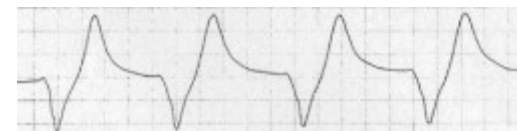
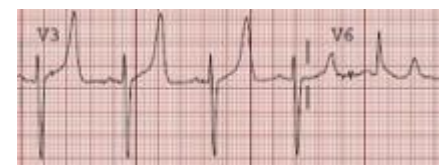


Foundations EKG II - Unit 10 Summary

Potassium Derangement

The heart relies on a fine balance of potassium to function normally. EKG findings suggestive of potassium derangement can provide important diagnostic clues to the astute physician. Although EKG changes typically occur in a predictable pattern according to level of potassium this is not a hard and fast rule.

Potassium level (mEq/L)	EKG changes
5.5-6.5	Tall, peaked T waves Shortened QT interval
6.5-8.0	Flattening or disappearing P wave Widening QRS
>8.0	Absence of P wave QRS widening into sine wave



Common causes of hyperkalemia include: impaired renal function, medications that decrease urinary excretion (ACE inhibitors, ARBs, diuretics such as spironolactone), Aldosterone deficiency, rhabdomyolysis, massive blood transfusion, hemolysis, acidosis, and digoxin toxicity.



Consider **hyperkalemia** as a cause of bradycardia. This may start as a sinus bradycardia but can progress into a **junctional escape rhythm**. As potassium increases the QRS widens.

Treatment of hyperkalemia should include:

- stabilization of the cardiac membrane with IV calcium
- shifting potassium with combination of IV insulin and IV dextrose
- nebulized albuterol, IV push sodium bicarb
- increasing clearance of potassium with kayexalate, loop diuretics, renal replacement therapy



Hypokalemia (potassium less than 3.5 mmol/L) can cause EKG changes including:

- prolonged PR interval
- widened T-wave
- presence of U-waves
- QT prolongation
- ST depression

Most EKG changes occur when potassium is less than 2.7 mmol/L. As hypokalemia worsens patients are at risk for frequent ectopic rhythms progressing to ventricular fibrillation, ventricular tachycardia, or Torsades de Pointes.

Causes of hypokalemia include diarrhea, dialysis, hyperaldosteronism, hypomagnesemia, and medications such as furosemide and steroids.