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**Hydrogen peroxide could cause absorbable sutures to come apart,
UT Southwestern researchers report**

DALLAS – July 31, 2007 – Cleaning absorbable sutures with hydrogen peroxide dramatically decreases their tensile strength, researchers from UT Southwestern Medical Center have found.

“Hydrogen peroxide has been used as an antiseptic and antibacterial agent for many years. I think people are enamored with it because it foams up when put it on a cut or scab” said Dr. Joseph Leach, associate professor of otolaryngology and senior author of the study. “While hydrogen peroxide is good for cleaning scabs, this study shows it’s not the best choice for sterilizing wounds closed with absorbable sutures.”

The study’s results, appearing in the July/August issue of the *Archives of Facial Plastic Surgery*, showed alternatively that cleaning absorbable, or gut, sutures with distilled water did not decrease their strength.

Sutures – whose use is described in Egyptian scrolls dating from 3500 B.C. – are surgical threads used to repair cuts and to close incisions after medical procedures. There are two variations in medical use today: those that are absorbable and break down harmlessly in the body and those that are nonabsorbable and are removed manually. Absorbable sutures provide a temporary scaffold until the wound itself can support the normal stresses and strains on tissues. Nonabsorbable sutures provide permanent support scaffolding and are removed once healing has occurred.

In the current study, 15 samples of absorbable sutures and nonabsorbable sutures were examined. The five-sample control groups were not manipulated in any way, while the other two groups underwent a twice-a-day regimen of either being dipped in hydrogen peroxide or distilled water for five minutes each. This was done for five days to simulate a wound-care regimen. The hydrogen peroxide solution was the same as that commonly bought in drugstores.

At the end of the five days, all samples were subjected to strength testing using a machine that would pull the sample apart until the suture broke.

Nonabsorbable sutures were unaffected by either the water or by hydrogen peroxide washes.

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Likewise, the absorbable sutures treated with water retained their strength when compared to the control group.

The absorbable sutures subjected to hydrogen peroxide, however, disintegrated on handling prior to testing. In one sample, the suture had completely degraded.

The researchers concluded that postoperative patients should be aware of the composition of their surface sutures, since one of the roles of sutures is to provide tensile strength to hold the wound closed until the natural tissue mechanisms can heal the underlying wound. For superficial incisions and wounds with absorbable sutures, they said, cleansing with hydrogen peroxide could quickly negate the sutures' closure value and might lead to widened, or hypertrophic, scars.

“Patients need to know that hydrogen peroxide should not be used on these types of sutures and that saline or soap and water should be the preferred cleaning solution,” said Dr. Leach.

The researchers plan next to analyze and compare scar results of similar procedures in patients who used hydrogen peroxide to cleanse the area and those who do not.

Dr. Raghu Athre, the study's lead author and a former resident at UT Southwestern now a fellow at Emory University, and Dr. Jesung Park from the Department of Biomedical Engineering at UT Austin, also contributed to the study. Ethicon Inc. provided suture samples.

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