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# Can Ozempic and Similar Drugs Reduce Heart Size?

## Description

Popular weight loss medications like Ozempic and Wegovy are generating excitement due to their impressive short-term outcomes, which include improvements in metabolic health, pain alleviation, and enhancements in cognitive function and addiction recovery.

While these initial results are promising, it is crucial to remain cautious, as the long-term side effects are still being uncovered.

Recently, experts have raised [concerns](#) that these innovative weight loss drugs, known as glucagon-like peptide-1 (GLP-1) receptor agonists, may lead to significant loss of skeletal muscle along with fat loss. However, sufficient data to confirm this is lacking.

Adding to this discussion, researchers at the University of Alberta have focused on cardiac muscles, which play a vital role in pumping blood throughout the body. Surprisingly, little research has been done on how these tissues respond to GLP-1 agonists.

In their study, the team administered semaglutide—the active ingredient in Ozempic—to both lean and obese mice for 21 days. They observed that the obese mice lost about 30% of their body weight, while lean mice experienced an approximate 8% reduction in skeletal muscle.

Although heart function and wall thickness remained unchanged, both groups exhibited reductions in overall heart mass and the size of individual heart muscle cells. The authors concluded that these changes appeared to occur independently of weight loss, raising questions about the long-term implications.

They urged that cardiac structure and function should be diligently assessed in clinical studies of these medications, especially considering the large number of patients who may continue using them in the future.

The study was published in [The Lancet](#).

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## Vocabulary List:

1. **Excitement** /ɪk'saɪt.mənt/ (noun): A feeling of great enthusiasm and eagerness.
2. **Improvement** /ɪm'pru:v.mənt/ (noun): The process of making something better.
3. **Alleviation** /ə,li:vi'eɪ.ʃən/ (noun): The act of making something less severe or serious.
4. **Skeletal** /'skel.i.təl/ (adjective): Relating to the skeleton; having a structure resembling a skeleton.
5. **Cardiac** /'kɑ:di.æk/ (adjective): Relating to the heart.
6. **Diligently** /'dɪl.i.dʒənt.li/ (adverb): In a way that shows care and effort in your work or duties.



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## Comprehension Questions

### Multiple Choice

1. What are some of the short-term outcomes associated with weight loss medications like Ozempic and Wegovy?

- Option: A. Pain alleviation
- Option: B. Improvements in metabolic health
- Option: C. Enhancements in cognitive function
- Option: D. All of the above

2. Concerns have been raised that GLP-1 receptor agonists may lead to significant loss of which type of tissue?

- Option: A. Adipose tissue
- Option: B. Skeletal muscle
- Option: C. Cardiac muscle
- Option: D. Nervous tissue

3. Which university conducted a study on the effects of GLP-1 agonists on cardiac muscles?

- Option: A. University of British Columbia
- Option: B. University of Alberta
- Option: C. Harvard University
- Option: D. Stanford University

4. What changes were observed in the heart mass of the mice administered semaglutide in the study?

- Option: A. Increase in overall heart mass
- Option: B. Decrease in overall heart mass
- Option: C. No change in overall heart mass
- Option: D. Insufficient data

5. What publication featured the study on the effects of semaglutide on lean and obese mice?

- Option: A. The New England Journal of Medicine
- Option: B. The Lancet
- Option: C. JAMA Cardiology
- Option: D. Circulation



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6. According to the study, what should be diligently assessed in clinical studies of weight loss medications?

- Option: A. Cognitive function
- Option: B. Skeletal muscle mass
- Option: C. Cardiac structure and function
- Option: D. Liver function

### True-False

7. Long-term side effects of weight loss medications like Ozempic and Wegovy are well understood.
8. The study conducted by the University of Alberta focused primarily on the effects of GLP-1 agonists on skeletal muscle.
9. The authors of the study observed an increase in heart mass in both lean and obese mice.
10. The study recommended further assessment of cardiac structure and function in clinical studies of weight loss medications.
11. Cardiac muscles play a minor role in pumping blood throughout the body.
12. GLP-1 agonists have been extensively studied for their effects on cardiac tissues.

### Gap-Fill

13. The obese mice in the study lost about \_\_\_\_\_ of their body weight after being administered semaglutide for 21 days.
14. The reduction in skeletal muscle observed in lean mice after the administration of semaglutide was approximately \_\_\_\_\_.
15. The University of Alberta study focused on the effects of semaglutide, the active ingredient in Ozempic, on both lean and obese mice for a duration of \_\_\_\_\_ days.
16. The reductions in overall heart mass and size of individual heart muscle cells were observed to occur



independently of \_\_\_\_\_ loss.

