or surgery

Drug Therapies

Pre-Drug Therapy

- Prior to the discovery of psychological drugs, hospitals had few options with which to treat patients
- Most early treatment techniques are today considered archaic and sometimes cruel (straight jackets, bed straps, padded isolation rooms, etc.)



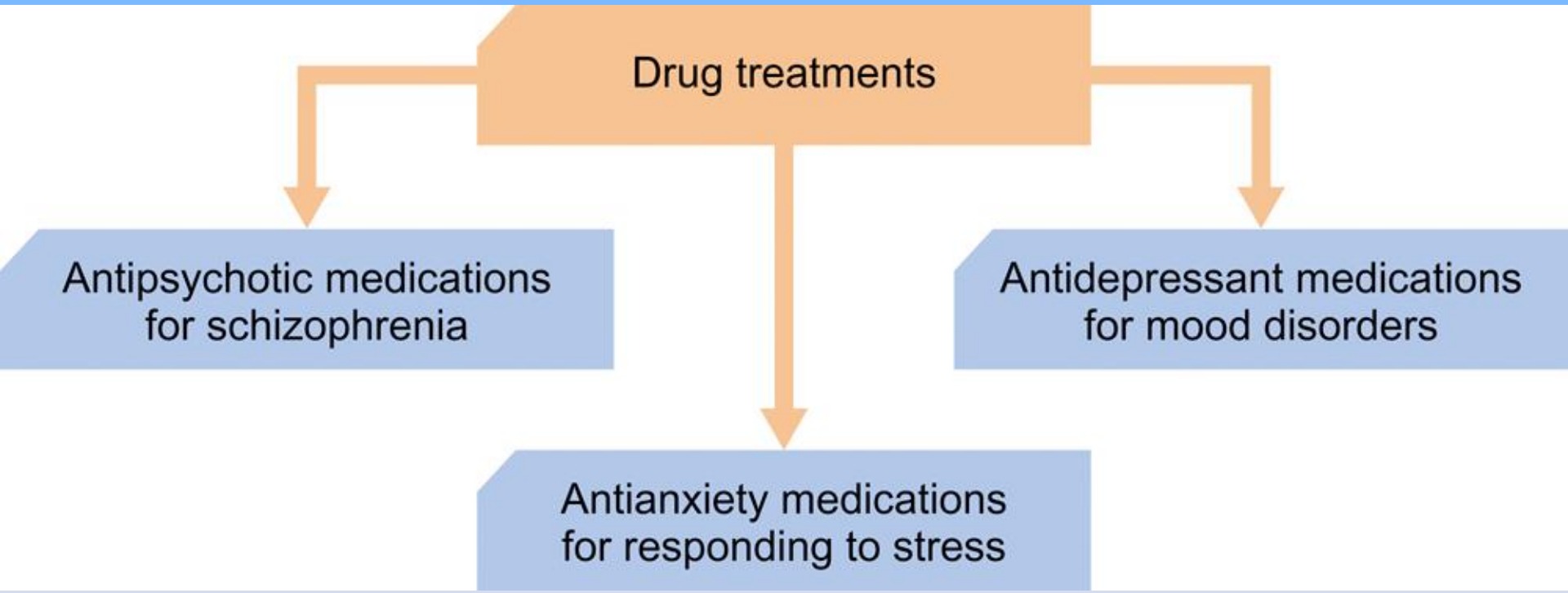
Post-Drug Therapy

- With the discovery of effective drug treatments (in the 1950's), patients were able to leave the institutions
- Called *deinstitutionalization*

