生食實驗

RAW PROOF

為期24個月的研究調查
適合狗狗的飲食

The results of a 24-month research investigation
into a species-appropriate diet for dogs

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為期24個月的研究調查適合狗狗的飲食

我們開始調查兩件事。
1. 是否可以自然未經烹煮的食物，完全不添加營養品達到，歐洲寵物食品工業（FEDIAF）所規範的營養標準。

2. 除了在數據上符合營養標準。進行餵飼時營養是否可以充份吸收。採用美國飼料管理協會（AAFCO）制定的嚴格試驗方案進行為期26週的餵飼測試

如果您正在尋找與物種相關的研究（又名生食，BARF）。就在這裡。

RAW PROOF

The results of a 24-month research investigation into a species-appropriate diet for dogs

We set out to investigate two things.

First, whether a species-appropriate (aka raw food) diet can be formulated so as to meet the highest possible nutritional guidelines for dogs, as specified by the European Pet Food Industry (FEDIAF).

Second, whether such a diet will prove to be nutritionally adequate when fed to a meaningful sample of dogs over 26 weeks using an extended version of the rigorous trial protocol developed by the Association of American Feed Control Officials (AAFCO).

If you are looking for research relating to a species-appropriate (aka raw food) diet for dogs, here it is.

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內容

CONTENTS

前言

我天生並不是一個特別勇敢的人，但差不多二十年前，我做了一件事
對於當時的獸醫來說，這種感覺很不尋常，甚至是勇敢的。我給了我的中年
貝德靈頓梗一支生雞翅。在過去的幾個月裡，幾個客戶的狗狗轉換成生食。
所有人都報導了健康狀況：
健康狀況的改善，較有精力，以及更光澤（不癢）的皮膚毛髮，更明亮的眼睛和更堅固，更小，更不臭的大便。我不能不試一試。
所以我將生雞翅放入Rosie的食物碗中，然後站起來看看會發生什麼。
她疑惑地看著它然後向我看。我鼓勵地點點頭。我發誓，我看到她的嘴唇上出現了一個微笑。她撿起來了，碾碎並吞噬它，彷彿是神的食物。

從那一刻開始，她開始吃生食。
後來的兩隻貝德靈頓梗從出生開始吃生食。
他們喜歡生食，享受著極好的健康。沒有負面影響。

我現在有許多客戶餵食生食。無論各種犬種，
從吉哇哇到獒犬，各種疾病，例如：慢性皮膚問題或是持續的消化道疾病。我的第一個建議永遠是：餵飼生食 -
就是這樣的轉變。

我認識無數的病狗因為簡單的改變（餵飼生食），
。他們的人類同伴（飼主）也很高興。

不僅僅是因為他們的狗狗更快樂更健康，
因為有更少的毛髮需要吸塵，
引用一些東西我經常聽到的話：“狗狗的大便可以輕鬆地撿起來了！我相信生食餵飼的狗狗會更好免疫系統不易患各種疾病，不易發生肥胖，不易患糖尿病，甲狀腺功能減退症等代謝疾病。”

但是，當然，這都是口耳相傳的軼事。任何專業的獸醫都會要求提供證據，支持這種說法。

在許多方面，這有點奇怪。我們正在談論狗狗吃了數百萬的飲食
多年來，無論是野外還是馴化。沒有必要證明這一點，這是足夠的。
特別是當我們考慮到狗狗的加工食品時。
加工食品僅僅被餵飼大約一百年，竟然被接受為“正常”。

我們都知道，身體更健康（必須吃更多新鮮食物，少吃加工食品。
但出於某種原因，這個道理似乎不適用於我們的寵物。

在歐洲，特別是在美國，經常發現寵物食品導致疾病。
舉兩個例子：最近，寵物食品中的三聚氰胺導致許多狗狗死亡，
幾年前，貓糧的礦物質含量不平衡導致膀胱，以及尿道結石。
因此，加工食品不保證安全。
然而，不平衡的生食飲食也會導致健康問題。
例如，食物含有高比例的甲狀腺，它可以引發甲狀腺疾病。
顯然，肌肉，內臟和骨骼之間的平衡是至關重要的，以確保維生素和礦物質水平是充足和平衡的。

每個人都關注犬類的健康和幸福，生食的復甦產生了極端的影響：
有一群人堅決反對生食; 另一方面，有人完全支持生食。在這兩者之間，有許多人不確定。

FOREWORD

I am not a particularly brave person by nature, but almost twenty years ago I did something that, for a veterinary surgeon at the time, felt unusual, even courageous. I gave my middle-aged Bedlington Terrier a raw chicken wing. In the preceding few months several of my clients had changed their dogs to a raw food diet. All reported a great improvement in general health and energy, as well as glossier (itch free) coats, brighter eyes and firmer, smaller, less malodorous stools. I had to give it a try.

So I put the raw chicken wing in to Rosie's food bowl and stood back to see what would happen. She looked at it quizzically and then up at me. I nodded encouragingly. She gave the strange object a hesitant lick. And then I swear I saw a smile appear on her lips. She picked it up, crunched and devoured it, as if it were veritable ambrosia.

