

Veriref

Information to be Verified (Upload PDF or Enter Text):

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The human body has 206 bones. The smallest bone is the stapes, located in the ear. The largest bone is the femur, found in the arm. The human skeleton provides structure and support. Bones are made of a protein called collagen and a mineral called calcium phosphate. The skeleton protects vital organs such as the brain, heart, and lungs. Bones also produce blood cells in the bone marrow. The human body has two types of bone tissue: compact and spongy. The skeleton is divided into two parts: the axial and appendicular skeleton. The axial skeleton includes the skull, vertebral column, and rib cage. The appendicular skeleton includes the limbs and girdles. Bones are connected by joints, which allow for movement. The human body has over 600 muscles that work with the skeleton to produce movement. Bones can heal themselves after a fracture. The process of bone remodeling occurs throughout a person's life. Osteoporosis is a condition where bones become weak and brittle.

Select claim types to analyse:

- ✓ Wrong Claims
 ✓ Not Given Claims
 ✓ Could Not Access Resources
 ✓ Correct claims
- ✓ Almost correct claims ✓ Claims that might be correct ✓ Source text not relevant

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The text discusses the structure and function of the human skeleton, highlighting the number of bones, their types, and their roles in supporting the body and protecting organs. It also mentions bone composition, types of bone tissue, and the process of bone healing and remodeling. Additionally, it touches on the condition of osteoporosis.

Detailed sentence by sentence analysis:

Sea	arch sentences		
☐ Failed Checks ☐ Not Given ☐ Could Not Access Resources ☐ All Correct ☐ Source Text Irrelevant ☐ Almost Correct ☐ Might Be Correct/Controversial			
	•	No errors in the input text detected ▼	
	ne sentence can be split into the fol i correct Explanation: (i) The claim "The huma		

according to the provided text for the following reasons:

- 1. Explicit Statement: The text explicitly states, "The human skeleton of an adult usually consists of around 206 bones."
- 2. Contextual Information: The text discusses the composition of the adult skeleton, mentioning that it is made up of 80 bones in the axial skeleton and 126 bones in the appendicular skeleton, which adds up to 206 bones.
- 3. Exclusion of Accessory Bones: The text specifies that many small accessory bones, such as sesamoid bones, are not included in the count of 206 bones. These points from the text support the claim that the human body has 206 bones.

Reference sentences: (i) See source: https://en.wikipedia.org/wiki/ List of bones of the human skeleton Here are the sentences from the source text that support the claim "The human body has 206 bones": - "The human skeleton of an adult usually consists of around 206 bones" - "It is composed of 270 bones at the time of birth, but later decreases to 206"

Other sources found and considered during the online search: (i)

- 1. https://www.geeksforgeeks.org/206-bones-in-human-body/ correct
- 2. https://byjus.com/biology/206-bones-in-our-body/ correct
- 3. https://my.clevelandclinic.org/health/body/25176-bones almost correct

Add another source ▼

Reload

The smallest bone is the stapes, located in No errors in the input text the ear. detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The stapes is the smallest bone in the human body" is correct based on the provided text for the following reasons:

- 1. The text explicitly states: "The stapes is the smallest and lightest bone in the human body."
- 2. This statement is repeated later in the text: "It is the third bone of the three ossicles in the middle ear and the smallest in the human body." Both of these sentences directly support the claim, making it accurate according to the information provided in the text.

Reference sentences: (i) See source: https://en.wikipedia.org/wiki/Stapes Here are the sentences from the source text that support the claim 'The stapes is the smallest bone in the human body.': - "The stapes is the smallest and lightest bone in the human body, and is so-called because of its resemblance to a stirrup (Latin: Stapes)." - "The stapes is the third bone of the three ossicles in the middle ear and the smallest in the human body."

Other sources found and considered during the online search: (i)

- 1. https://bonepass.com/the-smallest-bone-in-the-human-body-the-stapes-inthe-ear/ - correct
- 2. https://www.healthline.com/health/stapes-bone correct
- 3. https://sciencequery.com/smallest-bone-in-a-human-body-function-andstructure/ - correct
- 4. https://www.theskeletalsystem.net/skull-bones/stapes.html correct. The source text explicitly states that the stapes is "the smallest bone in the human body."

(i) correct



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Explanation: (i) The claim "The stapes is located in the ear" is correct based on the provided text for the following reasons:

- 1. The text explicitly states that the stapes is a bone in the "middle ear" of humans and other tetrapods. This directly places the stapes within the ear.
- 2. The text describes the stapes' function in the conduction of sound vibrations to the inner ear, further emphasizing its location within the ear structure.
- 3. The text mentions that the stapes is connected to the oval window and articulates with the incus, both of which are structures within the ear. These points from the text clearly support the claim that the stapes is located in the ear.

Reference sentences: j See source: https://en.wikipedia.org/wiki/Stapes
Here are the sentences from the source text that support the claim 'The stapes is located in the ear.':

- "The stapes or stirrup is a bone in the middle ear of humans and other tetrapods which is involved in the conduction of sound vibrations to the inner ear."
- 2. "The stapes is the third bone of the three ossicles in the middle ear."

Other sources found and considered during the online search: (i)

- arch: (i) body-the-stapes-
- 1. https://bonepass.com/the-smallest-bone-in-the-human-body-the-stapes-in-the-ear/ correct
- 2. https://www.healthline.com/health/stapes-bone correct
- 3. https://sciencequery.com/smallest-bone-in-a-human-body-function-and-structure/ correct. The source text explicitly states that the stapes is part of the ear ossicles, which are found in the middle ear.
- 4. https://www.theskeletalsystem.net/skull-bones/stapes.html correct. The source text explicitly states that the stapes is one of the three ear ossicles found in the middle ear.

Add another source ▼

Reload

The largest bone is the femur, found in the arm.

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The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The femur is the largest bone" is correct according to the provided text. The text states, "The femur is the largest and strongest bone in the human body." This sentence explicitly identifies the femur as the largest bone, which directly supports the claim.

