



Vitamin B3 Supplements May Aid Cancer Cell Survival, Warn Scientists

Description

A recent study has raised significant concerns regarding the use of widely consumed NAD+ supplements in the United States, suggesting that these compounds, often taken to enhance energy levels and promote healthy aging, may adversely affect cancer treatment outcomes. Millions of Americans routinely use supplements such as nicotinamide mononucleotide (NMN) and nicotinamide riboside (NR) in the hope of increasing NAD+ levels, a molecule vital for metabolism and cellular repair.

Interestingly, some cancer patients have started using these supplements to mitigate the harsh effects of chemotherapy. However, emerging evidence indicates this approach might prove counterproductive. Research from Case Western Reserve University's School of Medicine, published in *Cancer Letters*, found that vitamin B3 derivatives could actually aid pancreatic cancer cells in surviving treatment. This is alarming, as pancreatic cancer has a five-year survival rate of just 13%, making any factor influencing treatment crucial.

NAD+ is essential for the function of both healthy and cancerous cells. While boosting NAD+ levels may benefit healthy individuals, the study demonstrates that cancer cells could exploit this increased supply to enhance their own energy production and resist treatment-induced cell death. In laboratory and mouse studies, particularly NMN demonstrated the capacity to protect pancreatic cancer cells against three common chemotherapy drugs.

The researchers outlined three primary mechanisms by which these supplements could impede treatment: they enhance cancer cell energy, reduce oxidative stress, and limit both DNA damage and cell death, all of which are vital for chemotherapy efficacy.

Jordan Winter, the study's lead researcher, highlighted the need for caution regarding NAD+-boosting supplements in cancer patients undergoing chemotherapy. While the study does not suggest these supplements are harmful to healthy individuals, their potential dangers for active cancer patients may be considerable. Consequently, the team advocates for routine assessments of supplement usage in this demographic and recommends further clinical studies to investigate the interactions between NAD+ supplements and cancer therapies. In the meantime, Winter advises patients to consult their oncologists about any supplements they are consuming.

Vocabulary List:

1. **supplements** //ˈsʌpləmənts// (noun): extra vitamins or nutrients people often take
2. **chemotherapy** //ˌki:məʊˈθerəpi// (noun): treatment using strong drugs to kill cancer
3. **mitigate** //ˈmɪtɪgeɪt// (verb): make something less bad or severe
4. **counterproductive** //ˌkaʊntəprəˈdʌktɪv// (adjective): causing the opposite of the intended result



5. **metabolism** //mə'tæbəlɪzəm// (noun): how the body uses food for energy
6. **efficacy** //ˈefɪkəsi// (noun): how well something works to produce results

Comprehension Questions

Multiple Choice

1. What is the main concern raised by the recent study regarding NAD+ supplements?
Option: They enhance energy levels.
Option: They may adversely affect cancer treatment outcomes.
Option: They are completely safe for cancer patients.
Option: They promote healthy aging.
2. Which two NAD+ supplements are commonly used by Americans?
Option: Nicotinamide adenine dinucleotide and vitamin B3
Option: Nicotinamide mononucleotide and nicotinamide riboside
Option: Nicotinamide and riboflavin
Option: Nicotinamide mononucleotide and vitamin C
3. What journal published the research from Case Western Reserve University?
Option: Journal of Oncology
Option: Cancer Research
Option: Cancer Letters
Option: Medical News Today
4. What is the five-year survival rate of pancreatic cancer?
Option: 40%
Option: 25%
Option: 13%
Option: 50%
5. According to the study, boosting NAD+ levels may benefit which group of people?
Option: Only cancer patients
Option: Only healthy individuals
Option: Both healthy individuals and cancer patients
Option: Neither healthy individuals nor cancer patients



6. Which chemotherapy drugs were mentioned in the laboratory studies regarding NMN?

Option: Three common chemotherapy drugs

Option: Herceptin

Option: Imatinib

Option: Doxorubicin

True-False

7. The study suggests that NAD+ supplements are beneficial for cancer patients undergoing chemotherapy.

8. NAD+ is vital for metabolism and cellular repair.

9. Jordan Winter is the study's lead researcher.

10. Pancreatic cancer has a high five-year survival rate of 50%.

11. The study recommends further clinical studies to investigate the interactions between NAD+ supplements and cancer therapies.