From that moment onward she ate a complete raw food diet, as have two more Bedlingtons since. All have loved their raw food and enjoyed excellent health. None has suffered a single adverse effect.

I now have many, many clients who feed a raw diet to their dogs. Whether I am treating a Chihuahua or a Mastiff, the first recommendation I make for a whole range of health issues – including chronic skin problems and persistent digestive tract disorders – is just such a switch.

I have known countless patients whose lives have been transformed simply by this change of diet. Their human companions are delighted, too. Not just because their charges are happier and healthier, but because there are fewer hairs to hoover up and, to quote something I frequently hear: 'His poo is now pickupable!' I'm quite convinced that raw fed dogs have better immune systems and are less prone to illnesses of all kinds, less prone to obesity and less prone to metabolic conditions such as diabetes and hypothyroidism.

But, of course, this is all anecdotal. Any self-respecting veterinary surgeon will ask for evidence to support such claims.

In many respects, this is a bit odd. We are talking about a diet that dogs have eaten for millions of years, both in the wild and also since domestication. Surely, there is no need to prove that it is adequate. Especially when we consider that processed food for dogs, which has only been available for a hundred years or so, is accepted as being 'normal'. We are all being urged to eat more healthily ourselves (more fresh food, less processed food), but for some reason this doesn't seem to apply to our pets.

In Europe and particularly in the USA, pet food is regularly found to cause illness and disease. To offer just two examples: recently, melamine in pet food caused the death of numerous dogs, while some years ago, the imbalanced mineral content of cat food caused bladder and urethral calculi. Processed food is not, therefore, guaranteed to be safe.

However, it is also true that an imbalanced raw food diet can cause health issues. If, for instance, the food contains a high percentage of thyroid glands, it can trigger thyroid disease. Clearly, it is vital to have the right balance of muscle meat, offal and bone to ensure vitamin and mineral levels are adequate and balanced.

The resurgence of a raw or species-appropriate diet has had something of a polarising effect on everyone concerned with canine health and wellbeing. On one side there is a group which seem adamant in objection to raw feeding; on the other, a group which is completely persuaded as to its benefits. In between, there are many who are uncertain.

每個人都渴望餵飼生食的科學證明：符合FEDIAF（歐洲寵物食品協會）和AAFCO（美國飼料管理協會）營養標準。

生食臨床實驗（Raw Proof）是截至目前為止，我知道對生食餵飼（BARF）最深入的研究。藉由國際狗狗營養標準證明餵飼生食讓狗狗得到健康。

執業時，我常常被推介。表示我的病患，不僅僅在我這邊看診。也在其他的獸醫同業接受治療。讓我深深感到，同業對生食餵飼的不確定性。感謝生食臨床實驗（Raw Proof）證實：生食是安全的，營養完整均衡。

Dr Richard Allport BVetMed, VetMFHom, MRCVS

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What everyone has been longing for is scientific proof that a raw food diet can be formulated to meet the accepted guidelines on pet nutrition laid down by FEDIAF (the European Pet Food Industry) and AAFCO (the Association of American Feed Control Officials).

Raw Proof provides such scientific proof. It is the first in-depth research project I know of which clearly demonstrates that it is possible to formulate a species-appropriate, raw food diet for dogs that satisfies accepted international nutritional guidelines and proves dogs can thrive on such a diet.

I work in referral practice, which means that all my clients use at least one other vet. Only too often these other vets are uncertain about the wisdom of a raw food diet. Thanks to *Raw Proof* there is no need for concern or doubt. We now know for certain that a properly formulated raw food diet can be complete, safe, balanced and nutritionally adequate.

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簡介：

支持生食的證據

傳統上，馴養的狗狗飼餵由生肉組成的食物，
生骨頭和生蔬菜（生食），配合桌邊的廚餘。
1860年加工狗糧引進後
狗狗的飲食慢慢開始變化，直到20世紀80年代，生食的復甦成為例外而不是原則。

近年來潮流已經轉變。 2008年，只有六個生食製造商。
英國的生產商和寵物食品製造商協會（PFMA）反對生食餵養。
在最近的統計（2018年)，有近百個生食製造商。同時PFMA（英國寵物食品製造商協會）有一個專門的生食部門。

目前英國有多少原始餵養的狗狗沒有可靠的數據。
但最近有一些報告（英國Pet Care，Euromonitor，2017年5月）指出：“生食
在英國，一些零售商 - 特別是寵物超市和互聯網 - 正在增加。”

隨著人們對生食的興趣增加，引起了爭議。 贊成的人聲稱
狗狗享受更好的健康和更長的生命。 反對聲稱生食潛在對狗狗以及人類的危害。 雙方在很大程度上，依賴傳聞軼事，缺乏可靠的相關科學研究。

就我個人而言，我確信生食對狗狗有益。 我的基礎是：

邏輯上： 地球上的每個物種都必須吃適合該物種的飲食才能生存，繁盛。
對於某些物種，適和該物種的食物的範圍非常有限;
相對的某些物種，容忍度非常寬闊。
隨著時間的演進，某些物種，成功的適應新的飲食，
但是不會改變吃的“適當食物”的核心事實。
犬科有其典型的生理和食肉動物的消化系統。
狗狗的天然飲食與其他犬類一樣，主要是獵物。
以及植物（草，草藥，以及水果）。
這是狗狗幾十萬年來吃的東西。
自2009年以來，我餵食成千上萬的狗狗生食。
據我的觀察，我只看到了正面的結果。

