

Innovations and Simulations in Dermatotomy

Innovation technically means something new; a new idea, method or device.^[1] It may be an absolutely new way of doing things, an improvisation of an existing procedure or instrument or even a small modification that leads to a better outcome. Sometimes innovation can as well mean improvising a more economic way of doing a procedure or developing an instrument, which is more cost effective, called as "jugaad" in the Indian language.^[2] It is often used to signify a creative solution to make things work and achieve the goal or to create new things with meagre resources. The impact may not be earth shattering but it leads to a positive change. The bottom line of innovation is that it should be implementable leading to successful results. On the other hand invention is a "new" concept, a procedure or product developed *de novo*. In dermatotomy, innovation is always required to improve treatment outcomes. There will always be a better way to do things, waiting to be discovered. Our medical education should stimulate young doctors to improvise and innovate to better treat our patients. Sometimes the innovation can come from the patient himself! Our section on innovation describes a simple assembly of an iontophoretic device, which the patient being an engineer devised to treat himself and save money as well.^[3]

Simulation is the imitation of a procedure using a suitable model.^[1] It is an important teaching tool for dermatotomical and aesthetic procedures. It is an essential component of surgical training because it avoids the use of patients for developing surgical skills and also ensures that trainees have had some practice before treating live patients. The ability to perfect surgical skills requires constant practice and simulation-based learning is the need of the hour. In aesthetic surgery there is no scope for errors as all mistakes are easily visible on the skin. Simulation tools may be organic and inorganic. Organic tools are live animals or fresh cadavers. Inorganic tools are virtual simulators and bench top models. The section on practice points highlights some of the simulation models used in dermatotomy and aesthetic surgery.^[3]

Suturing pads and artificial skin are used to practice suturing skills while learning surgical skills like excisions and flap surgery. These are traditional ways of teaching students. More sophisticated models give a real life experience that can also bleed when cut. In a recently conducted workshop on basic surgical skills by the Association of Cutaneous Surgeons of India, the suturing pads proved to be very popular among young postgraduate students to hone their surgical skills. The models can remove the initial fear and hesitation of doing surgery on live patients. Vegetable models such as orange peel for dermabrasion, bottle gourd for practicing hair transplantation, watermelons for practicing graft taking can be useful when cadavers are not easily available. The article on simulation models emphasizes the need for more such economic models or "jugaad" to teach students and develop innovative methods of medical education.^[4]

How effective is simulation in reality? Current evidence suggests that skills that are acquired through training with simulators, make a positive change and improve operative outcomes.^[5] The major challenge for the future revolves around understanding the value of this new technology and developing an educational curriculum that can incorporate surgical simulators. The future in simulation techniques lies in developing real life models obtained from three-dimensional (3-D) printers that can give accurate problem situations.^[6]

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