

有吃有保佑 吃落出代誌

情緒類營養品解析

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今日大綱

- 行為問題的本質與困境
- 為什麼選擇營養補充品(Supplements)
- 補充之前，先談營養
- 成分個論
- 國內外常見產品
- 注意事項



獸醫師國家考試合格

中興大學獸醫系 學士

台灣大學獸醫所 神經生理實驗室 碩士

英國林肯大學臨床動物行為學 碩士

長庚醫學大學 神經內科/生物機電 研究助理

湖光動物醫院 獸醫師

粉專- 獸醫師阿默 小動物的日常行為

會思考的狗工作室 行為獸醫師

Fear Free Professional certificated

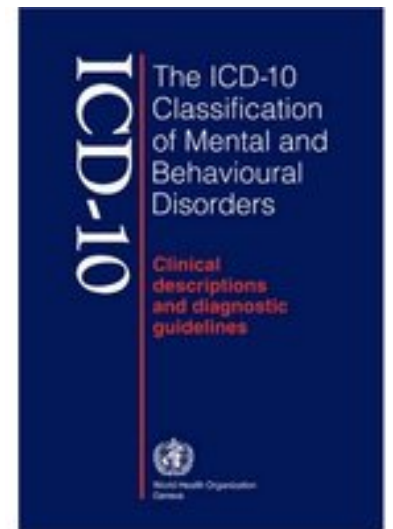
現駐診於逗號動物醫院



行為問題的本質與困境

心理性疾患的異質性 (heterogeneous)

- 診斷標準(Criteria) 不停修改
- 各國家/學會發展各自的標準/詞彙 (Term)
- 大量使用問卷 (Questionnaire) 與量表 (Scale)
- 飼主的觀察/ 主觀因素
- 同樣的行為表象，不同的動機
- 同樣的診斷，不同的原因
- 個案間差異太大，很難有統一的建議與處置





Depression:

- Neurotransmitters: Norepinephrine, Serotonin, Dopamine...
- Brain regions: Frontal lobe, Hippocampus, Temporal lobe, Thalamus, Striatum, and Amygdala...
- Imbalance of Monoamine > Serotonin deficiency

Anxiety:

- Neurotransmitters: GABA, Serotonin, Norepinephrine...
- Brain regions: Amygdala, Hippocampus, dorsal anterior cingulate Cortex (dACC), and Ventromedial prefrontal Cortex...

Obsessive-compulsive disorder (OCD)

- Neurotransmitters: Glutamate, GABA, Dopamine...
- Brain regions: Striatum (caudate and putamen), anterior Thalamus, anterior cingulate Cortex, and orbitofrontal Cortex

我們到底在討論什麼？

- Animal behavior (動物行為)
 - Ethology (動物行為) : Ecology, Biology, Evolution, Comparative psychology...
 - Anthropomorphism
 - Animal mind...? : Cognition, Spirit, Consciousness, Intelligence...



為什麼選擇營養補充品 (Supplements)

