

An anatomical illustration of a human torso, showing internal organs such as the lungs, heart, stomach, and intestines. The illustration is overlaid with a semi-transparent blue rectangular box in the center, which contains the text "Human Impact on Populations".

Human Impact on Populations

Human Impact

An anatomical illustration of a human torso, showing the internal organs and muscles. The illustration is semi-transparent, allowing the text to be overlaid. The background is a light blue gradient.

- Throughout history, humans have put their mark on many of the organisms that have crossed their paths.
- Often these impacts are unintentional, but the mark is left nonetheless.
- The influence of humans on the populations of other species comes with both costs and benefits.

Human Impact

An anatomical illustration of a human torso, showing the internal organs and the skeletal structure. The illustration is semi-transparent, allowing the text to be overlaid. The organs are colored in shades of red, pink, and orange, while the skeletal structure is shown in light blue and white. The background is a light blue gradient.

- The idea of interactions between systems and between organisms has been woven throughout this unit.
- In this last activity, you will explore how human interactions with various organisms have influenced those populations.
- Some of the effects may be obvious while others are not, but rest assured, the impact is there.

An anatomical illustration of a human torso, showing internal organs and the nervous system. The illustration is semi-transparent, revealing the lungs, heart, stomach, and intestines. The nervous system, including the brain, spinal cord, and peripheral nerves, is highlighted in a light blue color. The background is a light blue gradient.

Natural vs Artificial Selection

Natural Selection



- When left to nature, the individuals who are the fittest for the current environment are the ones that will have an increased probability of reproductive success.
- This means that they have a better chance of passing on their traits to the next generation.
- Remember that 'fittest' doesn't always mean the strongest and the fastest; the most fit individuals will have a specific trait that allows them to thrive and reproduce in their environment.

Natural Selection

An anatomical illustration of a human torso, showing internal organs like the heart, lungs, and intestines. The illustration is semi-transparent, with a blue overlay that covers the top half of the image, serving as a background for the title and the first part of the list.

- That trait is often a mutation of the genetic material.
- If those conditions persist over a number of generations, that trait will continue to be selected for and soon the population will have a number of individuals that express that trait.
- Ultimately, that allele's frequency has increased within the population.

