







IN THE SPIRIT  
OF THE WRIGHT  
BROTHERS  
1903-2003

# THE FLIGHT OF THE BIRD MEN

FOR JARI KUOSMA  
AND ROBERT  
PECNIK, SKYDIVING  
WASN'T ENOUGH—THEY  
WANTED TO STRAP  
ON WINGS AND FLY.  
SO WHAT  
IF 96 PERCENT  
OF THEIR  
PREDECESSORS  
HAD DIED IN THE  
ATTEMPT?

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IT'S A BIRD, IT'S A . . .  
Jari Kuosma (center)  
and two of his BirdMan con-  
verts, Kevin Schafer and  
Kimberly Griffin,  
leap from the back of a  
SkyVan 8,000 feet  
over DeLand, Florida.



**W**aiting on the ground for the Twin Otter that'll take them up, Blossom DeRego and Jari Kuosma look like a pair of avant-garde performance artists posing as flamingos, with bizarre flaps of scarlet flowing from their

armpits and between their legs. The other skydivers, milling about in skintight ninja suits, look like superheroes. Once aloft at 13,500 feet, though, they all pour from the plane's side door, and suddenly there's no doubt who the superheroes are. DeRego and Kuosma's scarlet flaps transform into wings, and the dynamic duo swerve and swoop through the sky like they're heading for the Hall of Justice.

Poor ninjas. They just drop like cannonballs.

DeRego, a personal trainer from Hawaii, recently moved to DeLand, Florida, to live in the skydiving capital of the world. With 593 jumps, she's a veteran cannonballer. But this, her first flight in a BirdMan suit, is something entirely new. The moment she's out the door, she feels as if she's flying two miles above Earth. *She* is flying—her body alone, unaided by plane or glider. She zings from cloud top to cloud top, screaming with glee. The suit's three wings (the flaps under each arm and between the legs) increase her body's surface area by 100 percent, cut her fall's terminal velocity by two-thirds, and propel her forward to whoosh about the sky. Kuosma, for his part, holds down the other end of the experience spectrum. He and his Croatian partner, Robert Pecnik, invented these wing suits. Kuosma's terminal velocity in the suit is a mere 35 mph—as opposed to 120 mph for a ninja-suit jumper—and with his 80 mph horizontal top speed, he can almost outpace the Twin Otter.

Kuosma and DeRego cannot gain or maintain altitude, so, technically, they aren't flying. But because even beginners can swoop two miles horizontally for every mile they drop, it sure feels like flight. After the jump, DeRego's eyes look as if they're on fire. "Wow!" she says, and then, clearly at a loss, she just repeats herself—"Wow...Wow!"—over and over. Finally, she breaks into a huge smile and speaks words that humans have dreamed of speaking at least since Daedalus built wings of feather and wax: "I was flying!" she says.

**IN AUGUST 1998**, just days after meeting for the first time, Jari Kuosma and Robert Pecnik drove from Slovenia to Arco, Italy, to leap off a 3,000-foot cliff. For Kuosma, this was not an entirely novel activity. He'd begun throwing himself from tall earthbound structures—BASE jumping (the acronym stands for Building, Antenna, Span, Earth)—the previous year, and had maybe a dozen jumps to his credit. In Pecnik, he had instantly sensed a kindred spirit. As a boy Pecnik had strapped homemade parachutes to hamsters and tossed them (without harm) from his sixth-story bedroom window; by the time he joined the Croatian national team he was making his own jumpsuits. Somehow, though, he had yet to do any BASE jumping, a deficiency Kuosma decided to address immediately.

Normal jumpers can free-fall for 11 seconds off the Arco cliff before they need to pull their chutes. But as they stood looking out over the Dolomites, Kuosma and Pecnik had a more ambitious model in mind. They were thinking of Patrick de Gayardon, who, wearing a winged jumpsuit of his own design, had in 1997 flown for a record 27 seconds off Arco. "A BASE

jump is an incredible thing," Kuosma says. "But to fly off a cliff like this, now that's something!"

This dream—to fly, utterly on one's own power—is of course an ancient one, a human urge that was barely scratched by the advent of the parachute in the 1780s, the hang glider in the 1880s, the airplane in 1903. These are all still mediated experiences: It's the parachute or plane that's flying; the human's just along for the ride. Then, in 1914, Georgia "Tiny" Broadwick, who a year earlier became the first woman to parachute from an airplane, made the first-ever free-fall jump, plummeting for several seconds before pulling her chute. At last the human body was tumbling free high above Earth.

