

If you lived **a thousand years ago** in Muslim Spain, two types of surgery could have been performed on you: **GENERAL AND ORTHOPEDIC (BONES).**

Al-Zahrawi, a 10th-century **SPANISH MUSLIM SURGEON**, is considered the **"father of modern surgery."**

IF YOU EVER NEED SURGERY, YOU CAN THANK AL-ZAHRAWI FOR CREATING MANY OF THE **medical instruments** used, including a **scalpel for cutting.**

DOCTORS IN MUSLIM CIVILIZATION TACKLED SERIOUS EYE DISEASES AND EVEN PERFORMED **eye surgery.**

Al-Mawsili, a 10th-century Iraqi, **INVENTED A HOLLOW NEEDLE** for sucking cataracts out of patients' eyes so they could see again.

Muslim scholars produced some of the **first accurate diagrams** of the structure of the **HUMAN EYE.**

**DON'T GET SCARED!** Al-Zahrawi was so concerned about his patients that he invented **A KNIFE with a HIDDEN BLADE.**

**5** ALTHOUGH SURGERY WAS STILL DANGEROUS AND PAINFUL, AL-ZAHRAWI'S TOOLS WOULD HAVE HELPED TREAT PATIENTS SUFFERING FROM BONE DISEASES, TUMORS, AND WOUNDS AS WELL AS ASSISTING IN CHILDBIRTH.



**17** PIONEERING OPHTHALMOLOGISTS OF MUSLIM CIVILIZATION USED MODERN TERMS TO DESCRIBE THE ANATOMY OF THE EYE IN ARABIC, SUCH AS **retina, uvea, and cornea.**

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## FACTS ABOUT SURGERY YOU

## CAN OPERATE ON

Another tool Al-Zahrawi invented was the **LITHOTRIPTER**, an instrument for **crushing hard deposits in the body**, like bladder stones.

**7** A **30-chapter book** written by Al-Zahrawi included illustrations of his **surgical instruments** and explained **HOW AND WHAT TO USE THEM FOR**, making it an **IMPORTANT SURGICAL HANDBOOK** for centuries to come.

**8** There were sketches of more than **200 DIFFERENT MEDICAL TOOLS** in Al-Zahrawi's book!

**18** A **15TH-CENTURY ILLUSTRATED MANUSCRIPT** by Turkish physician Serefeddin Sabuncuoglu showed very advanced surgery techniques.

**19** **SABUNCUOGLU'S BOOK WAS ALSO THE FIRST TO SHOW FEMALE SURGEONS at work.**

**20** **THREE ORIGINAL, HANDWRITTEN COPIES OF SABUNCUOGLU'S NEARLY 600-YEAR-OLD BOOK STILL EXIST!**

AL-ZAHRAWI'S MEDICAL BOOK WAS **translated INTO Latin** SO THAT EUROPEAN DOCTORS COULD LEARN FROM IT.

**10** IN THE 12TH CENTURY, A MUSLIM DOCTOR NAMED IBN ZUHR IMPROVED UPON ONE OF AL-ZAHRAWI'S **surgical drills** by adding a **diamond on the tip.**

**11** AL-ZAHRAWI PIONEERED THE USE OF **catgut** for **MAKING INTERNAL STITCHES IN A PATIENT.** SURGEONS STILL USE A SIMILAR MATERIAL.

**21** Followers of Islam are **FORBIDDEN TO DRINK ALCOHOL**, SO PHYSICIANS IN THE EARLY MUSLIM WORLD HAD TO FIND HERBAL MEDICINES TO **calm their patients.**

**22** Surgeons in the early Muslim world described a method for **inhaling drugs** THAT **PUT A PATIENT TO SLEEP.**

**CATGUT** is a **THIN, NATURAL FIBER MADE FROM THE INTESTINES OF ANIMALS** that can be absorbed by the body.

**13** CATGUT HAS BEEN USED THROUGHOUT HISTORY TO MAKE STRINGED MUSICAL INSTRUMENTS AND SNARE DRUMS.

**23** **SOPORIFIC, OR SLEEP, sponges** WERE USED IN EUROPE UNTIL THE 1840S.

**24** ABU MARWAN ABD AL-MALIK IBN ZUHR, A 12TH-CENTURY MUSLIM DOCTOR, WAS THE FIRST SURGEON TO PROVE A **TRACHEOTOMY—A SURGERY IN WHICH A HOLE IS MADE IN THE WINDPIPE TO AID BREATHING**—COULD BE DONE SAFELY.



IBN ZUHR AND AL-RAZI WERE AMONG THE FIRST DOCTORS TO TEST TREATMENTS ON ANIMALS BEFORE USING THEM ON HUMANS.