Without Animal Suffering and Pain

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Pedagogic results of the "Surgical techniques applied to experimentation without the use of live animals" during the two past years

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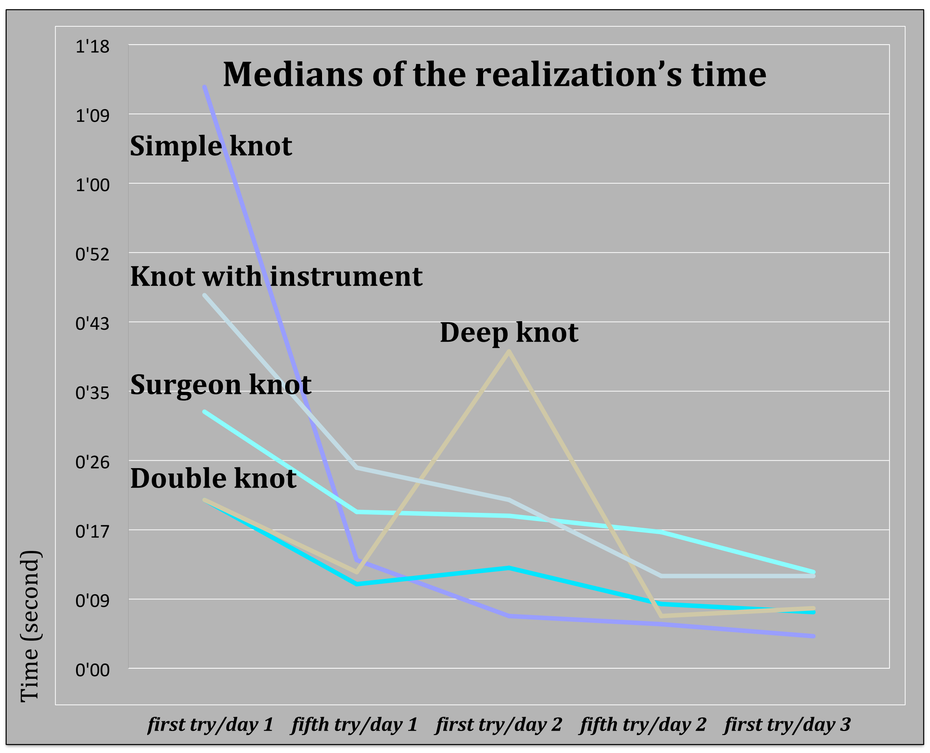
WASP Science develops and delivers high-quality, accredited courses and programs, initial or continuing education trainings in fulfilment of the 3Rs rule.

This three days course and training is accredited by the *National Commission of Animal Experimentation*, approved by the French Ministry, and thus allows trainees to request a license to perform experiments that include surgery protocols. Under Swiss regulations, the *Association des Vétérinaires Cantonaux* validates this training as three days of professional development for study directors and experimenters.

After an Introduction to experimental surgery, review of regulations and ethics, the objectives and means are acquisition of a coherent methodology for surgical asepsis, thinking and choice of methods of anesthesia and analgesia, and analysis and implementation of a surgery. The acquisition of safe and accurate gestures to avoid any risk to the practitioner and to limit the patient's trauma is based on demonstrations followed by tutored practice and individual evaluation for each exercise. Case based discussions and analysis of participants' procedures help to understand clinical follow-up, pre-, per- and post-operative care.

All exercises are performed on acknowledged substitutive models or models specially designed for these trainings.

