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## In this Issue


- Cultivate... research an attitude and learning a passion
- The timing of surgery in lumbar disc prolapse: A systematic review
- Tubercular spondylitis in children
- Unstable Jefferson fractures: Results of transoral osteosynthesis
- Outcome of single level anterior cervical discectomy and fusion using nano-hydroxyapatite/polyamide-66 cage
- Surgical treatment of thoracic disc herniations using a modified transfacet approach



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## Cultivate... research an attitude and learning a passion

Providing an optimum orthopedic care to huge population of India in a limited infrastructure and resource crunch milieu is a challenge.<sup>1</sup> This can be achieved by ensuring optimal and strategic utilization of infrastructure with perfection so that primary treatment produce sound functional outcome with minimum complications/sequelae/disabilities. India has tremendous shortage of qualified and trained orthopedic surgeons and sub-specialty experts. The clinical conditions unique to this land need treatment guides to treat which require innovation and a research analysis.<sup>2</sup> The treatment modality chosen should be cost-effective. We do treat a given clinical problems by out of box thinking in a given circumstances. The every experience while treating the numerous clinical conditions if evaluated scientifically to establish them as good option helps in providing evidence based treatment.<sup>1</sup> That is how modern medicine has evolved.

The emphasis to train a trainee should be of foremost priority. The investment of time and effort in training serve two benefits (1) it allows us to create a surgeon who will be able to provide holistic patient care and (2) a well-trained trainee becomes a future trainer of orthopedic surgeons. A good training can be imparted by ensuring that they not only achieve core competence but also develop a passion for learning. The learning could be passive where a student learns what is taught while the patient was treated by his mentor. This learning can make him a surgeon good enough to treat the patients. Active learning is when the trainee applies his anxious and inquisitive mind when learning is imparted. Before a teaching session he tries to gather information about clinical problems, applies mind on it to find out a possible solution and try to be ready with a solution with best of his knowledge when the clinical problem is discussed by his mentor. He tries to figure out how his mentor is analyzing the clinical situation differently to arrive a diagnosis and possible treatment. This effort makes him learn “art and science” of subject better. Such attempts at learning when repeated becomes habit. His efforts are a reflection of his passion for learning. The learning can be acquired in medicine not only

be reading but by constant observations on your patients, the patients treated by others. India provides us an opportunity to see the natural history of disease and in a large number. One can learn from his/her experience and from the experience (success and complications) of other. A keen observer and a passionate learner can multiple the skills exponentially in a short time provided he has cultivated passion for learning.

Day-to-day small innovations/modifications in the solutions offered to the clinical problems, if scientifically evaluated, become a credible research. To get addicted to research the trainee has to develop an attitude for critical analysis. Human body is a perfect example of evolution. Every system of body works on the principle of optimization, i.e., prevent energy loss. The human body has acquired the optimization by constant changes over millions of years.

Let us take the example of training of orthopaedic postgraduate as a scientific analysis to prove the point. The trainee has to pass an examination to become a qualified specialist. Besides theory examination, he has to present clinical cases to a panel of examiners. While preparing for clinical examination, he has to attain an acceptable knowledge to analyze clinical problems rationally. The trainee has to master the art of presenting a short and long case during his tenure. Let us presume the research question is evaluation of the preparation of art of short case presentation. The variable that makes a good short case presentation are (a) elicitation of history and physical signs (b) presentation of the case to be understood by the examiners (c) ability to analyze the physical signs to be able to make a differential diagnosis (d) defend the diagnosis or differential diagnosis on the basis of clinical features (e) suggest rational investigation to make a final diagnosis (f) suggest the treatment plan rationally. Once the case is presented, the trainee can analyze himself the short comings in his presentation on those variables and tries to improve next time after correcting short comings.

This scientific analytic approach is research. This is true for any subject/problem/situation. Such analytic approach practiced over a period of time becomes an attitude. This approach allows a surgeon to analyze a clinical problem and offer a rationale, effective and predictable solution confidently to the patient. The research is nothing but summation of small conclusions, well thought of innovations evaluated scientifically to make the outcome predictable.<sup>1</sup> If a clinical situation treated by specific innovative protocol analysed scientifically and repeated on a series of patients

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to achieve predictable outcome, becomes a research. This is only possible if we have the attitude for scientific analysis. This attitude can be cultivated in a trainee.

The attitude for research and passion for learning can increase the potential and utility of orthopedic surgeon multifold and help in compensating for shortage of orthopedic surgeons and insufficient infrastructure.

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