

RSNA 2004 B-roll script

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RSNA 2004 logo

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Advances in radiology B-roll provided by the Radiological Society of North America (RSNA) to illustrate press conferences presented Nov. 29 – Dec. 1 at the 2004 RSNA Scientific Assembly and Annual Meeting in Chicago.

(image of Program Book)

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Radiologists and allied professionals are gathering in Chicago this week for the 90th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA).

An education and scientific forum featuring more than 3,000 scientific presentations and education exhibits and more than 600 technical exhibits, RSNA is the world's largest medical meeting.

(Image of McCormick Place in Chicago)

(Image(s) of clusters of attendees)

(Image(s) of meeting sessions and exhibits)

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This B-roll contains six segments

Stations are free to use these visuals according to the embargo dates and times for each segment. All times are Eastern Time zone.

Preceding each segment is a written description of its content.

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To schedule interviews with study presenters or for additional information, call Maureen Morley or Doug Dusik in the RSNA Newsroom 312-949-3233 from Nov. 27 - Dec. 3.

After Dec. 5, Call: 630-590-RSNA (7762)

News releases and abstracts are posted at www.rsna.org/press04.

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Segment 1

“Imaging Technology Solves 400-Year-Old Mystery”

Embargoed for release until 11 a.m. EST, Monday, November 29

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Using multi-detector computed tomography (MDCT), scientists have confirmed that scurvy killed nearly half of America’s first colonists on Saint Croix Island 400 years ago, according to research presented today at the annual meeting of the Radiological Society of North America (RSNA).

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“MDCT images are extremely important to anthropologists because we can obtain bone measurements without destroying the artifact,” said the study’s lead author, John Benson, M.D., Mount Desert Island Hospital in Bar Harbor, Maine. “Using MDCT, we were able to visualize the entire skull from every angle, inside and out.”

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“Scans of the skull and leg bones revealed a thick hard palate in the mouth and an extra layer of bony tissue on the femur and tibia, which we believe resulted from the internal bleeding associated with scurvy,” Dr. Benson said.

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Saint Croix Island International Historic Site is administered by the National Park Service through Acadia National Park. The settlement was established in 1604 by French settlers looking to colonize the North Atlantic coast of North America. But the island, located in the river that today divides the United States and Canada, proved to be a poor choice.

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Isolation and harsh winter conditions claimed the lives of nearly half of the 79 colonists. Dr. Benson and colleagues analyzed remains from seven burial sites using MDCT, an advanced form of CT technology that supports faster, higher-quality image acquisition. Subsequently, the remains were re-interred on the island.

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“Because the remains are no longer available to researchers, our MDCT study has created a digital archive of the skulls and bones that can be continually viewed and studied,” Dr. Benson said.

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The following visuals show:

1. 3-D MDCT image of St. Croix settlers skulls
2. Aerial view of Saint Croix Island
3. Saint Croix excavation site
4. Preparation for multidetector CT scan of skeletal remains

5. Photos of skull (left) and MDCT view (right)
6. MDCT scans reveal biological profile: age dental
7. 3-D MDCT images of St. Croix settlers skulls

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Segment 2

“Brain Remapping May Be Key to Recovery from Stroke”

Embargoed for release until 12:00 p.m. EST, Monday, Nov. 29

Slate:

People suffering from paralysis due to stroke or traumatic brain injury may be able to reprogram their brains to improve motor skills and to control artificial limbs, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

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Using functional magnetic resonance imaging (fMRI) and a “cyberglove” to record brain changes during motor activities, researchers demonstrated that people can learn to remap, or redirect, motor commands. This is an important step in stroke recovery and in training strategies for brain-machine interfaces—conduits between the brain and artificial limbs.

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“For stroke patients and others who have a brain deficit, coordinating what they see with body movement is very difficult,” said the study’s lead author Kristine Mosier, D.M.D., Ph.D., Indiana University in Indianapolis. “The brain must remap or relearn the process of matching visual input with sensory input. Our study demonstrated that individuals can learn to remap motor commands.”

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When neurons—the primary cells of the nervous system that make all thought, feeling and movement possible—are damaged by a stroke or brain injury, other neurons take over for them. But until now, scientists weren’t sure which neurons compensated for damaged neurons, or how the brain cells learned their new jobs.

