Slow productivity and integrated academic training: Opportunities for orthopaedic trainees

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Sami Anjum is an ST5 orthopaedic registrar in the Northern Deanery with an interest in lower limb arthroplasty. He completed an intercalated MRes, Academic Foundation Programme, NIHR Academic Clinical Fellowship and PhD focused on the immune response to orthopaedic biomaterials and the potential for statins to improve joint replacement longevity. He has published this work as well as presented internationally and remains interested in the opportunities available through clinical academic training.

In a culture that often rewards speed and visible busyness, integrated academic training offers orthopaedic trainees something increasingly rare: protected time to think deeply, be creative and contribute meaningfully to the literature.

In Cal Newport's book 'Slow Productivity', he describes how in 1986, McDonald's announced the plan to develop a massive site at the base of the Spanish Steps in Rome[1]. With the rise of fast-food, the Italian journalist Carlo Petrini developed the Slow Food movement, to celebrate the quickly diminishing virtues of a slow life. Slow Food encouraged a culture of communal eating of traditionally prepared food in a leisurely social sitting, common in Italian villages for centuries[2]. Newport, on noting the subsequent developments of the Slow Teaching, Slow Cinema and Slow Medicine movements in response to the pressure of modernity, developed a philosophy of Slow Productivity for knowledge work. He suggests that counter to 'pseudo-productivity' one should be 'doing fewer things, working at a natural pace and obsessing over quality' to produce sustainable and meaningful work[1]. These pressures are evident in today's academic culture with the refrain 'publish or perish' hanging over clinical trainees and university scientists alike. This, combined with orthopaedic training being rotational, changing trusts and subspecialties, can mean continuity within a project can be difficult to achieve. Like Petrini, Newport does not just criticise the status quo but offers an appealing alternative, achieving a more sustainable work pace and higher quality of output by slowing down. For orthopaedic trainees with an interest in academia, the integrated academic training (IAT) pathway may offer that alternative. It creates time to think, to read widely, learn research methods properly, and to stay with a question for long enough to produce something worth communicating. At a time when artificial intelligence can accelerate searching and drafting, there is a premium on the slower work of choosing the right question, noticing unexpected links and persisting with a problem over years. Petrini may approve of these links arising between researchers from different fields and backgrounds over leisurely coffee between experiments. Some questions need repeated reflection and the intellectual breathing room to join ideas from clinic, laboratory, large datasets and literature. For those with the aptitude and appetite, IAT provides that protected space.

What is the integrated academic training pathway?

Formally, the National Institute of Health and Care Research (NIHR) IAT pathway centres on Academic Clinical Fellowships (ACFs) and Clinical Lectureships (CLs), but the academic journey often begins earlier. The NIHR describes IAT as a route that allows trainees to combine clinical and academic training within specialty training, with equivalent integrated pathways also available in Scotland, Wales and Northern Ireland[3], (Figure 1).

For many, the first step is an intercalated BSc or Master's by Research (MRes). These degrees can provide an early home within a research group and an introduction to both 'wet' skills such as cell culture and molecular biology techniques, and 'dry' skills such as statistics, critical appraisal and academic writing. The Specialised Foundation Programme (SFP) (formerly the Academic Foundation Programme) offers research, teaching, leadership or management opportunities alongside foundation training[4].

The ACF is the start of the formal NIHR IAT pathway. ACF posts combine 75% clinical training with 25% protected academic time for up to three years and are designed to help trainees develop academic skills and prepare a competitive doctoral fellowship application[5]. A doctoral fellowship then funds a higher >>

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research degree, commonly an MD or PhD; the latter typically offers a longer, more immersive period of supervised research and is increasingly expected for those pursuing a substantial clinical academic career. A Clinical Lectureship is the postdoctoral phase: a higher specialty training post with 50% protected academic time, intended to consolidate independence and support further external funding[6].

