

# Saudi Arabia and aerospace medicine in the era of the national vision of 2030

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**WEBSITE:** ijhs.org.sa

**ISSN:** 1658-3639

**PUBLISHER:** Qassim University

Aerospace medicine is defined as “The practice of all aspects of preventative medicine including screening, health care delivery, and maintaining human performance in the extreme environment of space and preserving the long-term health of space travelers.”<sup>[1]</sup> It is considered fundamental to humans’ exploration of space and it has been a primary part of their success in past space flight. Aerospace medicine is becoming increasingly important due to the progress in space travel and the many research opportunities that are attainable. Most of the progress in aerospace medicine has been in the understanding and optimizing humans’ performance as well as addressing the main safety concerns such as the risk of microgravity and radiation (the risk of neoplasm and sterility).<sup>[2]</sup> There is a lot of unexplored potential in the field and a myriad of robust research opportunities to be yet investigated. The field offers knowledge beyond the already existing, well-studied aspects of human health. However, it does not come without challenges such as the limited number of institutions, people, and funding available for aerospace medicine research as compared to other fields.<sup>[3]</sup>

The Kingdom of Saudi Arabia has enjoyed economic prosperity in the past few years as one of the wealthiest countries worldwide. A fair proportion of the country’s revenue has always been directed to education, scientific advancement, and research. Such investments are becoming conspicuous with the dramatic rise in the number of under- and post-graduate institutions.<sup>[4]</sup> The current implementation of the Saudi national vision of 2030 will undeniably increase and improve in quality of such investments since education and science are considered as major cornerstones for the country’s growth and prosperity. The interest in space was clear with the recent establishment of the Saudi Space Commission (SSC) on December 27, 2018, and the appointment of his Royal Highness Prince Sultan bin Salman (the first Saudi astronaut) as the chairman of the board of directors. The SSC will be responsible for all Kingdom’s space-related matters, and it

shows again, without equivocation, the country’s interest in the field of space.<sup>[5]</sup>

The recent inauguration of SSC is an opportunity for Saudi Arabia to be a major contributor in the field of aerospace medicine, which can be achieved through a variety of endeavors that include training Saudi individuals in the field and establishing aerospace medicine department in the SSC and then hiring those individuals there after their training is completed. Another possible contribution that will be an eye-opener to the most recent advances in the field is sponsoring Saudi individuals to global aerospace medicine conferences, which will also provide opportunities for international collaborations. In addition, Saudi individuals can be sponsored to attend and participate in several summer courses and clerkships in aerospace medicine that exist worldwide. Such courses and clerkships will increase their perception and knowledge of the field’s potential and provide them with several key concepts. Other activities that can take place are conducting research in the field, managing workshops in aerospace medicine locally, and organizing the first Saudi aerospace medicine conference.

There are several limitations for Saudi Arabia to contribute in the field of aerospace medicine such as the absence of previous experience in the field and the lack of trained individuals. Such limitations can be overcome by international collaborations with leading space facilities such as the National Aeronautics and Space Administration and International Space Station. Saudi Arabia needs to create a long-term plan of goals and objective, so the country can catch up with the leading countries in the field and to be a major player and a game changer later. Other limitations are not insurmountable to Saudi Arabia if the two main suggestions start to take place (the international collaborations and the long-term plan). This article is considered a call for action and serves as the initial step for the dawn of the field of aerospace medicine in Saudi Arabia.

Aerospace medicine should be a priority in the SSC national strategy, which is currently under construction.

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