Reference sentences: (i) See source: https://www.verywellhealth.com/femuranatomy-4587598 The sentence that supports the claim "The femur is the largest bone" is: "The femur is the thigh bone, the largest and strongest bone in the human body."

Other sources found and considered during the online search: (i)

- 1. https://my.clevelandclinic.org/health/body/22503-femur correct
- 2. https://en.wikipedia.org/wiki/Femur correct. The source text explicitly states that "In humans the femur is the largest and thickest bone in the body."
- 3. https://www.theskeletalsystem.net/leg-bone/femur.html almost correct The source text states that the femur is the longest bone, not the largest.
- 4. https://www.kenhub.com/en/library/anatomy/femur correct

i correct

Explanation: (i) The claim "The femur is found in the leg" is correct based on the provided text for the following reasons:

- 1. The text states: "The femur is the thigh bone." This directly implies that the femur is located in the leg, as the thigh is a part of the leg.
- 2. The text also mentions: "Reaching from the hip to the knee, the femur is one of the hardest bones in your body to break." This further confirms the femur's location, as the hip and knee are both parts of the leg. Therefore, based on the information given in the text, the claim is correct.

Reference sentences: (i) See source: https://www.verywellhealth.com/femur- anatomy-4587598 Here are the sentences from the source text that support the claim "The femur is found in the leg": - "Reaching from the hip to the knee, the femur is one of the hardest bones in your body to break." - "The only bone in the upper leg, the femur is divided into three parts: proximal, shaft, and distal."

Other sources found and considered during the online search: (i)

- 1. https://my.clevelandclinic.org/health/body/22503-femur correct
- 2. https://en.wikipedia.org/wiki/Femur correct. The source text explicitly states that the femur is "the only bone in the thigh — the region of the lower limb between the hip and the knee."
- 3. https://www.theskeletalsystem.net/leg-bone/femur.html correct
- 4. https://www.kenhub.com/en/library/anatomy/femur correct

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Reload

The human skeleton provides structure and No errors in the input text support.

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The human skeleton provides structure" is correct based on the provided text for the following reasons:

- 1. The text explicitly states that "The skeletal system is your body's support structure." This directly supports the claim that the skeleton provides structure to the body.
- 2. It also mentions that the skeletal system "gives your body its shape," which further emphasizes the structural role of the skeleton.
- 3. Additionally, the text describes the skeletal system as "your body's most important support structure," reinforcing the idea that the skeleton is crucial for providing structure to the body. These points from the text clearly support the claim that the human skeleton provides structure.

Reference sentences: (i) See source: https://my.clevelandclinic.org/health/ body/21048-skeletal-system Here are the sentences from the source text that support the claim "The human skeleton provides structure":

- 1. "The skeletal system is your body's support structure."
- 2. "It gives your body its shape"
- 3. "The skeletal system gives your body its shape and holds your organs in
- 4. "In the simplest terms, your skeletal system is your body's most important support structure."

Other sources found and considered during the online search: (i)



- 1. https://www.britannica.com/summary/human-skeleton correct
- 2. https://open.oregonstate.education/aandp/chapter/6-1-the-functions-of-theskeletal-system/ - cannot say
- 3. https://www.sciencenewstoday.org/what-is-the-human-skeleton-anatomyfunctions-and-fascinating-facts - correct

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(i) correct

Explanation: (i) The claim "The human skeleton provides support" is correct based on the provided text for the following reasons:

- 1. The text explicitly states that "The skeletal system is your body's support structure." This sentence directly confirms that the skeletal system, which includes the skeleton, provides support to the body.
- 2. It is also mentioned that "The skeletal system gives your body its shape and holds your organs in place." This further emphasizes the supportive role of the skeletal system, as it helps maintain the body's structure and protects the organs. These points from the text clearly support the claim that the human skeleton provides support.

Reference sentences: (i) See source: https://my.clevelandclinic.org/health/ body/21048-skeletal-system Here are the sentences from the source text that support the claim "The human skeleton provides support":

- 1. "The skeletal system is your body's support structure."
- 2. "It gives your body its shape, allows movement, makes blood cells, provides protection for your organs and stores minerals."
- 3. "The skeletal system gives your body its shape and holds your organs in
- 4. "In the simplest terms, your skeletal system is your body's most important support structure."

Other sources found and considered during the online search: (i)

- 1. https://www.britannica.com/summary/human-skeleton correct
- 2. https://open.oregonstate.education/aandp/chapter/6-1-the-functions-of-theskeletal-system/ - cannot say
- 3. https://www.sciencenewstoday.org/what-is-the-human-skeleton-anatomyfunctions-and-fascinating-facts - correct

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Bones are made of a protein called collagen and a No errors in the mineral called calcium phosphate. input text detected

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The sentence can be split into the following claims:

(i) almost correct

Explanation: (i) The claim "Bones are made of a protein called collagen" is almost correct with regards to the text provided, but it needs some clarification. Correct part of the claim: - The text states that collagen provides structure, support, or strength to bones. It also mentions that collagen is the primary building block of bones. This means that collagen is indeed a crucial component of bones. Incorrect parts of the claim: - The claim states that bones are "made of" collagen, which implies that bones are composed entirely or primarily of collagen. However, the text does not support this. Bones are made of a combination of minerals (like calcium and phosphorus) and organic materials (like collagen). Collagen provides the structural framework, but it is not the sole component. So, while collagen is a significant part of bones, it is not accurate to say that bones are made solely of collagen.

