

## White Knight



HKCEM Toxicology Subcommittee  
Presentation  
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A&E Department  
QMH

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## Case History

- M38, Thai boxing player
- Took an overdose(7 tabs) of body building drugs prior to a match
- Name: 白武士
- Also took 2 unknown tabs
- Aim at rapid weight reduction

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## Case History

- Developed repeated vomiting 3.5 hours later
- Epigastric pain
- Dizziness
- Presented to A&E at 9 hr post ingestion

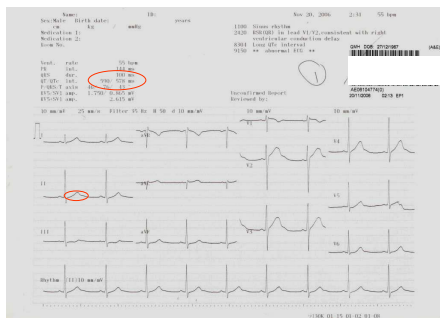
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## Physical findings

- Alert, BP: 142/80, P: 55/min
- Pupils 4mm reactive
- Skin normal, no bladder distension
- BS +ve
- Venous i-stat: Na 137, K 2.7, pH 7.57, pO<sub>2</sub> 5.2, pCO<sub>2</sub> 4.54, HCO<sub>3</sub> 31.2, BE 9

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## ECG as shown



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## Some more information

- Cl: 97mmol/L (100-110)
- iCa: 0.99 mmol/L (1.05-1.28)
- Calcium in plasma: 50% ionized, 40% bind to proteins, 10% bind to anions
- Ionized calcium is the necessary plasma fraction for normal physiological process
- Acute alkalaemia increases binding of calcium to albumin and decreases the ionic calcium

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## Acquired Prolonged QTc Goldfrank's

<b>Antidysrhythmics</b> Class IA and IC drugs Class III	<b>Electrolyte disturbances</b> HypoK HypoCa HypoMg
<b>Nonantidysrhythmics</b>  <b>Psychotropics:</b> phenothiazines, atypical antipsychotics, TCA, tetra-cyclic antidepressants Anti-HT: bepridil, ketanserin  <b>Antimicrobials:</b> erythromycin, septrin, pentamidine, amantadine, chloroquine <b>Antifungals:</b> ketoconazole, itraconazole <b>Antihistamines:</b> terfenadine, astemizole  Others: cisapride, cocaine, organic phosphorous insecticides, arsenic, vasopressin	<b>Other conditions</b>  <b>Cardiac disorders:</b> myocarditis, ventricular tumour  <b>Endocrine disorders:</b> hypothyroidism, hypoPTH, pheochromocytoma  <b>Intracranial disorders:</b> SAH, CVA, encephalitis, HI  <b>Nutritional disorders:</b> liquid protein diet, starvation  Severe bradycardia

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## Guess what is 白武士?

Possible ingredients for body builders, fat burners and weight reducing agents:

- Nutrients supplements: carbohydrates, amino acids, vitamins and minerals
- Herbs to 'speed up metabolism and fat burning', caffeine, omega 3, natural fat blockers
- Stimulants, diuretics, GHB, thyroid hormones, appetite suppressants

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## Most likely offending ingredients

From clinical pictures: Repeated vomiting and hypok

- Methylxanthines
- Sympathomimetics
- Salicylates
- Diuretics

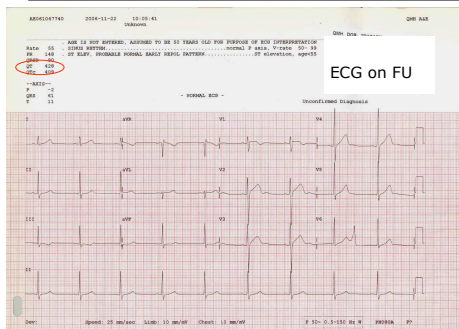
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## Progress of this patient

- Symptomatic treatment in Emergency Ward
- IV fluid and K replacement
- Improved the next day
- FU 2 days later: Asymptomatic

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pH 7.38, pCO<sub>2</sub> 6.67, pO<sub>2</sub> 3.6, HCO<sub>3</sub> 29.6, BE 4, Na 140, K3.8, iCa1.25



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## Toxicology Results

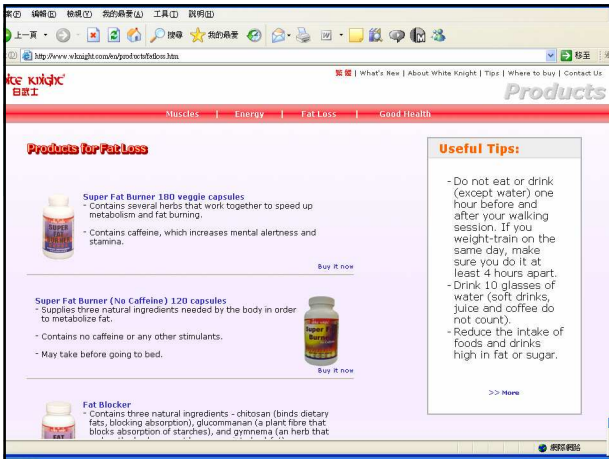
Blood

- Salicylate: 0.5mmol/L (1.4-1.8)
- Paracetamol, ethanol –ve

Urine

- Salicylate, Metoclopramide, Phenylpropanolamine, Ephedrine/Pseudoephedrine

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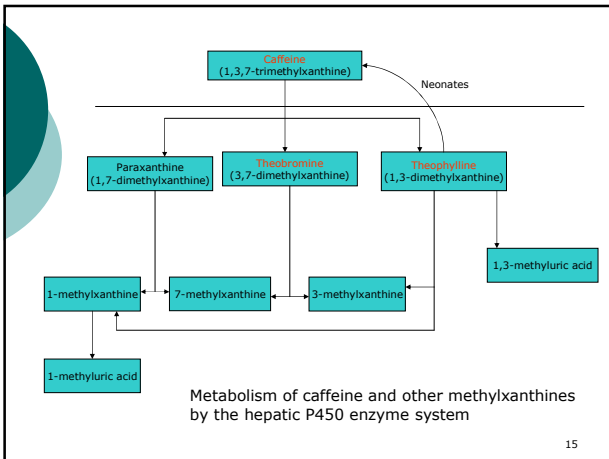
## Ingredients of 白武士 Super Fat Burner

### Guarana 瓜拿納

- Contains methylxanthine **theophylline**, the
- Used in soft drinks
- Have very similar properties and cause similar effects: release of endogenous catecholamines, resulting in stimulation of  $\beta_1$  and  $\beta_2$  receptors



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## Ingredients of 白武士 Super Fat Burner

### Sida cordifolia 心葉黃花 稔萃取物

- Plant native to India
- Contains **ephedrine** (~1%)
- Effects identical to Ma Huang
- CNS stimulant, diaphoretic, diuretic
- Aid in fat loss



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## Ingredients of 白武士 Super Fat Burner

### Citrus aurantium (Bitter orange)

- Contains
  - **Synephrine**
  - Citric acid
  - Hesperidine flavinoids
- Sympathomimetic effects



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## Ingredients of 白武士 Super Fat Burner

### Willow 柳

- Contains
- Contains
- Contains



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## Ingredients of 白武士 Super Fat Burner

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### Non-toxic ingredients

- Cayenne
- Green tea extract
- Grape fruit extract
- L-tyrosine
- Ginger

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## Take home message

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- Overdose of plant or herbal extracts containing health products can be dangerous
- As consumers, products with: natural/herbal ingredients  $\neq$  safe

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## Thank you!

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