相信是一回事，證明又是另一回事。
隨著生食的流行，更需要有關生食安全性，以及功效的確鑿證據。
特別是獸醫專業人員尋求合理確信。
獸醫專業人員，不希望提供對健康不利影響的建議。

考慮到這一點，我創立的工匠狗狗生食公司發起了一項飲食研究調查。
1. 首先，我們著手確認生食是否可以滿足成年犬最高的營養指導方針：
如同，歐洲寵物食品工業（FEDIAF）所規範。
2. 其次，證實餵飼26週有意義的成年犬樣本，
符合美國飼料協會（AAFCO）制定的嚴格試驗規範。

INTRODUCTION

Evidence that supports raw feeding

Traditionally, domesticated dogs were fed a species-appropriate diet consisting of raw meat, raw bones and raw vegetables (a ‘raw diet’), supplemented by table scraps and whatever other food they could scavenge. After the introduction of processed dog food in 1860 their diet slowly began to change until, by the 1980s, a species-appropriate diet had become the exception rather than the rule.

In recent years the tide has turned. In 2008, there were barely half a dozen raw dog food producers in the UK and the Pet Food Manufacturers Association (PFMA) was against species-appropriate feeding. At the last count, there were close to a hundred producers and the PFMA has a dedicated raw food group.

There are no reliable figures on how many raw fed dogs there now are in the UK, but a recent report (*Pet Care in the United Kingdom*, Euromonitor, May 2017) pointed out that: ‘raw food is gaining weight in the UK, with some retailers – especially pet superstores and Internet retailers – offering raw food as a way to provide pets with a completely natural diet and link them with their traditional feeding habits.’

With the increased interest in raw feeding has come controversy. Those in favour claim that dogs enjoy better health and longer lives. Those against claim that it carries health risks both to dogs and humans. Both sides depend to a surprisingly large extent on anecdotal evidence, there being a paucity of reliable, relevant scientific research.

For my own part, I am convinced that a raw food diet is beneficial to dogs. I base this on:

> Logic. Every species on earth must eat an appropriate diet in order to survive and flourish. For some species the range of appropriate foods is very limited; for others there is greater tolerance. Although, over time, certain species, with varying degrees of success, can adapt to a new diet, it doesn’t alter the core fact that the food they eat must be appropriate. Dogs, *Canis lupus familiaris*, have the typical physiology and digestive system of a carnivore. Their natural diet, like that of other canids, consists predominantly of prey with a certain amount of vegetable matter (grasses, herbs, fruit &c.). It is what they have eaten for hundreds of thousands of years.
>
> Observation. I have been responsible for feeding thousands of dogs a raw food diet since 2009 and I have seen only positive outcomes.

It is one thing to believe something and quite another to prove it. As raw food has become more popular with dog lovers so, too, has demand for hard evidence as to its safety and efficacy. Veterinary professionals, in particular, seek reassurance. Naturally, they do not wish to recommend anything that could have adverse health implications.

With this in mind the artisan raw dog food company I co-founded launched a species-appropriate diet research investigation. This report describes the first two elements of that investigation together with the results. First, we set out to establish whether a raw food diet could meet the highest possible nutritional guidelines for adult dogs, as set out by the European Pet Food Industry (FEDIAF). Second, whether such a diet would prove to be nutritionally adequate when fed to a meaningful sample of adult dogs over 26 weeks using an extended version of the rigorous trial protocol set out by the Association of American Feed Control Officials (AAFCO).

我們非常謹慎地設計了我們的調查，以確保我們達到最準確
可能的結果。 為此，我們任命了一名獨立的獸醫來計劃，監督
並進行研究，並為所有分析工作聘請了一個獨立的實驗室。
結果已由一組獨立獸醫審查。

雖然研究結果支持以生食餵養狗狗，但還有許多工作必須完成。
才能廣泛的被利用。
關於人類飲食及其對健康的影響的研究結論，牛津大學，
康奈爾大學和中國預防醫學科學院成立了20年，
計劃涉及6500人（中國 - 康奈爾 - 牛津項目，1981年起）
然後研究的發現仍然需要解釋。
我們以最謙卑的態度，冀祈對犬類營養學做出貢獻。

Vicky Marshall
Managing Director

We designed our investigation with great care to ensure we achieved the most accurate possible results. To this end, we appointed an independent veterinary surgeon to plan, oversee and carry out the research and employed an independent laboratory for all the analysis work. The results have been reviewed by a panel of independent veterinary surgeons.

Although the research findings support the species-appropriate feeding of dogs, it is important to remember that there is much more work to be done. To arrive at meaningful research conclusions in relation to human diet and its effect on health, Oxford University, Cornell University and the Chinese Academy of Preventive Medicine set up a 20-year programme involving 6500 people (China–Cornell–Oxford Project, 1981 onwards) and even then some of their conclusions remain open to interpretation. We are conscious that further analysis, trials and studies are required. We plan to undertake more ourselves and we hope that others will rise to the challenge. In the meantime, we are pleased to have made a modest contribution to the study of canine nutrition.

