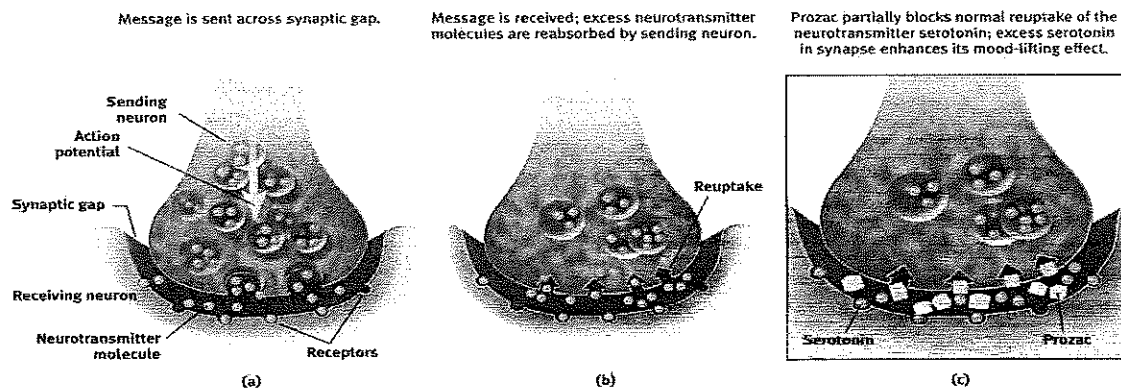


**MODULE 73 THE BIOMEDICAL THERAPIES**

**DRUG THERAPIES**

- **PSYCHOPHARMACOLOGY** is the study of the effects of drugs on mind and behavior. Using a double-blind procedure, some drugs have been seen as useful.
- **ANTIPSYCHOTIC DRUGS** dampened responsiveness to irrelevant stimuli. Thus, they provided the most help to patients experiencing positive symptoms of schizophrenia, such as auditory hallucinations and paranoia. The most conventional are antagonists; they block reuptake.
- **ANTI-ANXIETY DRUGS** depress central nervous system activity (and so should not be used in combination with alcohol). Can be addicting.
- **ANTIDEPRESSANT DRUGS** were named for their ability to lift people up from a state of depression, and this was their main use until recently. Treats anxiety disorders, obsessive-compulsive disorder, and posttraumatic stress disorder. Aerobic exercise does about as much good for some people with mild to moderate depression, and has additional positive side effects.

Figure 15.6 Biology of antidepressants

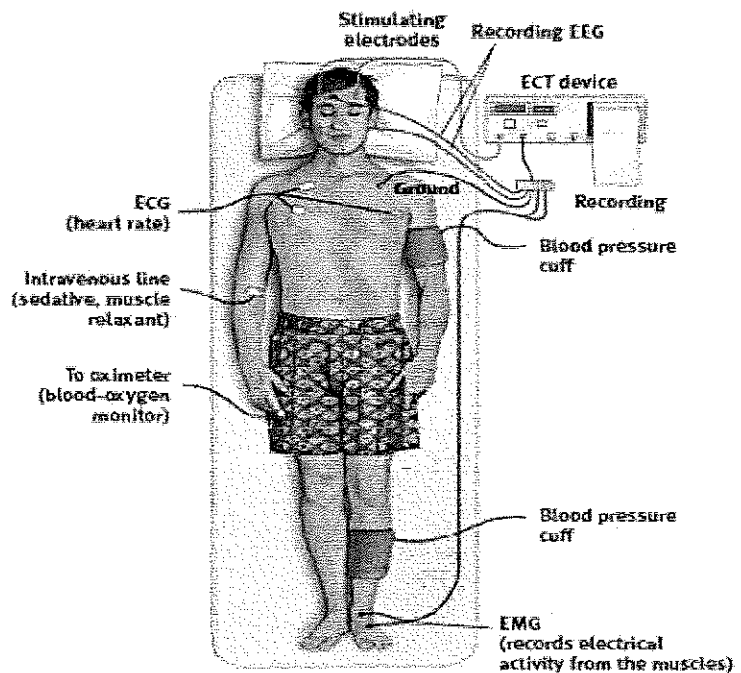


**BRAIN STIMULATION**

- Controversial brain manipulation occurs through shock treatment, or **ELECTROCONVULSIVE THERAPY (ECT)**. When ECT was first introduced in 1938, the wide-awake patient was strapped to a table and jolted with roughly 100 volts of electricity to the brain, producing racking convulsions and brief unconsciousness.

# Electroconvulsive Therapy (ECT)

- Electroconvulsive therapy [ECT] induces a mild seizure that disrupts severe depression for some people.
- This might allow neural re-wiring, and might boost neurogenesis.



- Problems with ECT is seizures, memory loss, or other serious side effects while uplifting mood. The painless procedure – called **REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION** (rTMS) is performed on wide-awake patients over several weeks.

## Alternatives to ECT

### Repetitive Transcranial Magnetic Stimulation (rTMS)

In rTMS, a pulsating magnetic coil is placed over prefrontal regions of the brain to treat depression with minimal side effects.

