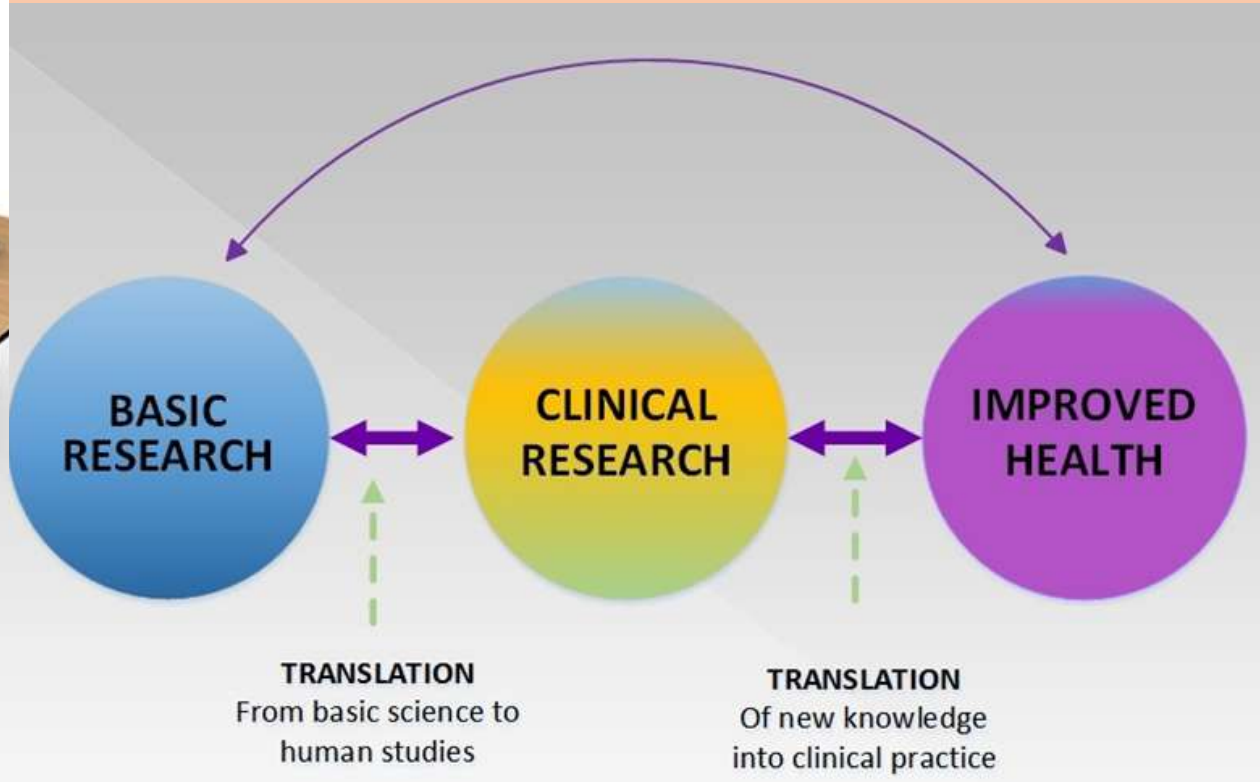




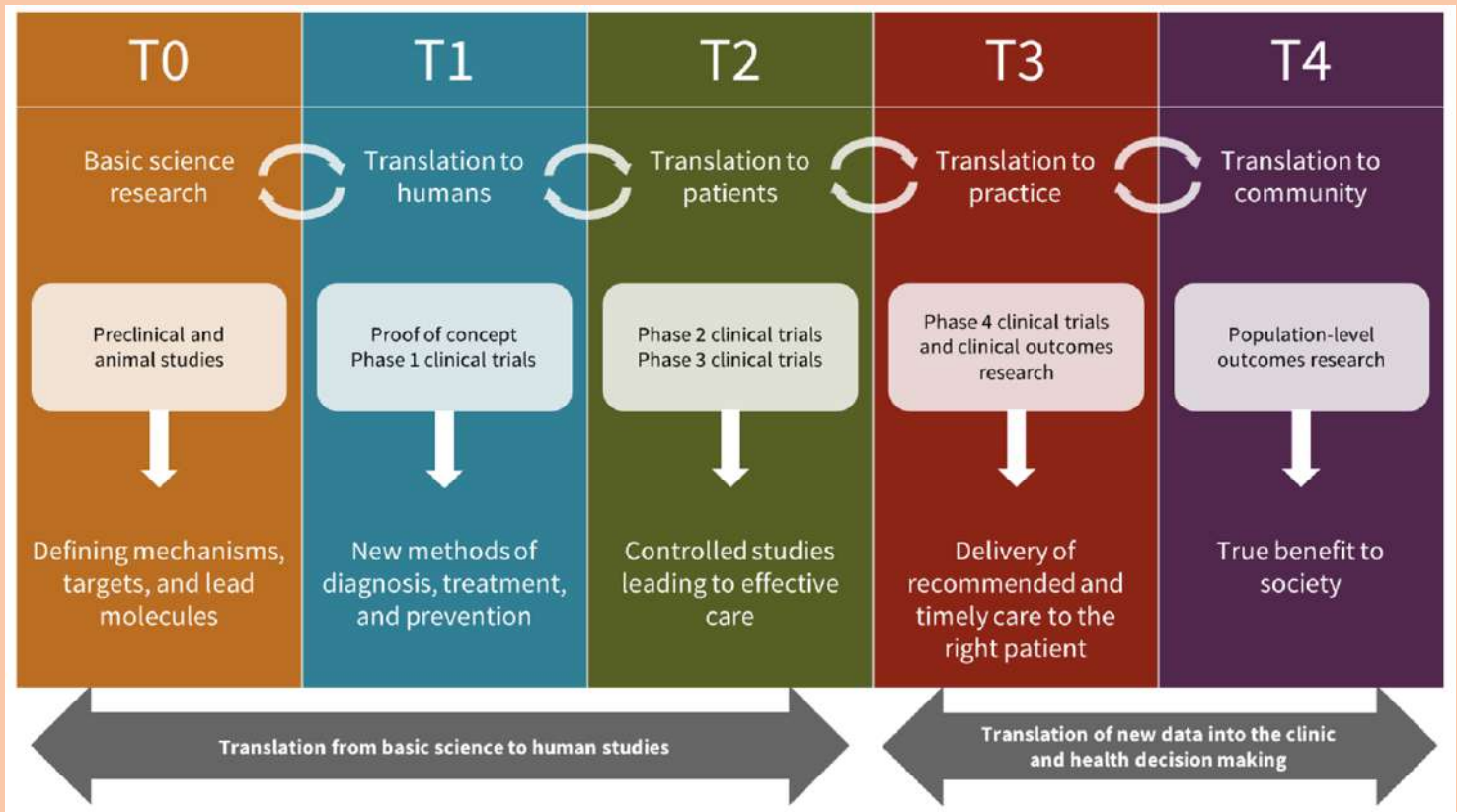
TRANSLATIONAL RESEARCH IN ANATOMY - FROM BENCH TO BED



WHAT IS TRANSLATIONAL RESEARCH?

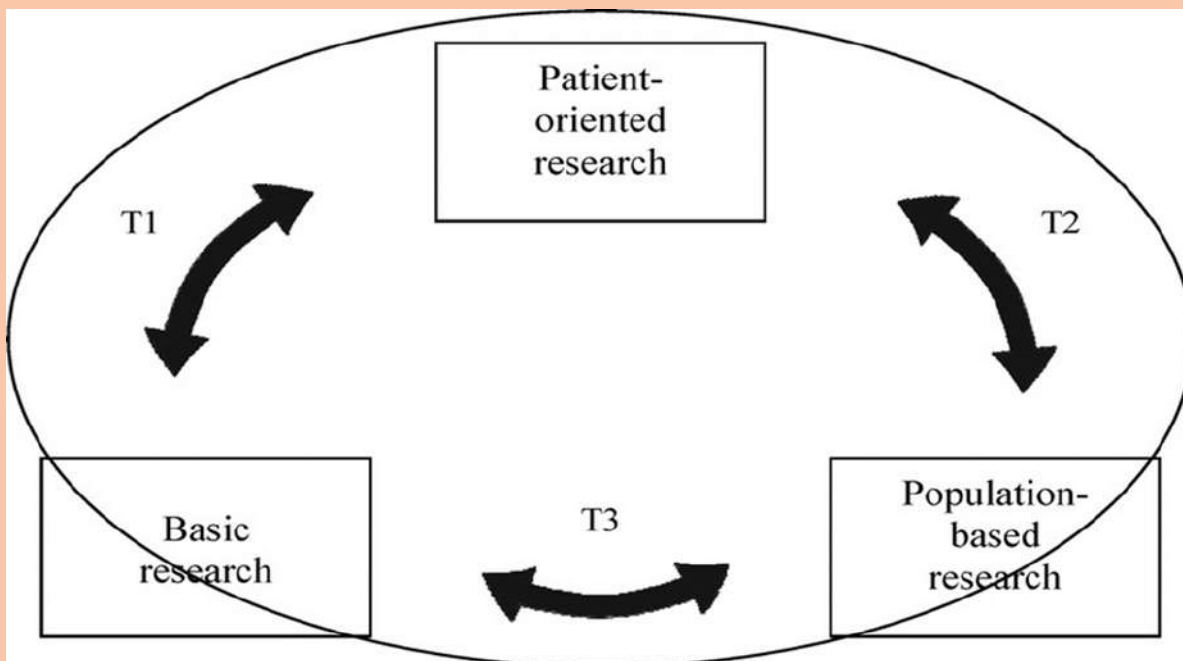
- Translational research is part of a unidirectional continuum in which research findings are moved from the **researcher's bench to the patient's bedside** and then to community.
- The first stage of translational research transfers knowledge from basic research to clinical research, and the second stage transfers findings from clinical studies or clinical trials to practice settings and communities, where the findings improve health.[1]

