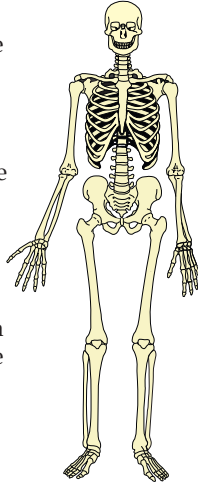


What can we tell from how they were buried?

How a person was buried and what they were buried with can tell us about many aspects of their life and beliefs.

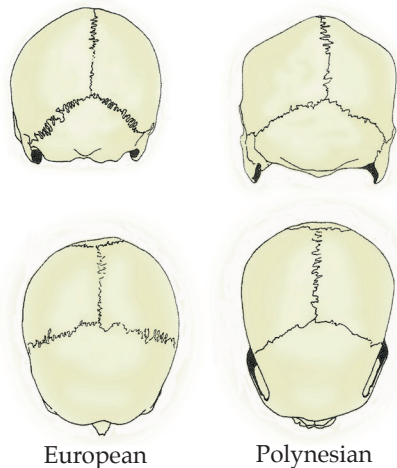
- A spouse who died after his or her partner would often be buried in the same grave, above the earlier coffin. This can enable us to identify marital relationships between people.
- Coffin furniture such as handles can tell us about the affluence of the individual. Sometimes (albeit rarely) coffin plaques might provide some biographical details.
- The remains of clothes such as buttons and shoes sometime survive and this can tell us some information about the individual in life.
- Other items were sometimes placed in the coffin before burial, such as a locket or a child's doll. These items can add to our understanding of the individual and how they were mourned at the time.



It is also possible to reconstruct the face of a person from their skull to help with identifying who they were. An example of this is the face of "Aunty" from the 700 year old site of Wairau Bar, Blenheim whose face was reconstructed using CT scans of her skull.

How can we tell where someone came from (ancestry) and whether they were pakeha, maori or chinese?

It is possible to assess a person's ancestry from the shape of their skulls, face and features in the teeth and bones. For example, there are distinctive differences in the shape of the cranium between Polynesians and Europeans. However, the identification of a person's ancestry can only be done with any certainty through DNA analyses.



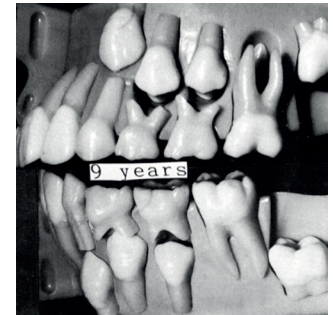
We can trace genetic markers that are passed down strictly through the maternal line (through mitochondrial DNA, or mtDNA) or, in males, through the paternal line (through analysis of the Y chromosome), to link ancestry to particular geographic regions and ancestral populations. In some cases, we could use these markers to identify individuals within the graveyard who were related and even link them to their likely living descendants. To do this, we would request a DNA sample (obtained through a non-invasive cheek swab) from those who are thought to have ancestors or family who are buried in the cemetery.

Ancient DNA from the burials is obtained from a small sample of bone or tooth. These samples can contain not only the DNA of the individual from which they were taken, but also DNA of disease causing pathogens, such as those that cause Tuberculosis. We can also sometimes see evidence of genetic diseases in the ancient DNA samples, such as genetic mutations that are linked to increased likelihood of gout, diabetes or even rare genetic disorders.

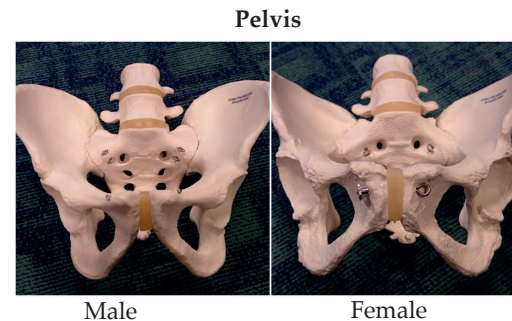
How can we tell how old someone was when they died?

It is possible to tell how old someone was when they died from the way in which the bones and teeth grow, develop, and degenerate over time. In babies and children, the teeth erupt and bones grow in a sequence so scientists can say how old they were when they died.

In adults, the teeth wear down over time and this can also tell us about what sort of foods people were eating. Also, as adults get older the bones of the skull fuse together and the lines (sutures) between the skull bones get blurred or less distinct. The joints in the pelvis also change the way they look as adults get older.



How can we tell whether someone was a man or a woman?



We can tell whether a skeleton was a male or a female by looking at the size and shape of the skull and the pelvis. Because males are stronger than females, with bigger muscles, the places on the skull where muscles attach are larger (more robust) on males than females.

Because the female pelvis is designed to have babies it is a different shape to males. We can also determine the sex of infants and children (who have not yet developed the secondary sexual characteristics that allow sex to be identified based on the skeletal remains) through DNA analysis.

How can we tell what types of activities people did?

Because bone is a living tissue and is constantly breaking down and being replaced it can change its shape slightly in response to hard work. The points where muscles attach to bone change their size depending on the amount and type of work a person does. The patterns of these muscle attachments can be used to recreate past lifestyles. Also as we age the tissues inside our joints break down and leave the joints vulnerable to degeneration- osteoarthritis. The patterns of joint degeneration can be different depending on the type of work a person does and also may be different between men and women.