

# Orthopaedic Research: Mandate of our times

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My close friends call me an Outlier. After the long arduous journey through medical college and residency, I had managed to procure a coveted fellowship training opportunity in the US and I had a lucrative future all lined up. As fate would have it, I rotated through a research lab as part of the fellowship training and it opened my eyes to a whole new world. What was supposed to be a 6 month rotation turned in to a 14 year journey in the world of Orthopaedic research. I recently returned back to the Motherland with a dream of pursuing research here. I have no doubt that there is a world of difference from my previous work conditions and the scenario in our country, but the sheer challenge of delving into the rich and diverse patient population with their unique demands is what attracts the adventurer in me.

“Research” is still a word not spoken with favour in our orthopaedic community at large. The larger reasons behind the lack of quality research studies and discoveries from the Indian scientific community are myriad. From lack of proper infrastructure, non-availability of basic resources, to entrenched bureaucratic interference in the central research institutes, the Indian scientist is forced to navigate through mundane issues when he or she could have been productively working in the laboratory. Paucity of financial grants and lack of interest from the clinical community also forces the interested scientist to work without valuable inputs that can orient the needs of the clinician and the scientist towards a common goal of improving outcomes for the patient.

One always hears arguments that India lacks resources to do quality research and it would be better if the rich developed countries do the work and we can enjoy the benefits. However, Indian patients and surgeons face unique problems which need solutions which can be developed and used locally. We have no dearth of talented and innovative people, trained or untrained. The uniquely Indian concept of “Jugaad” is something all of us utilise to overcome our problems in daily life. Though all Jugaads may not stand up to the rigors of scientific enquiry, the problem-solving enterprise behind it surely needs to be encouraged.

A casual perusal of the peer-reviewed literature in orthopaedics has only recently started showing reports from the Indian subcontinent. China and S Korea produce scientific papers in a lot more volume than India in the English language literature in spite of us having the advantage of language. It can be argued that the numbers are higher from those countries because of the incentives in their system for the doctors to publish. However, in spite of such institutionalised incentives in India, the quality and quantity of peer reviewed publications have remained low.

As rest of the country is gearing up slowly to face up to the challenges as a global leader, it is time that the medical fraternity in general and the orthopaedic community specifically to prepare for our rightful place in the International research forums. This is not a utopian vision or an abstract idea I am proposing. With the wealth of experience of our surgeons and the wisdom acquired through successfully treating myriads of conditions with meagre resources, we are uniquely positioned between the resource rich developed countries and the poorer, under developed nations, struggling to find their feet. The task of imparting knowledge to the world has been an ancient tradition for India and we need to go back to that hallowed tradition. The work ahead will not be easy or simple. Every surgeon/physician involved in the treatment of musculo-skeletal disorders will need to be a part of this mission. This begins with making patient care as the epicentre of the profession.

Every practising orthopaedic surgeon has a mandate to provide the best possible treatment to the patients under their care. The basis for this is from the best evidence in published literature. The following should form the basis of any practice:

1. Level I Evidence

: A. Prospective Randomized Studies, Blinded or Otherwise

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## B. Registry Data

2. Level 2 Evidence: Meta-Analysis

3. Level 3 Evidence: Prospective Studies – Case Controlled

4. Level 4 Evidence: Case Series

5. Level 5 Evidence: Opinion of Individual Surgeon(s)

One should be aware that case series and personal opinions provide the lowest level of evidence and should be used with caution.

Inculcating best practices will essentially lead to a solid database from which meaningful and erudite scientific publications can be developed. Today, we have a few centres of excellence in orthopaedic education and training who have taken on this responsibility. The Sancheti Institute in Pune and the Ganga Hospital in Coimbatore come readily to mind for publishing widely cited articles in International journals. Both these places are a product of great foresight and vision by their founders, but it's the work of all the current staff and alumni which is attracting praise and attention.

Research today needs to be an essential part of the modern orthopaedician. The post graduate training curricula though already cramped should include a basic training on research methodology and the residents encouraged to produce at least 2 original articles. While the initial quality might not be of global standards, sustained effort is sure to produce a body of work that due its sheer volume will be of immense value. The established experts also should impart their knowledge: What they lack in time can surely be made up by the resources they can access by hiring research staff and medical writers. The days of a lonely scientist plugging away in isolation and producing life-altering solutions is a romantic notion from the past. Today, Research is a team sport and it requires the inputs from surgeons, physicians, biostatisticians, biologists, engineers and writers. We, as a nation, surely do not lack from a shortage of any of these personnel. It is time we recognise our true potential and put our best foot forward. We can lead the world in a large number of areas; shortage of space prevents me from expanding and expounding. I am always available to share my knowledge and experiences in this field to help those who would like to be part of the movement. Hopefully, someday the movement will be the revolution that the rest of the world is waiting for.

Best Wishes

Dr. Shantanu Patil.