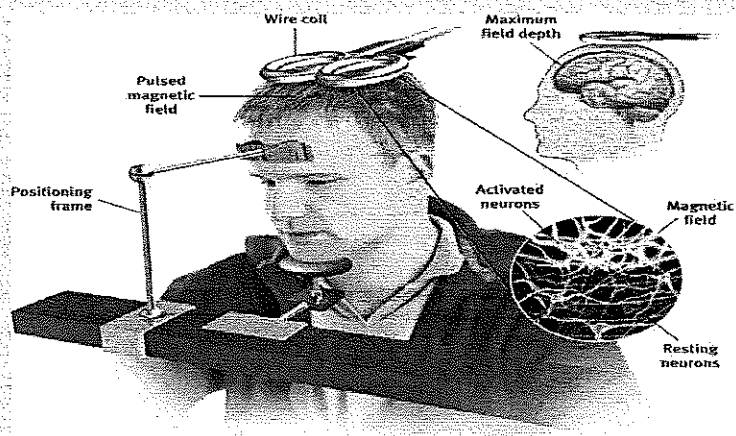
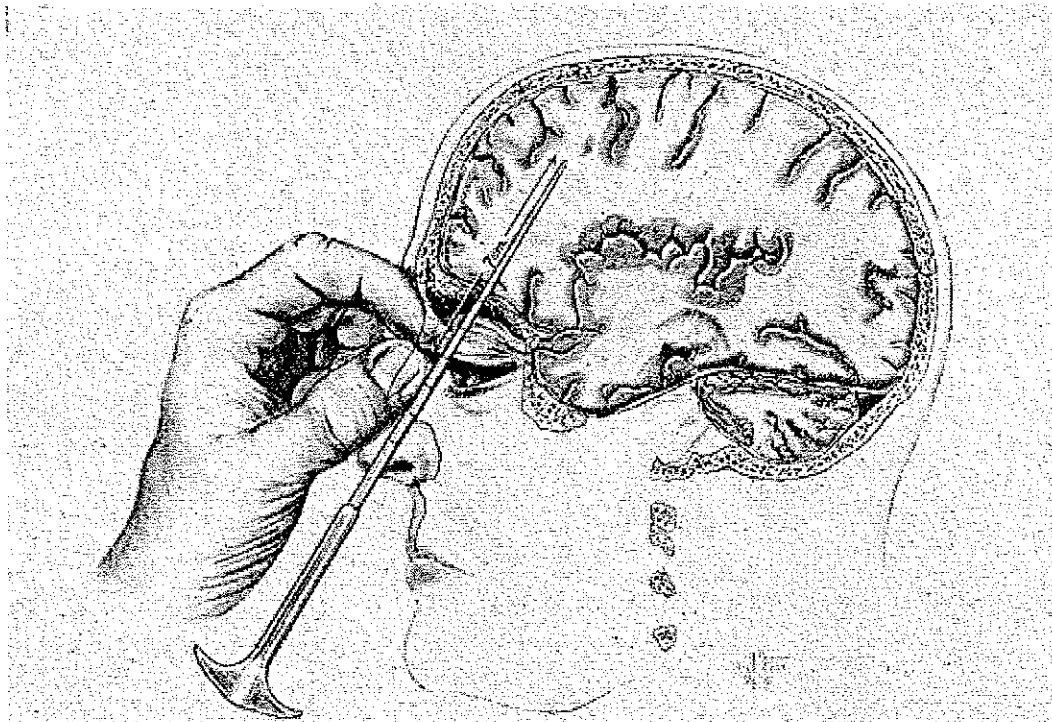


Figure 15.8 Magnets for the mind  
Myers: Psychology, Ninth Edition  
Copyright © 2010 by Worth Publishers

**PSYCHOSURGERY**

- Because its effects are irreversible, **PSYCHOSURGERY**—surgery that removes or destroys brain tissue—is the most drastic and the least-used biomedical intervention for changing behavior. Neurosurgeons perform them only as a last resort.
- A **LOBOTOMY** is a psychosurgical procedure once used to calm uncontrollably emotional or violent patients. The procedure cut the nerves connecting the frontal lobes to the emotion-controlling centers of the inner brain. Not performed today.



# Comparing Biomedical Therapies

Therapy	Presumed Problem	Therapy Aim	Therapy Technique
Drug therapies	Neurotransmitter malfunction	Control symptoms of psychological disorders.	Alter brain chemistry through drugs.
Brain stimulation	Severe, "treatment-resistant" depression	Alleviate depression that is unresponsive to drug therapy.	Stimulate brain through electroconvulsive shock, magnetic impulses, or deep-brain stimulation.
Psychosurgery	Brain malfunction	Relieve severe disorders.	Remove or destroy brain tissue.
Therapeutic lifestyle change	Stress and unhealthy lifestyle	Restore healthy biological state.	Alter lifestyle through adequate exercise, sleep, and other changes.

**BE ABLE TO ANSWER:** How do researchers evaluate the effectiveness of particular drug therapies?

**PRACTICE FRQ:** Identify the category of drugs used to treat schizophrenia and the category of drugs used to treat obsessive-compulsive disorder. Then explain what each of these two categories of drugs does inside the brain.