THE SPECTRUM OF TRANSLATIONAL RESEARCH



- The Association for Clinical Research Training (ACRT) postulated an operational definition **“Translational research fosters the multidirectional and multidisciplinary integration of basic research, patient oriented research, and population-based research, with the long-term aim of improving the health of the public”**. Translational research moves in a bi-directional manner from one type of research to another involving collaboration among scientists from multiple disciplines [2].
- Translational medicine was established about 30 years ago and is meant to uphold its value to liaise the existing gap between academic and clinical medicine [3].

- It is a fact that bench to bedside research takes many years, and communicating change leading to results is more challenging in practice.
- Unity of basic science education with clinical medicine allows medical students to adjust to conditions they may encounter during practical rotations.
- The two-way communication from translational medicine's perspective should be promoted, as the absence of communication from both spectrums of 'medical education' hinders the transfer of resources to medical students, forcing them into a broadening gap that spans clinical and basic science medicine.



MODEL FOR TRANSLATIONAL RESEARCH, AS PROPOSED BY THE EVALUATION COMMITTEE OF THE ASSOCIATION FOR CLINICAL RESEARCH TRAINING.
SOURCE:
 DEFINING TRANSLATIONAL RESEARCH: IMPLICATIONS FOR TRAINING ACADEMIC MEDICINE 85(3):470-475, MARCH 2010.

- The model proposed captures the dynamic interplay inherent in the concept of translational research.
- The model's circular structure suggests that research is a continuing cycle, and its bidirectional arrows emphasize that new knowledge and hypotheses are generated at each step.

TRANSLATIONAL RESEARCH IN ANATOMY

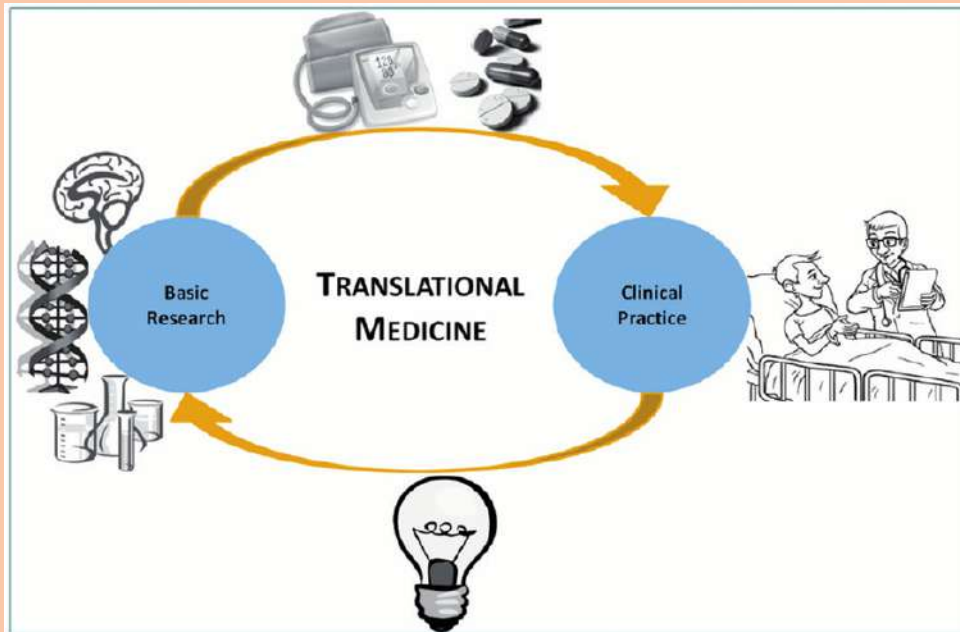
A thorough understanding of the morphology and morphometry of various anatomical structures is needed to design and customize the three-dimensional model. The knowledge of it will be very much helpful in designing implants for particular gender/populations. With this method, it is possible to develop volumetric implants to replace a part of the bone or a plate type for the fixation of the fractured bone. Knowledge of morphology and morphometry of soft tissue also plays an essential role in plastic surgery, cosmetology, and dentistry.[4,5]