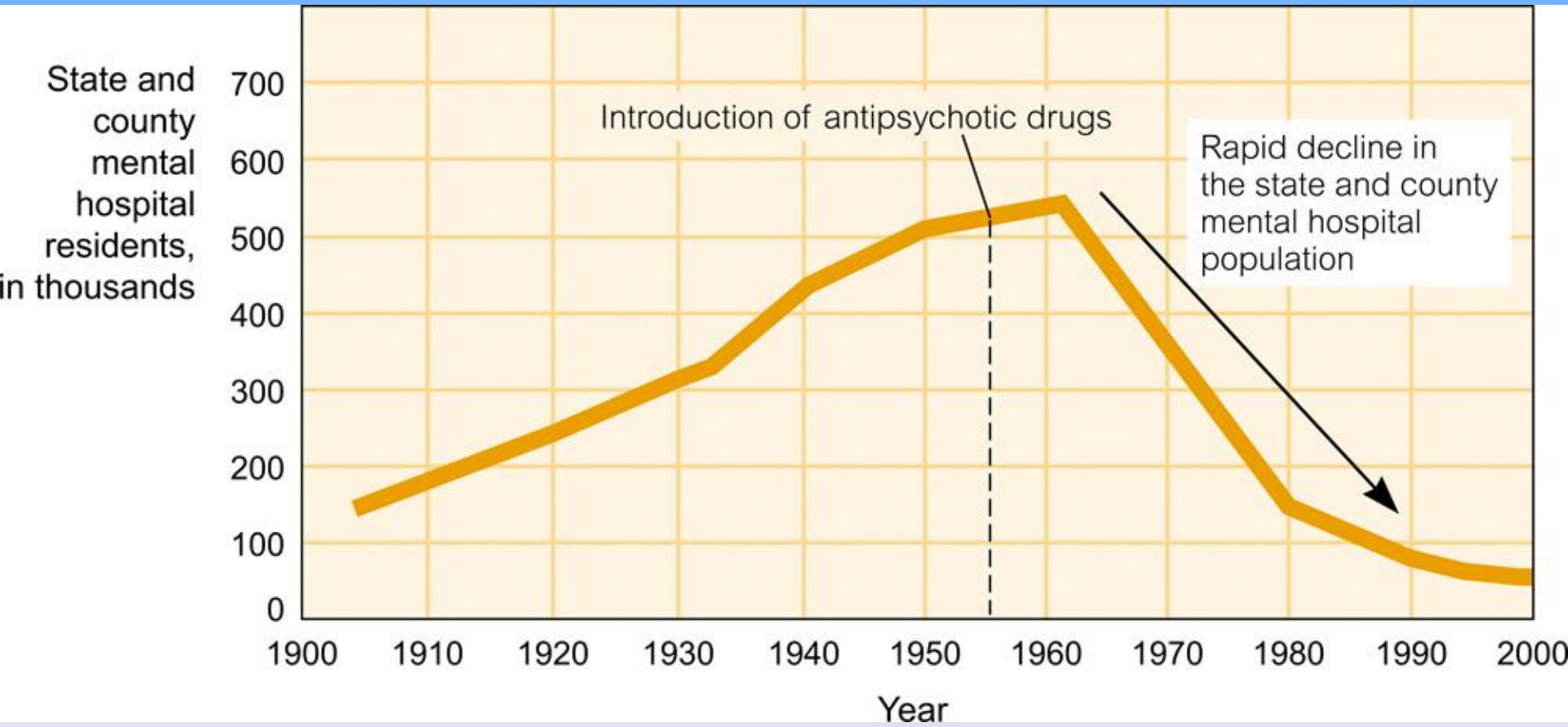
Deinstitutionalization

- Release of patients from mental hospitals into the community
- The development of drug therapies led to an 80% decline in the number of hospitalized mental patients from 1950 to 2000.
- Many of the former patients became part of the homeless population.

