

**THE pH KING: Track 2**

*This song touches on pH balance within the body, including the maintenance of pH by buffers and the causes and cures for some imbalances. References to acidosis are in red (blue litmus paper will turn red in an acidic solution, pH < 7.0). References to alkalosis are in blue (red litmus paper will turn blue in a basic solution, pH > 7.0).*

You got your Yang, you got your Yin  
 You got your queen, you got your king  
 You got your acid, you got your base  
 Hey – balance is required, balance is required

Buffers are my jesters  
 Said the pH king  
 Reversible reactions  
 Balance pesky H<sup>+</sup> and OH<sup>-</sup> things\*

pH measures levels of acid and basic ions and molecules  
 Like royalty swapping partners  
 Buffers are peace-inducing tools

CHORUS:

ECF pH 7.35 - .45  
 Necessary to life  
 Acidosis – pH low  
 Alkalosis – pH high  
 Metabolic chemically created  
 Respiratory breathing related  
 Balance is required, balance is required

My kingdom for a proton (H<sup>+</sup>)  
 Moaned the pH king  
 I'm in metabolic alkalosis  
 From all this vomiting

When there is a pH change  
 Royal kidneys can compensate  
 Affecting ECF pH by changing  
 Absorption and excretion rates

Respiratory alkalosis not so bad  
 Hypocapnia from hyperventilation  
 Chemoreceptors will calm breathing  
 His Highness won't desert the nation

CHORUS

Can someone raise the king's pH  
 Respiratory acidosis has drawn its sword  
 Efficient breathing makes CO<sub>2</sub> go  
 Inadequate breathing CO<sub>2</sub> will hoard

Elevated CO<sub>2</sub> plasma pressure  
 Drives the system to more carbonic acid  
 The king has the most common imbalance  
 With a cigarette between his lips

Acidosis can lead to hyperkalemia  
 When the majestic heart might skip a beat  
 Inquire as to diuretic use  
 Infuse buffers or a hypotonic treat

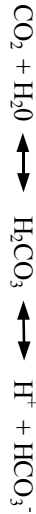
CHORUS

Carbonic acid and bicarbonate  
 Buffer the King's ECF  
 System highly affected by breathing  
 The king better lay off of cigarettes

The phosphate buffer system  
 Helps control pH of the ICF  
 Allowing cellular activity  
 To progress and to prevent death

Both electrolytes and fluid  
 Balanced by even a peasant's hormones  
 Move the salt and water will follow -  
 ANP, BNP, ADH, aldosterone

\* When discussing acids and bases,  
 H<sup>+</sup> = hydrogen = proton = acid  
 OH<sup>-</sup> = hydroxide = alkaline = base  
 (HCO<sub>3</sub><sup>-</sup> is an important contributor to alkalinity in the body. )



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