

Infographic: McMaster researchers break-down the perfect athlete

August 6 2012, By Andrew Baulcomb

McMaster Experts Discuss

The Science Behind an Elite Athlete



With the 2012 London Olympics in full swing, McMaster staff and researchers deconstruct the “perfect athlete”

Mind Over Matter:
Steven Bray,
Associate Professor, Dept. of Kinesiology
“Mental stability plays a role in every sport at the Games, and some require a great deal of focus and skill. Being able to stick to your game plan and not lose focus in the moment is crucial. Athletes will often speak to a psychological consultant to have all of these tools ready.”

What Makes Them Tick:
Dr. Jeff Healey,
Associate Professor, Cardiology
“Athletes’ hearts are nothing special out of the box, but there’s a ‘nurture aspect’ to the human heart. It’s just another muscle, and with the right amount of work it will get bigger and more efficient. It’s all a matter of exposing it to stress, whether it be running or any other activity.”

Diet and Physical Performance:
Dr. Stuart Phillips,
Professor, Dept. of Kinesiology
“Margins of victory in some Olympic events come down to fractions of a second. Athletes who want to achieve their peak performance need to make sure they’re ready to perform in every aspect, and that includes nutrition and hydration. The science of how exercise performance is fueled is now highly advanced.”

The Science of Sports Medicine:
Dr. Janice Harvey,
Sport Medicine Physician
“Sports medicine has made some huge advances in recent years, and the Canadian Olympic team has elite physicians in all areas, including concussions and arthroscopic surgery. They’re the best of the best, and help athletes return to training and competition as soon as possible.”

Sport Injury Management:
Chris Puskas,
Athletic Therapist
“Most Olympic athletes are young, fit and have trainers for everything from strength to nutrition to help prevent injury. They also have time to commit to ‘prehab’ for older injuries and also to prevent new ones from occurring.”

Building Strength & Muscle:
Steve Lidstone,
Strength & Conditioning Coordinator
“Everything is done through science. We take a physical profile of an athlete, and map out the parameters of what they need to work on. Most strength plans involve a four-year cycle leading up to the Games.”



At the halfway point of the 2012 London Olympics, viewers have already witnessed some of the most awe-inspiring performances in the history of the Games - from 15-year-old Lithuanian Ruta Meilutyte taking gold in the 100-metre breaststroke, to our own Canadian men's

eight claiming silver in the dying seconds of Wednesday's race (including Mac grads Jeremiah Brown and Doug Csimá).

But what exactly does it take to compete on the biggest stage in the world? Many athletes in London have been training since they were children: sacrificing school, sleep and any semblance of a normal social life to workout and practice six days a week. Everything in the life of an Olympian becomes an exact science, and it isn't easy.

For repeat [Olympians](#) such as Laval's Alexandre Despatie, having the discipline and [physical ability](#) to rehab a devastating injury can mean the difference between one more shot at a medal, and the end of a dream.

Others, such as two-sport phenomenon Clara Hughes, have devoted their entire adult lives to the pursuit of excellence in sport - a lifestyle that involves superhuman [stamina](#), drive and determination.

Getting as close to perfection as humanly possible is the goal of every Olympic athlete, and in the attached infographic, McMaster staff and researchers break down exactly what it takes to reach for the top.

Provided by McMaster University

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