Still, you could hardly call it flying. Next step: wings. The first wings to arrive on the skydiving scene were actually designed not so much to fly as to make it safer to fall. Before Broadwick's jump, people assumed free-fall would kill you—how could one breathe while moving at 120 miles per hour? The idea that you could control your body under such extraordinary conditions seemed so absurd that no one even tried. People just tumbled out of planes, spinning chaotically and counting seconds until they opened their parachutes. If they pulled while in a warped, upside-down position that snagged the chute, they would "Roman candle" into the earth. The main goal of early birdman wings was to flatten out the tumble.

In the 1940s, Frenchman Leo Valentin solved the free-fall problem without wings. In a few short years, he invented the techniques of advanced free-fall that skydivers still use today: the stable belly-down frog position, the shooting forward arrow position, turns, barrel rolls, and, most important, the life-saving moves used to recover from spins.

Valentin's discoveries, though, did nothing to squelch the urge to fly. In fact, Valentin himself was a master birdman, who worked on dozens of wings throughout his adult life. He even wrote a book (called, naturally enough, *Bird Man*) about his efforts. Kuosma and Pecnik later took the "BirdMan" name for their suits and company to honor him. Valentin's greatest design was a pair of rigid wings so large that he needed a cargo plane to carry him to altitude. In 1956, the huge wings pulled him back into the plane's ramp as he exited during a jump over England. He knocked his head and fell into a tight spin, the massive wings overpowering his well-practiced attempts to recover stability. When he pulled, the wings' rigid structure entangled both his main and reserve parachutes. He tumbled to his death in a snarl of wings and cords and parachutes.

Valentin's fate was hardly an anomaly. From 1930 to the early 1960s, out of 75 actively experimenting birdmen, 72 were killed in the pursuit. The problem was, the technology of the time wasn't a whole lot better than Daedalus's wax and feathers. Before the invention of strong synthetic materials, fabric wings had to be reinforced by wood or metal stays, which tended to cause one of two exigencies: Either the wings would fly too well, overpowering the birdman and dumping him into a terminal spin, or his parachute cords would get tangled in the stays and not deploy properly.

It wasn't until the mid-1990s that a truly modern wing suit emerged, and it was Patrick de Gayardon who wore it. De Gayardon's wings, made of a double layer of parachute material, required no wood or metal stays. Instead, air inflated the wings and held them rigid as he flew. For years, skydivers stood in awe. "He was a daredevil," says Norman Kent, a professional skydiving photographer and an old friend of de Gayardon. Kent



recalls the gasps of onlookers when de Gayardon flew into the Grand Canyon or past the glaciers in Chamonix, France. "It was just like watching this wacko do something no one else could do," Kent recalls. To the skydiving world, de Gayardon became *the birdman*, the only mortal the gods permitted to fly.

Then, in April 1998, while testing an upgraded suit on a jump over Hawaii, de Gayardon's parachute cords got snarled, sending him plummeting at 120 mph to his death.

Standing atop the Arco cliff just four months later, Kuosma and Pecnik knew about all this—de Gayardon's recent death, the sport's 96 percent fatality rate. Nevertheless, they resolved in that moment not only to design their own wing

suits but to do something even crazier: to build a business around selling them to other skydivers.

Then they leapt off the cliff.

**AS DEREGO RUSHES OFF** to tell her friends about her flight, Kuosma strips off his flamingo suit, repacks his parachute for another day, and heads to the drop zone bar for a pint of Australian lager. He's wearing neon orange pants and a blue T-shirt

## BUILDING A NONLETHAL WINGSUIT

Early-generation wingsuits were death machines, killing 72 out of 75 pioneers. But the BirdMan is safe enough to be sanctioned for sale by the United States Parachute Association—largely thanks to these innovative bail-out and control features.

### Arm Release

Once he's opened his main parachute, a birdman must raise his arms above his head to control it. He pulls on these zippers first, detaching the wings and giving him range of motion.

### Halfway Harness

The parachute harness is integrated into the suit. Shoulder straps are outside, while the leg straps wrap around the upper thighs under the suit, where they won't interfere with the wings.

### Emergency Cutaway

These handles attach to a cable that runs up the side of the diver's body. The cable comes free with a yank, quickly releasing the wings in case of emergency.

### Wing Support

Mesh-covered air inlets below the armpits and crotch inflate the three wings. The inflated wings create a three-dimensional shape much like an airplane's, increasing lift.

### Leg Release

Zippers also run from the foot to the thigh. A diver opens these once he has opened the parachute so he can run during landing.