Vicky Marshall
Managing Director
Honey's Real Dog Food

主要發現

由生肉，生骨，生鮮蔬菜調配的食物，完全不添加額外合成補充營養品
即可以達到FEDIAF營養指南。
二十三隻成年犬完成AAFCO食品試驗規範。
經歷26 週後沒有不利的健康影響或顯著的體重減輕。

KEY FINDINGS

It is possible to create a range of complete, species-appropriate (raw meat, raw bone, raw vegetable) adult dog foods that – when fed in conjunction with each other – meet the FEDIAF nutritional guidelines without need for additional, synthetic supplementation.

Twenty-six adult dogs enrolled in an extended version of the AAFCO food trial protocol, when fed a range of complete, species-appropriate (raw meat, raw bone, raw vegetable) dog foods, experienced no adverse health effects or significant loss of weight. Three dogs dropped out of the trials for non-health-related reasons.

研究項目一：FEDIAF分析報告

第1部分：研究生食的營養價值

目標

這項研究的目的是調查一個完整的，
（生肉，生骨，生蔬菜）盡可能滿足
成年犬的營養指南，無需額外的合成補充劑，
由歐洲寵物食品工業聯合會（FEDIAF）在其營養指南中規定
為貓和狗提供完整和互補的寵物食品（2017年5月）。

方法

選擇了五種生食配方（牛肉，羊肉，雞肉，兔肉和蔬菜雞肉）。
這五個食譜一起組成了“飲食”。每種食譜的配方
約70％的生肉/生肉骨頭和30％的生蔬菜（其中一種雞肉
食譜不含蔬菜）。生肉由肌肉和內臟組成。
每種配方都使用自由放養或經過認證的有機或野生生肉和骨頭。
肉，骨頭，蔬菜都是新鮮的，適合人類食用。沒有添加補充劑。
食譜的詳細信息可在附錄1中找到。食譜已提交給
獨立實驗室進行24個月的分析，以確保沒有
季節性偏差（即食品中使用的成分在整個過程中被屠宰/收穫）
，而不是在營養價值可能更高或更低的時候被選中）。

關於FEDIAF營養指南

FEDIAF關於貓和狗的完整和補充寵物食品指南的目標

1.有助於生產營養均衡的寵物食品，同時遵守
歐盟有關動物營養的立法。為實現這一目標：
準則將最新的貓和狗營養科學知識納入。
- 為寵物食品製造商提供實用的營養建議，為保養，生長和繁殖制定產品。
- 幫助寵物食品製造商評估實用寵物食品的營養價值健康的動物。

2.成為歐盟和地方當局關於歐洲寵物營養的參考文件，消費者，組織，專業人士和客戶。
3.加強寵物食品製造商，寵物護理專業人士和主管當局提供關於配方和的配方的科學合理的信息
評估寵物食品。

RESEARCH PROJECT ONE: FEDIAF ANALYSIS REPORT

Research into the nutritional value of a raw food diet for dogs

The objective
The purpose of this research was to investigate whether a complete, species-appropriate (raw meat, raw bone, raw vegetable) diet can be formulated so as to meet the highest possible nutritional guidelines for adult dogs, without need for additional, synthetic supplementation, as set out by the European Pet Food Industry Federation (FEDIAF) in its *Nutritional Guidelines for Complete and Complementary Pet Food for Cats and Dogs* (May 2017).

Methodology
Five raw food recipes were selected (beef, lamb, chicken, rabbit and vegetable-free chicken). These five recipes taken together made up the ‘diet’. The formula for each of these recipes was approximately 70% raw meat/raw meaty bone and 30% raw vegetable (one of the chicken recipes contained no vegetable). The raw meat element consisted of muscle meat and offal. Each recipe used free-range or certified organic or wild raw meat and bone. The meat, bone and vegetables were all fresh and suitable for human consumption. No supplementation was added. Full details of the recipes are to be found in APPENDIX 1. The recipes were submitted to an independent laboratory for analysis over a 24-month period in order to ensure that there was no seasonal bias (i.e. the ingredients used in the food were slaughtered/harvested throughout the year rather than being chosen at a time when the nutritional value could be higher or lower).

About the FEDIAF nutritional guidelines
The objectives of FEDIAF’s *Guidelines for Complete and Complementary Pet Foods for Cats and Dogs* are:

1. To contribute to the production of nutritionally balanced pet food, while complying with relevant EU legislation on animal nutrition. To achieve this objective, the guidelines incorporate up-to-date scientific knowledge on cat and dog nutrition to:

   - Provide practical nutrient recommendations for pet food manufacturers when formulating their products for adult maintenance, growth and reproduction.

   - Help pet food manufacturers to assess the nutritional value of practical pet foods for healthy animals.

2. To be the reference document on pet nutrition in Europe for EU and local authorities, consumer organisations, professionals and customers.

3. To enhance cooperation between pet food manufacturers, pet care professionals and competent authorities by providing scientifically sound information on the formulation and assessment of pet foods.

