

What a piece of work is man: The Body Worlds exhibit at the Milwaukee Public Museum

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Already viewed by more than 20 million people worldwide, the Body Worlds exhibit is currently on display at the Milwaukee Public Museum until June 1, 2008.

The creator of the exhibit, Gunther von Hagens, MD, has patented a technique, which he calls “plastination,” for impregnating cadavers and anatomical specimens with plastic or silicone rubber. Plastination not only preserves the prosected bodies, but enables the posing of the bodies in unusual ways.

The Body Worlds exhibit is beautiful and fascinating. In the first room, most of the exhibits are fairly conventional: human bodies displayed standing, dissected to display muscles, ligaments, and the nervous system. The nervous system dissections are beautifully detailed, evoking envy in those of us who remember struggling to delineate the brachial plexus

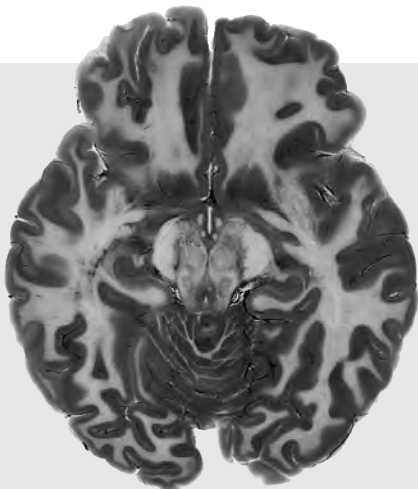
as first-year medical students. In the main hall of the exhibit, the bodies are displayed in poses that are both spectacular and, to some, disturbing.

The exhibit claims an educational mission, and some of the posed bodies clearly demonstrate that goal. For example, a body posed as a leaping martial artist also displays a dozen kinds of orthopedic hardware and prosthetic joints. The hand of “The Smoker” retains the familiar nicotine-stained finger while casually holding a cigarette, humanizing the black-stained lungs that otherwise might be less meaningful emotionally. Accompanying cross-sections that contrast emphysematous lungs with normal lungs are dramatic, though not well explained to a lay audience. “Obesity Revealed” is a cross-section of a body with a 5-inch layer of subcutaneous fat. Whether its ugliness will motivate anyone to control their weight is an open question.

The dissection and mounting of “The Longitudinally-Expanded Body” emphasize the concentric circles of corporeal organization from muscle to bone to internal organs, providing some insight into the functionality of this design. In “The Runner,” centrifugal force is emphasized by the arrangement

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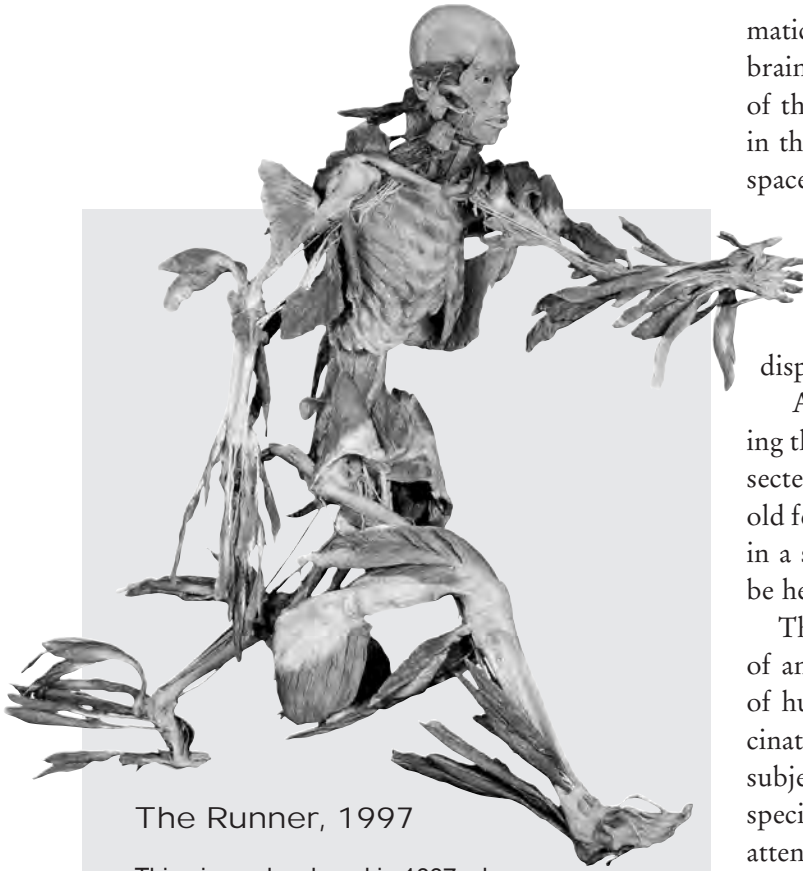
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Horizontal slice of the brain

A horizontal slice through the cerebrum provides a clear image of the darker and lighter portions of the brain. The darker portion in the image is the gray matter and basal ganglia while the lighter portion is the white matter of the brain. This image also demonstrates the furrowed surface of the brain, with numerous convolutions and recessions. Only one-third of the surface of the brain is visible, while the other two-thirds is hidden in the grooves.