營養品(Supplements)的優勢

- 對身心科藥物的刻板印象
- 相較於藥物與訓練，風險較低
- 使用限制較少
- 老年、其他醫療考量
- 未完全投予也無妨
- 不穩定/不可靠的飼主



營養品(Supplements)的劣勢

- 效果有限
- 個體差異大，報告結果無定論
- 投予對象常為挑食、食慾不佳
- 多為口嚼錠，若適口性不佳，投予困難
- 成本高昂
- 大部分需要使用一段時間

補充之前，先談營養

Nutraceuticals : 營養醫學/ 食療

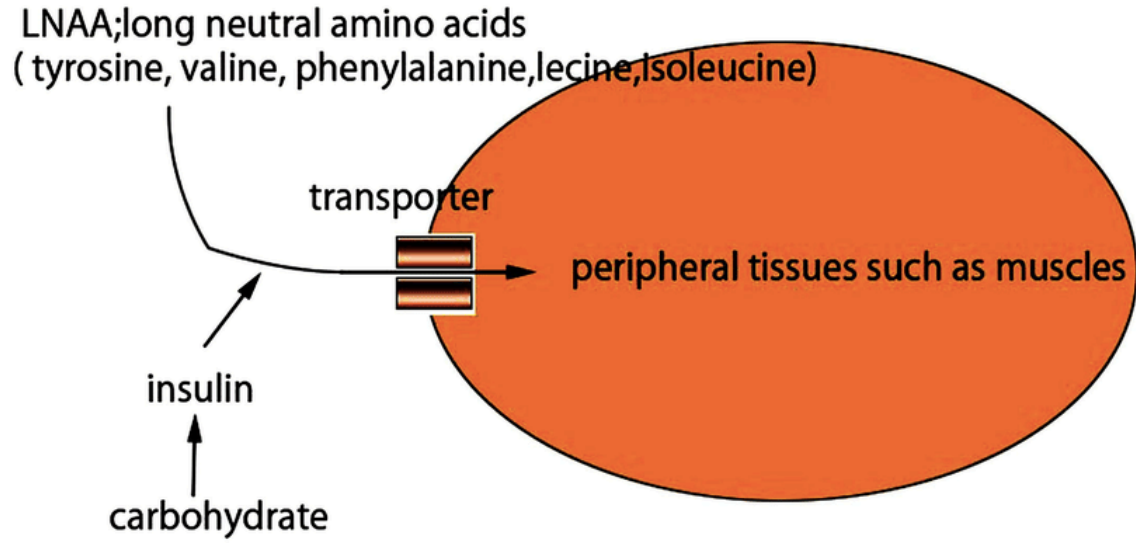
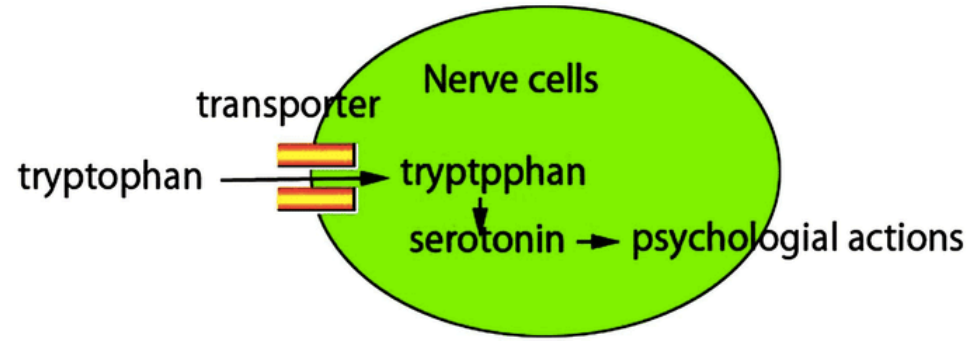
- A balanced mood is supported by a balanced diet.

營養均衡，才有穩定的情緒！以下營養素都參與了情緒調節

- Protein: L-tryptophan, Tyrosine...
- Fat: Cholesterol, Omega-3, Omega-6...
- Carbohydrate: Insulin
- Vitamins: B, C...
- Trace Minerals: Magnesium, Calcium...

單單提個胺基酸....

- L-Tryptophan availability⁽³⁾
 - Large neutral amino acids (LNAA): Tyrosine, Leucine, Isoleucine, Valine, Phenylalanine ...
 - Competitive nature of the transporter for LNAA at the blood-brain barrier.
 - A High L-Tryptophan/LNAAs meal promote L-Tryptophan availability in brain.
 - Carbohydrate ingestion increased the secretion of insulin which raised plasma levels of tryptophan and lowered the concentrations of the competing amino acids.
 - Vitamin B₆ act as rate limiting cofactor in the synthesis of neurotransmitters



Comfort food

From Wikipedia, the free encyclopedia

For the Noah Ashenhurst novel, see [Comfort Food \(novel\)](#).