EDIAF的營養指南提供最低和最高的建議
商業寵物食品中的營養水平對健康的狗和貓來說，確保充足
安全營養; 評估寵物食品營養價值的指南;
和能量攝入的建議。 它們包括：
主要營養素（蛋白質和脂肪）
脂肪酸
氨基酸
礦產
維生素
微量元素
由於原材料的波動，FEDIAF建議重複分析。
可以在FEDIAF網站上訪問指南的副本：http://www.fediaf.org/self-regulation/nutrition/

FEDIAF營養指南的問題
在考慮FEDIAF營養指南時，需要考慮許多問題。
1. 問題並不總是相關的。制定準則是為了評估。一般來說，高度加工，製造，熟食的營養充足性。包含人工補充劑。這種食物的成分非常不同。從生肉，生骨和未加補料的生蔬菜。例如，準則指出：脂肪本身並不是必需的。餵飼生食的人認為（a）脂肪是必不可少的（b）脂肪的類型和來源很重要。
2. 這些標準並非完全基於完全可靠的研究。作者說：FEDIAF指南基於科學出版物..以及來自專家的未發表數據。一些指導原則是基於多年前進行的研究（早期20世紀30年代）並且從未被複製過。例如，關於鋅，FEDIAF建議是基於1991年關於兩種鋅攝取量對生長的影響的研究拉布拉多幼犬的微量元素狀態。該研究僅涉及8隻狗（另外10隻狗為對照組）並且作者得出結論：沒有差異，即使在幼犬生長的嚴格條件下，基於大豆分離的飲食中，日糧鋅濃度為50或200 mg / kg之間的表現。
顯然，“該領域專家未發表的數據”不能被認為是可靠的。既不是獨立的，也不是同儕互評。在某些情況下，作者公開表明，他們根據對其他物種的研究做出了假設。

3. 不考慮更廣泛的營養問題。例如，經認證的有機成分具有更高的營養價值和更低的營養價值。與集中養殖，高度加工/ /相比，化學毒素的水平或化學成分。實際上，幾乎沒有提到破壞性食源性毒素對犬類健康的影響。也沒有參考生物適宜性或平衡，相對時間的概念（狗不需要在一天內從單一來源獲得所有營養需求）。最後，只考慮生物利用度（換句話說，狗是否可以吸收和處理營養。）

FEDIAF's nutritional guidelines provide recommendations for minimum and maximum nutrient levels in commercial pet foods for healthy dogs and cats, to ensure adequate and safe nutrition; guidance for the assessment of the nutritional value of pet foods; and recommendations for energy intake. They cover:

Major nutrients (protein and fat)
Fatty acids
Amino acids
Minerals
Vitamins
Trace elements

FEDIAF recommends repeat analyses, owing to fluctuations in raw materials.

A copy of the guidelines can be accessed on the FEDIAF website:
http://www.fediaf.org/self-regulation/nutrition/

Issues with the FEDIAF nutritional guidelines
There are a number of issues that need to be borne in mind when considering the FEDIAF nutritional guidelines.

1. They are not always relevant. The guidelines were developed in order to assess the nutritional adequacy of highly processed, manufactured, cooked food that generally incorporates artificial supplementation. Such food is very different in its composition from raw meat, raw bone and raw vegetable without supplementation. For example, the guidelines state that: 'Fat per se is not essential', whereas those involved in feeding a species-appropriate raw diet to dogs are likely to consider that (a) fat is essential and (b) the type and source of the fat is important.

2. They are not all based on entirely reliable research. The authors state: 'This FEDIAF Guide is based on scientific publications... and unpublished data from experts in the field.'

   Some of the guidelines are based on research that was conducted many years ago (as early as the 1930s) and has never been replicated. For example, with regard to zinc, FEDIAF's recommendations are based on a 1991 study on *the effects of two levels of zinc intake on growth and trace element status in Labrador puppies*. The study involved just eight dogs (10 further dogs became a control group) and the authors conclude that 'there are no differences in performance between dietary zinc concentrations of 50 or 200 mg/kg in a soybean-isolate-based diet even under the exacting conditions of puppy growth.'

   Obviously, 'unpublished data from experts in the field' cannot be considered reliable as it will be neither independent nor peer reviewed. In some instances, the authors openly state that they have made assumptions based on research carried out on other species.

3. They do not consider wider nutritional issues. There is no discussion of the fact that certified organic ingredients, for example, have higher nutritional values and lower levels of chemical toxins when compared with intensively farmed, highly processed and/or chemically produced ingredients. Indeed, there is little reference to the damaging effect that food-borne toxins can have on canine health. There is no reference, either, to biological appropriateness or the balance over time concept (the idea that dogs don't need to receive all their nutritional requirements from a single source on a single day). Finally, only limited account is taken of bioavailability (in other words, whether the dog can actually absorb and process the nutrition from the food it is eating).