A personal case study

My own route into academic orthopaedics began before any formal programme. As a medical student, I contacted a foot and ankle surgeon and became involved in a project examining patient-reported outcomes after total ankle replacement. That culminated in the opportunity to present orally both at BOFAS and then at SICOT in Hyderabad. Seeing surgeons from around the world passionately present work spanning trauma, elective practice and basic science lit a fire in me to pursue both clinical training and research.

That early momentum led to an intercalated MRes at Newcastle University. More than a qualification, it introduced me to mentors who guided my learning and shaped the scientific theme that would become my interest: the host immune response to orthopaedic implants and biomaterials. In that laboratory, I began the long apprenticeship of wet-lab research, learning cell culture, gene analysis and molecular biology techniques, alongside the equally important skills of data interpretation and scientific writing. That work culminated in a best poster prize at AAOS in San Diego and an oral presentation at the European Orthopaedic Research Society.

From there I moved into an Academic Foundation Programme post in the Northern Deanery, unique at that time for offering two four-month research blocks. The value of remaining in one region should not be underestimated. Continuity of supervisors, laboratories and collaborators helped me convert earlier work into papers, develop new projects, and present internationally, including at the Orthopaedic Research Society in New Orleans.

The ACF that followed was both exciting and humbling. Like many trainees, I discovered quickly that balancing the start of a surgical career with academia is not straightforward. For me, the greatest value of the ACF was the protected time it gave to prepare for the next step. With mentorship in grant costing and applications, and a PGCert in Clinical Research, I built an application for doctoral funding.

Eventually I stitched together three successive one-year fellowships from the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh and Orthopaedic Research UK, alongside consumables grants, to fund a PhD exploring the immune response to arthroplasty materials and the potential to reduce aseptic loosening. That process involved almost as much negotiation with funders, my deanery and the university to line up consecutively, as it did bench work. Yet the reward was enormous: three years of protected research time with the freedom to follow data, test ideas and think deeply. Some of the most useful insights came not from my own field alone, but from conversations with immunologists working on transplantation, inflammatory bowel disease or COVID, and from the stimulus of attending and presenting