Natural Selection

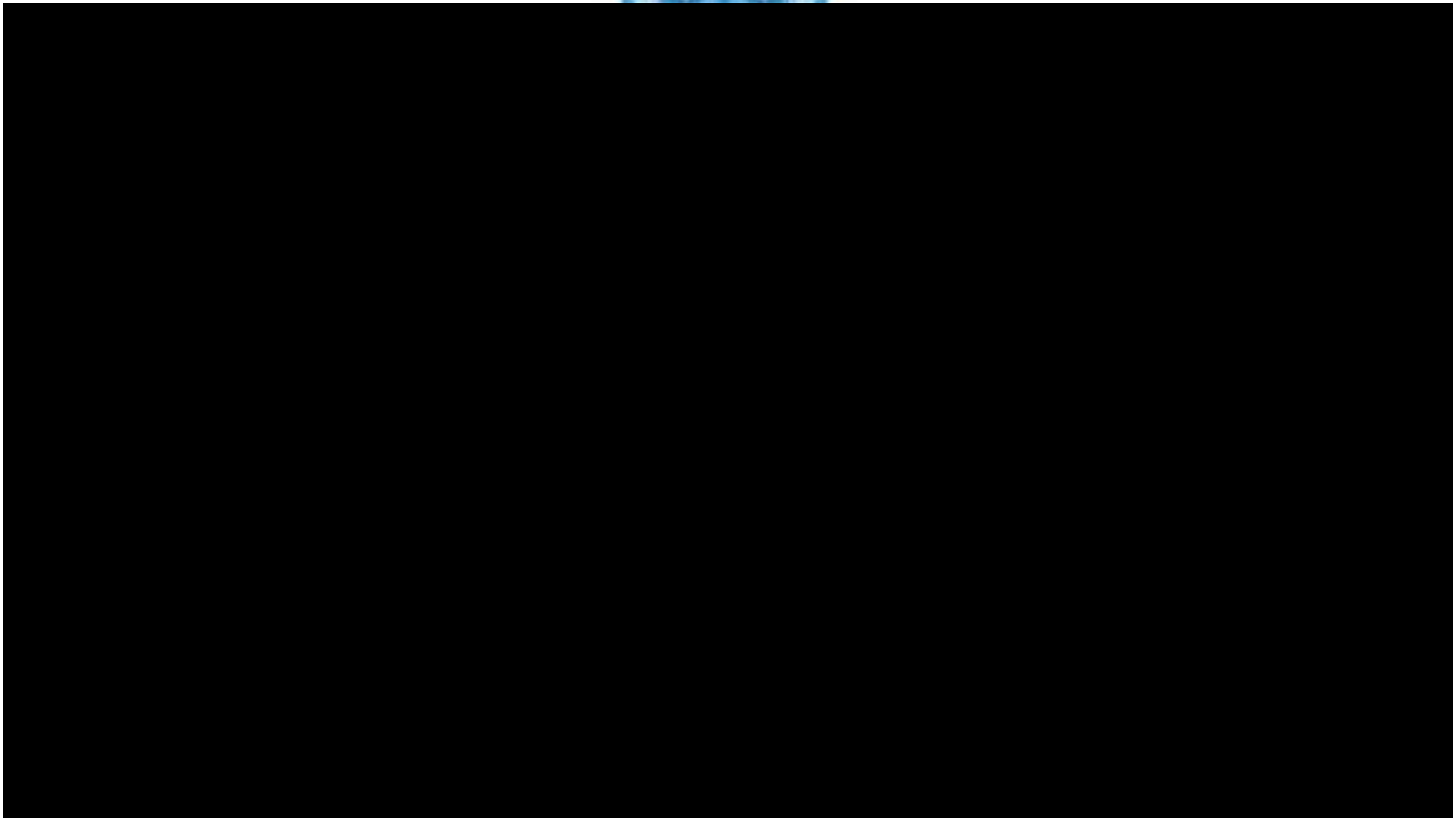
An anatomical illustration of a human torso, showing the internal organs and muscles. The illustration is semi-transparent, allowing the text to be overlaid. The background is a light blue gradient.

- This change in allele frequency within a species over time is known as microevolution.
- Microevolution results in small changes such as colouring or beak shape.
- If the change is more pronounced and takes place over longer periods of time - and if the changes result in a population that would be considered a completely new species - we call this macroevolution.