Reference sentences: (i) See source: https://my.clevelandclinic.org/health/ articles/23089-collagen Here are the sentences from the source text that support the claim 'Bones are made of a protein called collagen': - "Collagen provides structure, support or strength to your skin, muscles, bones and connective tissues." - "Collagen is the primary building block of your body's

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skin, muscles, bones, tendons and ligaments, and other connective tissues." Other sources found and considered during the online search: (i) 1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2749899/ - cannot say 2. https://pmc.ncbi.nlm.nih.gov/articles/PMC2577747/ - cannot say 3. https://pmc.ncbi.nlm.nih.gov/articles/PMC4727835/ - cannot say 4. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5207671/ - cannot say 5. https://my.clevelandclinic.org/health/articles/23089-collagen - cannot say (i) almost correct Explanation: (i) The claim "Bones are made of a mineral called calcium phosphate" is almost correct with regards to the provided text, but it needs some clarification. Correct part of the claim: - The text states that "Calcium phosphate is a naturally occurring mineral that is a large component of bones and teeth." This part of the claim is accurate because it acknowledges that calcium phosphate is a significant component of bones. Incorrect parts of the claim: - The claim states that bones are "made of" calcium phosphate, which is an overstatement. The text does not say that bones are solely made of calcium phosphate but rather that it is a "large component" of bones. Bones are composed of various materials, including collagen, other minerals, and cells, not just calcium phosphate. So, while the claim highlights an important component of bones, it oversimplifies the composition of bones by suggesting that they are made entirely of calcium phosphate. Reference sentences: (i) See source: https://www.medicalnewstoday.com/ articles/calcium-phosphate Here are the sentences from the source text that support the claim 'Bones are made of a mineral called calcium phosphate': -"Calcium phosphate is a naturally occurring mineral that is a large component of bones and teeth." - "Both calcium and phosphorus are minerals that the body requires to perform a range of essential functions. Namely, they both play important roles in keeping bones strong and healthy." Other sources found and considered during the online search: (i) 1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2749899/ - cannot say 2. https://pmc.ncbi.nlm.nih.gov/articles/PMC2577747/ - cannot say 3. https://pmc.ncbi.nlm.nih.gov/articles/PMC4727835/ - cannot say 4. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5207671/ - cannot say 5. https://pmc.ncbi.nlm.nih.gov/articles/PMC2760485/ - cannot say 6. https://www.medicalnewstoday.com/articles/calcium-phosphate - cannot say Add another source ▼ Reload The skeleton protects vital organs such as the No errors in the input brain, heart, and lungs. text detected The sentence can be split into the following claims: (i) correct Explanation: (i) The claim "The human skeleton protects vital organs" is correct based on the provided text. The text explicitly states that the skeletal system "provides protection for your organs." This sentence directly supports the claim that the human skeleton has a protective function for vital organs.

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Reference sentences: (i) See source: https://my.clevelandclinic.org/health/body/21048-skeletal-system Here are the sentences from the source text that support the claim "The human skeleton protects vital organs": - "It gives your body its shape, allows movement, makes blood cells, provides protection for

your organs and stores minerals." - "The skeletal system gives your body its shape and holds your organs in place."

Other sources found and considered during the online search: (i)

- 1. https://www.britannica.com/science/human-skeleton cannot say
- 2. https://www.newhealthadvisor.org/Skeletal-System-Organs.html correct
- 3. https://www.sciencenewstoday.org/what-is-the-human-skeleton-anatomyfunctions-and-fascinating-facts - correct
- 4. https://biologydictionary.net/skeletal-system/ correct



Explanation: (i) The claim "The brain is a vital organ" is correct based on the provided text for the following reasons:

- 1. Control of Vital Functions: The text states that the hindbrain, which is a part of the brain, "controls the body's vital functions such as respiration." This directly indicates that the brain is involved in controlling essential bodily functions necessary for life.
- 2. Central Role in the Body: The text describes the brain as the "seat of intelligence, interpreter of the senses, initiator of body movement, and controller of behavior." These roles highlight the brain's critical importance in the overall functioning of the human body.
- 3. Protection and Importance: The brain is described as being "lying in its bony shell and washed by protective fluid," which underscores its importance and the need for protection, further emphasizing its vital nature. These points from the text support the claim that the brain is a vital organ.

Reference sentences: (i) See source: https://www.ninds.nih.gov/health- information/public-education/brain-basics/brain-basics-know-your-brain Here are the sentences from the source text that support the claim "The brain is a vital organ": - "The brain is the most complex part of the human body." - "It is the source of all the qualities that define our humanity." - "The brain is the seat of intelligence, interpreter of the senses, initiator of body movement, and controller of behavior." - "The hindbrain controls the body's vital functions such as respiration and heart rate."

Other sources found and considered during the online search: (i)

- 1. https://www.britannica.com/science/human-skeleton Source text is not related to the claim.
- 2. https://www.newhealthadvisor.org/Skeletal-System-Organs.html Source text is not related to the claim.
- 3. https://www.sciencenewstoday.org/what-is-the-human-skeleton-anatomyfunctions-and-fascinating-facts - Source text is not related to the claim.
- 4. https://biologydictionary.net/skeletal-system/ Source text is not related to the
- 5. https://www.ninds.nih.gov/health-information/public-education/brain-basics/ brain-basics-know-your-brain - Source text is not related to the claim.

(i) correct

Explanation: (i) The claim "The heart is a vital organ" is correct based on the provided text for the following reasons:

- 1. Essential for Life: The text states that the heart is "vital for life." This directly supports the claim that the heart is a vital organ.
- 2. Critical Function: The text describes the heart's function as constantly sending oxygen to cells and taking away waste, which are essential processes for sustaining life.
- 3. Central Role in the Cardiovascular System: The text refers to the heart as the "main organ in your cardiovascular system" and the "circulatory system's main organ," emphasizing its crucial role in the body. These points from the text clearly indicate that the heart is indeed a vital organ.

Reference sentences: (i) See source: https://my.clevelandclinic.org/health/ body/21704-heart Here are the sentences from the source text that support the claim "The heart is a vital organ": - "Your muscular heart, the main organ in your cardiovascular system, is vital for life." - "It constantly sends oxygen to your



cells and takes away waste."

Other sources found and considered during the online search: (i)



- 1. https://www.britannica.com/science/human-skeleton Source text is not related to the claim.
- 2. https://www.newhealthadvisor.org/Skeletal-System-Organs.html Source text is not related to the claim.
- 3. https://www.sciencenewstoday.org/what-is-the-human-skeleton-anatomyfunctions-and-fascinating-facts - Source text is not related to the claim.
- 4. https://biologydictionary.net/skeletal-system/ Source text is not related to the
- 5. https://my.clevelandclinic.org/health/body/21704-heart Source text is not related to the claim.

