

Osteopathic Research in Family Medicine

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The profession of “osteopathy” was first developed by A.T. Still in the late 1800s, and its practitioners were called osteopaths due to the belief that the bone was “the starting point... to ascertain the cause of pathological conditions.”[Still, 1919] Over time, this belief came to be supplanted by an acceptance of the knowledge obtained through evidence-based medicine. While modern osteopathic physicians (DOs) may be nearly indistinguishable from their MD colleagues, there remain important differences.

A primary functional difference between DOs and MDs is that osteopathic medical students continue to be trained in osteopathic manipulative medicine (OMM), which provides enhanced emphasis on neurologic and musculoskeletal anatomy and treatment. This training is beneficial to family physicians, who treat patients who have a wide variety of somatic concerns. However, this focus on manual therapy and the poor evidence base supporting the underlying mechanisms of OMM may come at the expense of formal research training and exposure.

Osteopathic physicians comprise a growing portion of family physicians. In 2023, the number of US DO seniors who matched into family medicine residency programs exceeded the number of US MD seniors. Nearly a quarter (22.2%) of US DO seniors match into the specialty of family medicine.(**Figure 1**)[AAFP 2023],[NRMP 2023] The specialty has benefitted from a compatibility with the osteopathic philosophy of whole-person care, and DOs provide a valuable clinical perspective that benefits patients. As osteopathic physicians comprise an increasing proportion of the specialty of family medicine, new challenges arise regarding their experience in conducting research in family medicine.

Students at US Colleges of Osteopathic Medicine (COMs) have a reduced research emphasis in training and fewer research experiences at graduation than students at US MD medical schools. In 2022, students from MD-granting medical schools who matched into residency programs averaged more than twice as many research accomplishments as students from DO-granting medical schools (4.0 vs. 2.2).[Matthews 2019] In family medicine these numbers were even lower, with 2.4 research activities for MD medical students who matched into family medicine, compared to 1.7 for DO medical students.(**Figure 2**) These values for both osteopathic and MD students were the lowest of any specialty.[NRMP 2023]

The research training environment of osteopathic medical students and physicians is becoming progressively more important to the family medicine specialty. The limitations of research

training and culture in osteopathic medicine are becoming the limitations of family medicine research. Two of these challenges may be amenable to change: (1) Osteopathic trainees have relatively limited research exposure. (2) Osteopathic manipulation training emphasizes techniques that are not compatible with current theories of anatomy and pathology.

Osteopathic trainees have relatively limited research exposure

The majority of osteopathic medical students report they lack time and resources to pursue research. Furthermore, nearly a third report having little support for research even from their university authorities.[Ho 2023](**Table 1**) Dual-degree PhD programs are offered in 18.6% of osteopathic medical schools compared with 71.0% of MD medical schools.[Hamby 2022] A quarter of family medicine residency program directors who recruit both DOs and MDs report that DO seniors are less academically prepared than their MD counterparts.[Hempstead 2017]

The high proportion of DOs in family medicine means that the specialty will disproportionately benefit from improvements in research training among osteopathic trainees, including medical students and residents. Institutions that train osteopathic learners such as colleges of osteopathic medicine and family medicine residency programs should increase research emphasis, to include enhancing infrastructure and funding to support the research enterprise. To accomplish this, we recommend the following:

1. Include research as a key portion of the mission and vision of training programs
2. Incorporate a formal research curriculum into both preclinical and clinical training [Smith 2005],[Papasavas 2013],[Irby 2011]
3. Include research participation and accomplishments as a key factor in applicant selection, learner evaluations, faculty selection, and faculty progression [Hautz 2016],[Irby 2011],[Hamby 2022]
4. Increase mentored and funded research opportunities to interested osteopathic trainees [Solomon 2003],[Kaur 2023]
5. Increase the number of DO/PhD programs available to osteopathic medical students [Hamby 2022]

Osteopathic manipulation training emphasizes controversial manipulative techniques

Osteopathic medical students who wish to pursue research are faced with an academic environment where many of the osteopathic principles and practices they learn are not compatible with current theories of anatomy and pathology. Standardized osteopathic exams test on models such as Fryette's laws (the basis for spinal manipulation), Chapman's points (theoretical nodules representing neuro-lymphatic dysfunction), and the primary respiratory mechanism (the basis for craniosacral manipulation), which have not been subjected to rigorous scientific scrutiny.[Licciardone 2007],[Bath 2023] In some cases, the proposed mechanisms underlying these concepts have been shown to be inaccurate.[Hartman 2006] Despite this, these frameworks are taught alongside well-described concepts of human anatomy, pathophysiology, and modern medical therapies.

