

# High speed photography captures sport in action

Faster, higher, stronger – high-speed photography captures the beauty of athletes in the blink of an eye.





A multiple-armed tennis player swings at a ball while a dozen identical-looking gymnasts tumble along the ground. A long jumper lands in the sand closely shadowed by nine of his mirror images and ten martial artists spin in the air forming an arcing human dragon. These amazing photographic images are the result of a painstaking process to capture the movements of sports players at incredibly high speed. Made by British photographer Hugh Turvey, they reveal the beauty and complexity of the moving body that the human eye cannot see.

In the 1930's, American engineer Harold Edgerton pioneered the field

of high-speed photography. He took never-before seen images of balloons caught in mid-burst, bullets frozen while fired and freeze-framed athletes.

Whilst working at the Massachusetts Institute of Technology (MIT), Edgerton transformed the electronic stroboscope - a device able to fire repeated flashes of bright light - from obscure lab equipment into a device for high-speed photography. By synchronising the strobe flash with the moving object and using an open shutter on the camera, Edgerton was able to capture high-speed motion.

Edgerton's body of work has become a classic of art and photography. His images also became the inspiration





for photographer Hugh Turvey to create high-speed images set in a modern context – a feat that would take him seven years to fully realise.

Turvey first began to experiment with stroboscopic images in 1999. He wanted to evolve Edgerton's technique to a more modern setting. Whilst Edgerton was restricted to shooting his subjects in a studio against a very dark background, Turvey wanted his images to be outdoors in daylight.

But the technology of 1999 simply did not allow him to produce images in the manner he had imagined. In addition, Turvey did not have the full financial backing of a university, unlike Edgerton who was given the full support of MIT to develop his ideas. Turvey

also found that much of the equipment that Edgerton used was no longer being manufactured. So another solution had to be found if he was to realise his ideas.

Recent advances in digital camera technology suddenly brought the project back to life - and these images are the result. To create them, Turvey used four high-resolution digital SLR cameras mounted close together on a purpose built rig. An electronic time controller was able to trigger the cameras at varying speeds in linear sequence. Each camera was also equipped with its own high speed strobe unit. Camera shutter speeds in excess of 1/1000th of a second were needed to freeze the action.

"We chose sport as a good subject to demonstrate the high speed sequence technique as each discipline involve some sort of transition of position that lends itself to this technique," says Turvey.

The shoots were difficult to set up. The camera rig was heavy and involved three people to move and angle. Each camera had to be adjusted and focused manually. Any small deviation from the precise set-up and the images would suffer from unacceptable perspective shift and lens distortion. Every action sequence had to be repeated

over a dozen times or more. With each camera capturing 4-8 frames of action, Turvey was left with over 400 frames of stills for every action sequence. To complete the image sequences, countless hours were spent editing and composing the images by a digital post-production team.

"I wanted my images to be an obvious progression from Edgerton and

not just a pastiche," says Turvey. "Only recent developments in digital cameras and post-production software allowed me the results that I imagined all those years previously."

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# FULL PICTURE SET

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