作者意識到指南是不完整和缺陷的，並指出：寵物食品
營養水準超出本指南中的建議時，可以是足夠和安全的，
基於製造商對營養充足性和安全性的證實。
FEDIAF的建議並非沒有偏差，但是有很大的容錯率
希望將來更準確，更合適的營養指南
用於評估適合狗狗物種的飲食將被創建。直到這個時候，歐洲
研究人員和製造商必須依靠FEDIAF的Complete和
貓和狗的補充寵物食品。
分析方法
為本研究目的進行的分析遵循行業準則
由FEDIAF制定：
為了獲得代表性的結果，必須收集和處理樣品
根據委員會條例（EC）No。中規定的一般原則
2009年1月27日第152/2009號，建立了集體抽樣方法和
官方控制飼料的分析。
僅對一個樣本的分析可能無法反映平均分析中聲明的水平
的產品。
為了獲得代表性分析，來自不同批次的多個樣品
必須進行分析。由多個樣品製成的複合樣品也是有效的。至
評估單樣本分析的結果，偏差的最大容差
如第767/2009號條例附件4中關於營銷的預見值
應允許使用飼料，以及分析緯度的公差。
分析總結
這五個食譜在24個月內進行了分析。結果可以在中找到
附錄2。
雖然分析的五種配方中的一些配方的營養水平不在FEDIAF範圍內
指南，基於製造商對營養充足性和安全性的證實
個別配方被認為符合FEDIAF的營養需求。
完整的飲食，由描述和分析的五個公式組成，基於
製造商對營養充足性和安全性的證實，符合FEDIAF營養
要求。
如果個別營養素超出FEDIAF指南，研究和/或
詳細研究了特定指南所依據的假設
風險評估。有關詳細註釋，請參見第1章。沒有理由相信
發現的變化對配方或飲食的總體營養價值有任何影響。
隨後的AAFCO餵養試驗研究得出了所選擇的飲食結論
五種不同的物種適當的食譜符合成年狗的營養需求。

The authors are aware that the guidelines are incomplete and deficient and state that: ‘Pet foods can be adequate and safe when nutrient levels are outside the recommendations in this guide, based on the manufacturer’s substantiation of nutritional adequacy and safety.’

The FEDIAF recommendations are not without some validity, but there is a wide margin for error.

It is to be hoped that in the future more accurate, more appropriate nutritional guidelines for evaluating a species-appropriate diet for dogs will be created. Until such time, European researchers and manufacturers must rely on FEDIAF’s *Guidelines for Complete and Complementary Pet Foods for Cats and Dogs*.

Analytical methods

The analysis undertaken for the purposes of this research followed the industry guidelines as set out by FEDIAF:

> In order to obtain representative results, samples have to be collected and treated according to the general principles laid down in Commission Regulation (EC) No 152/2009 of 27 January 2009 establishing Community methods of sampling and analysis for the official control of feeding stuffs.
>
> The analysis of only one sample may not reflect the level declared in the average analysis of the product.
>
> To obtain a representative analysis, multiple samples coming from different batches have to be analysed. A composite sample made from multiple samples is also valid. To evaluate the results of a single-sample analysis, maximum tolerances for deviation from the declared values, as foreseen in ANNEX 4 of Regulation 767/2009 on the marketing and use of feed, should be permitted as well as tolerances for analytical latitudes.

Summary of analysis

The five recipes were analysed over a 24-month period. The results are to be found in APPENDIX 2.

Although nutrient levels in some of the five formulas analysed were outside the FEDIAF guidelines, based on the manufacturer’s substantiation of nutritional adequacy and safety, each of the individual formulas were deemed to meet FEDIAF nutritional requirements.

The complete diet, made up of the five formulas described and analysed, based on the manufacturer’s substantiation of nutritional adequacy and safety, met FEDIAF nutritional requirements.

Where an individual nutrient fell outside the FEDIAF guidelines, the research and/or assumptions on which the particular guideline was based were examined in detail and the risk assessed. See CHART 1 for detailed comments. There was no reason to believe that the variations found had any effect on the overall nutritional value of the formula or the diet.

The subsequent AAFCO feeding trial research bears out the conclusion that the selected diet of five different species-appropriate recipes meets the nutritional requirements of an adult dog.

研究項目二：AAFCO飼料試驗

第2部分：研究生食對狗狗的影響

目標

這項研究的目的是調查物種適宜的影響（生肉，生骨，生蔬菜）飲食會對健康和體重的隨機樣本產生影響成年犬。

方法

餵養試驗使用協會推薦的方案進行美國飼料管理官員（AAFCO），有兩種變體。雖然AAFCO規定狗必須保持在實驗室條件下，但它是決定狗會留在他們平時的家中。原因是因為認為實驗室條件異常會產生結果這並不完全適用於現實生活中的條件。AAFCO認為只需要8只動物進行試驗（其中只有六個人需要完成試驗），研究人員覺得有必要增加一些實現可靠的結果。因此，約有26隻狗開始試驗。沒有對照組，因為沒有任何用處。在所有其他方面，觀察到AAFCO餵養試驗方案。審判持續了26年週。參與的狗是至少一歲並且身體最佳的成年人重量。妊娠期或哺乳期的母犬被排除在外。所有開始試驗的動物都過去了由獸醫進行的初步體檢。品種分佈喜憂參半。在整個試驗過程中餵養相同的飲食，儘管不同的生產批次和使用了蛋白質。除了指關節骨骼外，試驗飲食是唯一的營養來源（限制），純肝治療（限制）和水（不受限制）。狗是基於餵養的能源需求。提供淡水。任何意外的食物攝入量都被披露給了研究人員。

