

# E.C.T.

Dr Peled

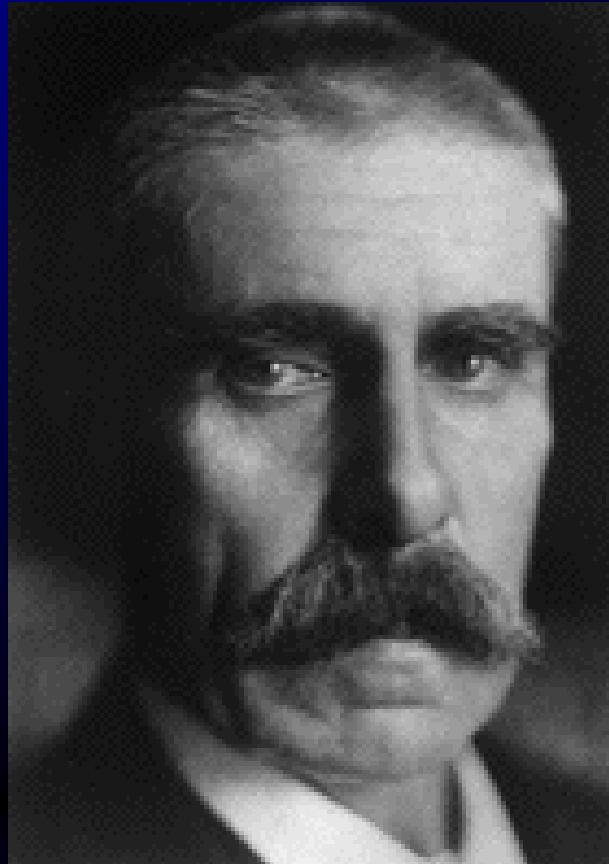




1/27/2019

# Malaria-induced fever

Julius Wagner-Jauregg, in 1917



Nobel Prize in 1927



dementia paralytica is a rare complication of syphilis

# Metrazol-induced convulsions

Discovered in Budapest by  
Ladislaus von Meduna, in 1934

Meduna studied the brains and the mental health histories of schizophrenics and epileptics and noted that there seemed to exist a "biological antagonism" between these two diseases of the brain. Meduna reasoned, then, that "pure" artificially induced epileptic convulsions could be able to "cure" schizophrenia



# Insulin-induced coma and convulsions

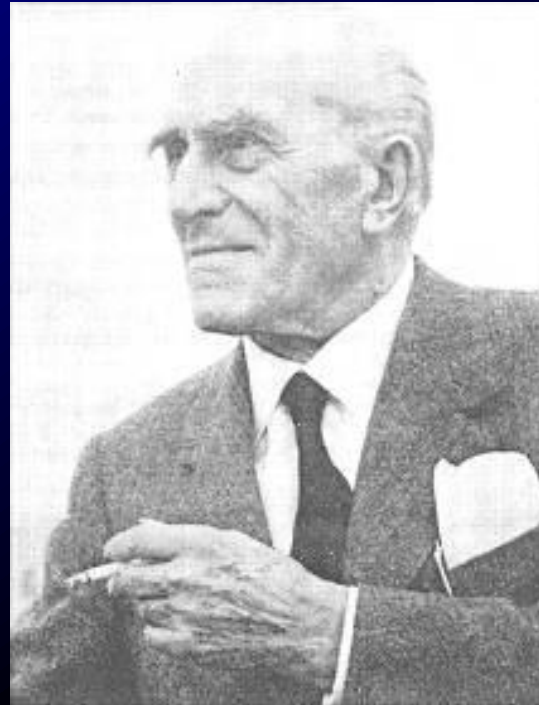
Manfred J. Sakel, in 1927



**Manfred Joshua Sakel**, Polish neurophysiologist and psychiatrist, was born on June 6, 1900, in Nadvorna, in the former Austrian-Hungary Empire (now Ukraine). Sakel studied Medicine at the University of Vienna from 1919 to 1925, specializing in neurology and neuropsychiatry. In 1933 he became a researcher at the University of Vienna's Neuropsychiatric Clinic, but was forced to immigrate to the United States in 1936, when the National Socialist Party came to power in Austria. In the USA, he became an attending physician and researcher at the Harlem Valley State Hospital.

*My supposition was that some noxious agent weakened " the resilience and the metabolism of the nerve cells ... a reduction in the energy spending of the cell, that is in invoking a minor or greater hibernation in it, by blocking the cell off with insulin will force it to conserve functional energy and store it to be available for the reinforcement ".of the cell*

# Electroconvulsive shock therapy



In 1937, an Italian neurologist named Ugo Cerletti was convinced that metrazol-induced convulsions were useful for the treatment of schizophrenia, but far too dangerous and uncontrollable



# Electroconvulsive shock therapy



discovered by Ugo Cerletti and Lucio Bini in Rome, in 1937



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# ECT Indications

**Severe depression** with insomnia (trouble sleeping), weight change, feelings of hopelessness or guilt, and suicidal (hurting or killing yourself) or homicidal (hurting or killing someone else) thoughts.

Severe depression that does not respond to antidepressants (medicines used to treat depression) or counseling.

Severe depression in patients who can't take antidepressants.

