Editorial

Surgical Training Models – From Apprenticeship to Partnership in Plastic Surgery

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The evolution of surgical education reflects the dynamic tension between tradition and innovation. For much of modern surgical history, the apprenticeship model—where a trainee learned under the close supervision of a master surgeon—defined the path to competence. This system produced generations of skilled surgeons but also carried inherent limitations: variability in training exposure, reliance on individual mentors, and a lack of structured assessment. In today's era of heightened accountability, reduced working hours, and emphasis on patient safety, new models are essential to complement and, in some respects, transform the traditional approach.

Simulation-based training has become the backbone of modern curricula. From simple bench models to sophisticated virtual reality platforms, these tools enable residents to develop technical skills in a safe and reproducible environment. Cadaveric dissections remain invaluable, particularly in specialties like plastic surgery, where millimeter-level precision are critical. Microsurgical training laboratories, using synthetic or animal models, help residents refine fine motor skills before performing high-stakes reconstructions. Likewise, emerging technologies such as three-dimensional printing and augmented reality overlays enable practice on patient-specific models, bridging the gap between simulation and live surgery.

Yet training cannot be reduced to technical competence alone. The culture of surgical mentorship must also evolve. Historically, the "Miyagi model," where authoritarian leadership and hierarchical control defined the mentor–mentee relationship, although imparts discipline but lacks partnership opportunities with limited holistic development and professional growth of the trainee.

Contemporary residents, particularly in plastic surgery, seek more than rote learning. They value **partnership**, wanting to be engaged as junior team members with active decision-making roles. They expect a **holistic understanding**, where their training encompasses not only operative skills but also wellness, diversity, and balance across professional and personal spheres. Equally important, they desire **opportunities to problem solve**, using their innate creativity and talents to innovate solutions rather than merely replicate tradition. These shifts in expectation align naturally with the demands of plastic surgery, a specialty that thrives on adaptability, creativity, and individualized solutions for complex problems.

The challenge, then, is to integrate these cultural changes into structured training models. Competency-based progression, from simulators to live surgery, with incorporation of mentorship styles, is the key. For plastic surgery, sequential exposure—beginning with simulation, progressing to supervised autonomy, and culminating in independent practice—must be coupled with mentorship that encourages innovation within safe boundaries.

Resource limitations, particularly in low- and middle-income countries, remain a barrier to widespread adoption of high-fidelity simulation and advanced technologies. Nevertheless, even in resource-constrained environments, cultural change in mentorship is achievable by Simple measures—valuing partnership, promoting holistic well-being, and empowering residents to problem solve.

In conclusion, surgical training is in a period of necessary transformation. Technical models such as simulation, cadaveric dissection, and microsurgical laboratories must be integrated with evolving mentorship paradigms that move beyond authoritarianism toward partnership. Training models that combine structure with creativity, discipline with wellness, and supervision with partnership will ensure that the next generation of surgeons is not only competent but also innovative, resilient, and attuned to the holistic demands of surgical practice.

References:

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