Comfort food is kinds of [food](#) that provides a [nostalgic](#) or sentimental value to someone,^[1] and may be characterized by its high [caloric nature](#), high [carbohydrate](#) level, or simple [preparation](#).^[2] The nostalgia may be specific to an individual, or it may apply to a specific [culture](#).^[3]

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4 [See also](#)



WIKIPEDIA
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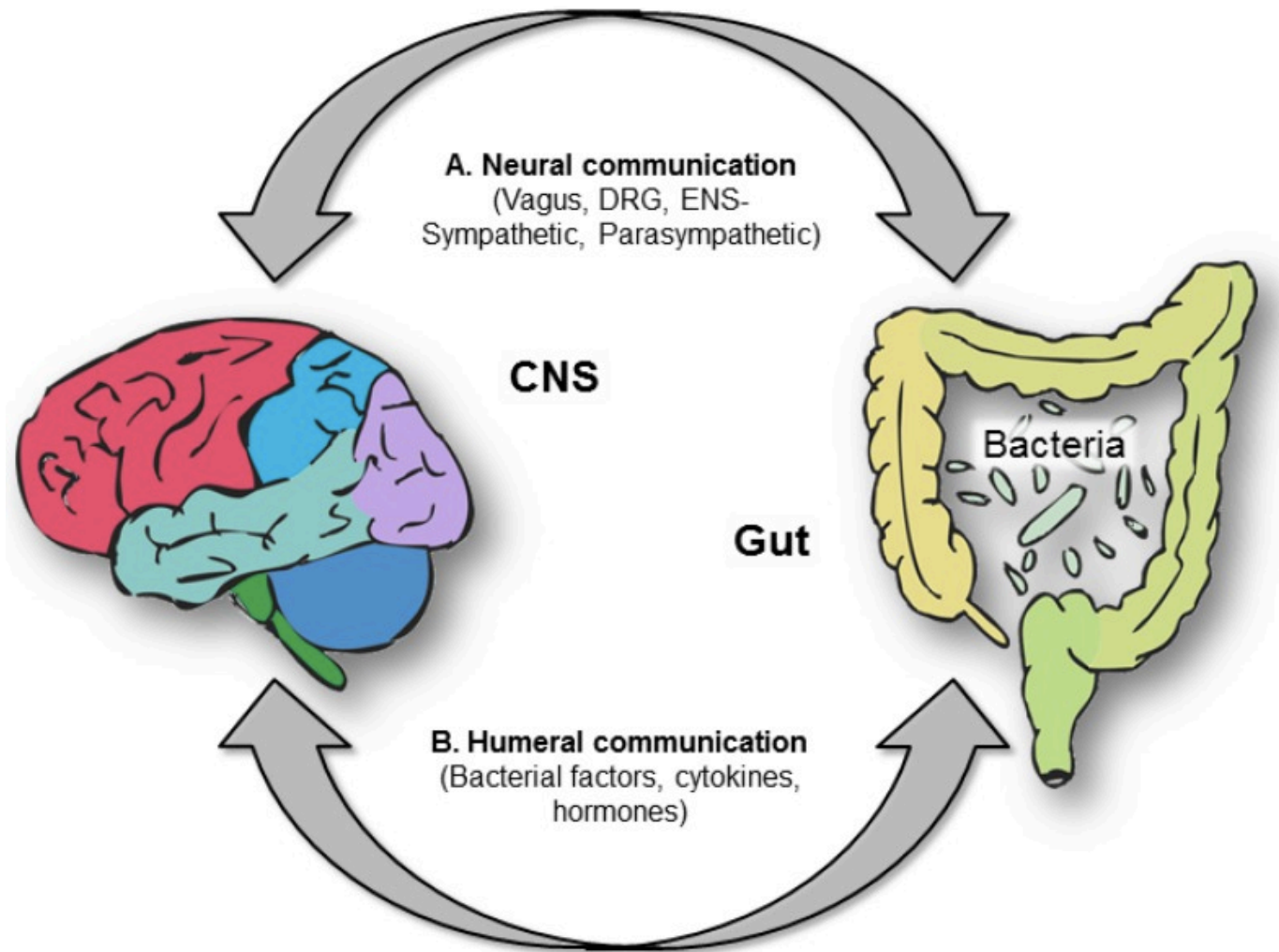
4 See also

