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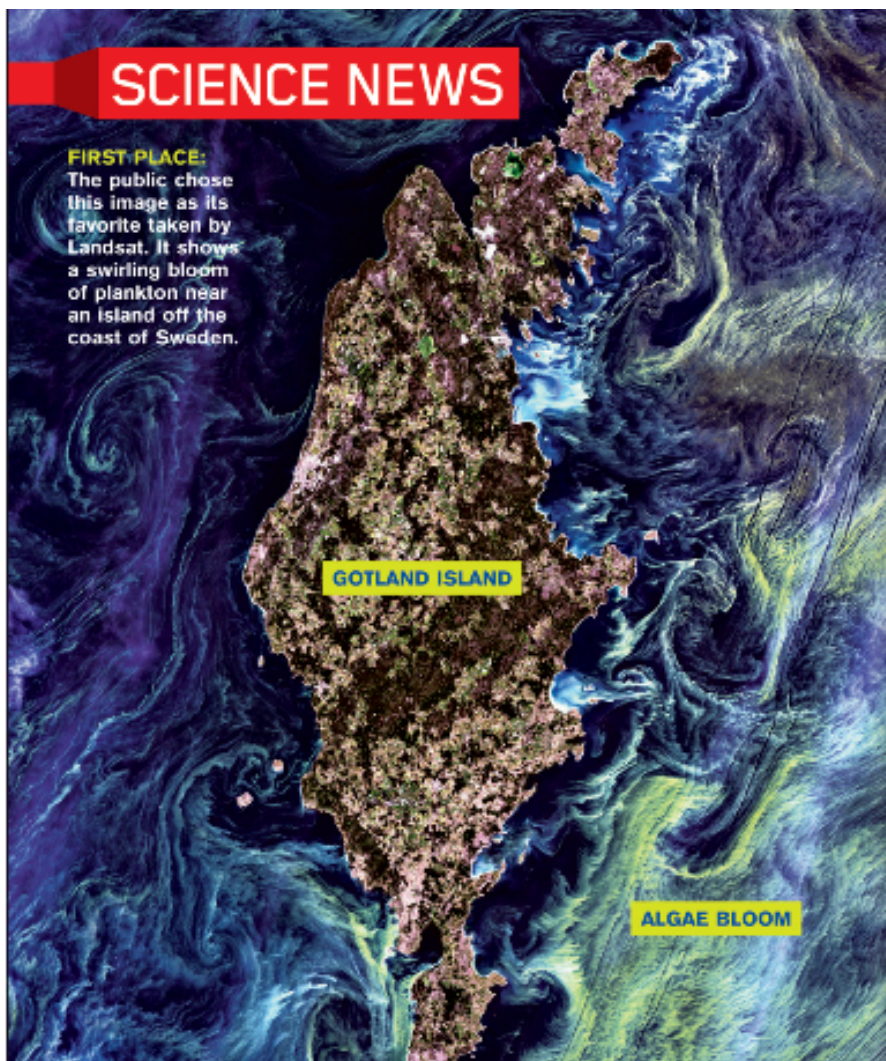
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SCIENCE NEWS

FIRST PLACE: The public chose this image as its favorite taken by Landsat. It shows a swirling bloom of plankton near an island off the coast of Sweden.



PHYSICS: TECHNOLOGY

EARTH'S CHANGING LANDSCAPE

The public recently picked its favorite image from more than 120 spectacular photos taken by the Landsat program over the past 40 years. Using satellites orbiting high above the planet, Landsat monitors and analyzes changes in Earth's landscape.

Run by NASA and the U.S. Geological Survey (USGS), Landsat uses a technique called *remote sensing* to gather images and data on everything from the growth of urban areas to droughts. From this information, scientists can better understand how nature and people alter our planet. The most breathtaking Landsat photos can now be viewed online in a collection called "Earth as Art." See the public's top-five picks from the collection on *Science World's* website.

—Rachelle Burk

TOP: EARTHSCOPE; PHOTOS: NASA/USGS; BOTTOM: SPACE FLIGHT/ISTOCKPHOTO.COM



NICE MOVES:
Eliana Girard,
female winner of
last season's *So
You Think You Can
Dance*, performs
with Alex Wong.

DANCE DOCTOR

David Weiss helps keep dancers in top physical form

Whether it's on the TV show *So You Think You Can Dance* or the lead role in *The Nutcracker*, dancing can be as tough on the body as playing in the Super Bowl. And unlike football players, professional dancers don't have an off-season that allows them to recover.

This non-stop exercise can result in injuries. In fact, more than

75 percent of dancers are injured during their careers.

Luckily for them, there are doctors like Dr. David Weiss, who specializes in dance medicine. Dr. Weiss provides medical care to dancers at a center for dance injuries at NYU Langone Medical Center in New York City. As an *orthopedic surgeon*, he treats injuries to dancers' muscular and skeletal systems.

CHECKUP:
Dr. David Weiss works with one of his dancer patients.



What types of dancers do you work with?

I treat all kinds of performers, including people who dance hip-hop, ballroom, jazz, tap, modern, and ballet. I'm currently the doctor for performers in the Broadway musicals *Wicked* and *Newsies*. I also work as a doctor for the Juilliard School, a performing-arts college in New York City, where I treat student musicians, dancers, actors, and singers.

How do you help dancers stay healthy?

I teach them how to warm up their bodies before a performance, and how to cool down afterward.

I also give dancers a nutrition plan for eating healthy. An unhealthy diet raises a person's risk of broken bones and slows their ability to heal after injuries.

What are the most common injuries for dancers?

It takes a lot of effort for a ballet dancer to lift their leg above their head or to do other extreme movements. They can injure joints or strain the muscles in their neck, back, thighs, and calves.

Dancers may also *fracture*, or break, a bone in their feet and toes. But a sprained ankle is one of the most common dance injuries that I see in my office.

How do you examine a patient?

I listen to the dancer explain how they hurt themselves, and I look at their injured area. I might take an *X-ray* to make sure no bones are broken.

For severe injuries, I may use an MRI scan. *Magnetic resonance imaging* is an imaging technique that shows bones like an X-ray can, but it also shows *ligaments* (which connect one bone to another), muscles, and *tendons* (which connect muscles to bones).

How do you treat dance injuries?

I come up with a diagnosis and recommend exercises and stretching that will help. I can talk with the choreographer who directs the dancer so they can slightly change the dancer's performance while the injury heals.

Sometimes a dancer's body just needs to rest, and I may tell them to stop dancing for some time.

I turn to surgery as the last resort, because even the simplest operation keeps them off the stage

for months. But, for example, if a dancer ruptures an *Achilles tendon*—the biggest tendon in the body, located in each heel—it should be repaired surgically.

What do you love most about your job?

Dancers are always so grateful to be performing again. There's nothing better than a patient who works hard to strengthen their body. It's rewarding to go see a performance and watch people I've helped. ✨

—Corey Binns

COMMON DANCE INJURIES

HAND: Repetitive hand motions can lead to sprains or inflammation.



NECK AND BACK: Lifting other dancers and going through a wide range of body motions can strain muscles.



SHOULDER: Overuse from repeated spins and lifting can injure the body's most mobile joint.



FOOT AND ANKLE: As dancers land a jump, they can break one of the foot's 26 bones or sprain an ankle. Repetitive strain on a foot's bones can also cause stress fractures.



KNEE: The knee sometimes bears four times a dancer's weight when he or she lands a jump, leading to injuries.



HIP: The rounded top of the thighbone fits into the cuplike socket of the hipbone, allowing this ball-and-socket joint to rotate in nearly every direction. But overuse or high impact can cause injuries or inflammation.

