



Pass me the scalpel Mummy

History is littered with tales of child prodigies. In 2005, Imperial College welcomed 12-year-old Akrit Jaswal.

Meera Senthilingam

W E ALL have special memories of our childhood - falling off our bike, fighting siblings, collecting tadpoles... But a minority of the world's children have very different childhood memories. They involve playing orchestral concerts, working effortlessly through calculus, or reading Shakespeare while their peers are learning the alphabet. These are the lives of child prodigies.

Last year Professor Mustafa Djamgoz and his team here at Imperial College were able to meet such a child: 12-year old Akrit Jaswal, India's youngest university student.

Akrit hit the media spotlight when he was seven years old for performing surgery on a village girl whose fingers had been fused to her hands at a young age. He sped through schooling and is currently studying for a BSc at the age of 12 at Chandigarh University, India. But what is at the core of such a prodigious child?

Mr Anup Patel, consultant Urological surgeon at St Mary's Hospital, London describes how, "Akrit sees and reads things that immediately register in the pathways whilst many of us have to do this several times before it sticks." He explains how children like Akrit are "often thrust into a much older peer group because that's where they are intellectually, although physically and emotionally they might not be there yet." When asked what he did in his spare time; Akrit replied that he mostly reads, because his university peers were usually out with their girlfriends.

We all see stereotypes of these children in fictional tales. We see characters such as Lisa Simpson and Matilda, heroic through their knowledge but often socially excluded. Dr David Feldman of Tufts University, Massachusetts stresses, "films about prodigies often reflect myths and fantasies rather than reality."

But, if a child has an IQ above 145, friends do not usually share their interests in a particular field. As intelligence increases the number of peers on their level falls, making companionship difficult, often leading to withdrawal. On the other hand, if these children are up through school they could lose all interest



in the institution.

The IQ test is the standard procedure used to identify prodigies and geniuses, but critics argue that IQ only measures some aspects of intelligence. Akrit was tested on his visit to England, and whilst his scores placed him well above average for general knowledge, he was below average in his interpretive thinking. Although this highlighted the need for Akrit to obtain manual dexterity skills Mr Patel agrees, "IQ testing is more geared towards conventional testing for mass groups rather than individuals with particular gifts." Critics also state such testing is culturally biased.

The systems in place in different cultures mean the course of acknowledgement and development of child prodigies can vary. Akrit came to light in the public eye because of his surgery - an act that would have never been allowed over here. Through this fame he was able to meet Indian officials and visit top Indian research centres. But on his visit to the UK he was not allowed to observe surgery in operating theatres because of his age, regardless of the fact he had performed such acts himself. There are still many prodigies that surface here in the UK but Mr Patel states how, "the system here is less conducive to accelerating people of that nature...[as] a basic foundation needs to be developed first."

"Akrit designed numerous molecular structures for his cancer cure."

Along with cultural factors are those of the environment the child is brought up in. There is debate about how much of a prodigy's talent is innate and how much is nurture. Are they born with superior skills or do they develop with the intense practice that follows? According to Dr Feldman, "we know less about prodigies than about learning disabilities, autism and many other topics." Studies by American psychologists Michael O'Boyle and Harnam Singh on mathematical prodigies showed increased metabolic activity in the right side of their brains - an area crucial for pattern recognition and special awareness. Students also found it easier to combine information from both sides of the brain. However the studies do not reveal causal connections for such intelligence, only correlations, and so research is still minimal.

Feldman explains how in the cases he has encountered "at least one parent is totally devoted to...fulfilling a child's promise and responding to their needs." Feldman proposes that children are able to compete at adult levels in highly structured fields such as music. Open-



ended areas such as scientific research are more difficult as they require experience and abstract thinking. Akrit designed numerous molecular structures for his cancer cure but he lacked the interpretive thinking to make them testable. But, unlike more mature intellectuals, Patel describes Akrit as "having confidence and infallibility along with unhindered enthusiasm." His excitement at the prospects of testing an idea is something often weakened in older scientists.

So what happens as these children enter adulthood? They are soon in competition with people not much older and their field can become increasingly difficult. Prodigies are under constant pressure and, as Mr Patel explains, "most of us have peaks and troughs but the expectation...[of these children] is to maintain a high level of performance all the time." Removal from other children at a young age means prodigies like Akrit "cannot enjoy the imaginary side of childhood," affecting them both socially and in the development of their work. There are examples such as fourteen-year old Sufiah Yusof who ran away in her second year at St Hilda's college, Oxford blaming her parents for ruining her childhood with constant training and endless pressure. Patel describes how these children are "diluted by the age factor as they grow up...once the novelty factor disappears ideas need to stand up on their own." For this reason Mr Patel stresses the importance for children like Akrit to have "a foundation based on a BSc, an MSc and a PhD, then only can they really begin." ■

A Child Prodigy is...

...Someone who, by the age of roughly 11, displays expert proficiency or a profound grasp of the fundamentals in a field usually only undertaken by adults.