Taiwan [edit]

Main article: [Taiwanese cuisine](#)

- [Beef noodle soup](#)^[79]
- [Dan zai noodles](#) — noodles and prawn with broth^[80]
- [Minced pork rice](#)^[80]
- [Oyster omelette](#)^[81]
- [Red bean soup](#)^[82]
- [Small sausage in large sausage](#) — grilled sausage in a rice casing^[81]
- [Tangyuan](#) — filled rice dumplings in sweet syrup^[82]

Brain-gut axis (2)



- Central serotonin production represents just 5% of total serotonin synthesis.
- The enterochromaffin cells in the gastrointestinal epithelium account for ~90% of all serotonin synthesis.
- It is becoming clear that the microbial influence on tryptophan metabolism and the serotonergic system

- " Complete " diet
 - Functional ingredients added



ROYAL CANIN VETERINARY DIET
Canine/Feline CALM dry food
(Unavailable in Taiwan)



Hill's Prescription Diet c/d
Multi-care Feline Stress



Hill's Prescription Diet b/d
Brain age care
(Unavailable in Taiwan)



Purina Pro Plan Veterinary Diets
NC NeuroCare
(Unavailable in Taiwan)

• Supplements

- Complex mixtures
- Combinations might be synergistic or antagonistic

成分個論

Classification of common dietary supplements ⁽³⁾

- Neuroprotective agent 神經保護
- Source of energy for the brain metabolism 參與神經代謝/提供能量
- Molecules of compounds that are structurally analogue to neurotransmitters 結構型似神經傳導物質
- Precursors of neurotransmitters 神經傳導物質的前驅物

L-Tryptophan(TRP) 左旋色胺酸

- Essential amino acid
- Foods that are rich in tryptophan: Chicken, banana, milk, soybean, chocolate...
- Precursors of neurotransmitters (serotonin and melatonin)
- 血清素系統(serotonergic system)低落容易發展成憂鬱或是焦慮傾向 (4, 5, 6)
 - 實驗動物：腦中serotonin低者對於社交壓力較敏感(4)
 - 狗：血中serotonin低者與表現攻擊性有關(5, 7)
 - 血清素本身無法通過血腦屏障