12. NAD+ supplements are considered completely safe for patients with active cancer according to this study.

Gap-Fill

13. NAD+ is essential for the function of both healthy and _____ cells.

14. The study found that NAD+ supplements could help cancer cells resist _____ induced cell death.

15. Research indicated that vitamin B3 derivatives may aid pancreatic cancer cells in _____ treatment.

16. Jordan Winter highlighted the need for caution regarding NAD+-boosting supplements in cancer patients during _____.



17. Researchers outlined three primary mechanisms by which these supplements could impede

_____.

18. The study advocates for routine assessments of supplement usage in cancer patients and recommends

further _____ studies.

Answer

Multiple Choice: 1. They may adversely affect cancer treatment outcomes. 2. Nicotinamide mononucleotide and nicotinamide riboside 3. Cancer Letters 4. 13% 5. Only healthy individuals 6. Three common chemotherapy drugs

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

Gap-Fill: 13. cancerous 14. treatment 15. surviving 16. chemotherapy 18. clinical

Vocabulary quizzes

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

1. What process do plants use to convert sunlight into energy?

Option: Respiration

Option: Photosynthesis

Option: Digestion

Option: Fermentation

2. Which organelle is primarily responsible for photosynthesis in plant cells?

Option: Mitochondria

Option: Nucleus

Option: Chloroplasts

Option: Ribosomes

3. What is the role of NADPH in the photosynthesis process?

Option: Energy production

Option: Electron carrier

Option: Oxygen production

Option: Carbon fixation

4. What condition is characterized by redness, swelling, and pain as a response to injury?



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- Option: Infection
Option: Inflammation
Option: Metastasis
Option: Mutation
5. Which hormone is often released during stress and helps regulate metabolism?
Option: Adrenaline
Option: Insulin
Option: Cortisol
Option: Thyroxine
6. What treatment is commonly used to combat cancer by targeting rapidly dividing cells?
Option: Radiation therapy
Option: Chemotherapy
Option: Immunotherapy
Option: Surgery
7. What small plastic particles pose a significant environmental threat due to their prevalence in oceans?
Option: Nanoplastics
Option: Microplastics
Option: Macrophages
Option: Synthetic fibers
8. What term describes the spread of cancer cells from the original site to other parts of the body?
Option: Invasion
Option: Metastasis
Option: Benign growth
Option: Remission
9. What refers to the likelihood of developing a disease based on genetic or environmental factors?
Option: Immunity
Option: Resistance
Option: Susceptibility
Option: Infection

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

10. Chloroplasts contain structures called _____ that are essential for the light-dependent reactions of photosynthesis.
11. Research at the _____ level often involves studying materials and structures at the



atomic or molecular scale.

12. Many people take dietary _____ to improve their health and fill nutritional gaps.
13. Efforts to _____ the effects of climate change have become increasingly important.
14. The strategy of _____ can sometimes prevent conflict but may lead to unresolved issues.
15. A single-celled organism known as a _____ can be beneficial or harmful to humans.
16. Some strains of bacteria have become _____ to traditional antibiotics.
17. Sometimes, attempts at resolving conflict can be _____ if not handled carefully.
18. Water treatment plants use _____ processes to remove contaminants from drinking water.
19. The _____ of a new drug is often determined through clinical trials.

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

20. The degree of a person's openness to suggestions can vary significantly.
21. The storm began to as winds reached over 100 miles per hour.
22. The process by which your body converts food into energy is known as metabolism.
23. Sounds below the frequency of 20 Hz are referred to as infrasound.
24. Ferrofluid is a liquid that becomes magnetized in the presence of a magnetic field.
25. Proper waste is essential for environmental protection and public health.
26. There are several types of that can harm aquatic ecosystems.
27. Engineers often create a to test new designs before full-scale production.
28. Genetic can lead to variations in traits among organisms.



29. When tissues are damaged, they often exhibit signs of as part of the healing process.

Answer

Multiple Choice: 1. Photosynthesis 2. Chloroplasts 3. Electron carrier 4. Inflammation 5. Cortisol
6. Chemotherapy 7. Microplastics 8. Metastasis 9. Susceptibility

Gap-Fill: 10. thylakoids 11. nanoscale 12. supplements 13. mitigate 14. avoidance 15. bacterium 16.
resistant 17. counterproductive 18. filtration 19. efficacy

Matching sentence: 1. suggestibility 2. intensify 3. metabolism 4. infrasound 5. ferrofluid 6. disposal
7. contaminants 8. prototype 9. mutations 10. inflammation

CATEGORY

1. Health - LEVEL6

POST TAG

1. cancer research
2. ESL learning
3. esl news
4. Level 6
5. popular supplements
6. vitamin B3

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