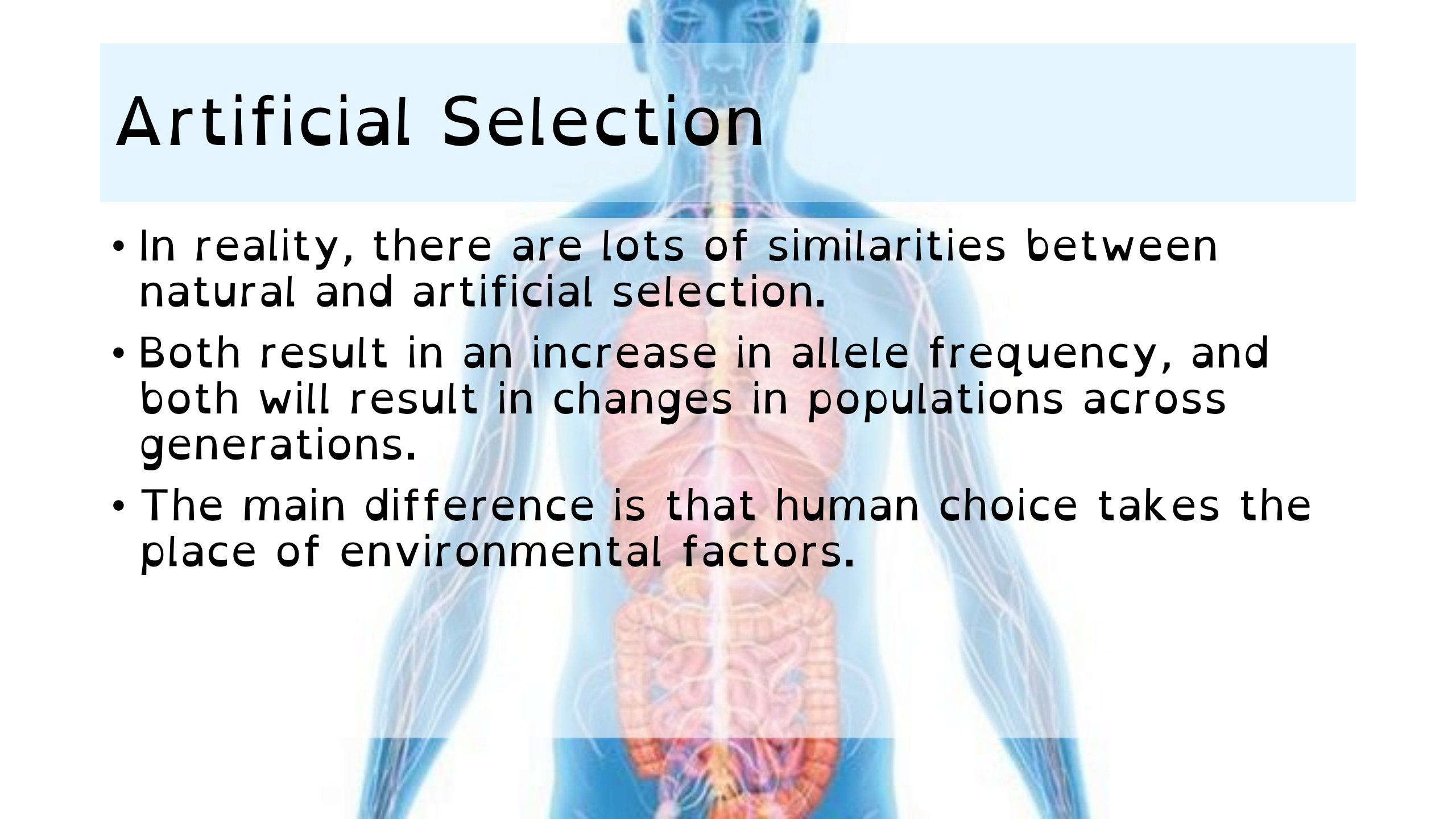
Natural Selection



- A macroevolution example is a population of lizards that are separated by a range of mountains formed by an earthquake.
- Due to this new landscape, and after a long period of time, one side of the mountain becomes dry and desert-like, while the other side is lush and green. Each half of that population will evolve differently due to the differences in environment.
- After many generations, the two halves of the population can become so different that they are no longer able to breed. These two populations are now considered different species.



Artificial Selection

An anatomical illustration of a human torso, showing the internal organs and muscles. The illustration is semi-transparent, allowing the text to be overlaid. The background is a light blue gradient.