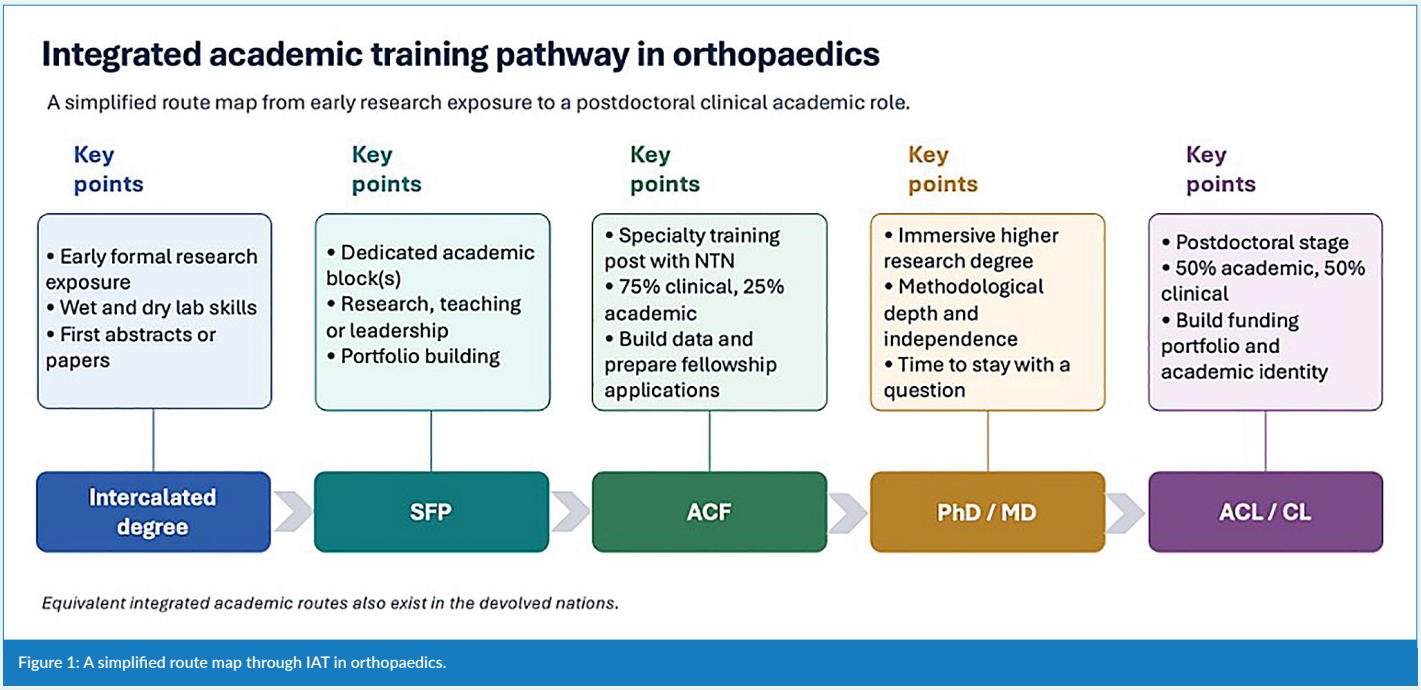

Figure 1: A simplified route map through IAT in orthopaedics.

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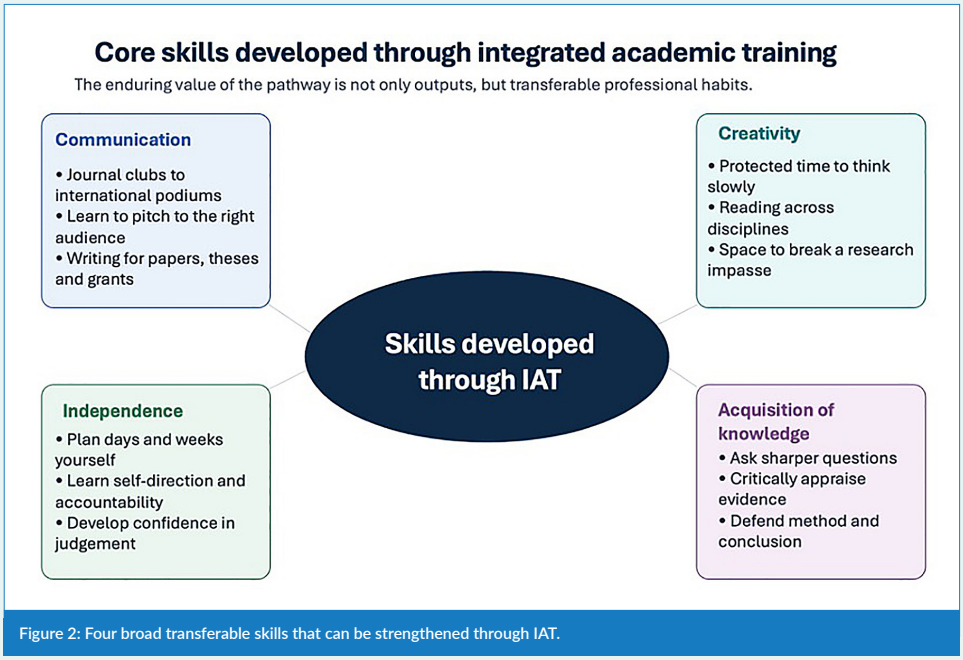

Figure 2: Four broad transferable skills that can be strengthened through IAT.

at international meetings such as EORS, ORS and ICORS. Through IAT, I developed core transferable skills that will serve both clinical training and life more broadly (Figure 2).

