

Elite Athlete Development

Jim Fowlie – 30 January 2008

‘You made the Olympic team! Bring home a medal!’ This is a classic quote and typical expectation of a young athlete’s next door neighbor. While, the neighbor has the best intentions, they are grossly mistaken in understanding what it takes to develop an elite athlete on the world stage. Even the great Michael Phelps only finished fifth in the 200m fly at his first Olympics in Sydney 2000. It wasn’t until three years later at the Barcelona World Championships in 2003 that Michael Phelps first stood on the podium.

While great athletes can win medals at a young age, there is still significant development that the athlete must go through before he or she is a mature international competitor with stable, reliable results. Mark Spitz, while winning two gold medals in the 1968 Olympics as an 18 year old, was still unstable in his performances, having been ‘expected to win six gold.’ Of course in 1972 he returned to the Olympic stage winning seven gold medals, all in world record time. Now those were stable, reliable performances!

Athlete Rate of Improvement and Variables				
	15 + under	15 - 17	18 - 21	22 + over
Growth and Development	65%	50%	25%	<2%
Training and Skill Acquisition	35%	50%	75%	>98%
Expected Rate of Improvement	5 - 10 %	2 - 5 %	1 - 2 %	<0.5%

NSW Institute of Sport

NSWIS Building • 6 Figtree Drive • Sydney Olympic Park NSW 2127

PO Box 476 • Sydney Markets NSW 2129

Phone: (02) 9763 0222 • Fax (02) 9763 0250 • email: info@nswis.com.au

www.nswis.com.au

Often physiologists and sociologists create athlete development models only looking at young athletes, up to 18 years of age. While the correct development of these young athletes is essential, they are far from mature athletes at this age.

Critical in the long term development of the athlete is what they do from the ages of 18 – 21 years (+/- one year). This critical development usually corresponds with three specifics:

- Growth and development
- Social issues (driving, parental involvement, financial support, etc)
- Plateau in performances (times can become very hard to improve).

By design or accident, many countries around the world have managed their athletes through this critical time period by developing university sport programs, with facilities, coaching and fiscal support.

At the 2000 and 2004 Olympics the average age of an Olympic medalist in swimming was 23.5 years of age. This means half the medal winners were 23.5 years or older! Very few countries in the world have structured professional programs to cater to the specific needs of these athletes. Often these older athletes have families, careers and other responsibilities which the teenage athlete could never imagine. These professional athletes require specific support in managing recovery from training, illness and injury. They are also more comfortable using the world for their training and competition stage and can deal with long periods away from home. Finally, and most importantly is the fiscal support these athletes require, which is substantially more than what a teenager living at home requires.