AAFCO餵養試驗方案

以下是證明成年人的關鍵最低餵養方案要求的摘要維護索賠狗糧。

小狗

至少八隻健康成年犬至少一歲並且體重最佳應要求開始測試。應排除妊娠期或哺乳期的母犬。所有開始測試的動物必須通過獸醫的初步體檢。品種所有組別的分佈都相似。

飲食

儘管生產批次不同，但在整個測試過程中應採用相同的配方可能用過了。

測試持續時間

試驗應至少運行26週，並應在狗被放置的時候開始測試飲食。

RESEARCH PROJECT TWO: AAFCO FEEDING TRIALS

Research into the effects of feeding a raw food diet to dogs

The objective

The purpose of this research was to investigate what effects a species-appropriate (raw meat, raw bone, raw vegetable) diet would have on the health and weight of a random sample of adult dogs.

Methodology

The feeding trial was conducted using the protocol recommended by the Association of American Feed Control Officials (AAFCO), with two variations.

> Whereas AAFCO stipulates that dogs must be kept in laboratory conditions, it was decided that the dogs would remain in their usual homes. The reason for this was because it was considered that laboratory conditions, being abnormal, produce results that are not entirely applicable to real-life conditions.
>
> Whereas AAFCO considers that just eight animals are required for a trial (of which only six need to complete the trial), the researchers felt a larger number was necessary to achieve reliable results. Accordingly, some 26 dogs started the trial. There was no control group as it was felt it could serve no useful purpose.

In all other respects, AAFCO feeding trial protocol was observed. The trial lasted for 26 weeks. The participating dogs were adults of at least one year of age and of optimal body weight. Bitches in gestation or lactation were excluded. All animals starting the trial passed an initial physical examination by a veterinarian. Breed distribution was mixed.

The same diet was fed throughout the trial, although different production batches and proteins were used. The trial diet was the sole source of nutrients except for knuckle bones (restricted), pure liver treats (restricted) and water (unrestricted). Dogs were fed based on energy requirements. Fresh water was provided. Any accidental food intakes were disclosed to the researchers.

AAFCO feeding trial protocol

Below is a summary of the key minimum feeding protocol requirements for proving an adult maintenance claim for a dog food.

Dogs

A minimum of eight healthy adult dogs of at least one year of age and of optimal body weight shall be required to start the test. Bitches in gestation or lactation shall be excluded. All animals starting the test must pass an initial physical examination by a veterinarian. Breed distribution shall be similar in all groups.

Diet

The same formulation shall be fed throughout the test, although different production batches may be used.

Duration of test

The test shall run for a minimum of 26 weeks and shall begin when dogs are placed on the test diet.

餵食參數
除水外，試驗飲食應是營養的唯一來源。狗應該基於餵養
能源需求。應提供淡水。必須進行餵養方案的任何中斷
披露並可能使測試無效。
臨床觀察和測量
1.如果有的話，應測量和記錄所有動物的個人日常食物消耗量
因食物攝入不足而移除動物。
2.應在開始，每周和每週測量和記錄單個體重
測試結束。
3.血紅蛋白，包裝細胞體積，血清鹼性磷酸酶和血清白蛋白
在測試結束時進行測量和記錄。
4.獸醫在開始時應對所有犬進行全面體檢
並在測試結束時。應評估每隻狗的一般健康狀況，身體和頭髮
塗層條件，並應記錄評論。
5.必須記錄任何藥物及其使用原因。一些狗，不是
超過25％的人開始測試，可能因非營養原因或差而被移除
食物的攝入量。必須記錄他們被移除的原因。狗可能會被移除
僅在測試的前兩週內食物攝入不足。數據已經從中收集
從測試中移除的狗應保留，但不必包括在內
最後的結果。
6.必須對在試驗期間死亡的任何狗和結果進行屍體剖檢
記錄。
解釋
1.任何個體狗的體重不得超過其初始體重的15％。平均值
體重變化（最終與初始相比）不得低於負10％。
如果任何狗表現出營養缺乏的臨床或病理跡象，則飲食失敗
或過剩。
2.所有未因營養原因或食物攝入不良而被移除的狗必須成功
完成測試。
3.平均最終血紅蛋白，填充細胞體積和血清白蛋白值不得
少於以下：
・血紅蛋白14.0 g / dl（無個體<12.0 g / dl）
・PCV 42％（無個人<36％）
・白蛋白2.8g / dl（無個體<2.4g / dl）
4.平均最終血清鹼性磷酸酶值不得大於150 IU / L.
（沒有個人> 300IU / L）。

Feeding parameters

The test diet shall be the sole source of nutrients, except for water. Dogs shall be fed based on energy needs. Fresh water shall be provided. Any interruption in the feeding protocol must be disclosed and may invalidate the test.

Clinical observations and measurements

1. Individual daily food consumption shall be measured and recorded for all animals if any animal is removed for poor food intake.

2. Individual body weights shall be measured and recorded at the beginning, weekly and at the end of the test.

3. Haemoglobin, packed cell volume, serum alkaline phosphatase and serum albumin shall be measured and recorded at the end of the test.