In this environment, osteopathic medical students become progressively more doubtful of OMM and less likely to practice OMM as they advance in their medical education.[Draper 2011] This issue was emphasized by an osteopathic medical school faculty member with over 30 years of teaching experience who wrote: “Could the primary factor driving our osteopathic medical students further and further away from OMT be our teaching of scientifically questionable and controversial manipulative techniques under the rubric of osteopathic principles and practice? ... [Our students] have been steeped in the scientific method and they recognize good ol’ bovine scatology when they see it.”[Duerfeldt 2012]

If osteopathic educators are to train students to walk in the halls of science, they need to teach and abide by the rules of science. To generate such an environment, we recommend the following practices be adopted by organizations with an interest in osteopathic research and education, including colleges of osteopathic medicine, residencies, conference planning committees, research departments, journals, the National Board of Osteopathic Medical Examiners, and the American Osteopathic Board of Family Physicians:

1. Subject the foundational principles of OMM to conventional scientific standards, including rigorous peer review from outside the profession
2. Abandon concepts, frameworks, and models of osteopathic manipulative medicine that are not supported by rigorous evidence
3. Investigate alternate hypotheses for mechanisms that underlie any observed effectiveness of manual therapy
4. Ensure curricula and tests of osteopathic principles and practice are consistent with accurate scientific knowledge

Conclusions

The contribution of DOs to family medicine is invaluable, and the osteopathic philosophy has tremendous potential to aid patients. However, there exists within the profession a crisis of poor research training and continued adoption of controversial manipulation techniques. Those who educate osteopathic trainees and practice osteopathic medicine can help promote solutions to these problems. Doing so will directly benefit osteopathic medicine, family medicine, and patients.

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Percent of DOs vs. MDs entering family medicine

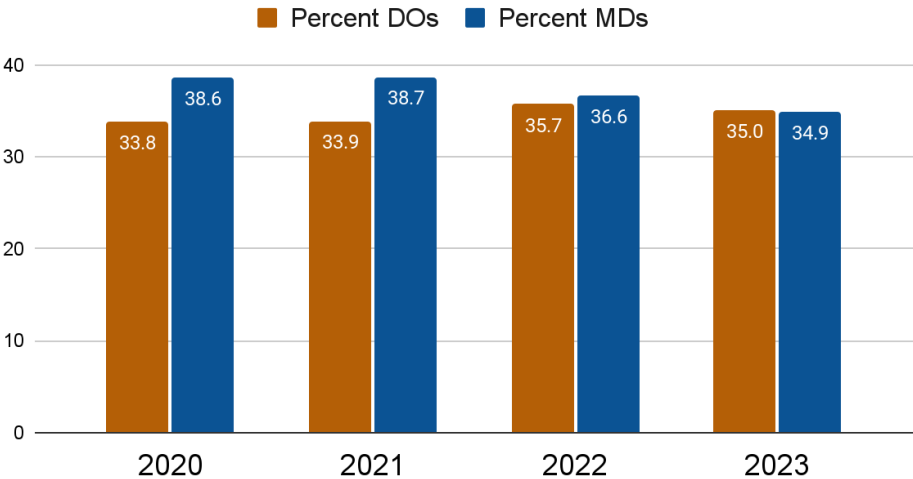


Figure 3: Percent of DOs vs. MDs entering family medicine [AAFP 2023],[NRMP 2023]

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Research experiences of US medical students applying to residency programs

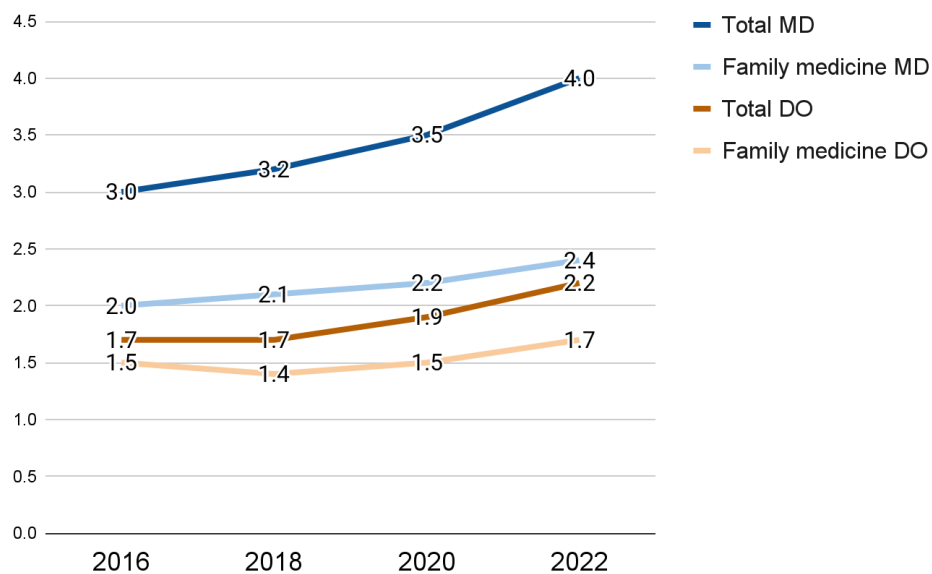


Figure 2: Research experiences of US medical students applying to residency programs. [Matthews 2019],[NRMP 2023]

Barrier	Percent of medical students
Lack of time	57.8%
Feeling overwhelmed and unsure how to start	53.4%
Lack of access to research	53.0%
Lack of quality mentorship	37.1%
Lack of curricular flexibility	34.0%
Little support from university authorities	30.2%

Table 1: Barriers to research reported by osteopathic medical students
[Ho 2023]

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