

# ENDGAMES

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## STATISTICAL QUESTION

### Randomised controlled trials: inferring significance of treatment effects based on confidence intervals

Researchers investigated the effects of a food supplement on body mass in wasted adults with HIV who were starting antiretroviral therapy. A randomised controlled superiority trial was performed. Intervention was a fortified spread food supplement delivered for 14 weeks. Control treatment was a corn-soy blend food supplement—the most commonly available supplementary food in food aid programmes. The setting was a large public clinic associated with a referral hospital in Blantyre, Malawi. Participants were adults with a body mass index (BMI) less than 18.5. A total of 491 participants were recruited and randomised to the fortified spread (n=245) or corn-soy blend (n=246) food supplement groups. The primary outcomes were changes in BMI and fat-free body mass from baseline at 14 weeks.

After 14 weeks of intervention, the mean change in BMI was an increase of 2.2 (95% confidence interval 1.96 to 2.44) for the fortified spread group and 1.7 (95% confidence interval 1.49 to 1.91) for the corn-soy blend group. The mean change in fat-free body mass was an increase of 2.9 kg (95% confidence interval 2.50 to 3.30) for the fortified spread group, and 2.2 kg (95% confidence interval 1.82 to 2.58) for the corn-soy blend group.

Which of the following statements, if any, are true?

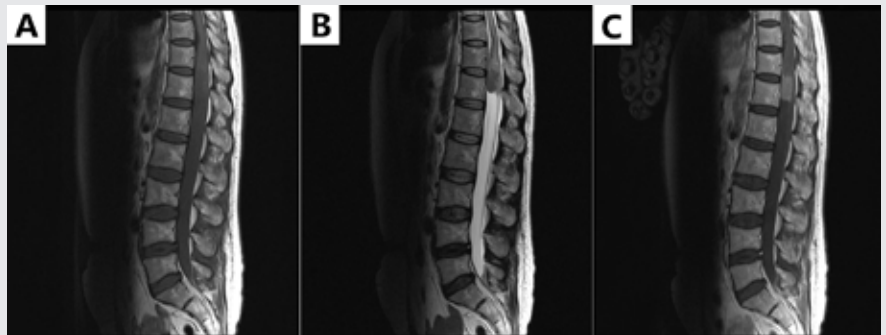
- The difference in fat-free body mass between treatment groups was not significant at the 5% level because the 95% confidence intervals for the two groups overlapped.
- The difference in BMI between treatment groups was significant at the 5% level because the 95% confidence intervals for the two groups did not overlap.

Submitted by Philip Sedgwick

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## PICTURE QUIZ

### A woman with pain and weakness in both legs



A 49 year old woman was admitted with a four month history of progressive pain and weakness in both of her legs. Physical examination showed bilateral tenderness of the hips and sacroiliac joints, along with a decline in muscle strength and tension of the lower limbs. Magnetic resonance imaging was requested (figure). No lytic bone lesions were detected by radiography. Plasma cells made up less than 2% of nucleated cells in a bone marrow aspirate

and biopsy sample, and there was no evidence of a plasma cell neoplasm. No monoclonal proteins were found on electrophoresis or immunofixation of the serum or urine. She did not have anaemia, renal insufficiency, or hypercalcaemia. Phenotyping of peripheral blood lymphocytes showed that the proportion of CD16<sup>+</sup>CD56<sup>+</sup>CD3<sup>-</sup> natural killer cells (5.34%) was low compared with the reference values in our laboratory (14.91%, standard deviation

4.87% in 68 healthy controls). No disturbance in the CD4 to CD8 ratio was noted.

- What do the magnetic resonance images show?
- What are the differential diagnoses?
- What is the diagnosis?
- How would you manage this patient?

Submitted by Shuang Wang, Wen Wang, Xiao-yuan Dong, and Jun Peng

Patient consent obtained.

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## ANATOMY QUIZ

### Axial T2 weighted magnetic resonance image of the base of the brain

Identify the structures labelled A, B, C, D, and E in this axial T2 weighted magnetic resonance image of the base of the brain.

Submitted by Ming-Hua Zheng and Ke-Hua Pan

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