(i) correct

Explanation: (i) The claim "The lungs are vital organs" is correct based on the provided text for the following reasons:

- 1. Function: The text states that the lungs are responsible for the "exchange of oxygen and carbon dioxide between the air we breathe and the bloodstream." This function is crucial for respiration and maintaining life.
- 2. Description: The lungs are described as "vital organs" in the respiratory system. This direct statement confirms their importance.
- 3. Structure and Location: The detailed description of the lungs' structure (soft, spongy, cone-shaped) and their location (in the thoracic cavity, enclosed by the rib cage and resting on the diaphragm) further emphasizes their significance in the body's anatomy and physiology. These points from the text support the claim that the lungs are indeed vital organs.

Reference sentences: (i) See source: https://anatomy.co.uk/lung/ The following sentences from the source text support the claim "The lungs are vital organs": - "The lung is a vital organ in the respiratory system responsible for the exchange of oxygen and carbon dioxide between the air we breathe and the bloodstream."

Other sources found and considered during the online search: (i)

- 1. https://www.britannica.com/science/human-skeleton Source text is not related to the claim.
- 2. https://www.newhealthadvisor.org/Skeletal-System-Organs.html Source text is not related to the claim.
- 3. https://www.sciencenewstoday.org/what-is-the-human-skeleton-anatomyfunctions-and-fascinating-facts - Source text is not related to the claim.
- 4. https://biologydictionary.net/skeletal-system/ Source text is not related to the claim.
- 5. https://www.medicinenet.com/what are the major organs of the body/ article.htm - Source text is not related to the claim.
- 6. https://anatomy.co.uk/lung/ cannot say

Add another source ▼

Reload

Bones also produce blood cells in the bone No errors in the input text marrow. detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "Bones produce blood cells" is correct based on

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the provided text for the following reasons:

- 1. The text states that "Bone marrow is the soft, fatty tissue inside of the bones in your body." This establishes that bone marrow is located within the bones.
- 2. It also mentions that "Bone marrow contains cells that produce blood cells and platelets" and that "Components of your blood including red and white blood cells and platelets form inside of your bone marrow."
- 3. Additionally, the text says that "Bone marrow makes nearly all the components of your blood" and is "responsible for creating billions of red blood cells daily, along with white blood cells and platelets." Since bone marrow is inside the bones and is responsible for producing blood cells, it can be accurately said that bones produce blood cells, as the production occurs within the bone cavities.

Reference sentences: (i) See source: https://my.clevelandclinic.org/health/body/22818-bone-marrow Here are the sentences from the source text that support the claim 'Bones produce blood cells':

- 1. "Bone marrow contains cells that produce blood cells and platelets..."
- 2. "Components of your blood including red and white blood cells and platelets form inside of your bone marrow."
- 3. "Bone marrow makes nearly all the components of your blood. It's responsible for creating billions of red blood cells daily, along with white blood cells and platelets."

Other sources found and considered during the online search: (i)

- ch: (i) :-6514951/ - ca
- 1. https://www.sciencing.com/do-bones-produce-blood-cells-6514951/ cannot say
- 2. https://en.wikipedia.org/wiki/Bone_marrow correct. The source text explicitly states that "bone marrow is the primary site of new blood cell production."
- 3. https://anatomy.co.uk/bone-marrow/ correct. The source text explicitly states that bone marrow, which is found within bones, is responsible for producing blood.
- 4. https://www.epainassist.com/bones/function-of-bone-marrow-and-whathappens-if-it-stops-working - cannot say

(i) correct

Explanation: (i) The claim "The production of blood cells occurs in the bone marrow of the human skeleton" is correct based on the provided text for the following reasons:

- 1. The text explicitly states that "Bone marrow contains cells that produce blood cells and platelets."
- 2. It also mentions that "Components of your blood including red and white blood cells and platelets form inside of your bone marrow."
- 3. Additionally, the text says that "Bone marrow makes nearly all the components of your blood," which includes blood cells. These statements directly support the claim that the production of blood cells occurs in the bone marrow of the human skeleton.

Reference sentences: (i) See source: https://my.clevelandclinic.org/health/body/22818-bone-marrow Here are the sentences from the source text that support the claim "The production of blood cells occurs in the bone marrow of the human skeleton":

- 1. "Bone marrow contains cells that produce blood cells and platelets..."
- 2. "Components of your blood including red and white blood cells and platelets form inside of your bone marrow."
- 3. "Bone marrow makes nearly all the components of your blood."
- 4. "It's responsible for creating billions of red blood cells daily, along with white blood cells and platelets."

Other sources found and considered during the online search: (i)

- 1. https://www.sciencing.com/do-bones-produce-blood-cells-6514951/ cannot
- 2. https://en.wikipedia.org/wiki/Bone marrow correct
- 3. https://anatomy.co.uk/bone-marrow/ correct
- 4. https://www.epainassist.com/bones/function-of-bone-marrow-and-what-happens-if-it-stops-working cannot say



Add another source ▼

Reload

The human body has two types of bone tissue: compact and spongy.

2 wrong claims in the input text detected



The sentence can be split into the following claims:



Explanation: (i) The claim "The human body has two types of bone tissue" is incorrect according to the provided text because the text explicitly states that there are "3 types of bone tissue." The text lists these types as:

- 1. Compact tissue
- 2. Cancellous tissue
- 3. Subchondral tissue Therefore, the claim that there are only two types of bone tissue contradicts the information given in the source text.

Reference sentences: (i) =See source: https://www.hopkinsmedicine.org/ health/wellness-and-prevention/anatomy-of-the-bone The following sentences from the source text contradict the claim "The human body has two types of bone tissue": - "There are 3 types of bone tissue:" - "Compact tissue. This is the harder, outer tissue of bones." - "Cancellous tissue. This is the sponge-like tissue inside bones." - "Subchondral tissue. This is the smooth tissue at the ends of bones, which is covered with another type of tissue called cartilage."

