

## Plastic makes perfect



## Replacement

**A plastic rat created by researchers in a pharmaceutical company is today used by thousands of students for microsurgery training.**

The use of microsurgical techniques, such as those for organ transplantation surgery or in prenatal and newborn babies, is increasing all over the world. These techniques require adequate training in the appropriate skills. Traditionally, live animals have been used for this, often in rather large numbers, reflecting the difficulty in mastering the necessary skills.

During the learning process, students are faced with two simultaneous problems: mastering the required hand-eye coordination techniques whilst at the same time maximizing the animal's welfare.

Inspired by physical models that have been used throughout the ages to teach anatomy pharmaceutical industry researchers looked to create a suitable realistic life-like model to teach microsurgery techniques. This would make it possible to:

- Master both anaesthetic skills and microsurgical techniques on a non-bleeding rat model in a simulation as close as possible in terms of anatomic size and 'tissue feel' of real rat.
- Undergo in-silico training in the care of rats undergoing surgical procedures, using computer software to simulate the effects of anaesthesia and surgery on parameters such as body temperature, heart rate, respiration.

As a result, using «MD-PVC Rat», has meant that students can now learn separately the varied skills they need before moving on to live animal work.

More than a thousand of these plastic rats have been produced and distributed by the Microsurgical Developments Foundation to training centres around the world.