

## EDITORIAL

## REVERSE MENTORING IN PHYSIOLOGY

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Reverse mentoring is an innovative approach where traditional hierarchical mentoring structures are inverted. Instead of older, more experienced persons mentoring younger less experienced ones, the reverse mentoring model sees junior persons mentoring their senior colleagues. Reverse mentoring promotes diversity and inclusion by valuing the knowledge and perspectives of all faculty members, regardless of their age or seniority. By facilitating the exchange of knowledge between junior and senior physiologists, this approach can bridge generational gaps, promote technological proficiency, foster innovation, and support the professional growth of all participants.

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Theories, mechanisms, procedures, and even teaching methods keep on changing. The textbooks that fail to accommodate updates and stop bringing out new editions simply fade away from memories. The same holds true for academicians who do not have an effective system to keep abreast with the latest advances in knowledge.

The older academicians are endowed with experience and wisdom that they are always ready to share with younger colleagues. This is called '*mentoring*'. The young academicians, on the other hand, are equipped with up-to-date knowledge, newer methods and the latest skills. If the seniors update their knowledge by learning from these younger colleagues, it is called '*reverse mentoring*'. Reverse mentoring is an innovative approach where traditional hierarchical mentoring structures are inverted.

The concept of reverse mentoring can be traced back to 1999 when Jack Welch, the then CEO of General Electric, initiated it. He paired around 500 younger employees with senior executives to help the latter understand and use the internet which was then an emerging technology. This idea was revolutionary as it acknowledged that younger employees could possess valuable knowledge that their senior counterparts might lack, particularly in areas like digital technology.<sup>1</sup>

Reverse mentoring promotes diversity and inclusion by valuing the knowledge and perspectives of all faculty members, regardless of their age or seniority. It helps bridge the 'generational gap' and fosters mutual understanding and respect. It helps break down traditional power dynamics and encourages a more inclusive and collaborative culture. The seniors gain insights into the perspectives and working styles of younger colleagues, promoting a more harmonious and productive workplace. Younger colleagues, who are often digital natives, can help their mentors navigate new technologies and digital tools. For the junior colleagues, reverse mentoring provides an opportunity to develop their leadership and communication skills. They gain confidence as they share their knowledge and

insights with senior colleagues. This can accelerate their professional development and career growth. Seniors bring their experience and strategic thinking, while younger employees contribute fresh ideas and a willingness to challenge the status quo. This synergy can lead to innovative solutions and approaches fostering a culture of innovation. Engaging younger faculty members in mentoring roles can increase their sense of belonging and value within the organization. This can lead to higher levels of job satisfaction and retention. Senior faculty members who embrace learning from their juniors often feel rejuvenated and more connected to the evolving knowledge landscape.

Implementing a successful reverse mentoring program requires careful planning and execution. The goals and objectives of the reverse mentoring program must be clear.<sup>2</sup> First and foremost is identification of areas of knowledge transfer. Choosing junior mentors who are not only knowledgeable but also possess the necessary communication skills to effectively share their expertise is the key to success. Senior mentees should be open to learning and change.<sup>3</sup> As an example, the objective may be to learn the latest advances in chemical control of respiration from a new faculty member who has recently worked on it in doctorate. Likewise, it may be to enhance technological skills like conversion from old style spirometers to latest data acquisition systems by learning from a junior colleague who attended a hands-on workshop recently. The selected participants must be open-minded and willing to learn from each other. Both mentors and mentees should get training to understand their respective roles and responsibilities.<sup>4</sup> There is no harm in setting up one or more mentees with a mentor. Regular meeting times should be assigned with a preset program, defining the scope of discussions, and establishing metrics for success. Flexibility within the framework is also important to accommodate the unique dynamics of each mentoring pair. Channels for feedback and reflection should be established.<sup>5</sup> This can help in refining the program and addressing any issues that arise. Finally,

the achievements of the mentoring pairs should be recognized and celebrated. This can be through formal recognition programs, sharing success stories within the organization, or even small tokens of appreciation.

While reverse mentoring offers numerous benefits, it also comes with its own set of challenges and considerations. Some senior physiologists may resist reverse mentoring due to established habits and comfort with traditional methods. Overcoming this resistance requires clear communication of the benefits and support from leadership.<sup>6</sup> Sensitive topics and organizational politics can complicate mentoring relationships. Establishing ground rules around confidentiality and respectful communication is crucial. It's essential to foster an environment of mutual respect and trust where both parties feel valued. Navigating the power dynamics between junior and senior physiologists can be challenging. Keeping participants engaged over time can be difficult. Regular check-ins, recognition of achievements, and adjustments based on feedback can help sustain momentum.<sup>7</sup>

Reverse mentoring in physiology leverages the recent advancements and up-to-date knowledge that junior scientists possess to benefit senior physiologists. This can be particularly valuable in areas such as new research methodologies, advanced statistical techniques, and the use of bioinformatics tools. Junior physiologists often have a strong grasp of the latest technologies, and they can mentor senior colleagues in these areas, enhancing overall research quality and efficiency.<sup>8</sup> Junior scientists gain insights into traditional methodologies and broader scientific principles.<sup>9</sup> By combining the innovative approaches of younger scientists with the experience and strategic thinking of senior physiologists, reverse mentoring can lead to significant scientific breakthroughs and novel research directions.<sup>10</sup> For junior physiologists reverse mentoring is an excellent opportunity to develop leadership and communication skills. It can enhance their confidence and professional network too.<sup>11</sup>

There are interesting case studies of reverse mentoring in Physiology that are worth reading to develop reverse mentoring protocols. In the first one a junior physiologist with expertise in bioinformatics mentored a senior researcher in utilizing computational tools to analyse large datasets. This collaboration led to discovery of new genetic markers associated with cardiovascular diseases, significantly advancing the research field.<sup>12</sup> In the second a junior physiologist proficient in advanced imaging technique multiphoton

microscopy mentored senior colleagues. This knowledge transfer enabled the senior researchers to visualize cellular processes in unprecedented detail, leading to new insights into cell physiology.<sup>13</sup>

Reverse mentoring in physiology, like in other disciplines, offers a powerful tool for enhancing scientific research and professional development. By facilitating the exchange of knowledge between junior and senior physiologists, this approach can bridge generational gaps, promote technological proficiency, foster innovation, and support the professional growth of all participants. Careful planning, open communication, and continuous evaluation are essential for successful implementation of reverse mentoring programs. As the field of physiology continues to evolve, reverse mentoring will likely play an increasingly important role in driving scientific advancements and fostering a collaborative research environment.

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