Drug Therapy



Deinstitutionalization



Module 33: Biomedical Therapies

Antipsychotic Drugs

Antipsychotic Drugs

- Category of medications used primarily to treat *schizophrenia*
- Reduces the levels of hallucinations and delusions and distorted thinking
- Drugs work by blocking the activity of *dopamine*

Thorazine

- One of the first antipsychotic drugs
- *Typical* Antipsychotics, or First Generation Antipsychotic Drugs.
- The typical, or conventional, antipsychotics were first developed in the 1950s. Haldol and Thorazine (chlorpromazine) are the best known typical antipsychotics.
- Side effects include: dry mouth, blurred vision, constipation, and tardive dyskinesia
- *Tardive dyskinesia* – a permanent condition of muscle tremors

Clozaril/Clozapine

- Clozaril: less side effects than thorazine but can cause damage to white blood cells therefore patients need to be tested
- Is very expensive.
- also known as a second generation antipsychotic (SGA) or *atypical* antipsychotic

Module 33: Biomedical Therapies

Antianxiety Drugs
Anxiolytics

Antianxiety Drugs

- Category of medication used to treat people undergoing significant stress
- Used with anxiety disorders
- Work by boosting levels of the neurotransmitter *GABA* (Gamma-Amino Butyric acid) which calms nervous activity
- Can produce dependency
- Include: Valium, Librium, and Xanax
- Can cause death if mixed with alcohol

Module 33: Biomedical Therapies

Antidepressant Drugs

Antidepressant Drugs

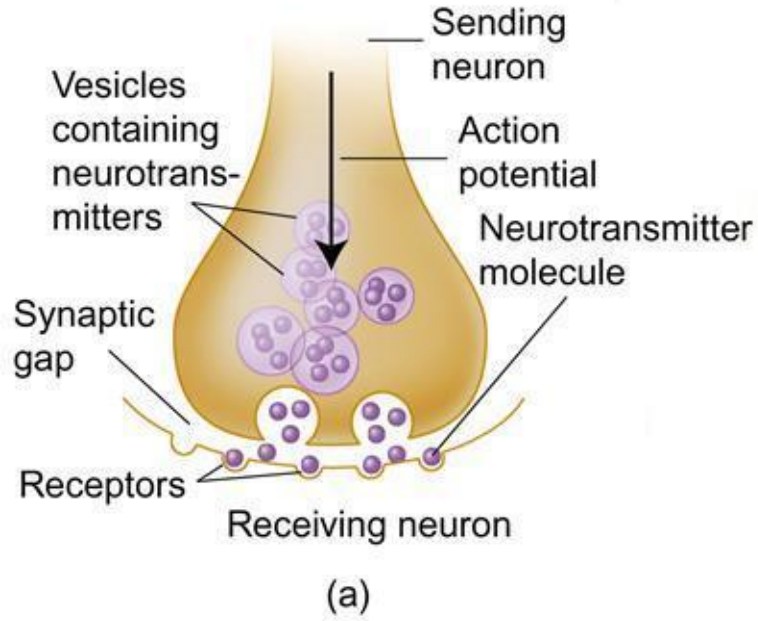
- Category of medications used primarily used to boost *serotonin* levels in the brain
- Used primarily to treat *major depression*
- Many take about a month before they become fully effective

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Classification of antidepressants which work by *blocking* the reuptake of serotonin after it has been released
- Allows serotonin to remain active in the synapse longer than it otherwise would
- Higher levels of serotonin are associated with low levels of depression
- Includes: Prozac, Zoloft, and Paxil

Prozac and the Brain

Message is sent across synaptic gap.



