IS THIS A GOOD IDEA?

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Is This A Good Idea? Having your head transplanted onto another body?

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For a moment, pause in your admiration of those recently released photos of Vladimir Putin, shirtless and engaged in various manly outdoor pursuits, and ponder this: How is it that at age 56, the Russian prime minister has the rippling deltoids, biceps and latissimus dorsi muscles of a much younger man? As busy as Putin is pulling strings above Russian President Dmitry Medvedev, suppressing political dissent and consolidating power, it's hard to imagine that he has much time for exercising with Russian kettlebells or practicing throws while studying his own popular Let's Learn Judo With Vladimir Putin instructional DVD. All the same, the sight of the ex-KGB man's eerily preternatural musculature from the neck down—juxtaposed incongruously with that early Rudy Giuliani-style comb-over and increasingly wrinkly jowls—makes me wonder if the real explanation may lie in the grisly annals of old-school Soviet medical experimentation. What if Putin has had his head transplanted onto a younger body?

Having such a head transplant—or actually, from your point of view, a rest-of-the-body transplant—would have fairly obvious benefits. Why go to the trouble of Photoshopping the wrinkles from your Facebook portrait, traveling to an offshore rejuvenation clinic for human growth hormone therapy, or having yourself frozen at a cryonics lab, when you can just discard your worn cartilage, shrinking musculature and increasingly gunk-lined arteries and upgrade to a newer, better-equipped, higher-powered replacement? It's not just an alternative to succession planning for aging authoritarian leaders, either. Aging action movie stars wouldn't have to be demoted to straight-to-DVD status, just because they were getting a little too paunchy to be plausible heroes on the big screen. No longer would professional athletes find themselves reduced to doing weight-loss cuisine commercials or auctioning off their memorabilia, just because their knees were too creaky for the football field. Recently divorced dentists wouldn't have to dig into their retirement accounts to buy flashy sports cars and Viagra prescriptions.

There's one inconvenient ethical catch to getting a rest-of-body transplant: You need a set of healthy young muscles, bones and organs to have your head implanted upon. Until scientists develop the ability to clone a replacement body from your own cells, you'll have to find a body donor who either has had a catastrophic brain injury from which he won't recover or is, well, astonishingly generous. If you already find the global black market in transplantable kidneys distasteful, imagine how you'll feel when gangsters in the developing world start offering complete, still-fresh physiques for sale (though

thankfully, at least, eBay's policy against selling human remains prevent them from doing it on that Web site).

Pop culture has its share of head-transplanting references, especially if you infer a slightly different meaning to the lyrics of the 1958 Paul Anka hit "Put Your Head on My Shoulder". One of the creepiest is the life-is-cheap dystopia of Ira *Rosemary's Baby* Levin's 1970 science-fiction thriller, This Perfect Day, in which a fictional despot strives for immortality by having his noggin sewn onto a succession of younger bodies. There's also the classic 1972 horror-exploitation flick *The Thing With Two Heads*, in which Ray Milland portrays a white bigot who has his head grafted onto the body of an African-American biker (played by ex-NFL player and Bobby Kennedy pal Rosey Grier). More recently, in 2008's *The X-Files: I Want to Believe*, ex-FBI Agent Fox Mulder (David Duchovny) stumbles upon a malevolent Eastern European surgical team holed up in a West Virginia compound, just as it is about to engage in an illicit head-replacement.

But in this case, actual science preceded the fiction. The first researcher to attempt a head swap was American physiologist Charles Claude Guthrie, who put a dog's head on a new body back in 1908, though the unfortunate subject only lived for a day. (Some suggest that his head transplantation stunt turned off the Nobel Prize committee, which snubbed Guthrie in favor of his colleague and collaborator Alexis Carrel when it recognized contributions to vascular surgery in 1912.) Half a century later, Soviet researcher Vladimir Demikhov proudly displayed a German shepherd dog named Pirat who had a second, smaller but apparently fully functioning puppy head, shoulders and paws affixed to his shoulder. When a United Press International reporter visited the researcher and his "Surgical Sputnik" in 1959, she observed:

Sometimes the puppy will playfully bite the ear of the big dog and Pirat will shake his head, but he never has tried to scratch or kick off the extra head. The puppy licked its paws and washed its face like a cat. When I patted big Pirat, the puppy head became drowsy in the sunshine and dozed off; the two heads sleep and wake independently.

American brain surgeon and researcher Robert J. White—a scientist so esteemed that when he toured Soviet medical facilities in the 1960s, he was afforded the privilege of handling Lenin's preserved brain — one-upped Demikhov in the early 1970s by decapitating two rhesus monkeys and then surgically implanting the head of monkey A onto the body of monkey B. As White noted in a 2007 interview with the Cleveland weekly *Free Times*, the monkey mashup not only regained consciousness but tried to bite members of the medical team. It went on to live for several hours with the help of mechanical life support. The transplant wasn't truly functional; White's team didn't try to connect Monkey B's spinal cord to Monkey A's brain, since nerve endings can't just be sutured together like blood vessels. Ergo, the head was unable to control the body. "We only wanted to show that it could be done," White explained to *Free Times*.

That inability to rewire a transplanted head to the nervous system has put the kibosh on human head transplants. But *Science Daily* reported last week that scientists at the University of California-San Diego School of Medicine have been able to regenerate axons—the portion of nerve cells that transmits

signals to other cells—and guide them to re-form connections disrupted by a spinal cord injury, by using a hormone called neurotrophin-3. That breakthrough may someday help enable paralyzed people to regain the use of their bodies, but I'm wondering if it might also open the door to eventually forging new connections between a spinal cord and a transplanted head. Another solution might be to wire the donor body with some sort of prosthetic transmitting system, which would pick up signals in the brain and route them around the cut in the spinal cord. As I noted in aprevious blog, University of Pittsburgh researchers already have devised a system that enables a monkey to manipulate a robotic arm with its thoughts.

So what do you think? Should researchers strive to develop a method for transplanting heads onto other bodies? Or, to rephrase legendary University of Texas football coach Darrell Royal, should we only dance with the carcasses that brung us? Express your opinion below.

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