

# medical sciences

## Gathered at the Fifth International Congress of Physical Medicine in Montreal

### BRAIN CODES

#### Input controls output

New understanding of how certain cells in the brain behave will improve treatment and rehabilitation of human motor disorders, according to Dr. M. M. Herbert H. Jasper, professor of neurophysiology at the University of Montreal and founding-secretary of the International Brain Research Organization.

In computer terms, it used to be assumed that there were separate channels for input of sensory perception and for output of motor activity. Now it has been discovered that there is a feedback system in which the output system controls the input so powerfully that it can shut it off. For instance, what one man sees is not what is seen by another because he has control over it. An American in Moscow sees the same event differently than a Czech. If an individual shuts off input completely, he simply doesn't see the event.

But the link between the systems works both ways, Dr. Jasper says. Basically, input can control output. It used to be thought that brain lesions caused faulty output in patients with motor problems. Now medicine can tackle the difficult problem of changing the input which in turn will act on the output, closing the valve that in normal brains prevents aberrant motor activity.

### ULTRASONICS

#### Sound waves cure stump pain

High-frequency sound waves are curing leg amputees of the mysterious stump pain that prevents some of them from wearing artificial legs.

Dr. Alfred Pavot, U.S. Naval Hospital, Philadelphia, said the sound treatment brought complete freedom from pain in seven of a dozen amputees and partial relief in four. All were among the eight percent of amputees who suffer from pain of no known cause. Using ultrasound machines with one million to four million vibrations per second, the patients were given 10-minute treatments a day for between 5 and 20 days. The patient does not feel the treatment.

Dr. Pavot does not know why it works but the sound may improve inadequate circulation by opening up blood vessels.

### LUNG DAMAGE

#### Re-learning to breathe

Patients with lungs damaged by diseases like emphysema are being taught to breathe with the unharmed parts of their lungs in oxygen-enriched atmospheres of special rooms.

A 17 percent higher survival rate in such patients is reported from a five-year study by Dr. Albert Haas, director of the Cardiopulmonary Laboratory at New York University's Institute of Rehabilitation Medicine. For a substantial portion of the 13 million Americans suffering from obstructive pulmonary conditions that are noninfectious, learning to breathe anew and adapt to

the handicap may help them live for a longer time.

The patient lives for four to six weeks in a room where the oxygen content of the air is twice normal. His damaged lungs no longer gasp for air, triggering by the effort an increasing need for air and finally putting a fatal strain on his heart. Relaxed, he learns what the remaining lung capacity can sustain.

### ORTHOPEDICS

#### A less-visible leg brace

In the first comprehensive study of the advantages of a new plastic lower leg brace, Dr. Paul J. Corcoran, of New York's Columbia University's Rehabilitation Medicine Department, finds that of 50 patients who wore the device the most enthusiastic were adolescents and women who felt happier about appearing in public.

Half the weight of the conventional metal brace, the plastic version is molded to the leg and foot, can be worn under patterned stockings and a normal shoe instead of the high-top footwear demanded by the metal brace.

Foam rubber under the heel absorbs the shock of putting the foot down. The plastic brace can even be worn barefoot, which might be an advantage in tropical undeveloped countries, Dr. Corcoran notes.

### CEREBRAL PALSY

#### Hot and cold treatments

Both cooling and heating are being used to treat spastics.

Dr. Juan Negrin Jr., neurosurgeon at Lennox Hill Hospital, New York, uses injections of saline fluid at about 65 degrees Fahrenheit to produce local hypothermia of the spinal cord. A group of eight cerebral palsy patients aged seven to nine were relieved of spasticity for up to four years without recurrence of the symptom and with no neurological complications.

In another paper, Dr. Tumkur Mahdu, Glenn Dale Hospital, Glenn Dale, Md., reports injecting boiling water into the appropriate spot in the spine in carefully selected patients who have failed to respond to any other treatment for two years. The patients are under total anesthesia. He reports results are "immediate and enduring" and the method is safe.

### MONGOLOIDISM

#### Home care found best

Statistical evidence that, contrary to general medical opinion up to now, children with Down's Syndrome do better if raised at home rather than in an institution, is presented by Dr. Cyrus W. Stimson, specialist in physical medicine and genetics at Plymouth State Home and Training School, Northville, Mich.

He and his colleagues studied 40 children with the mongoloid disease who had been institutionalized in infancy and 25 similar patients reared by their parents.