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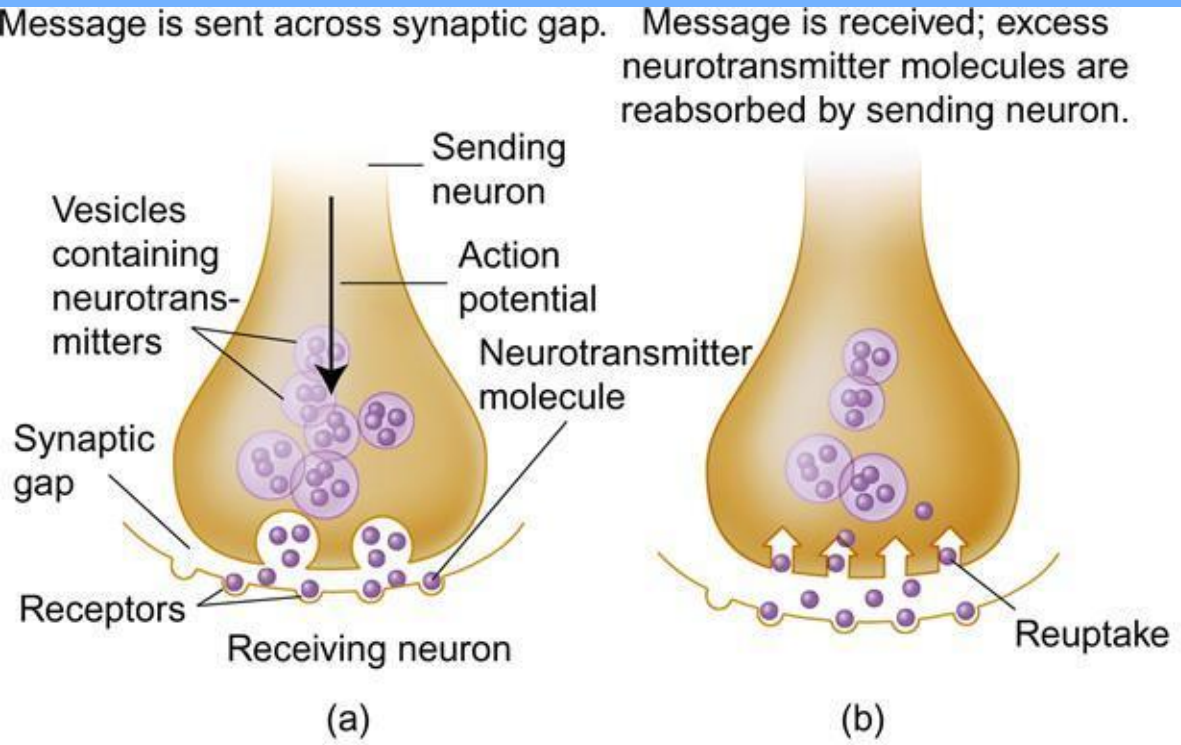