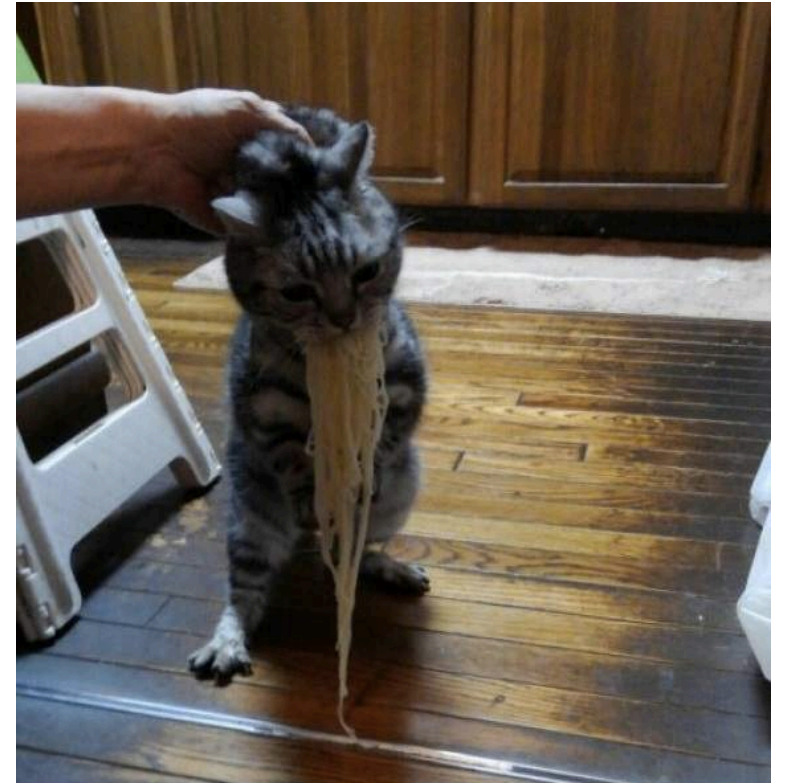
L-Tryptophan(TRP) 左旋色胺酸

- 可以穿過血腦障壁，但需與其他Large neural amino acid (LNAAs)競爭⁽⁸⁾
- 需考量飲食中L-Tryptophan 和LNAAs的比例，富含色胺酸的食物，通常也富含其它LNAAs
- 無確實的建議補充劑量
- Single low-protein, high-carbohydrate diet led to a higher TRP/LNAAs ratios and possibly, a higher TRP bioavailability in 6 hours. ⁽⁷⁾
- 其他會影響色胺酸的因子⁽⁹⁾
 - Brain-gut axis⁽²⁾、Corticosteroids⁽⁸⁾、發炎、腸道菌叢、抗氧化物.etc.

L-Tryptophan(TRP) 左旋色胺酸

- 貓呢？
 - Low-protein, high-carbohydrate diet for carnivores?
 - The diet study (RC: Feline CALM dry food)^(10, 18)
 - Significantly increased the ratio of plasma tryptophan to large neutral amino acids
 - Decreased urinary cortisol concentrations
 - Multiple supplement : alpha-casozepine+ tryptophan

圖文不符之我是肉食獸...



L-Tryptophan(TRP) 左旋色氨酸

- Commonly found in commercial supplement mixture and nutraceutical diets.
- Generally calming/ anxiolytic effect.
 - Reduce stress-related behaviors in cats and working dogs⁽¹¹⁾
 - Reduce dominant and territorial aggression in dogs⁽¹²⁾
- Side effect induced by higher doses(70-220 mg/kg) were reported in human⁽¹³⁾.

L-Theanine 左旋茶胺酸

- Found in green tea
- Molecules of compounds that are structurally analogue to neurotransmitters
- Glutamate antagonist, 抑制興奮性的神經傳導物質
- 增加腦中特定部位的GABA, dopamine, serotonin
- 並無確實的建議劑量



L-Theanine 左旋茶胺酸

- Decrease social fear toward human⁽¹⁴⁾, and storm sensitivity in dogs⁽¹⁵⁾
- Decrease inappropriate toileting and avoidance behaviors in cats⁽¹⁶⁾
- Improvement takes 2-4 weeks to be seen, but twice a day for 2 months is recommended

Alpha-Casozepine

- Bovine milk protein alpha-S1 casein (酪蛋白) derivative
- Molecules of compounds that are structurally analogue to neurotransmitters (GABA_A agonist)
- Benzodiazepine-like effect
- Long-term treatment: 15mg/kg for 2-4 weeks
- Decrease fearful and anxious behaviors in cats ⁽¹⁰⁾
- Significantly decreased cortisol level in anxious dogs ⁽¹⁷⁾

Alpha-Lactalbumin

- Derived from the whey protein (乳清蛋白) of bovine milk
- Precursors of neurotransmitters (serotonin)
- Rich in amino acids including functional ingredients tryptophan
- Long-term treatment
- Improve cognitive tests and ability to cope with stress⁽¹¹⁾
- Serotonin depletions in brain caused by chronic anxiety

