**Zimmer Travelling Fellowship / SCOT Grant Report**

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**Fellowship: Stanford University Orthopaedic Sports Medicine Fellowship, Stanford University, California, USA.**

I recently returned to Edinburgh from California, having completed the Stanford University Orthopaedic Sports Medicine Fellowship in July 2021. The Leland Stanford Junior University was founded in 1885 by California Senator Leland Stanford and his wife, Jane, in memory of their only child, Leland Jr., who died of typhoid fever at 15. Over the past 125+ years Stanford has become one of the world’s leading universities with a particular reputation for innovation and research excellence in the fields of technology, business and Medicine. In addition, Stanford is the US’s most successful sporting university having won more National Championships than any other institution and with a host of famous Sporting Alumni including Tiger Woods and John McEnroe. If Stanford were a country it would have tied for 7th most gold medals won at the Tokyo Olympics. Stanford was therefore the perfect destination for an aspiring orthopaedic sports surgeon seeking experience at one of the world’s leading centres for sports and orthopaedic surgery.

My first impressions of Stanford was the impressive campus and beautiful surroundings set in the wealthy town of Palo Alto, in the San Francisco Bay Area. Palo Alto is protected from the cold Pacific winds and fog by the Santa Cruz Mountains and set on the west side of the Bay has an extremely pleasant year round climate ranging with average temperatures of 14oC in winter and 26oC in summer and very little rain. Although the weather is extremely pleasant, there are no shortage of natural challenges. It is situated on the San Andreas Fault and, as we experienced, the surrounding area is increasingly plagued by forest fires and the smoke they produce, drought, and seasonal ‘sneaker waves’ that make some of the coastlines dangerous for paddling. The Stanford Campus is incredibly large and impressive with immaculately manicured gardens and lawns, with iconic academic buildings set alongside state of the art sports facilities. Although Stanford has considerably fewer students than some of the larger Scottish Universities, it was clearly a very wealthy institution that had benefited from its huge success in research and innovation. With 19 current Nobel Laureates on faculty there was a ‘buzz’ around the campus. The recently opened Stanford Hospital felt extremely futuristic inside with robots delivering supplies around the hospital and state of the art integrated operating rooms. Almost all daycase surgery was delivered within the Stanford Outpatient Surgery Centre which was equally as impressive.

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*Figure. Stanford is situated in Palo Alto within the San Francisco Bay Area. The campus is set on the grounds of a farm owned by its Founders Leland and Jane Stanford, and is fondly known as ‘The Farm’.*

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|  | Edinburgh University | Stanford University |
| Undergraduate students | 23,098 | 6,366 |
| Post graduate Students | 12,160 | 8,791 |
| Faculty Members | 3,071 | 2,279 |
| Nobel Laureates on staff (2020) | 1 | 19 |
| Athletic Department Revenue | Not known | $139m USD |
| Academic Expenditure | £449m | $1.9b USD |
| Endowment | £489m | $28.9b USD |

*Table. Although it has fewer students and faculty, Stanford has an impressive track record of academic success and funding.*

The Orthopaedic Sports Medicine Fellowship is an ACGME (Accreditation Council for Graduate Medical Education) accredited fellowship with entry through the US National Matching Scheme. To be eligible to apply I had to complete the United States Medical Licensing Examinations. The fellowship covered the spectrum of orthopaedic sports medicine, including intensive experiences in arthroscopic knee, hip and shoulder surgery in addition to non-arthroplasty open surgery. The program provides an immersive experience in being a Team physician, and I was attached to the San Francisco 49ers (National Football League) with my co-fellows attached to Oakland Athletics (Major League Baseball) and Stanford (American Football). In addition, the program includes a formal education program and examinations and assessments at both the beginning and end of the fellowship.

 

*Figure: clinical work was split between the Stanford Orthopaedic Day Surgery Centre and the Stanford Hospital (above left). I was also assigned to the San Francisco 49ers who are based at the Levis Stadium (above right) in nearby Santa Clara*

The fellowship follows a mentor model, with four fellows rotating around four attachments to the core Sports Medicine Faculty. Each faculty member was a world-leader in their field, and while all faculty took care of the spectrum of sports injuries and were each allocated to a Stanford or Professional local team, they all had particular areas of expertise and interest with examples including cartilage restoration, hip arthroscopy and injuries in throwing athletes. This meant that the fellows had the opportunity to immerse themselves in the practice of these experts, with this experience complemented by twice weekly formal teaching and regular journal clubs. Stanford University has its own orthopaedic cadaveric skills laboratory and I found this to be a fantastic resource for consolidating skills learnt in the operating theatre. In addition to a monthly formal fellow skills with faculty, the fellows led weekly labs for Stanford residents and were able to use the facility regularly to consolidate skills we learned in the operating theatres.

 

*In addition to gaining huge experience in the operating room, fellows were also able to make the most of local cadaveric labs (above left). Receiving a gift at the ‘graduation’ celebration from my mentors (and now friends) Prof Marc Safran and Dr Seth Sherman.*

I was able to gain huge operative experience in the management of sports injuries and gained unique experience managing athletes from all backgrounds whether that be weekend warriors, college athletes and professional athletes. Although a clinical fellowship, the program was very supportive of research and I was able to establish links in both clinical and translational research and have submitted grant applications for Stanford-Edinburgh Collaborations. Stanford University is particularly strong in regenerative medicine and this was very much aligned with my own interests.

Without doubt the highlight of my experience at Stanford was the people I met and the friendships we made. I could not have hoped for better co-fellows and all our families became extremely close friends by the end of the year. We continue to message daily and I look forward to friendships for years to come. I am also hugely grateful to the inspirational mentors I met. The fellowship Directors Marc Safran and Seth Sherman have a wealth of experience and also became great friends as did all the other members of the awesome faculty. They pride themselves on continuing to mentor Stanford fellows throughout practice and I have already benefitted from them in this way.

 

*Figure. When not working we were able to enjoy the great outdoors and sights in California. My son Oscar was a particular fan of Baseball and we enjoyed being part of the Palo Alto community to celebrate occasions such as 4th July Independence day.*

I travelled to Stanford with my wife and our three children who arrived ages 6, 4 and 2 years. I am incredibly grateful to my wife Katie who put on hold her career as a GP to support this adventure, which began many years before with study for the USMLEs! The COVID pandemic meant that she was home schooling three children without support with little help from me as I left early and arrived home late almost every night. We did make the most of the experience and were able to enjoy much of what California had to offer at weekends. Highlights included watching humpback whales breaching at Stinson beach, Pacific sunsets in Carmel, Walks in Yosemite, and skiing at Lake Tahoe. I am extremely grateful to Zimmer and the SCOT Committee for supporting this once in a lifetime opportunity.