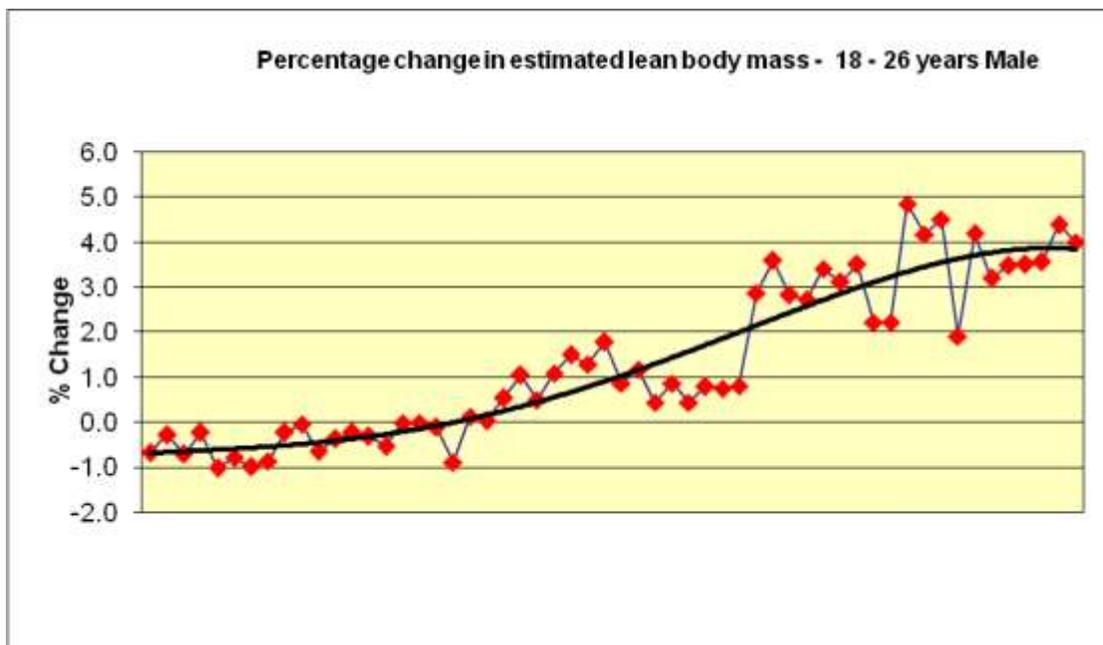
NSW Institute of Sport

NSWIS Building • 6 Figtree Drive • Sydney Olympic Park NSW 2127

PO Box 476 • Sydney Markets NSW 2129

Phone: (02) 9763 0222 • Fax (02) 9763 0250 • email: info@nswis.com.au

www.nswis.com.au



The above chart shows the limited physical change an international athlete can have in a nine year period. While young athletes can increase total body mass by 20% per year and specific lean body mass (muscle) by up to 10% in a year, the mature athlete can change as little as 4.5% over nine years.

For the mature swimmer, larger changes in body mass indices usually occur after injury or long breaks from training. Essentially when a mature swimmer is not training, their metabolism begins to store fat and muscle atrophy begins.

At the age of 20 years (+/- 1.5 years) the athlete is considered fully 'grown.' At this stage the athlete development model changes to the 'Athlete Degenerative Model.' While rates of degeneration will vary by individual genetics, training and personal management (recovery), the athlete has stopped growing and different changes occur in the athlete's body.