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The Runner, 1997

This piece, developed in 1997, shows the skeletal and muscular systems in use while running. In order to show both systems, the muscles are detached from the bones and folded back or drawn out, demonstrating how intricately the muscles are attached to the bones to provide such mobility. As a whole-body plastinate, "The Runner" can be seen from any angle at the exhibit, allowing viewers the opportunity to see these muscles in action from a variety of perspectives.

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of muscles flying off from each hand, arm and leg, revealing more muscle anatomy than a conventional dissection could. But while it emphasizes the dynamic forces of movement, it does not aid in understanding the leverage and balance of opposing forces that control locomotion.

By sheer size, "The Rearing Horse with Rider" dominates the room. The horse's muscles and tendons are displayed; the rider's skeleton is separated from his muscles so that it looks like 2 riders. The rider holds the horse's brain in one hand and his own brain in the other. Several other bodies are gracefully posed as athletes. "The Basketball Player" is particularly dra-

matic. It is mounted as though lurching forward. The brain, which is barely contained in the halved bowl of the skull, mimics the barely controlled basketball in the hand. Both appear on the verge of flying into space. The display emphasizes the dynamic forces on both external and internal organs (brain, hand).

Even if these cadavers were not dissected, the audacity of the mounting would be evident.

At this point the spectacle and challenge of the display overshadow their educational purpose.

A display that includes a series of fetuses showing the sequence of prenatal development and the dissected body of a pregnant woman with her 8-month-old fetus in utero is set off from the rest of the exhibit, in a special curtained area where soft, sad music can be heard.

The exhibit also includes material on the history of anatomic dissection. It reveals that the dissection of human cadavers has been a subject of public fascination and controversy for as long as it has been a subject of scientific inquiry. During the Renaissance, special theaters were built in which dissections were attended by hundreds of curious paying customers. The Body Worlds display includes an 18th century illustration that shows a beautiful young woman looking back over her shoulder, with a sensuously curved back. What appears at first glance to be an elaborately pleated scarlet gown are the muscles of her back, dissected and splayed, with her dorsal root ganglia running next to her spine like a string of pearls. Thus, Body Worlds is continuing an artistic tradition of beautiful, and sometimes disturbing, anatomical art.

The Controversies

The Body Worlds exhibits (there are now 4 touring collections) and their creator, Gunther von Hagens, MD, have generated a great deal of controversy as well as interest. Doctor von Hagens has patented the plastination process and currently operates a multi-million dollar business in Dalian, China, in which several hundred human cadavers are dissected and preserved each year, for exhibitions as well as for use in health profession training. The procurement of bodies is one source of controversy, with periodic accusations that the bodies of mental patients and executed prisoners have been acquired without appropriate consent. Dr von Hagens denies these accusations, and to date they have not been legally proven. In 2004, the California Science Center set up a commission that confirmed

Thoracic and Abdominal Organs in their Usual Configuration

The lungs display massive deposits of tar (smoker's lungs).

Plastination of the internal organs allows viewers a glimpse behind the ribs, to see the detailed and complex inner workings of the body. This piece shows the lungs, heart, diaphragm, liver, stomach, spleen, greater omentum, small intestines, bladder, and prostate gland. Perhaps the most eye-catching part of this plastinate is the black color of the lungs, which give an undeniable image of the mass deposits of tar on the lungs from smoking.

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Doctor von Hagens's claim that all bodies exhibited in Body Worlds were those of donors who gave informed consent.

The aesthetic excitement and daring that make the exhibit so attractive are also the source of another controversy: Is the display of human remains a violation of human dignity? Such displays are usually deemed acceptable for educational purposes, but when the educational aspects are overshadowed by entertainment value, they transgress social norms.

Some of these controversies were the subject of discussion by members of the Milwaukee Academy of Medicine, who were able to tour the exhibit without other museum patrons present February 18. The Academy's evening at the exhibit included a select group of docents uniquely qualified to comment on these issues as well as the content of the exhibit. They included medical ethicist Arthur Derse, MD, JD; medical anthropologists Paul Brodwin, PhD, and Michael Oldani, PhD; forensic anthropologist Peter Killoran, PhD; orthopedic surgeon Jim Steele, MD; psychiatrist Carl Chan, MD; and forensic pathologist Russell Alexander, MD.

In his introductory remarks, Dr Brodwin recommended that observers evaluate von Hagens's own statements about his purposes: "To break down

the Western taboo about the encounter with death ... [by providing] an opportunity to contemplate death without grieving and physical revulsion ... with no odor of decay or formaldehyde ... freed from the taint of disgust." However, the exhibit, by posing the bodies in action (with glass eyes open) seems to avoid perceiving these individuals as dead.

Based on his own observations of attendees at the exhibit, Dr Brodwin suggested another reason for the exhibit's drawing power: "People come to participate in the democratization of medicine... democratic processes promise transparency... [Body Worlds is] redrawing the boundary between the specialized knowledge of medicine and general knowledge."

He observed spectators relating the contents of the exhibit to their own experiences: "That's what my artificial knee looks like," or "Those are the muscles I use when I'm working out."

"Transparency" seems an especially appropriate term for this exhibit. Its immense popularity demonstrates that people today, just like those who crowded the dissecting theatres of the Renaissance, still have a strong human desire to transgress the boundary of the skin and to see what's inside the body, with all its weirdness and beauty.

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