

Health and History: Skeletons as Sources

3. What information can be retrieved from skeletons?

A lot of information about a person's life can be obtained through skeletal analysis.

Take 5 minutes to read through the questions below which relate to skeletal analysis. Before revealing the answers, make a note of your own ideas.

How can you estimate the person's sex?

Archaeologists usually estimate sex rather than gender as they can only look at the biology of the individual. For most of the medieval period, people were probably gendered the same as their biological sex.

Osteologists (people who study bones) can help to identify whether a skeleton is male, female, or ambiguous. They focus on the pelvis and skull. This method is not completely reliable as there is lots of variation between men and women, and it is almost impossible to identify the sex of children from the skeleton alone. Sex can also be determined from ancient DNA, which can sometimes be extracted from skeletons.

How can you estimate the person's age?

This is easier to estimate if the skeleton belonged to someone who was a child or teenager. As you get older, your bones grow and develop significantly. There are also major changes to teeth. Your baby teeth develop and erupt throughout childhood, making way for permanent adult teeth. This process takes place within reasonably set timescales, although some people are late or early developers.

You can also estimate age from bones. As people get older, the growing ends of some bones fuse to short pieces called epiphyses. Although this happens at different ages, most are complete by the age of 30.

As people get older, their skeleton starts to show signs of wear and tear. Teeth wear down and the front of the pelvis or the ends of the ribs can change and be used to give a rough estimate of someone's age at death.

How do we know if they suffered any illness or trauma?

Some diseases leave evidence on the skeleton. As people get older their skeleton can change, showing signs of age. For example, osteoarthritis occurs when cartilage wears away, polishing the bone and sometimes generating new bone growth. 62 skeletons (out of 404 examined) from the cemetery of the Hospital of St. John had signs of osteoarthritis. Some of the skeletons showed evidence of lesions on the spine: these people may have suffered from tuberculosis (TB), a serious and often fatal infectious disease. Most people in medieval Cambridge would have been exposed to TB at some point in their life. People who had it would have had problems breathing, they would cough, sometimes coughing up blood, and they might have had chest pain.

Broken bones can also be identified, as can evidence of any healing that might have taken place. This can give archaeologists an idea of whether a person survived a fracture. 20 of the skeletons examined from the cemetery of the Hospital of St John had at least one fracture, most of which had healed. The majority of these injuries were compression fractures in the spine, which can happen if they have osteoporosis or when people fall and land on their feet or bottom.

How do we know what food they ate?

Archaeologists can use various sources to determine the diet of people in the past. Plant or pollen remains might indicate what food is growing in the area where people live. Teeth might be worn down, for example because people were accidentally chewing on grit which made its way into food when wheat was ground into flour. Tooth cavities might show an increase in sweet or sugary foods.

It is possible to find out the diet of an individual by analysing two elements in their skeleton. The proportions of carbon and nitrogen isotopes can indicate what that person had been eating. This can tell archaeologists the types of plants people were eating in the past and also whether they were consuming animal products, fish or shellfish.

Famine and starvation happened throughout the medieval period. Sometimes this can be seen in human remains as well. Enamel hypoplasias are marks on teeth, seen as grooves, lines or little pits. These are all signs of teeth not developing properly during a person's childhood, perhaps through poor diet or ill health.

How can the study of skeletons tell us more about life in medieval Cambridge?

By putting together the evidence from individual skeletons and the cemetery as a whole, we can start to build up a picture of life in medieval Cambridge. Importantly, the people buried in the cemetery were the poor people of the city: the people who are often missing from written sources of the period. The After the Plague project also looked at other cemeteries from Cambridge. This approach, looking at the whole city, should help us to get a better idea about people's lives in the past. We can observe how common particular illnesses were, we can track disease across groups, or see how genetically similar people in medieval Cambridge were to each other. By bringing together lots of different types of information we can understand the topic much better than by focussing on one method of analysis.