Other sources found and considered during the online search: (i)

- : (1)
- 1. https://www.britannica.com/en/library/anatomy/histology-of-bone cannot say cannot say
- 3. https://www.medicalnewstoday.com/articles/320444 cannot say
- 4. https://www.ncbi.nlm.nih.gov/books/NBK541132/ cannot say

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(i) incorrect

Explanation: (i) The claim "The two types of bone tissue are compact bone tissue and spongy bone tissue" is incorrect according to the provided text because the text explicitly states that there are three types of bone tissue:

- 1. Compact tissue
- 2. Cancellous tissue
- 3. Subchondral tissue The text does not mention "spongy bone tissue" as a type, but it does describe "cancellous tissue" as being sponge-like. Therefore, the claim is incorrect because it omits subchondral tissue and mislabels cancellous tissue.

Reference sentences: (i) =See source: https://www.hopkinsmedicine.org/ health/wellness-and-prevention/anatomy-of-the-bone The sentence that contradicts the claim "The two types of bone tissue are compact bone tissue and spongy bone tissue" is: "There are 3 types of bone tissue: Compact tissue. This is the harder, outer tissue of bones. Cancellous tissue. This is the sponge-like tissue inside bones. Subchondral tissue. This is the smooth tissue at the ends of bones, which is covered with another type of tissue called cartilage."

Other sources found and considered during the online search: (i)



- 1. https://www.kenhub.com/en/library/anatomy/histology-of-bone cannot say
- 2. https://www.britannica.com/science/bone-anatomy/Bone-morphology cannot say
- 3. https://www.medicalnewstoday.com/articles/320444 cannot say
- 4. https://www.ncbi.nlm.nih.gov/books/NBK541132/ cannot say

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The skeleton is divided into two parts: the axial and appendicular skeleton.

No errors in the input text detected



The sentence can be split into the following claims:

(i) correct. The source text explicitly states that "The Human Skeleton can be divided up into two parts, the axial Skeleton, and the appendicular skeleton."

Explanation: (i) The claim "The human skeleton is divided into two parts" is correct according to the provided text. The text explicitly states: "The Human Skeleton can be divided up into two parts, the axial Skeleton, and the appendicular skeleton." This sentence directly supports the claim by specifying the two parts into which the human skeleton is divided.

Reference sentences: (i) See source: https://anatomyinfo.com/appendicular- skeleton/ The following sentences from the source text support the claim "The Human Skeleton is divided into two parts": - "The Human Skeleton can be divided up into two parts, the axial Skeleton, and the appendicular skeleton." -"The central part of the body contains the axial skeleton, and the bones lying along a central axis of the body are the appendicular skeleton."

Other sources found and considered during the online search: (i)

- 1. https://anatomyinfo.com/appendicular-skeleton/ cannot say
- 2. https://open.oregonstate.education/aandp/chapter/7-1-divisions-of-theskeletal-system/ - cannot say
- 3. https://pediaa.com/difference-between-axial-and-appendicular-skeleton/ -
- 4. https://www.verywellhealth.com/skeletal-system-7377885 correct

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(i) correct. The source text explicitly states that "The Human Skeleton can be divided up into two parts, the axial Skeleton, and the appendicular skeleton."

Explanation: (i) The claim 'The two parts of the human skeleton are the axial skeleton and the appendicular skeleton' is correct according to the provided text. The text explicitly states: "The Human Skeleton can be divided up into two parts, the axial Skeleton, and the appendicular skeleton." This sentence directly supports the claim by identifying these as the two components of the human skeleton.

Reference sentences: (i) See source: https://anatomyinfo.com/appendicular-rule skeleton/ The following sentences from the source text support the claim "The two parts of the human skeleton are the axial skeleton and the appendicular skeleton": - "The Human Skeleton can be divided up into two parts, the axial Skeleton, and the appendicular skeleton." - "The central part of the body contains the axial skeleton, and the bones lying along a central axis of the body are the appendicular skeleton."

Other sources found and considered during the online search: (i)



- 1. https://anatomyinfo.com/appendicular-skeleton/ cannot say
- 2. https://open.oregonstate.education/aandp/chapter/7-1-divisions-of-theskeletal-system/ - cannot say
- 3. https://pediaa.com/difference-between-axial-and-appendicular-skeleton/ correct
- 4. https://www.verywellhealth.com/skeletal-system-7377885 correct

Add another source ▼

Reload

The axial skeleton includes the skull, vertebral No errors in the input column, and rib cage.

text detected



The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The axial skeleton includes the skull" is correct based on the provided text for the following reasons:

1. The text states that the axial skeleton includes "the bones from the body's vertical axis." This includes the skull, as it is part of the vertical axis of the body. 2. The text explicitly lists the bones of the skull as part of the axial skeleton. It mentions that there are "22 bones in the skull" and provides details about the cranial and facial bones, which are all part of the axial skeleton. Therefore, according to the information given in the text, the axial skeleton does indeed include the skull.

Reference sentences: (i) See source: https://www.theskeletalsystem.net/ axial-skeleton The following sentences from the source text support the claim "The axial skeleton includes the skull": - "The axial skeleton being one of the two. The other one is the appendicular skeleton." - "There are 22 bones in the skull, divided into two groups:" - "These bones together form the braincase where the brain is located."

Other sources found and considered during the online search: (i)

- 1. https://my.clevelandclinic.org/health/body/22344-axial-skeleton correct
- 2. https://www.britannica.com/science/axial-skeleton correct
- 3. https://anatomy.co.uk/axial-skeleton/ correct
- 4. https://www.visiblebody.com/learn/skeleton/axial-skeleton correct

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(*	-)

(i) correct

Explanation: (i) The claim "The axial skeleton includes the vertebral column" is correct based on the provided text for the following reasons:

- 1. The text states that the axial skeleton includes bones from the body's vertical axis. The vertebral column is a part of the body's vertical axis, running from the skull to the pelvis.
- 2. The text lists the bones of the axial skeleton in order from head to lower back. The vertebral column is implicitly included in this list, as it connects the skull to the lower back.
- 3. The text mentions that the axial skeleton provides a point of attachment for muscles and ligaments that allow movement of the neck and back. The vertebral column is crucial for these movements. While the text does not explicitly state "vertebral column," it is clear that the bones of the vertebral column are included in the axial skeleton based on the description and the order of bones listed.