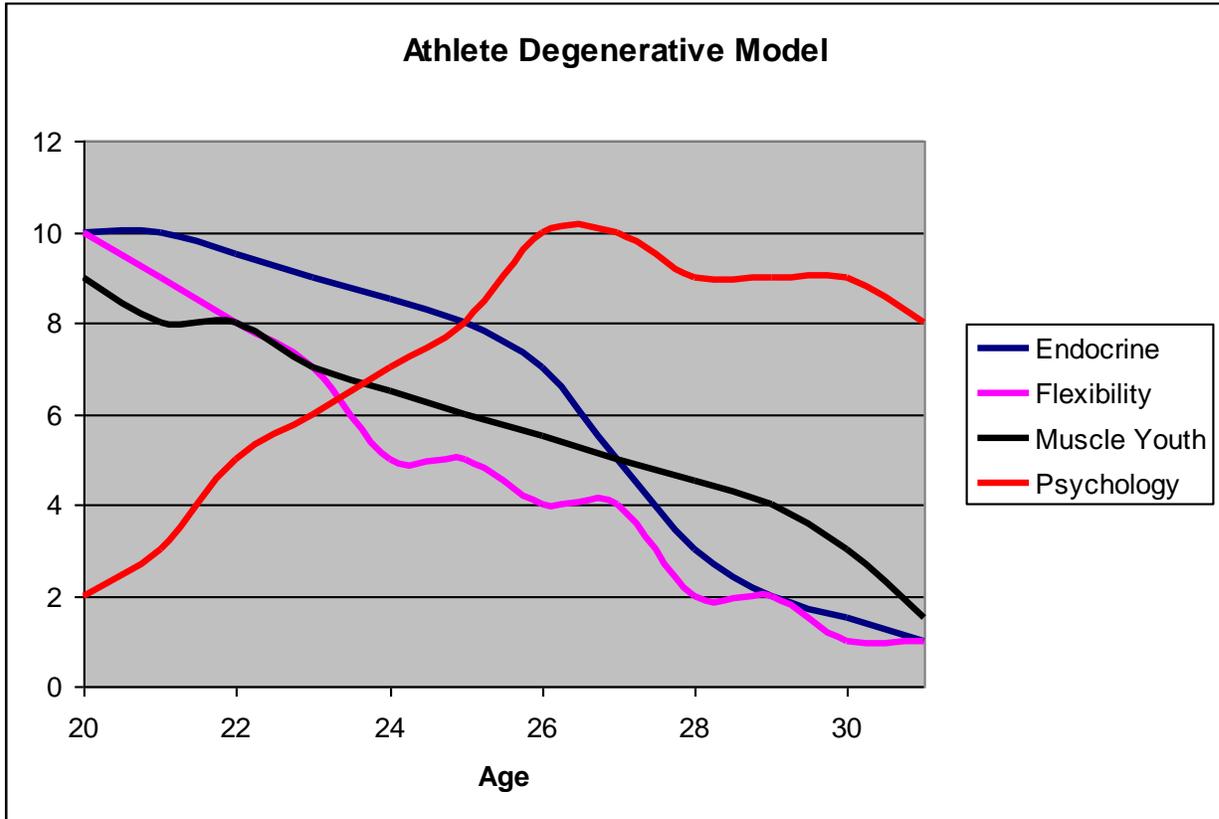
NSW Institute of Sport

NSWIS Building • 6 Figtree Drive • Sydney Olympic Park NSW 2127

PO Box 476 • Sydney Markets NSW 2129

Phone: (02) 9763 0222 • Fax (02) 9763 0250 • email: info@nswis.com.au

www.nswis.com.au



First and foremost is the endocrine (hormonal) activity in the body. Growth hormone secretion around the age of 32 years is approximately 10% of what it was at the age of 18 years. (this is essentially the onset of the aging process). Variations in other hormone activity, dramatically affects the recovery and regeneration rates for mature swimmers.

As the athlete gets older and from years of repetitive use, range of motion and flexibility become major challenges. Joint ligaments and muscle tendons become stringy and less pliable from years of training stress and micro-tears.

Muscle youth, refers to the suppleness and elasticity of the muscle. Old muscle is stringy and tough as compared to young muscle. A simple example is to compare lamb to mutton. Lamb is tender and easy to eat, where as mutton is tough and chewy. Human muscle is much the same.

NSW Institute of Sport

NSWIS Building • 6 Figtree Drive • Sydney Olympic Park NSW 2127

PO Box 476 • Sydney Markets NSW 2129

Phone: (02) 9763 0222 • Fax (02) 9763 0250 • email: info@nswis.com.au

www.nswis.com.au

One critical element which is a tremendous benefit for the athlete as they progress through their mature athletic years is their 'sense of self.' The mature athlete's psychology can be much stronger than the younger athlete. Their ability to manage failure and success, keep a balanced view and come back again is much greater. Between the ages of 22 and 32, the athlete's sense of self is very strong. This is a period in their lives when they back themselves for the next 45 years! This is the stage when they start their life's work, get married, have children, buy new cars and buy houses. They believe in their ability.

In conclusion, coaches who have been successful in working with the mature athlete use some specific tactics when working with mature swimmers:

- They realize that many things motivate mature swimmers. 'Pep-talks' and trying to please the coach or authority figures may not always work. They realize the athletes are training and competing very much for their own reasons, be it intrinsic or extrinsic reasons. Motivators can be complicated or simple and come from a full range of interests such as money and sponsorship opportunities to finding time for friends and family. Finding what motivates the athletes is essential.
- Successful senior coaches are very effective at supporting and finding ways to support their swimmers. They help find resources and partnerships from government to academic to private sponsors to ensure the athletes have every opportunity to be successful.
- These coaches are also very effective at monitoring their athlete's training and competitive performances. Monitoring allows the coaches to provide effective feedback. At critical times facts help the coaches provide realistic and truthful assessments of their athlete's behavior and or performances.

In these ways successful coaches and mature athletes build professional relationships established on trust.

NSW Institute of Sport

NSWIS Building • 6 Figtree Drive • Sydney Olympic Park NSW 2127

PO Box 476 • Sydney Markets NSW 2129

Phone: (02) 9763 0222 • Fax (02) 9763 0250 • email: info@nswis.com.au

www.nswis.com.au