



out is a metabolic disorder in which lack of an enzyme blocks recycling of two of the four DNA nucleotides, called purines. As a result, uric acid crystals accumulate in joints, causing great pain.

In humans, gout mostly affects the small joints in the foot, usually those of the great toes. For many years, gout was attributed solely to eating a great deal of red meat, which is rich in purines. Today, we know that while such a diet may exacerbate gout, a genetic abnormality causes the illness. Yet researchers recently discovered evidence that is usually consistent with the association of gout and eating red meat—signs of the condition in *Tyrannosaurus rex*!

An arthritis specialist and two paleontologists examined a cast of the right forearm of a dinosaur named Sue, a long-ago resident of the Hell Creek Formation in South Dakota, whose fossilized remains were

found in 1990 jutting from the ground. Although telltale uric acid crystals had long since decomposed, X rays revealed patterns of bone erosion that could have resulted only from gout. The researchers examined only Sue's forearm, however, because she had been discovered on Native American land and had been illegally traded by a fossil dealer. As a result of this dubious background, the Federal Bureau of Investigation had confiscated Sue. So the researchers examined bones from 83 other dinosaurs but found evidence of gout in only one other individual.

Sue had a hard life. Her facial bones and a lower limb bone were broken, and a tooth was found embedded in a rib, a legacy of an ancient battle. Whatever the reason for her injuries, Sue may have experienced the same kind of persistent pain that humans do. She is now on display at the Field Museum in Chicago. ■

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