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Dr. Mosier’s study simulated a learning problem by having 17 healthy adults wear a synthetic glove with fiber-optic cables on their dominant hand. The glove translated hand movements into signals, which were sent to the computer and transformed into the two-dimensional position of a cursor on the computer screen.

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The subjects were then asked to align the cursor with 50 different targets while researchers used fMRI to observe which areas of the brain controlled the intricate

movements of the hand. fMRI uses radio waves and a strong magnetic field to image the body. It can identify signs that neurons in a specific area of the brain are “firing,” that is, processing information and giving commands to the body.

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The following images show:

1. Soundbites: Kristine Mosier, DMD, Ph.D.
2. Dr. Mosier demonstrating cyberglove
3. Study subject preparing for the exercise
4. Dr. Mosier observing a study subject’s fMRI during the exam

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Segment 3

“MRI Shows Liver Tumors Freezing in Real Time”

Embargoed for release until 10:00 a.m. EST, Tuesday, Nov. 30

Slate:

Cryotherapy combined with magnetic resonance imaging (MRI) is giving doctors unprecedented control during liver cancer treatment by allowing them to observe the tumors freezing in real time, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

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“We can actually watch the iceball grow,” said Kemal Tuncali, M.D., Brigham and Women’s Hospital in Boston. “We have better control over the means of killing the tumor with MR guidance and cryotherapy. We can also watch out for critical structures around the area that we don’t want to damage, like the bowel, stomach or gall bladder.”

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Liver cancer is notoriously difficult to treat with standard methods such as chemotherapy and open surgery. Physicians are turning to alternative ways of destroying tumors, including cryotherapy. Interventional radiologists perform cryotherapy by inserting a needle called a cryoprobe directly into the cancerous tissue and using argon gas to freeze the tumor.

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Using MRI, the radiologist can target the best site for placing the probe and monitor treatment as it happens to avoid damaging surrounding tissue.

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“We are improving imaging methods to monitor the ablation and closely observe the area that’s being treated,” Dr. Tuncali said. “That part – the monitoring – is critical here and is missing with other minimally invasive techniques where we can’t see the exact area being treated because there’s no direct visualization.”

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Dr. Tuncali and colleagues treated 31 patients (ages 29 to 87) for liver tumors using MR-guided cryotherapy. Nineteen of 39 tumors (49 percent) were successfully ablated, with 17 requiring only one treatment. The non-invasive nature of cryotherapy also resulted in less scarring, quicker recovery times and shorter hospital stays.

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The following visuals show:

1. Footage of cryotherapy procedure in interventional radiology suite
2. MR images monitoring the iceball as it ablates the tumor

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Segment 4

“International Trial Finds Benefits of Breast MRI in Women at High Risk”

Embargoed for release until 10:00 a.m. EST, Wednesday, Dec. 1

Slate:

Magnetic resonance imaging (MRI) enables radiologists to accurately identify tumors missed by mammography, according to the first international, multicenter trial comparing the two screening methods in women at high-risk for breast cancer.

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The findings of the International Breast Magnetic Resonance Consortium (IBMC) Trial were presented today at the annual meeting of the Radiological Society of North America (RSNA).

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“We want to find a screening modality that can improve detection in high-risk young women, including those with dense breast tissue,” said presenter Constance Dobbins Lehman, M.D., Ph.D., University of Washington Medical Center, Seattle Cancer Care Alliance.

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The medical community has been trying to determine the best screening method for women genetically at high risk for developing breast cancer. According to Dr. Lehman, as many as 50 percent of certain high-risk subgroups will develop breast cancer before the age of 50. Mammography performs very well for the general population but is not optimal for imaging dense breast tissue.

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Women at genetically high risk need to be screened at a younger age, when they are more likely to have dense breast tissue.

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Researchers at 13 sites studied 367 women over age 25 (mean age 45) with at least a 25 percent lifetime risk of breast cancer to compare screening performance of MRI and mammography in high-risk patients. Each of the women underwent MRI, mammography and a clinical breast exam.