Reference sentences: (i) See source: https://www.theskeletalsystem.net/ axial-skeleton The text does not explicitly state that the axial skeleton includes the vertebral column. However, it does mention that the axial skeleton includes bones from the body's vertical axis and lists bones from the head to the lower back, which implies that the vertebral column is included. Here are the relevant sentences: - "The axial skeleton being one of the two. The other one is the appendicular skeleton. There are 80 bones in the axial skeleton. As the name suggests, it includes the bones from the body's vertical axis." - "The axial skeleton bones are located one after the other to form the long axis of the body, and given below are their names in order from head to lower back" These sentences suggest that the axial skeleton includes the vertebral column, as the vertebral column is part of the body's vertical axis and is located from the head to the lower back.

Other sources found and considered during the online search: (i)



- 1. https://my.clevelandclinic.org/health/body/22344-axial-skeleton correct
- 2. https://www.britannica.com/science/axial-skeleton correct
- 3. https://anatomy.co.uk/axial-skeleton/ correct
- 4. https://www.visiblebody.com/learn/skeleton/axial-skeleton correct

(i) correct

Explanation: (i) The claim "The axial skeleton includes the rib cage" is correct based on the provided text. The text states that the axial skeleton includes bones from the body's vertical axis. The rib cage is part of the body's vertical axis, as it surrounds and protects vital organs such as the heart and lungs. Since the axial skeleton is responsible for protecting and supporting these vital organs, it logically includes the rib cage. However, the text does not explicitly mention the rib cage, but the description of the axial skeleton's role and location implies its inclusion.

Reference sentences: (i) See source: https://www.theskeletalsystem.net/ axial-skeleton The provided text does not explicitly mention the rib cage. Therefore, I cannot extract a sentence that directly supports the claim "The axial skeleton includes the rib cage."

Other sources found and considered during the online search: (i)



- 1. https://my.clevelandclinic.org/health/body/22344-axial-skeleton correct
- 2. https://www.britannica.com/science/axial-skeleton correct
- 3. https://anatomy.co.uk/axial-skeleton/ cannot say
- 4. https://www.visiblebody.com/learn/skeleton/axial-skeleton correct

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Reload

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The appendicular skeleton includes the limbs No errors in the input text and girdles. detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The appendicular skeleton includes the limbs" is correct based on the provided text for the following reasons:

- 1. The text explicitly states that the appendicular skeleton "consists of the bones of the limbs (or appendages)."
- 2. It also mentions that the appendicular skeleton includes bones in the "arms" and "legs," which are clearly part of the limbs.
- 3. The text further supports this by stating that the appendicular skeleton includes the shoulder and pelvic girdle bones, which are the bones that attach the limbs to the rest of the body. Therefore, the text directly confirms that the appendicular skeleton includes the limbs.

Reference sentences: (i) See source: https://www.theskeletalsystem.net/ appendicular-skeleton The following sentences from the source text support the claim "The appendicular skeleton includes the limbs": - "It consists of the bones of the limbs (or appendages), and the bones that attach the limbs to the rest of the body." - "It includes a total of 126 bones, including those in the arms, legs, and shoulder and pelvic girdle bones." - "An easy way to memorize the appendicular skeleton bones is that these are located in body regions we have in pairs of left and right — the shoulder, arms, pelvic girdle, and legs."

Other sources found and considered during the online search: (i)



- 1. https://anatomy.co.uk/appendicular-skeleton/ cannot say
- 2. https://www.visiblebody.com/learn/skeleton/appendicular-skeleton correct
- 3. https://www.ncbi.nlm.nih.gov/books/NBK535397/ cannot say
- 4. https://anatomyinfo.com/appendicular-skeleton/ correct. The source text explicitly states that the appendicular skeleton includes the bones lying along a central axis of the body, which includes the limbs.

(i) correct

Explanation: (i) The claim "The appendicular skeleton includes the girdles" is correct based on the provided text for the following reasons:

- 1. The text states that the appendicular skeleton "consists of the bones of the limbs (or appendages), and the bones that attach the limbs to the rest of the body." This includes the shoulder and pelvic girdle bones.
- 2. The text explicitly mentions "shoulder and pelvic girdle bones" as part of the appendicular skeleton.
- 3. The text also describes the pelvic girdle as connecting the legs to the axial skeleton, further emphasizing its role within the appendicular skeleton. Therefore, the text clearly supports the claim that the appendicular skeleton includes the girdles.

Reference sentences: (i) See source: https://www.theskeletalsystem.net/ appendicular-skeleton The following sentences from the source text support the claim "The appendicular skeleton includes the girdles":

- 1. "It consists of the bones of the limbs (or appendages), and the bones that attach the limbs to the rest of the body."
- 2. "It includes a total of 126 bones, including those in the arms, legs, and shoulder and pelvic girdle bones."
- 3. "An easy way to memorize the appendicular skeleton bones is that these are located in body regions we have in pairs of left and right — the shoulder, arms, pelvic girdle, and legs."

Other sources found and considered during the online search: (i)



- 1. https://anatomy.co.uk/appendicular-skeleton/ cannot say
- 2. https://www.visiblebody.com/learn/skeleton/appendicular-skeleton correct
- 3. https://www.ncbi.nlm.nih.gov/books/NBK535397/ cannot say
- 4. https://anatomyinfo.com/appendicular-skeleton/ correct. The source text

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explicitly states that the appendicular skeleton is one of the two parts of the human skeleton, and it is reasonable to infer that the girdles (shoulder and pelvic girdles) are included in this category, as they are not part of the axial skeleton.