- Student education, clinically applied through anatomy, should be exposed to up-to-date scenarios, allowing adequate preparation towards situations that students may encounter during hospital rotations.
- Communication between researchers, and professors of the basic sciences with those from the clinical sector will contribute to the foundation of medical knowledge. Basic science professors need to expand their horizon into a patient's clinical presentation and examination techniques used in the hospital.

IMPLICATIONS FOR THE DESIGN OF TRAINING PROGRAMS

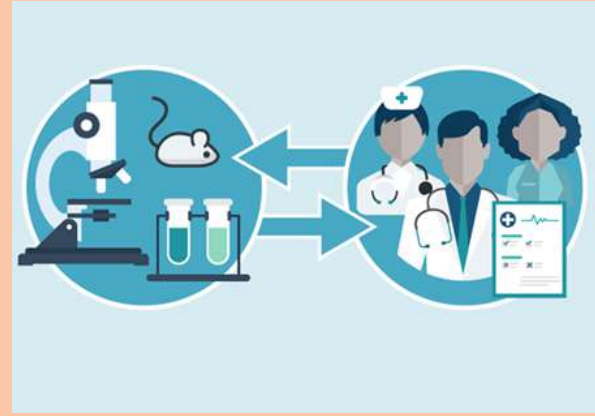
Collaboration among disciplines through multidisciplinary teams facilitates the emergence of novel concepts and approaches to addressing important health issues. The emergence and development of new ideas are goals of translational research, and there are many possible models of training that can provide the academic path to these goals.



- An effective training program in translational research must use traditional curricular elements in new ways to ensure understanding across disciplines.
- It must create and use new curricular elements and approaches to ensure that its trainees are able to do the following: critically examine the research process, think “out of the box” to develop ways to impact health care by transferring knowledge from and to the bench, bedside, and community, engage in multidisciplinary collaboration, understand successful approaches to community engagement, and develop appropriate techniques to manage multidisciplinary research teams in the future.
- Using multidisciplinary skills, the translational researcher will be able to think and perform in an integrated interdisciplinary manner and become a new type of investigator.

CONCLUSION

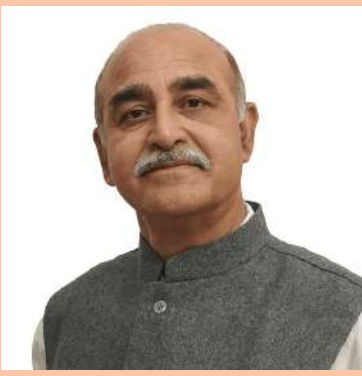
- **Translational research moves in a bidirectional manner from one type of research to another—from basic research to patient-oriented research, to population-based research, and back—and involves collaboration among scientists from multiple disciplines.**
- **The design of an effective training program in translational research is a challenge because the program must offer each of its trainees the opportunity to master a combination of skills that are not taught together in traditional training programs.**
- **The approach to evaluating the success of translational training programs must be flexible enough to accommodate the needs of individual institutions and individual trainees within the institutions, but it must also be rigorous enough to document that the program is meeting its short, intermediate, and long-term objectives and that its trainees are meeting preestablished competency requirements.**



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MESSAGE FROM EXECUTIVE DIRECTOR
PROF.DR. (COL.) CDS KATOCH, AIIMS RAJKOT



I heartily congratulate the Department of Anatomy for bringing this informative newsletter on Translational Research in Anatomy. My best wishes to the entire team.

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