

# Are the Games 'genetically modified'?

Dr Deepak Natarajan

The shadow of doping has now fallen on the Beijing Olympics. First, it was a Spanish female cyclist, who was caught for using erythropoietin — or EPO, a performance enhancer. And now there are a few more who have come under suspicion for using banned drugs.

This despite the International Olympic Committee raising the number of tests for detecting doping to a record 4,500 at the Beijing Games. "The IOC means business in stamping out those who are not playing by the rules," said IOC spokeswoman Giselle Davies.

Even so, many coaches and athletes fear that doping has become much more sophisticated, and has kept a step ahead of surveillance methods. A new dope menace, called genetic manipulation or genetic doping, is feared to be haunting the Olympics.

Genetic doping is much more sophisticated than the designer steroids used 20 years ago by Ben Johnson of Canada or the cocktail of EPO, growth hormone and steroids used by Marion Jones for her incredible five medal haul at



**DOPE-TAINTED:** Ben Johnson

the Sydney Games.

Genetic doping might sound futuristic but is actually a rather clever and simple concept to enhance sporting performances. The process involves injecting a modified gene into an innocuous virus in the human body. The virus is a transporting vehicle for the gene to penetrate the athlete's cell nucleus. Once inside the nucleus, the modified gene completely takes over by manufacturing a new chemical such as EPO, which is really a growth hormone or insulin-like growth factor.

Professor Lee Sweeney of the University of Pennsylvania has already used this method to enhance muscle strength and performance in mice by 15-30%. Sweeney has

revealed that soon after the publication of the concerned paper, he received numerous inquiries from coaches and athletes. The real possibility of genetic modification was confirmed when a top German track coach, facing prosecution for drug doping in 2006, revealed that he had ordered for a drug therapy called Repoxygen.

Repxygen, developed by a British pharmaceutical company in 2002, is used for the treatment of severe anaemia and works by inserting a harmless virus carrying a modified gene that is capable of manufacturing EPO which, in turn, substantially improves the oxygen carrying capacity of blood and consequently endurance and performance of the athlete.

The nightmare for sports officials is that this form of EPO would be very difficult to detect. Repoxygen has already acquired super-star status among coaches and athletes in Europe, despite scant or no real data of its performance enhancement power.

Endurance a key differentiator in top-notch sports can also be significantly increased by injecting a gene capable of

producing a protein called 'peroxisome proliferator activated receptor delta', or PPAR-delta. Mice injected with this gene grew slow twitch fibers in their muscles and were capable of doubling their running distance without any practice.

Hence in order to run faster, jump longer or higher and throw further, the athlete has at his disposal cutting edge biotechnology techniques to assemble performance enhancers in his body without any great fear of detection.

(THE AUTHOR IS AN INTERVENTIONAL CARDIOLOGIST)

	<b>IndianOil</b>	
Pipelines Division- HO, NOIDA		
<b>NOTICE INVITING TENDER</b>		
NIT No./Name of the Work		
PLM / BPPL / 08 / 37		
Supply of Control & Signaling Cables.		
Sale Period : 19.08.2008 to 16.09.2008 (both days inclusive)		
Contact Person : Chief Manager (Materials), Phone : 0120-2448412, Fax : 0120-2448024, E-mail : magariwa@iocil.co.in		
Visit : <a href="http://www.IndianOilTenders.com">www.IndianOilTenders.com</a> for more details		