Skills that endure

Communication. Over years of journal clubs, lab meetings and conference presentations, I became far more comfortable speaking publicly. Seared in my mind is the memory of recycling a basic science heavy presentation from a university meeting, at the Northern Deanery Kreibich meeting, as a junior orthopaedic SHO. At this prestigious annual event, I realised from the responding silence that I had entirely misjudged my audience. Years later, after the breadth of presenting opportunities afforded by IAT, I returned to the same meeting after my PhD and was proud to win the Sprowson Prize for best out of programme research. The lesson was not simply how to present data, but how to communicate complex ideas in a way useful to orthopaedic colleagues.

Creativity. Protected research time gives something rare in training: the freedom to think. When I was stuck on a problem, a walk around Leazes Park often clarified the next step. I later learned Henry David Thoreau captured the same idea more neatly: "the moment my legs begin to move, my thoughts begin to flow". There is evidence that walking can enhance creative thinking and the protected time within IAT makes this slow productivity possible[7].

Independence. In clinical training, much of one's week is necessarily structured by the consultant team and service. Academic time can be strikingly different. During my PhD I would discuss objectives with supervisors, then plan my own days and weeks with far greater autonomy. That independence is liberating, but it also demands self-discipline and motivation.

Acquisition of knowledge. Higher research training teaches one to ask better questions, interrogate methodology and defend conclusions. That habit of critical appraisal does not stop at the laboratory door; it changes how you read papers, interpret evidence and approach clinical practice.

Practical considerations

For all the opportunities, the pathway is not without its drawbacks (Figure 3). Funding remains a central concern. Over the years I have thought of research funding rather like buying a suit. Some projects are 'off the shelf': the funding is already in place and the project largely predefined. Others are 'made to measure', with some flexibility to tailor the question. Finally, there are 'tailor-made' fellowships, in which the trainee has the idea, writes the grant, costs the work and accepts rejection as part of the process. That was my route, and for every successful application there were several rejections.

Funders typically look for four things: person, place, project – and increasingly, patient and public involvement (PPI). Are you the right person, with evidence that you can deliver? Is it the right place, with supervisory depth, facilities and collaborations? And is it the right project: clinically relevant, methodologically sound and feasible? And have patients and the public been meaningfully involved in shaping the research question and its design? This last consideration reflects a growing expectation from funders such as the NIHR that research is done ***with*** patients, not merely ***on*** them. >>