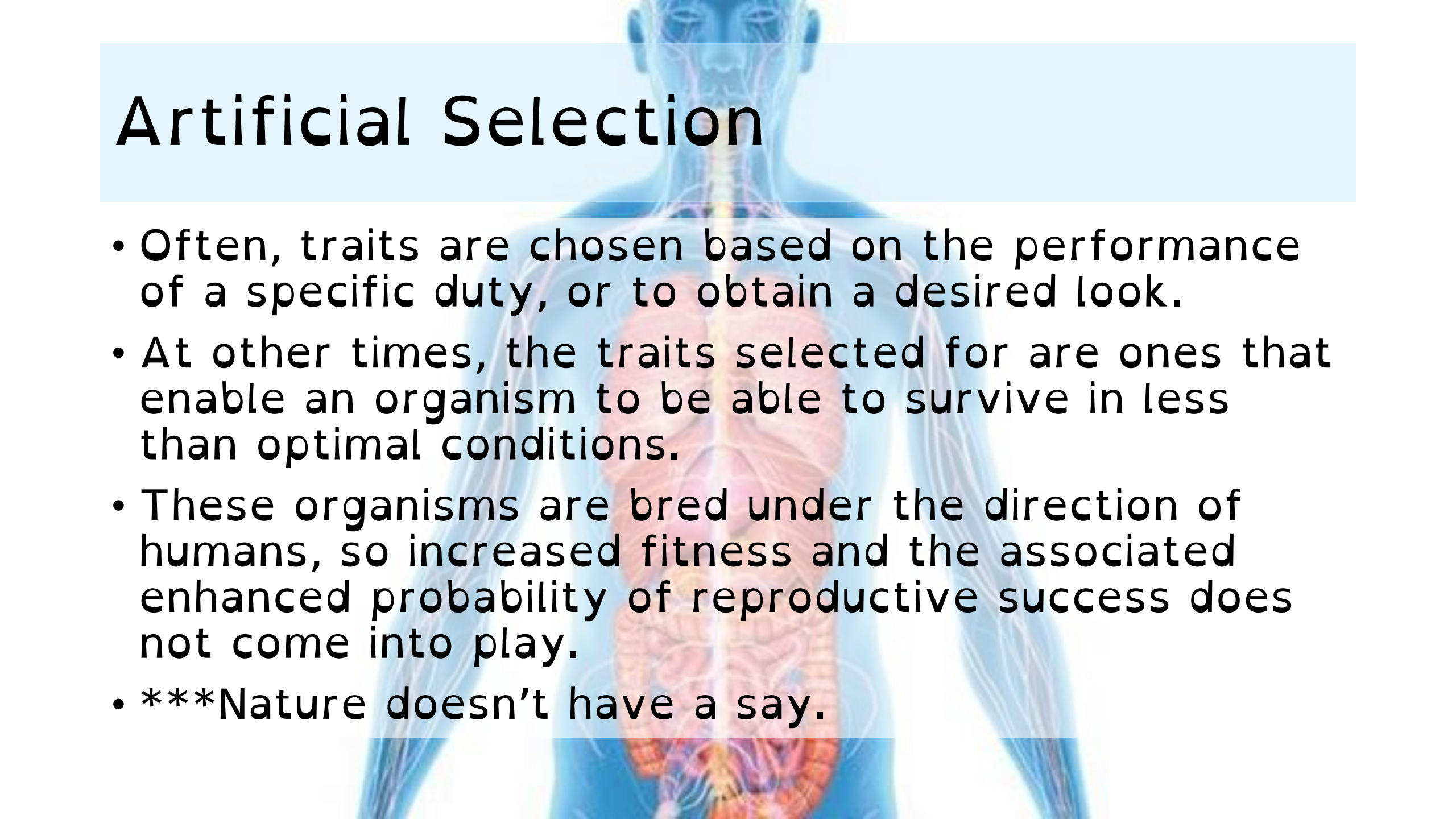
- In reality, there are lots of similarities between natural and artificial selection.
- Both result in an increase in allele frequency, and both will result in changes in populations across generations.
- The main difference is that human choice takes the place of environmental factors.