**Severe mania** (too much talking, insomnia, weight loss or impulsive behavior) that does not respond to medicines.

**Schizophrenia** - catatonic

# ECT Contraindications

Absolute Contraindication  
Intracranial Pressure (ICP)

Partial Contraindication  
Cardiac Arrhythmia's, Hypertension,  
Jaundice

# Treatment

## Before

Informed Consent

Protocol: Physical exam, Vital signs, EKG, CT, Others according to necessity

## During

ECT may be given during a hospital stay, or a person can come to the hospital just for the treatment and then go home.

ECT is given up to **3 times a week**.

Usually no more than **12 treatments** are needed.

Treatment is given by a psychiatrist. It is given under general anesthesia.





## How are the ECT treatments given? (Patient consent)

Before each treatment, an intravenous (IV) line will be started so medicine can be put directly into your blood.

You will be given an anesthetic (medicine to put you to sleep) and a medicine to relax your muscles.

Your heart rate, blood pressure and breathing will be watched closely. After you are asleep, an electrical shock will be applied to your head.

The shock will last 1 or 2 seconds and will make your brain have a seizure. This seizure will be controlled by medicines so your body doesn't move when you have the seizure.

You will wake up within 5 minutes and will be taken to a recovery room to be watched.

When you are fully awake, you can eat and drink, get dressed and return to your hospital room or home.



### After Side effects

Temporary short-term memory loss, nausea, muscle aches and headache.

Some people may have longer-lasting problems with memory after ECT.

Sometimes the blood pressure or heart rhythm changes. If these changes occur, they are carefully watched during the ECT treatment and are immediately treated.

# How does ECT work?

It is believed that ECT works by creating a seizure and release of neurotransmitters (fink)

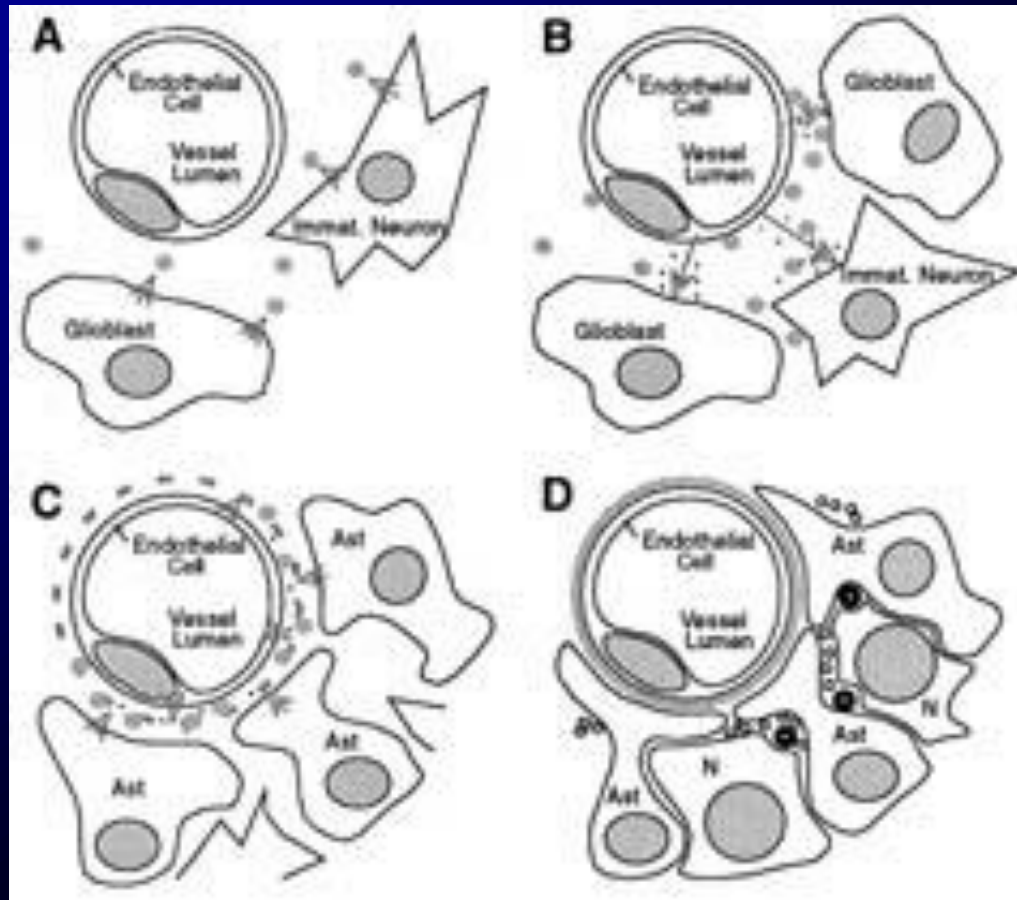
Dawn regulation of Noradrenergic receptors

Kindling effect

Pituitary hormonal release

Enhancement of neuroblast growth from periventriculare regions







past

[https://www.youtube.com/watch?v=X\\_T7WbjcOTA](https://www.youtube.com/watch?v=X_T7WbjcOTA)

Now

<https://www.youtube.com/watch?v=W8Ypt-vKI2U>

DBS

<https://www.youtube.com/watch?v=wZZ4Vf3HinA>

[https://www.youtube.com/watch?v=abHuHFt\\_izI](https://www.youtube.com/watch?v=abHuHFt_izI)

tDCS

<https://www.youtube.com/watch?v=sEajwUWkx6c&t=211s>

Focused US

<https://www.youtube.com/watch?v=L2HzzWKUinE>