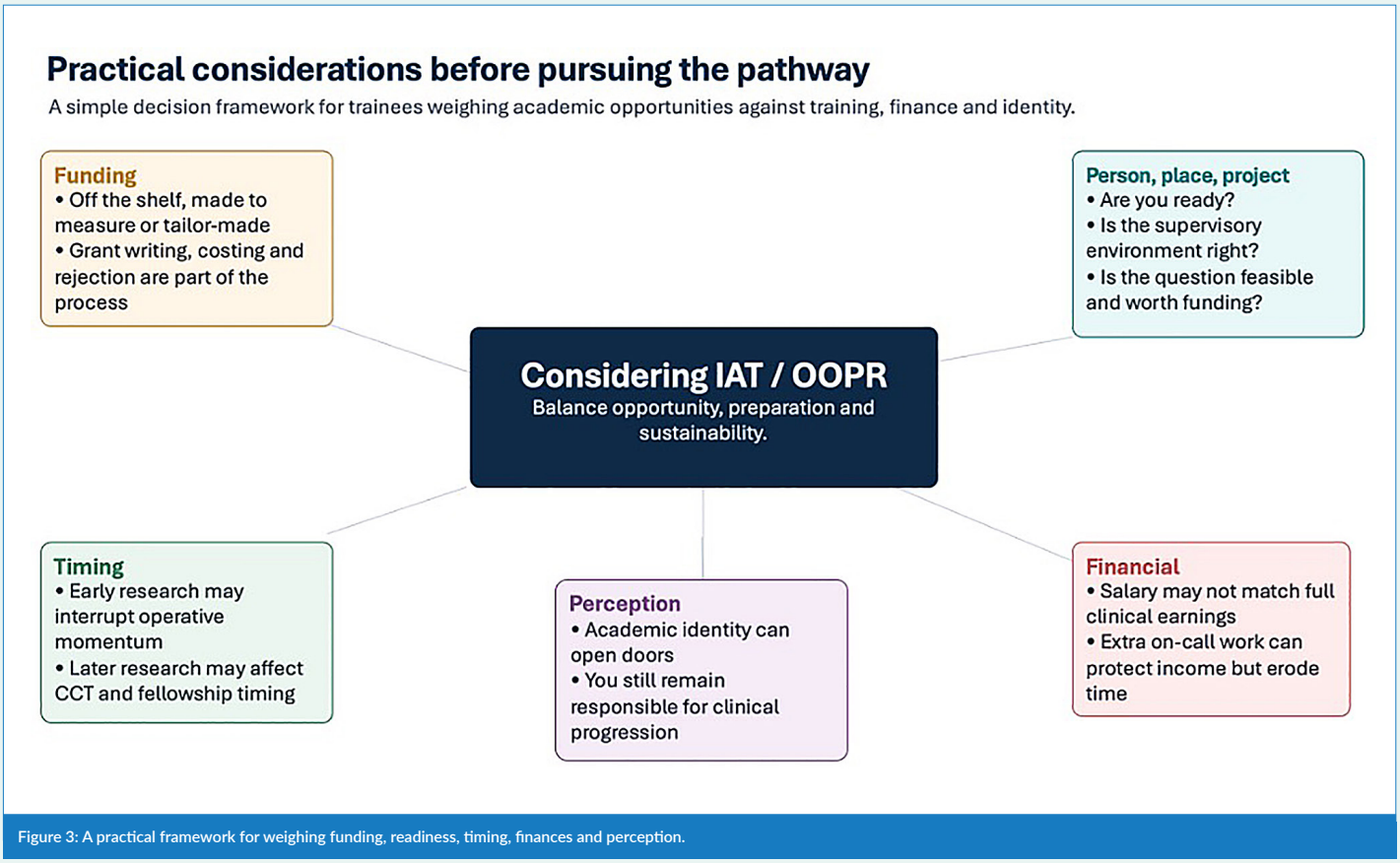

Figure 3: A practical framework for weighing funding, readiness, timing, finances and perception.

Timing matters too. Some trainees undertake research early and feel rusty on return to theatre; others go later, once clinically confident, but risk interrupting momentum towards CCT and fellowship. There are financial implications. Not all fellowships mirror full clinical earnings, and while on-call work can offset this, it can also erode research time. An academic identity seems to attract projects, recalling the observation attributed to Sun Tzu, that "opportunities multiply as they are seized". However, there is the perennial perception issue, that 'academics' may be less skilled surgically. In my experience, some of the most technically gifted orthopaedic surgeons are also deeply academic. Nevertheless, any trainee considering this route must remain honest about their operative skills development and take responsibility for maintaining clinical progression.

Conclusion

Whilst important research can be delivered within the training programme, IAT offers something increasingly rare, the protected time to think deeply, develop rigorous research skills and contribute meaningfully. In a culture that often rewards speed and visible busyness, academic training can be the orthopaedic equivalent of slow productivity. Its dividends are not only published papers, grants and degrees, but better communication, better judgement, broader perspective and, ultimately, better surgeons.

Suggested key learning points

- Meaningful orthopaedic research can begin before formal academic posts, but protected time makes longitudinal work far more feasible.
- The IAT pathway commonly begins with intercalated research experience, develops through SFP and ACF posts, and may progress to a PhD and Clinical Lectureship.
- The value of academic training lies not only in publications and grants, but also in communication, creativity, independence and critical appraisal.
- Funding, supervision, timing and financial implications all need careful thought before undertaking a higher degree.
- Not every trainee needs formal academic training, but for those with the interest and aptitude it can be a powerful way to enrich both research and clinical practice. ■

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