17. The authors concluded that the changes in cardiac structure and function should be diligently assessed in clinical studies of weight loss medications, especially considering the large number of patients who may continue using them in the \_\_\_\_\_.

18. The study on the effects of weight loss medications like Ozempic was published in \_\_\_\_\_.

## Answer

**Multiple Choice:** 1. D. All of the above 2. B. Skeletal muscle 3. B. University of Alberta 4. B. Decrease in overall heart mass 5. B. The Lancet 6. C. Cardiac structure and function

**True-False:** 7. False 8. False 9. False 10. True 11. False 12. False

**Gap-Fill:** 13. 30% 14. 8% 15. 21 16. weight 17. future 18. The Lancet

## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. Which of the following is considered an Artifact?

- Option: A. Ancient pottery
- Option: B. Jungle fever
- Option: C. Endemic disease
- Option: D. Vaccination procedure

2. What term describes something that is added or joined as a helper or supplement?

- Option: A. Toxicity
- Option: B. Skepticism
- Option: C. Adjunct
- Option: D. Diligently

3. Which word means full of danger or risk?

- Option: A. Improvement
- Option: B. Perilous
- Option: C. Alleviation



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Option: D. Excitement

4. Related to mental processes such as perception memory and problem-solving. What term fits this description?

- Option: A. Skeletal
- Option: B. Endemic
- Option: C. Cognitive
- Option: D. Cardiac

5. Which term refers to the presence of unwanted or harmful substances?

- Option: A. Regulated
- Option: B. Undisclosed
- Option: C. Contamination
- Option: D. Consumption

6. Which word means the ability to produce a desired or intended result?

- Option: A. Effectiveness
- Option: B. Toxicity
- Option: C. Efficacy
- Option: D. Hospitalization

7. What term describes the degree to which a substance can damage an organism?

- Option: A. Susceptible
- Option: B. Skepticism
- Option: C. Toxicity
- Option: D. Afflicted

8. Which term refers to the act of placing someone in a hospital for medical care?

- Option: A. Ill-advised
- Option: B. Hospitalization
- Option: C. Cautioned
- Option: D. Symptoms

9. What term is used to describe the act of using up goods or services?

- Option: A. Excitement
- Option: B. Consumption
- Option: C. Wellbeing
- Option: D. Diligently

10. Which term refers to something controlled or governed according to specific rules or principles?

- Option: A. Excitement
- Option: B. Regulated
- Option: C. Skeletal



Option: D. Symptoms

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. An \_\_\_\_\_ disease is constantly present in a particular region or population.
12. Fever cough and fatigue are common \_\_\_\_\_ of a cold.
13. It is advisable to take \_\_\_\_\_ measures to prevent accidents.
14. She \_\_\_\_\_ deleted all her important emails.
15. Regular exercise is essential for maintaining good \_\_\_\_\_ .
16. The region was severely \_\_\_\_\_ by the natural disaster.
17. She worked \_\_\_\_\_ on her research project to meet the deadline.
18. The \_\_\_\_\_ structure of the building was revealed after the fire.
19. Regular exercise is beneficial for \_\_\_\_\_ health.
20. She showed steady \_\_\_\_\_ in her language skills after practicing daily.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

21. Infants are more to infections due to their developing immune systems.
22. Ignoring safety precautions when handling chemicals is .
23. He was about the risks involved in the extreme sport.
24. The medication provided some to her chronic pain.
25. The team's victory brought great to the fans.
26. Regular practice led to a noticeable in her piano skills.
27. Exposure to high levels of mercury can lead to severe in humans.
28. The company faced legal action for their involvement in the scandal.



29. There was widespread about the effectiveness of the new drug.

30. Public health campaigns promote the importance of to prevent diseases.

## Answer

**Multiple Choice:** 1. A. Ancient pottery 2. C. Adjunct 3. B. Perilous 4. C. Cognitive 5. C. Contamination 6. C. Efficacy 7. C. Toxicity 8. B. Hospitalization 9. B. Consumption 10. B. Regulated

**Gap-Fill:** 11. Endemic 12. Symptoms 13. Precautionary 14. Inadvertently 15. Wellbeing 16. Afflicted 17. Diligently 18. Skeletal 19. Cardiac 20. Improvement

**Matching sentence:** 1. Susceptible 2. Ill-advised 3. Cautioned 4. Alleviation 5. Excitement 6. Improvement 7. Toxicity 8. Undisclosed 9. Skepticism 10. Vaccination

## CATEGORY

1. Health - LEVEL4

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### Author

aimeeyoung99

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