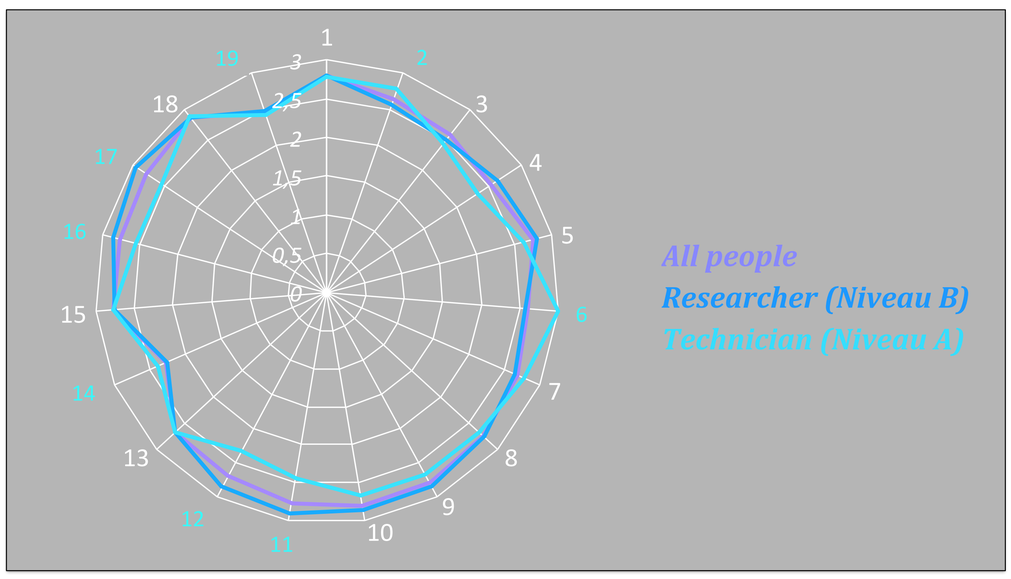
To establish values threshold, a group of 25 students in their 3rd year of medicine studies enrolled in the training. They were taught five knot techniques the first day, and were allowed to train in pairs thereafter, and the second and third day (*average 50 attempts per students*). Quality of the knots and speed of realization were measured each day by the teachers.



These data confirm that the J1-evaluation limits itself to the the understanding of the principles of realization and their correct application. Session realized the next two days will take into account besides the time of realization or less than **10 seconds** for the simple knots *(simple, double, deep knot)* and less than **15 seconds** for the complex knots *(surgeon knot with or without instruments)*.

Besides these measures confirm the necessity of realizing several sessions on the whole training to validate the technical acquisition of movements.

In 2011-2013, 30 trainees (*21 researchers and 9 technicians*) completed an extensive evaluation of the training. Prior to this training, all attendants had followed the French mandatory training in animal experimentation, which does not include surgery, and half of them had some working experience in experimental surgical procedures. They were asked to grade the 19 practical exercises of the training from *0: insufficient, 1: already known, 2: good,* to *3: very good*.



The average grade ranged from 2.4 to 2.85. Most trainees felt uneasy and unsafe with the first attempt of instrument handling and acquired confidence only at the middle of the training. Some discrepancies were noted in relation to the level of trainees: technicians were most satisfied by local anesthesia and asepsis topics (2-6) and researchers by hemostasis and manipulation of soft tissues such as the bowel (11, 12, 16, 17). Most trainees graded anesthesia and management of pain as already known, but very few had notions about electrosurgery.

This evaluation was in accordance with most of the assumptions of the teachers during the training, therefore confirming the training objectives and schedule.

The difficulty lies not in the new ideas, but in escaping from the old one…
John Maynard Keynes (1935)

Dissection skill on oncologic substitute

Microsurgery skill

Most of the trainees grew convinced that the **use of living animals was not necessary** to complete the objectives of a training in experimental surgery: **About 25% before the training, 75% at the end of the training, reaching 84% when asked again 6 months later.**

Acquisition of competences was very good since **70% of the trainees reported a change in their practice after the training.**

This good acceptance and efficacy opens broad perspectives, by creating innovative substitutive models adapted to specialized training, for instance in oncological surgery, acute and chronic catheterism or vascular microsurgery.

Publications & Communications

- "Without Animal Suffering and Pain ou l'enseignement de la chirurgie, sans mal et sans animal", Académie Nationale de Chirurgie, Académie Nationale Vétérinaire (France-Octobre 2012)
- Poster at the 8th World Congress on Alternatives and Animal Uses in Life Sciences, Altex, Special Issue, p218 (Canada-2011).

http://www.wasp-science.com/WASP/index.html