

## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

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### Acid-Base Balance-Electrolyte Quiz – Case 67

Which of the following statements concerning potassium homeostasis is wrong?

- (a) Increased potassium intake is associated with decreased sodium reabsorption in the early distal tubular cells (DCT1).
- (b) Aldosterone plays a crucial role in potassium homeostasis.
- (c) Increased sodium and fluid delivery to the collecting tubules is associated with kaliuresis.
- (d) Increased potassium intake is associated with increased activity of  $H^+-K^+-ATPase$  in intercalated cells.

#### Comment

*Aldosterone plays a cardinal role in potassium homeostasis since elevated potassium levels are associated with increased aldosterone levels leading to kaliuresis through several mechanisms. However increased potassium intake is associated with reduced*

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**E. Christopoulou,  
A. Lontos,  
M. Elisaf**

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*Department of Internal Medicine,  
Medical School, University of Ioannina,  
Ioannina, Greece*

*sodium reabsorption throughout the nephron and mainly in the early DCT1 due to decreased activity of the sodium-chloride cotransporter (NCC). Thus, increased sodium and fluid delivery in the collecting tubules is associated with increased potassium excretion through the BK potassium channels. In cases of a negative potassium balance (and not in cases of increased potassium intake), increased activity of the  $H^+-K^+-ATPase$  is observed leading to increased potassium reabsorption in the intercalated cells.*

Corresponding author:

M. Elisaf, Department of Internal Medicine, Medical School, University of Ioannina, 451 10 Ioannina, Greece  
e-mail: melisaf54@gmail.com

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**Answer:** Increased potassium intake is associated with increased activity of  $H^+-K^+-ATPase$  in intercalated cells

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