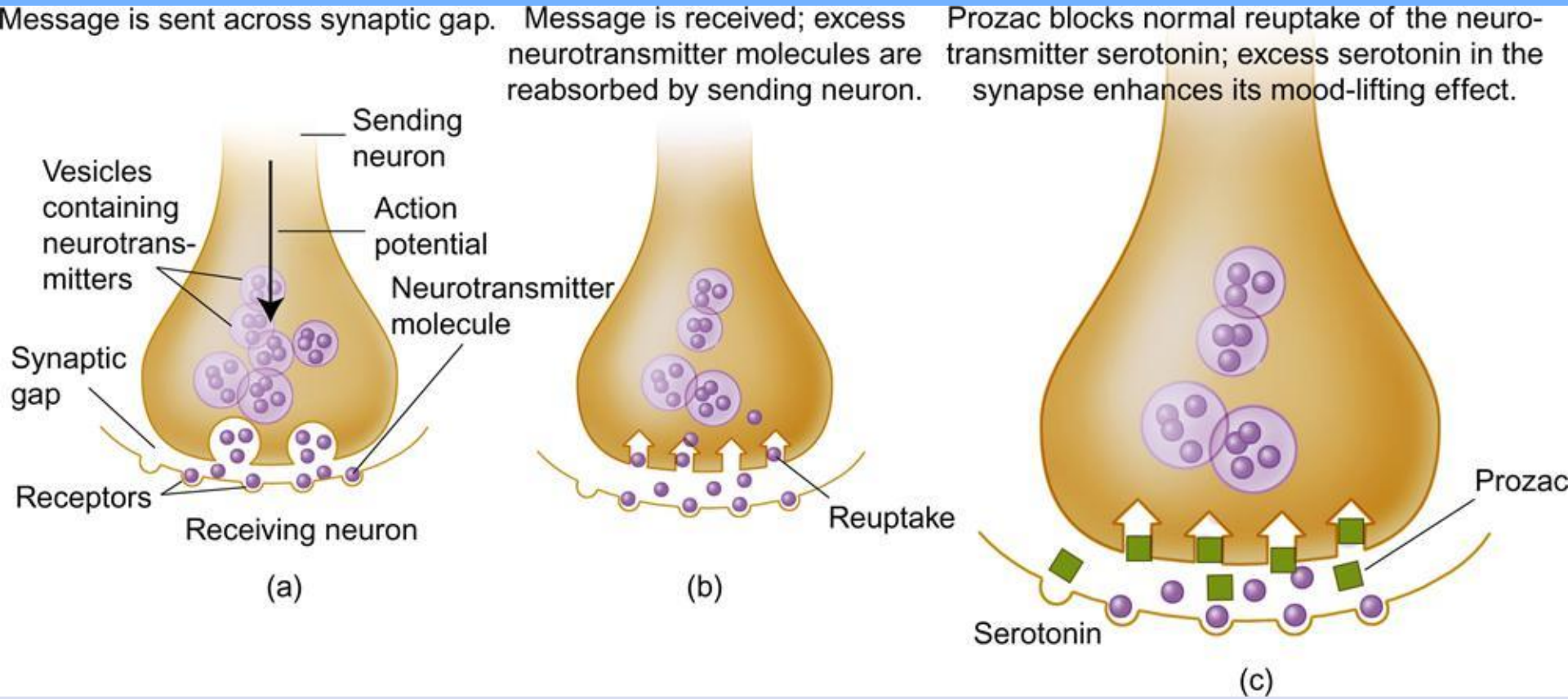
Prozac and the Brain