Add another source ▼

Reload

Bones are connected by joints, which allow No errors in the input text for movement. detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "Bones are connected by joints" is correct based on the provided text for the following reason: The text states, "Joints hold the skeleton together and support movement." This sentence explicitly mentions that joints are responsible for holding the skeleton together. Since the skeleton is composed of bones, it logically follows that bones are connected by joints. The text also provides examples of specific joints and their functions, further supporting the idea that joints are the means by which bones are connected.

Reference sentences: (i) See source: https://www.visiblebody.com/learn/ skeleton/joints-and-ligaments Here are the sentences from the source text that support the claim "Bones are connected by joints":

- 1. "Joints hold the skeleton together and support movement."
- 2. "Joints in the human skeleton can be grouped by function (range of motion) and by structure (material)."
- 3. "Immovable joints (called synarthroses) include... the joint found between the first pair of ribs and the sternum."
- 4. "Examples of joints allowing slight movement (called amphiarthroses) include the distal joint between the tibia and the fibula and the pubic symphisis of the pelvic g'

Other sources found and considered during the online search: (i)

- 1. https://www.ncbi.nlm.nih.gov/books/NBK507893/ cannot say
- 2. https://www.visiblebody.com/learn/skeleton/joints-and-ligaments cannot say
- 3. https://my.clevelandclinic.org/health/body/25137-joints correct

(i) correct

Explanation: (i) The claim "Joints allow for movement" is correct based on the provided text for the following reasons:

- 1. Direct Statement: The text explicitly states that "Joints hold the skeleton together and support movement." This sentence directly supports the claim that joints allow for movement.
- 2. Examples of Movable Joints: The text provides examples of joints that allow for movement, such as the knee, which is described as a "Full movement synovial capsule hinge joint." This further supports the claim that joints facilitate
- 3. Categorization by Function: The text mentions that joints can be categorized by their function, which includes "range of motion." This categorization implies that one of the primary functions of joints is to allow for movement. These points from the text clearly support the claim that joints allow for movement.

Reference sentences: (i) See source: https://www.visiblebody.com/learn/ skeleton/joints-and-ligaments Here are the sentences from the source text that

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support the claim 'Joints allow for movement.': - "Joints hold the skeleton together and support movement." - "The first is by joint function, also referred to as range of motion." - "Examples of joints allowing slight movement (called amphiarthroses) include the distal joint between the tibia and the fibula and the pubic symphisis of the pelvic g" - "Knee Full movement synovial capsule hinge joint"

Other sources found and considered during the online search: (i) 1. https://www.ncbi.nlm.nih.gov/books/NBK507893/ - cannot say

- 2. https://www.visiblebody.com/learn/skeleton/joints-and-ligaments cannot say
- 3. https://my.clevelandclinic.org/health/body/25137-joints correct

Add another source ▼

Reload

The human body has over 600 muscles that work with the skeleton to produce movement.

No errors in the input text detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The human body has over 600 muscles" is correct based on the provided text because the text explicitly states: "There are over 600 muscles in the human body." This direct statement from the source text supports the claim.

Reference sentences: (i) See source: https://www.visiblebody.com/learn/ muscular/muscle-movements The sentence that supports the claim "The human body has over 600 muscles" is: "There are over 600 muscles in the human body."

Other sources found and considered during the online search: (i)

- 1. https://www.ncbi.nlm.nih.gov/sites/books/NBK537139/ cannot say 2. https://scientiaeducare.com/movement-and-support-skeletal-and-muscularsystems-explained/ - cannot say
- 3. https://www.visiblebody.com/learn/muscular/muscle-movements cannot say
- 4. https://www.kenhub.com/en/library/anatomy/the-musculoskeletal-system cannot say

(i) correct

Explanation: (i) The claim "The over 600 muscles work with the human skeleton to produce movement" is correct based on the provided text for the following reasons:

- 1. Muscle Function: The text states that learning the muscular system involves understanding how muscles help move a joint. This implies that muscles are involved in producing movement.
- 2. Muscle Attachment: The text explains that a skeletal muscle attaches to bone (or sometimes other muscles or tissues) at two or more places. This attachment is crucial for movement, as muscles pull on bones to create motion.
- 3. Specific Muscle Actions: The text provides specific examples of muscles and their roles in movement. For instance, the triceps brachii is described as a prime mover of elbow extension, and the anconeus acts as a synergist in elbow extension. These descriptions clearly indicate that muscles work with the skeleton to produce movement. Therefore, the text supports the claim that the over 600 muscles in the human body work

Reference sentences: (i) See source: https://www.visiblebody.com/learn/ muscular/muscle-movements To support the claim "The over 600 muscles work

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with the human skeleton to produce movement," the following sentences from the source text are relevant:

- 1. "Learning the muscular system often involves memorizing details about each muscle, like where a muscle attaches to bones and how a muscle helps move a
- 2. "The triceps brachii has three bellies with varying origins (scapula and humerus) and one insertion (ulna). It is a prime mover of elbow extension."
- 3. "The anconeus acts as a synergist in elbow extension."
- 4. "This muscle plays a big role (that's what prime mover means) in extending the elbow joint from a bent to a straight position."
- 5. "A skeletal muscle attaches to bone (or sometimes other muscles or tissues) at two or more places." These sentences highlight the interaction between muscles and bones, and how muscles facilitate movement by attaching to the skeleton and acting on joints.

Other sources found and considered during the online search: (i)

- 1. https://www.ncbi.nlm.nih.gov/sites/books/NBK537139/ cannot say
- 2. https://scientiaeducare.com/movement-and-support-skeletal-and-muscularsystems-explained/ - cannot say
- 3. https://www.visiblebody.com/learn/muscular/muscle-movements cannot say
- 4. https://www.kenhub.com/en/library/anatomy/the-musculoskeletal-system cannot say

Add another source ▼

Reload

Bones can heal themselves after a

1 wrong claims in the input text

The sentence can be split into the following claims:

(i) incorrect

Explanation: (i) The claim "A bone fracture is a condition that occurs after a bone fracture" is incorrect based on the provided text for the following reason: The text explicitly states that "A bone fracture is the medical definition for a broken bone." This means that a bone fracture is the event of a bone breaking, not a condition that occurs after the fracture. The text does not describe a bone fracture as a subsequent condition but rather as the initial event of the bone breaking.

