

NEWS VIEWS PEOPLE WORLDWIDE OLYMPIC

SCIENCE...1

Injuries did not keep many athletes out of action in Montreal. Like for Bjorn Borg at Wimbledon this summer, there was always instant relief at hand. Borg used a spray but the panacea of the XXI Olympiad was a device similar to a battery charger which passes current through two rubber electrodes to neutralize pain and restore damaged cells. Ten were installed in the basement Polyclinique at the Olympic Village and more at the competition sites, making pain-killing injections as out-moded as a cinder track.

The machine, the Diapulse, goes farther than killing pain. It was reckoned by the clinic's technicians to speed the healing process and give athletes, who previously would not have competed, a chance. "We can even assure them of between 60 and 90 minutes' pain-free competition," said chief physiotherapist Davie MacGee. The device, which resembles a little drum, is put on the injured part. It transmits energy via radio waves, and at full power can penetrate eight to 10 inches.

It was not only athletes who benefited. One International Olympic Committee member had a "trick" ankle which gave way and sent him crashing to the ground. After 20 minutes' treatment he was walking again, although the last time it happened he had to stay off his feet for a week. Although few knew it at the time, when Jan Kodes won the 1973 Wimbledon singles after badly spraining his right ankle in the quarter-finals, it was this "battery charger" which cured him in 24 hours.

This was not the only wonder of modern science in the clinic. Athletes with pinched nerves or kinked necks could use a machine which resembled a "rack". But whatever ailment you had, there was machinery to cure it, even if a pain-free Olympics did set the Games back \$300,000. Ironically, when Dick Quax caught a stomach bug which sent his weight crashing by 5kg there was nothing he could do so close to his race. The drug he needed was on the banned list! Now if only there had been a machine...

SCIENCE...2

Mac Wilkins, the giant American discus thrower who stands 1.93m and weighs in at 116kg, may be naturally large but the technique which helped to win him the Olympic title is a product of science. Wilkins, whose

bushy beard earns him the nickname "Wolfman" from team-mates and whose outspoken views win the title "maverick" from officials, is a thrower of the computer age.

His technique is the result of work that a former Israeli discus thrower, Dr Gideon Ariel, has done on track and field performances over the past 10 years. Dr Ariel, a Tel Aviv scientist, took Wilkins in hand last November and filmed long sessions of training throws.

The film was broken down frame by frame into stick drawings, using the joints as end points for each line. The drawings were then placed over one another by computer and Dr Ariel measured the angle of the arms and legs during every split second. The computer also measured acceleration force and, by seeing where the joints move and in what direction, the velocity of each part of the body.

"Coaches see some things but they do not see others that might be very critical," says the doctor. In Wilkins' old technique the computer found several small flaws, undetectable by the naked eye. Within a few months, Wilkins had put them right and was throwing a world record. So was Terry Albritton, the American shot putter and another to come under the computer's direction.

The first time it was used successfully was in 1972 with a javelin thrower, Bill Schmidt. Computer analysis, said Schmidt, should break the world record. But he was throwing more than 30ft below it. Tests showed that the tip of the javelin was rising too much before release, and he was dipping his right leg at the release and "sitting down" a little. Aware of the error, Schmidt made the correction and won the Olympic bronze medal.

"It's been very valuable to me," says Wilkins. "It made me more aware of what I am doing. The changes were simple but important. I shall be going back to Gideon after the Olympics to do some more work with him."

SCIENCE...3

The Canadians "imported" a psychologist to "psych" up their swimmers and wrestlers before competition. Dr Brent Rushall, who works at Lakehead University in Thunder Bay where Don Talbot coaches swimming, reckoned his techniques ensured that the competitors performed to the best of their abilities.

He has detailed psychological profiles of

the swimmers and wrestlers, and knows how they react to pressure. Before his contest, for instance, one wrestler found himself being slapped, having his hair pulled and being shoved around by the doctor. But he won his bout.

"I knew he needed to be impatient, aggressive, shaking, trembling and very confident to win," said the Doctor. "When I saw he had self-doubts and was frightened, I intervened to needle him."

The Canadian swimmers, who did so well, often took time out to talk to their "mind manager", as one called him, but the Americans dismissed it as "boloney". "We've just got three dumb coaches, and in our experience one dumb coach is better than one dumb psychologist," said their chief coach, Dr Jim Councilman.

SCIENCE...4

Georges Lariviere just couldn't stop eyeing-up the girls at the Olympic Village. And the boys, for that matter. "I would say predominantly a mesomorph, with the round shoulders of a swimmer," he said, correctly identifying a water polo player from a distance. It was all, of course, in the interests of science.

Lariviere was the professor in charge of the Montreal Olympic Games Anthropological Project whose 35 workers went round the Village collecting athletes' measurements, 24 of them to be precise, to expand the scientific knowledge on body types in the hope of being able to direct athletes to the sport most likely to suit them.

Gymnasts, says the professor, have long arms and fairly short bodies. If you are tall and skinny, try basketball. And if you are an endomorph (a bit chubby), the professor will stick you in the shot circle or under a bar of weights. All in the cause of science, of course.

Unluckiest team of the Games were the Czech cyclists. All their wheels and spare tyres were "eaten" by a garbage crusher truck three days before the 100km road race. Twenty wheels and 50 tyres were swallowed up in just three minutes. Cost of the meal—\$7,000.

THE ARMY GAME

Captain Orben Greenwald, of the United States Army, ninth in the world modern pentathlon championships in 1975, should have been competing with the American team in Montreal. But although he was selected and named in the team handbook, he did not appear until too late. He had been too busy being court-martialled for insubordination by his team manager, Lt-Col Donald Johnson.

The trouble started in a team meeting at San Antonio, where Johnson is officer in charge of the US Modern Pentathlon Training Centre. Greenwald and Johnson could not agree on a point, Johnson accused his subordinate officer of insubordination and put him on a charge. Nobody expected the complaint to be filed by Johnson. It was—and when the team left for Montreal, Green-