Prozac and the Brain



Mood Stabilizers

Types of Mood Stabilizers

- Lithium
- Depakote
- Tegretol

Lithium

- A Mood stabilizer
- Medication used primarily to treat the mood swings of bipolar disorder
- Treats not only the lows of depression, but also the highs of mania
- Not known how or why lithium works but a large number of bipolar patients report improvement with the drug (70%)

Module 33: Biomedical Therapies

Electroconvulsive Therapy (ECT)

Insulin Therapy

- Discovered when a depressed patient who also had diabetes experienced a convulsion after being given the wrong dose of insulin.
- Remarkably, when he recovered from the convulsion, his depression had lifted.
- Difficulties in determining the proper dosage of insulin led to a decline in use of this therapy - too small a dose would fail to produce a convulsion, and too large a dose would lead to death by overdose

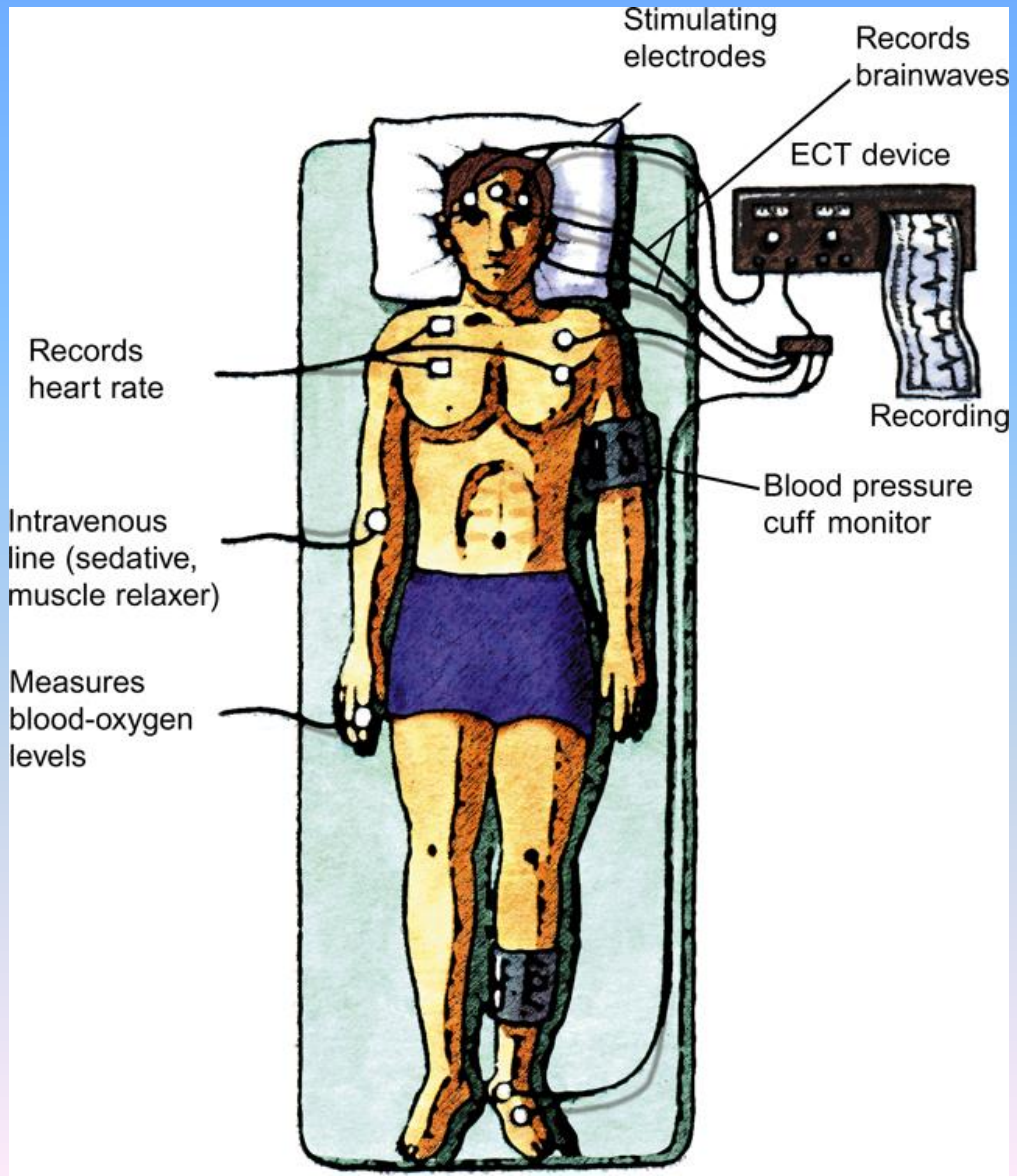
Electroconvulsive Therapy (ECT)

- ECT replaced insulin therapy in 1930's when they realized they could trigger convulsions far more reliably and safely with electricity than with chemicals.
- A therapy for major *severe*, *treatment resistant*, depression in which a brief electrical current is sent through the brain of an anesthetized patient
- The current causes a convulsion.
- Sometimes called "shock therapy."

ECT Facts

- Used when antidepressants fail
- Most (80%) patients report improvement
- Side effect is minor memory loss
- How and why the process works is unknown

ECT


Stimulating electrodes
Records brainwaves
ECT device
Records heart rate
Recording
Blood pressure cuff monitor
Intravenous line (sedative, muscle relaxer)
Measures blood-oxygen levels

rTMS

repetitive transcranial magnetic stimulation

- Uses magnetic fields instead of electricity and usually does not produce convulsions

Psychosurgery

Lobotomy

A Surgical Solution?

- The lobotomy is among one of the most brutal and infamous treatments for treating mental illness.
- The process involves a surgeon intentionally causing trauma to the **prefrontal cortex**, the part of the brain that deals with behavior and personality among other functions.

It worked, but at what cost?

- Ever since its invention in 1935, the treatment has sparked controversy over its effectiveness and sheer brutality. Many patients who underwent this procedure were left permanently incapacitated; some even died.

Only the Most Violent Patients?