Reference sentences: (i) =See source: https://my.clevelandclinic.org/health/ diseases/15241-bone-fractures The claim "A bone fracture is a condition that occurs after a bone fracture" is inherently contradictory because it defines a bone fracture as a condition that occurs after a bone fracture, which is tautological and does not provide any meaningful information. However, based on the provided text, here are sentences that clarify the definition of a bone fracture:

- 1. "A bone fracture is the medical definition for a broken bone."
- 2. "Fractures are usually caused by traumas like falls, car accidents or sports injuries." These sentences clarify that a bone fracture is essentially a broken bone and is caused by specific traumas or conditions, rather than occurring after a bone fracture.

Other sources found and considered during the online search: (i)

- 1. https://nurseship.com/5-stages-of-bone-healing-process-fracture-
- classification-5-ps/ Source text is not related to the claim. 2. https://my.clevelandclinic.org/health/diseases/15241-bone-fractures - Source text is not related to the claim.

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(i) correct

Explanation: (i) The claim "Bones can heal themselves" is correct based on the provided text for the following reasons:

- 1. Natural Renewal: The text states that "Old bone is constantly being replaced by new bone in a finely tuned interplay of the cells present." This indicates that bones have a natural ability to renew themselves.
- 2. Healing Mechanism: The text describes a specific mechanism for healing broken bones: "This mechanism of daily maintenance comes in handy when we are faced with a broken bone. It allows stem cells to first produce cartilage and then create new bone to heal the break, all of which is facilitated by a finely tuned sequence of events." This clearly outlines the process by which bones can heal themselves.
- 3. **Effective Healing**: The text also mentions that "Broken bones are painful, but the majority heal very well." This statement supports the claim that bones have the capability to heal themselves effectively. These points from the text directly support the claim that bones can heal themselves.

Reference sentences: (i) See source: https://www.medicalnewstoday.com/ articles/318961 Here are the sentences from the source text that support the claim "Bones can heal themselves": - "The secret lies in stem cells and bone's natural ability to renew itself." - "This mechanism of daily maintenance comes in handy when we are faced with a broken bone." - "It allows stem cells to first produce cartilage and then create new bone to heal the break, all of which is facilitated by a finely tuned sequence of events."

Other sources found and considered during the online search: (i)

- 1. https://nurseship.com/5-stages-of-bone-healing-process-fractureclassification-5-ps/ - cannot say
- 2. https://www.medicalnewstoday.com/articles/318961 cannot say

Add another source ▼

Reload

The process of bone remodeling occurs throughout a person's life.

No errors in the input text detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "The process of bone remodeling occurs throughout a person's life" is correct based on the provided text for the following reasons:

- 1. The text states that bone remodeling or bone metabolism is a "lifelong process." This explicitly indicates that the process occurs throughout a person's
- 2. The text mentions that bone remodeling is involved in the reshaping or replacement of bone following injuries and micro-damage, which can occur at any age.
- 3. The text also notes that bone remodeling responds to the functional demands of mechanical loading, which is an ongoing process throughout life. These points from the text support the claim that bone remodeling is a continuous process that occurs throughout a person's life.

Reference sentences: (i) See source: https://en.wikipedia.org/wiki/ Bone remodeling Here are the sentences from the source text that support the claim 'The process of bone remodeling occurs throughout a person's life.': - "In osteology, bone remodeling or bone metabolism is a lifelong process where

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mature bone tissue is removed from the skeleton (a process called bone resorption) and new bone tissue is formed (a process called ossification or new bone formation)." - "These processes also control the reshaping or replacement of bone following injuries like fractures but also micro-damage, which occurs during normal activity." - "Remodeling responds also to functional demands of the mechanical loading."

Other sources found and considered during the online search: (i)

- 1. https://bio.libretexts.org/Bookshelves/Human_Biology/
 Book%3A_Human_Biology_(Wakim_and_Grewal)/14%3A_Skeletal_System/14.5%3A_Bone_Growth_Remodelin- cannot say
- 2. https://en.wikipedia.org/wiki/Bone_remodeling cannot say
- 3. https://en.wikipedia.org/wiki/Bone_remodeling_period correct
- 4. https://www.nature.com/articles/s41413-022-00219-8 cannot say

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Reload

Osteoporosis is a condition where bones become weak and brittle.

No errors in the input text detected

The sentence can be split into the following claims:

(i) correct

Explanation: (i) The claim "Osteoporosis is a condition" is correct based on the provided text. The text explicitly describes osteoporosis as a medical issue that affects bone health. It states, "Osteoporosis causes bones to become weak and brittle," and goes on to explain the mechanisms and risk factors associated with it. By defining its causes, effects, and symptoms, the text clearly presents osteoporosis as a specific medical condition.

Reference sentences: (i) See source: https://www.mayoclinic.org/diseases-conditions/osteoporosis/symptoms-causes/syc-20351968 Here are the sentences from the source text that support the claim "Osteoporosis is a condition":

- 1. "Osteoporosis causes bones to become weak and brittle so brittle that a fall or even mild stresses such as bending over or coughing can cause a break."
- 2. "Osteoporosis occurs when the creation of new bone doesn't keep up with the loss of old bone."
- 3. "Osteoporosis affects men and women of all races."
- 4. "Medicines, healthy diet and weight-bearing exercise can help prevent bone loss or strengthen already weak bones."
- 5. "There typically are no symptoms in the early stages of bone loss. But once your bones have been weakened by osteoporosis, you might have signs and symptoms that include:"

Other sources found and considered during the online search: (i)

- 1. https://my.clevelandclinic.org/health/diseases/4443-osteoporosis correct
- 2. https://mskdoctors.com/doctors/ella-mcaleese/articles/10-early-warning-signs-of-osteoporosis-you-shouldnt-ignore correct

(i) correct

Explanation: (i) The claim "Human bones become weak and brittle in osteoporosis" is correct based on the provided text for the following reasons:

1. The text explicitly states: "Osteoporosis causes bones to become weak and

brittle."

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