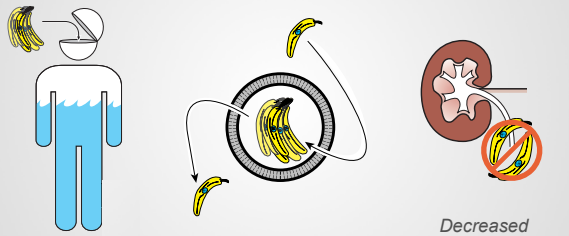
Hyperkalemia

Introduction and increased intake

Hyperkalemia is a **potassium over 5.4 mmol/L**

Three causes of hyperkalemia

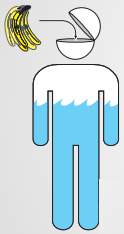


Increased intake

Extracellular shift

Decreased potassium excretion

Increased intake

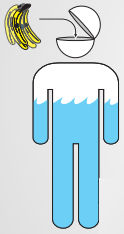


Increased intake

Unusual cause of hyperkalemia without concurrent renal failure

- Salt substitues
- TPN
- Enteral supplements
- Blood transfusions
- High potassium foods
- Penicillin
- Dialysate

Increased intake: salt substitutes



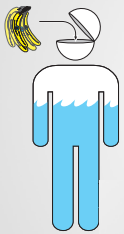
Increased intake

Salt substitues

620 mg of potassium per ¼ teaspoon

15 mmol of potassium per ¼ teaspoon

Increased intake



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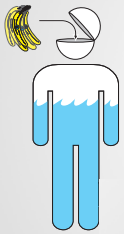
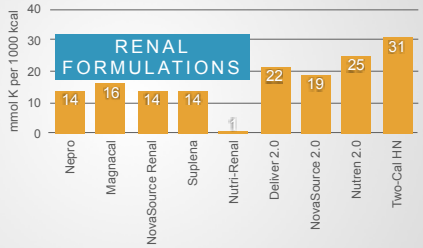
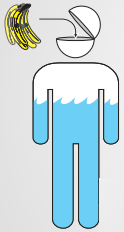
Increased intake: enteral feeds



Increased intake



Increased intake



Increased intake

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Increased intake: blood transfusions

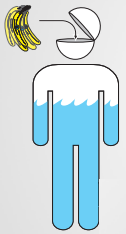
Serum Potassium for PRBC: 12-40 mEq/L

Volume of PRBC: 250 mL (approx)

Hematocrit: 65%

0.25 L x (1 – 0.65) x 40 mmol/L = 3.5 mmol

Increased intake



Increased intake

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Increased intake: high potassium foods

Tomato Juice: 58 mmol/L

Noni Juice: 56 mmol/L

Orange Juice: 51 mmol/L

Pineapple Juice: 34 mmol/L

Increased intake: high potassium foods

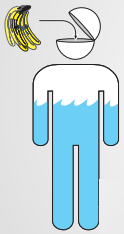
1 cup of white beans has
25 mmol of potassium

1 cup of cooked spinach has
20 mmol of potassium

1 baked potato has
23 mmol of potassium

1 banana has
1 mmol of potassium per inch

Increased intake



Increased intake

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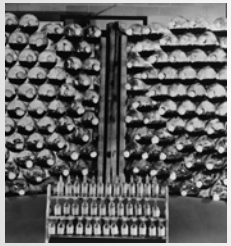
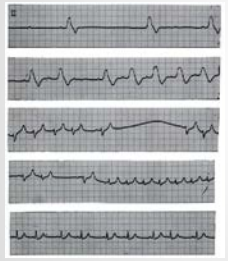
Increased intake: penicillin



Penicillin contains 1.7 mmol of potassium per million units

Increased intake: penicillin



Cardiac Arrest due to Hyperkalemia following Intravenous Penicillin Administration*

Charles W. Mercer, M.D. and Joseph B. Logic, M.D.

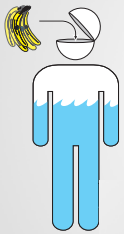
Increased intake: penicillin

"On the fourth hospital day, while the penicillin was inadvertently given as an intravenous *push*, the patient's eyes and head deviated to the right and she became unresponsive. An ECG revealed ventricular fibrillation from which she was quickly resuscitated…"

"On the eighth hospital day, she again received 4 x 10^6 units of the same penicillin preparation intravenously in a drip inadvertently given rapidly in a 10-15 min period. Another episode of cardiac arrest occurred…"

Mercer CW, Logic JR. Cardiac arrest due to hyperkalemia following intravenous penicillin administration. Chest. 1973;64(3):358-9.

Increased intake



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Increased intake: dialysate

Dialysate can be custom compounded in the pharmacy. Potassium is an ingredient.

Mistakes happen