- A form of psychosurgery, the lobotomy, was once used to calm uncontrollably emotional or violent patients, but began being used on many others.

“Miracle Cure” for Mental Illness

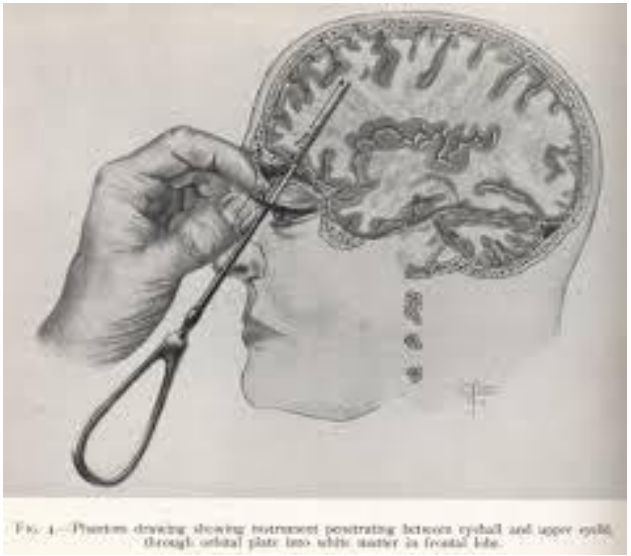
- The lobotomy was hailed as a miracle cure (before the advent of psychiatric drugs) and **Egas Moniz**, from Portugal, received the Nobel prize for his work

Scientific Breakthrough

- In this photo taken in 1961, a prison official preps a convict to undergo a lobotomy.

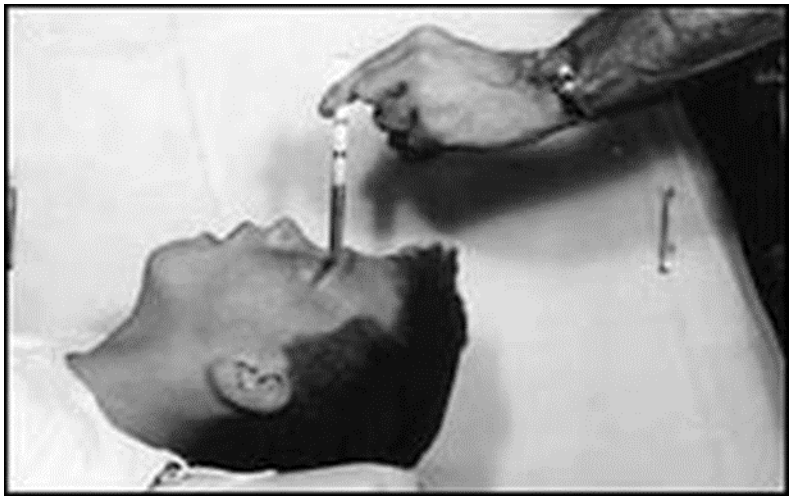
How It Works

- Lobotomy
  - The procedure cut the nerves that connect the frontal lobes of the brain to the deeper emotional centers.



An "Advancement" in Treatment?

- The procedure worked remarkably well, but in the process turned thousands of patients into "vegetables" or reduced them to an unmotivated and immature state in which they vacantly stared into space for long periods of time.



The Ice Pick Lobotomy

- Worked by inserting an ice pick-like tool next to the eye of an unconscious patient, driving it through the thin bone of the eye socket, and swinging the pick to cut the connections at the base of the frontal lobe.
- This procedure could be done in minutes without even opening the skull.

Walter Freeman

- An American physician, Walter Freeman, brought the procedure to the United States and toured from hospital to hospital performing literally thousands of lobotomies.

Public Outcry

- However, the procedure became *overused* and *abused* and was done on patients who never should have received them, including young children.
- Moniz had originally intended that this procedure only be done on the most uncontrollable and violent patients.
- Public reaction to lobotomies was so negative that they stopped being performed.
- Now viewed as embarrassing failure of psychiatry

The End