Melatonin 褪黑激素

- 內生性的激素
- 年紀增長，分泌漸不足
- Sleep-wake cycle disorders especially in elder animals
- Act as GABA_A agonist and may inhibit dopamine
- Anxiety, fear of thunder and fireworks
- 0.1mg/kg suggested (1.5-3 mg for small dogs/cats, 6-12 mg for large dogs)⁽¹⁹⁾
- 台灣未有保健品許可

S-adenosyl-L-methionine (SAMe)

- Neuroprotective agent/ Anti-oxidant
- Might increase serotonin levels, improve depressive state in human⁽¹⁹⁾
- Improve executive function in both aged dogs and cats ⁽²⁰⁾
- Social interactions and disorientation in dogs with CDS⁽²¹⁾
- Should not be administration with tramadol ⁽¹⁾

Medium Chain Triglycerides (MCT)

中鏈脂肪酸

- Source of energy for the brain metabolism
- 年紀增長，神經減少使用單醣作為能量來源
- MCT轉化為ketone bodies(酮類)作為替代能量來源
- Adjunctive treatment for cognitive dysfunction syndrome in dogs
- 須長期使用 (一個月以上)
- 加入日常飲食，取代能量來源5%以上 (5.5%, 6.5%) (11)

Anti-oxidants 抗氧化物

- Vitamin: C, E
- Carotenoids 類胡蘿蔔素
- Ginkgo biloba 銀杏
- Reveratrol 白藜蘆醇
- Alpha-lipoic acid (硫辛酸) and L-carnitine(肉鹼)

國內外常見商品



Anxitane® S 安麗寧®

- L-Theanine
- 一天兩次，至少兩個月



Novifit® 蘇活沙美

- SAMe



Zylkene® (未正式上市)

- Alpha-Casozepine
- Social phobia in cats and anxiety in dogs
- Long-term and short-term effect



SOLLIQUIN® (未上市)

- L-Theanine/ Magnolia / Phellodendron/ Whey Protein (Alpha-Lactalbumin)
- Initial period for 30-45 days, or before event
- 一天一次，事件前可加強



TRANQUILE® 穩錠

- L-Tryptophan/ Taurine / Vitamin B3, 6, 12
- 長期使用：7天休息2天/ Before event



YuCALM® 優抗 犬/貓

- Lemon Balm / L-Theanine / Vitamin B complex/ Fish protein hydrolysate
- 一天一次



Nutrazyl® 樂寵壓易紓

- L-Tryptophan/ L-Theanine / Vitamin B complex/ GABA/ Passiflora



Composure® 情緒調節保健 犬/貓嚼錠

- L-Theanine / Vitamin B1 complex/ Colostrum Calming Complex® Biopeptide Blend



紓壓胺基酸/情緒好放鬆保養粉

- Tryptophan/ L-Theanine / SAME/ GABA/ 初乳蛋白



Senilife® 腦力活

- Phosphatidylserine/ pyridoxine/ ginko biloba extract/ resveratrol / Vit E
- Improve scores for disorientation, interaction, sleep-wake cycle and short-term memory in dogs⁽²²⁾



Golden Age 長青保®

- Acetyl-L-Carnitine/ Vitamin B complex/ Alpha lipoic acid/ Bioflavanol/N-Acetyl-Cystein
- Anti-oxidant effects



Pet Remedy® 放輕鬆

- 纈草(*Valeriana officinalis*) 和其他草本萃取物
- GABAergic effects which work instantly



FELIWAY® (F3)

- Feline facial fraction F3
- Stress over resources and threats
- Transport and hospital stress



FELIFRIEND® (F4)

- Feline facial fraction F4
- Inter-cat aggression
- Aggression towards unfamiliar people



ADAPTIL[®] (未上市)

- Dog Appeasing Pheromones
- Anxiety and insecurity-related problems



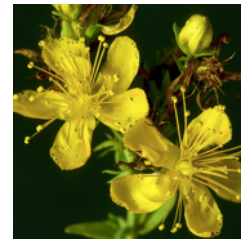
ADAPTIL[®] Oral tablet (未上市)