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The researchers found that MRI had a 1.1 percent diagnostic yield, and mammography had a 0.3 percent diagnostic yield, meaning that MRI would detect 11 cancers in 1,000 high-risk women while mammography would detect three.

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“MR findings resulted in 6 percent of women with a negative mammogram and a negative clinical breast exam being recommended for biopsy,” she continued. “Three additional cancers were detected in those women.”

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Women who undergo screening mammography have a significantly lower risk of dying from breast cancer, according to Dr. Lehman. The American Cancer Society recommends that women at high risk talk to their doctors about the potential benefits and risks of screening with MRI or ultrasound as a supplement to mammography.

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The following visuals show:

1. Breast cancer screening patient receiving an MR exam
2. Review of clinical breast MR images to screen for cancer
3. Soundbites of R. Edward Hendrick, Ph.D., Northwestern University Medical School, describing breast MR technology

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Segment 5

“Outpatient Lung Cancer Procedure Promising for Inoperable Disease”

Embargoed for release until 11 a.m. EST, Wednesday, Dec. 1

Slate:

Lung cancer patients who are poor candidates for surgery have a new alternative with image-guided radiofrequency ablation (RFA), a safe and effective office-based procedure, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

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“Experience leads me to believe that as lung cancer detection improves, we eventually will be able to avoid surgery by eradicating early-stage lung cancer with minimally invasive means,” said Damian Dupuy, M.D., Brown Medical School and Rhode Island Hospital in Providence.

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Dr. Dupuy and colleagues studied 155 image-guided RFA lung procedures over six years on 126 medically inoperable patients, who had a total of 163 lesions. RFA uses a specially designed needle connected to a radiofrequency generator that delivers electrical current to ablate, or “cook,” tumors. Computed tomography (CT) or ultrasound is used to guide the needle to the tumor site for ablation.

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“Although the patients we treated were poor surgical candidates, the procedures went very well,” Dr. Dupuy said. “Our complication rate was low, and morbidity and mortality rates were lower than those of lung surgery. Plus, RFA is an outpatient procedure with a tremendously condensed recovery period.”

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Approximately 174,000 Americans are diagnosed with lung cancer each year, according to the American Cancer Society, but Dr. Dupuy said surgery is not an option for the majority of them.

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In many cases the disease is too extensive for surgical removal, or there is an underlying disease such as emphysema, heart disease or other medical problems. Traditionally, these patients are treated with chemotherapy or radiation.

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The following visuals show:

1. Footage of a radiofrequency ablation procedure
2. Soundbites from study author Damian Dupuy, M.D., about the procedure
3. Animation of radiofrequency ablation of a tumor

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Segment 6

“Radiologists Use MRI to Keep Basketball Players on Their Feet”

Embargoed for release until 12:00 p.m. EST, Wednesday, Dec. 1

Slate:

Early identification of potential stress fractures with magnetic resonance imaging (MRI) can reduce the threat of season-ending injuries for college basketball players, according to research presented today at the annual meeting of the Radiological Society of North America (RSNA).

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“Stress fractures of the foot are extremely common in college basketball,” said the study’s author, Nancy Major, M.D., Duke University Medical Center, Durham, N.C. “The combined repetitive jumping and landing required of players often results in these injuries, causing players to be benched during the long recovery period.”

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A stress fracture is a small crack in a bone brought on by overuse or repeated impact on a hard surface over a long period of time. The muscles that absorb the shock of the impact eventually become fatigued, diverting much of the stress to the underlying bone.

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If the injury goes undetected, more serious stress fractures can occur, resulting in chronic problems or the need for surgery. For top college athletes this could mean the end of a season or even a career.

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“When diagnostic work is conducted pre-season, at-risk players can be identified, receive treatment and ultimately play the entire year instead of losing 8 to 12 weeks on the bench,”
Dr. Major said.

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The following visuals show:

1. Footage from Duke University basketball games
2. MR images of basketball players’ injuries:
 - Nineteen year old player with bone marrow edema in the fifth metatarsal
 - Nineteen year old player has bone marrow edema in the base of the third metatarsal
 - An 18-year-old player has bone marrow edema in the base of the 2nd metatarsal
 - Same 18-year-old player experiences foot pain one week after MRI; follow up shows a fracture line

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