Artificial Selection

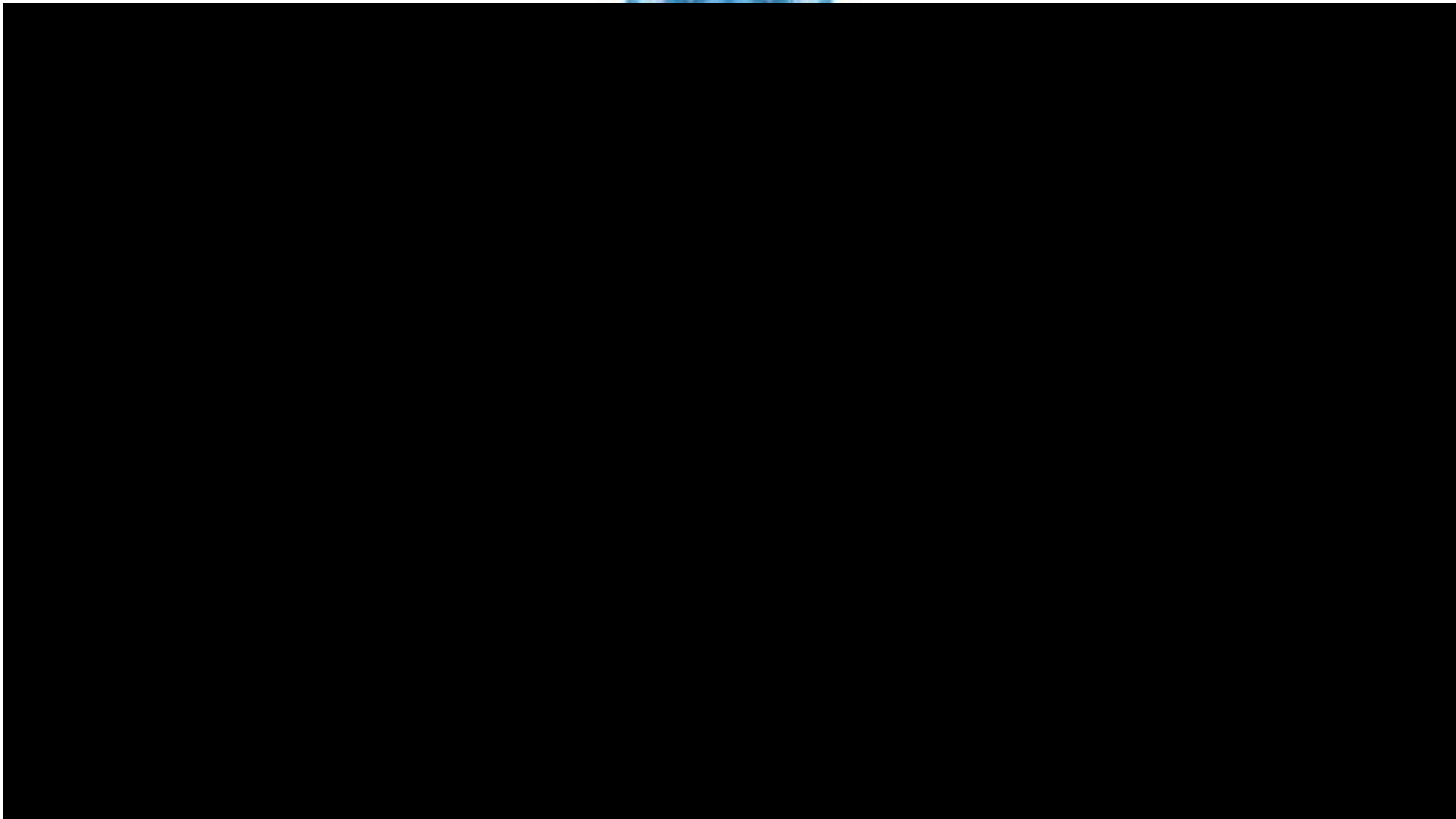


- choice takes the place of environmental factors.
- The traits selected may not increase the fitness of an organism in the environment in which they live.
- In fact, the traits selected for may decrease that organism's chance of survival and reproductive success if it is left to its own devices.

Artificial Selection



- Often, traits are chosen based on the performance of a specific duty, or to obtain a desired look.
- At other times, the traits selected for are ones that enable an organism to be able to survive in less than optimal conditions.
- These organisms are bred under the direction of humans, so increased fitness and the associated enhanced probability of reproductive success does not come into play.
- ***Nature doesn't have a say.



Assistive Reproductive Technologies

- On July 25, 1978, Louise Joy Brown, the world's first baby to be conceived via in vitro fertilization (IVF) is born at Oldham and District General Hospital in Manchester, England, to parents Lesley and Peter Brown.
- The healthy baby was delivered shortly before midnight by caesarean section and weighed in at five pounds, 12 ounces.



Assistive Reproductive Technologies

- Quick Look Up Organizer...
- What is it...
- How it is done...
- Success rate...



Assistive Reproductive Technologies

An anatomical illustration of a human torso, showing the internal organs and the reproductive system. The illustration is semi-transparent, allowing the underlying structures to be visible. The background is a light blue gradient.

- Quick Look Up Organizer...
- vitro fertilization-embryo transfer (IVF-ET),
- gamete intrafallopian transfer (GIFT),
- zygote intrafallopian transfer (ZIFT),
- frozen embryo transfer (FET)
- Intracytoplasmic sperm injection (ICSI)
- Intracytoplasmic morphologically selected sperm injection (IMSI)

- <https://agclassroom.org/matrix/lesson/729/>