- L-Tryptophan/ L-Theanine / GABA/
Vitamin B complex

注意事項

- Serotonin syndrome

- Neurological, autonomic, gastrointestinal symptoms: Seizures, tremors, depression, restlessness, mental confusion, tachycardia, hyperthermia, hypersalivation, GI conditions, coma, death...
- Avoid prescribing serotonergic medications and functional ingredients that also increase serotonin
- Serotonergic medications : SSRIs, SNAIs, TCAs, MOAIs...
- Functional ingredients : Tryptophan, SAMe, L-Theanine, Melatonin, Alpha-Lactalbumin...
- Risky combination : w Tramadol/ Fentanyl/ Amitraz/ Dextromethophan/ St. Johns wort/ 藤黃果/ 人蔘/ 紅景天...
- Prescription diet?



- Serotonin syndrome

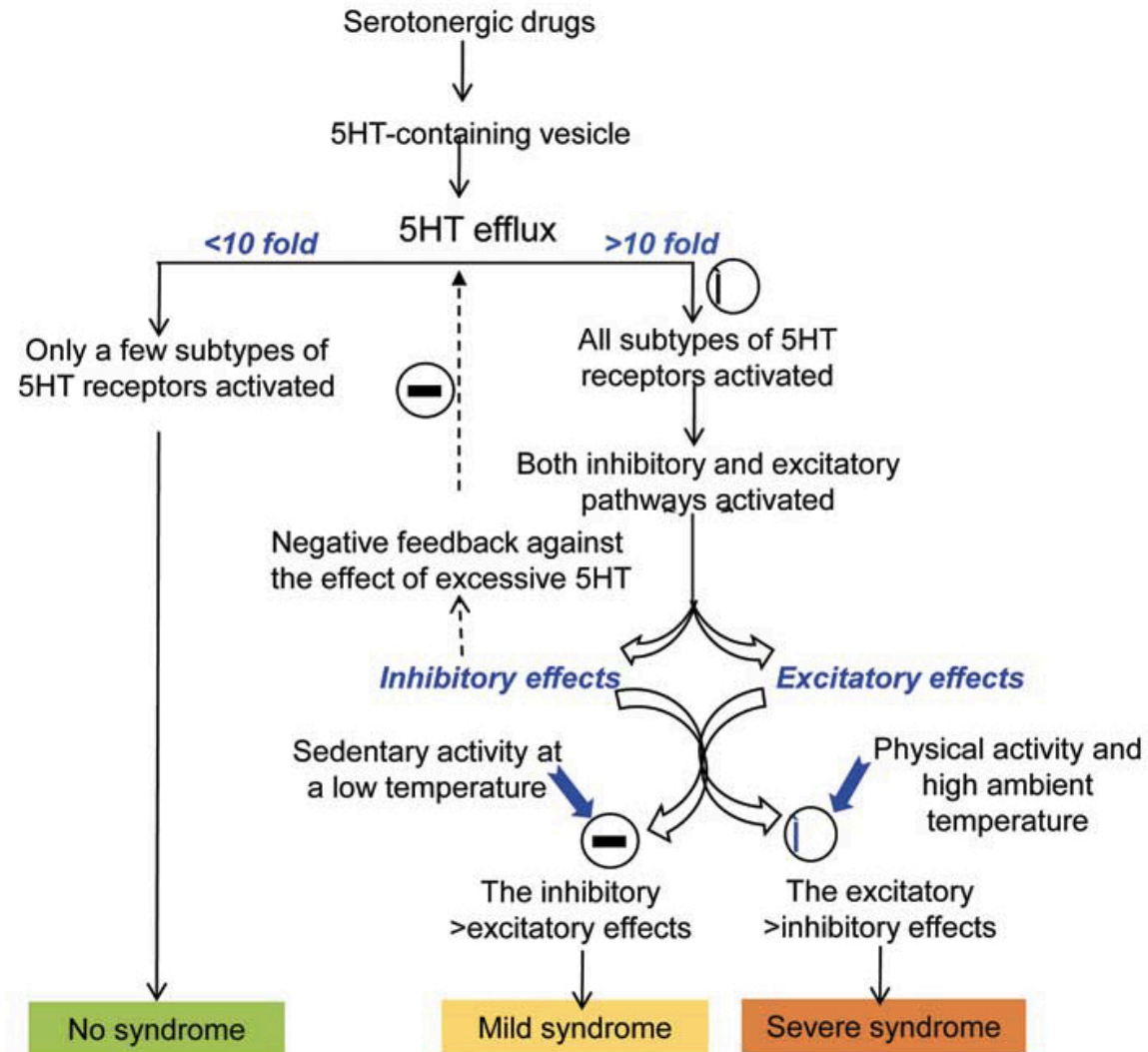
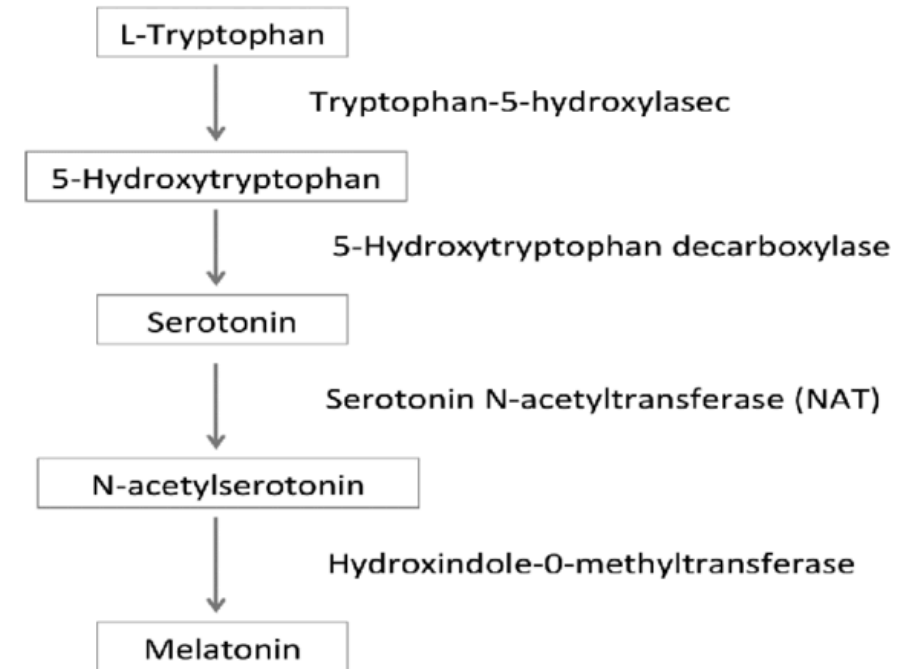
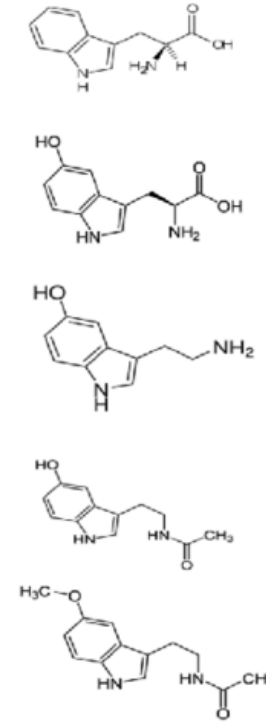


Fig. 2. Pathways responsible for no, mild and severe serotonin syndrome

5-hydroxytryptophan (5-HTP)

- Toxicity in dogs, 90% (19/21) developed serotonin syndrome ⁽²³⁾
- One capsule (500mg) would be sufficient to produce adverse effect in dogs.



感謝您的聆聽！

祝您情緒穩定！



逗號動物醫院
Dog House Animal Hospital



有問題？請掃我！

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