4. All dogs shall be given a complete physical examination by a veterinarian at the beginning and at the end of the test. Each dog shall be evaluated as to general health, body and hair coat condition, and comments shall be recorded.

5. Any medication and the reason for its use must be recorded. A number of dogs, not to exceed 25% of those starting the test, may be removed for non-nutritional reasons or poor food intake. The reason for their removal must be recorded. Dogs may be removed for poor food intake only during the first two weeks of the test. Data already collected from dogs removed from the test shall be retained, although it does not have to be included in the final results.

6. A necropsy shall be conducted on any dog which dies during the test and the findings recorded.

Interpretation

1. No individual dog shall lose more than 15% of its initial body weight. The average body weight change (final compared to initial) shall not be less than negative ten percent.

   The diet shall fail if any dog shows clinical or pathological signs of nutritional deficiency or excess.

2. All dogs not removed for non-nutritional reasons or poor food intake must successfully finish the test.

3. The average final heamoglobin, packed cell volume and serum albumin values shall not be less than as follows:

   - Haemoglobin 14.0 g/dl (no individual <12.0 g/dl)
   - PCV 42% (no individual <36%)
   - Albumin 2.8g/dl (no individual <2.4g/dl)

4. The average final serum alkaline phosphatase value shall not be greater than 150 IU/L (no individual >300IU/L).

試用細節
測量並記錄所有動物的個體日常食物消耗。個人
在開始時，（每週）和結束時測量並記錄體重
審判。在試驗開始和結束時進行了一般健康狀況血液測試。
所有的狗在開始和開始時由獸醫進行完整的體檢
審判結束。評估每隻狗的一般健康狀況，身體和毛髮狀況，
並記錄了評論。記錄任何藥物及其使用原因。
三隻狗被從測試中移除 - 一隻因為它表現出積極的防守
關於指關節骨骼的行為，一個是因為它停止了吃食物而一個人吃了
無關的原因（與過度運動有關）。剩下的人類同伴
23隻狗完成了每日日記，詳細說明了食物攝入量和任何其他相關信息。充分
有關飲食的詳細信息，請參閱附錄3.附上日常日記的副本
附錄4。
結果摘要
在試驗結束時，檢查每隻狗的營養的臨床和病理學跡象
缺乏或過剩。沒有記錄。而且，符合AAFCO的要求，沒有
個人失去了超過其初始體重的15％。平均體重變化（最終
與初始相比）小於負10％。血紅蛋白不低於14克/
dl平均或12 g / dl作為個體。 PCV不低於平均42％或個人
<36％。白蛋白不低於平均2.8g / dl或個體<2.4g / dl。血清鹼性
磷酸酶不超過平均150 IU / L或個體> 300IU / L.
完整的結果可在附錄5和6中找到。

Trial details
Individual daily food consumption was measured and recorded for all animals. Individual body weights were measured and recorded at the beginning, during (weekly) and at the end of the trial. A general health profile blood test was taken at the beginning and end of the trial. All dogs were given a complete physical examination by a veterinarian at the beginning and at the end of the trial. Each dog was evaluated as to general health, body and hair coat condition, and comments were recorded. Any medication and the reason for its use were recorded. Three dogs were removed from the test – one because it displayed aggressive guarding behaviour in relation to knuckle bones, one because it stopped eating the food and one for unrelated reasons (linked to excessive exercise). The human companions to the remaining 23 dogs completed a daily diary detailing food intake and any other relevant information. Full details of the diet are to be found in APPENDIX 3. A copy of the daily diary is attached in APPENDIX 4.

Summary of results
At the end of the trial each dog was examined for clinical and pathological signs of nutritional deficiency or excess. None was recorded. Moreover, in line with AAFCO requirements, no individual lost more than 15% of its initial body weight. The average body weight change (final compared to initial) was less than negative ten percent. Haemoglobin was not less that 14g/dl on average or 12 g/dl as an individual. PCV was not less than average 42% or individual <36%. Albumin was not less than average 2.8g/dl or individual <2.4g/dl. Serum alkaline phosphatase did not exceed average 150 IU/L or individual >300IU/L.

Full results are to be found in APPENDIX 5 and 6.

結論

這項研究的目的是調查一個完整的物種是否適合（也稱為原始物種）食物）飲食可以配製成滿足成年犬的營養需求。
第一部分涉及實驗室分析。五個食譜，共同組成’完整’飲食，使用歐洲寵物食品工業（FEDIAF）制定的指南進行測試。發現飲食完全足夠。
第二部分涉及食品試驗。在26週的時間內，23隻狗被餵食完整物種適當的飲食。保存完整的記錄，並監測他們的健康和體重審判的開始和結束。使用的協議滿足並超過了要求美國飼料管理官員協會（AAFCO）。發現所有23隻狗都有保持他們的體重，並在試驗結束時和開始時一樣健康。
簡而言之，作為本研究主題的生食飲食可以說是完整的均衡。
這項研究將為那些關心的人提供安慰和安慰生食的營養充足性和安全性。當然，調查結果僅適用於完整的飲食進行分析和試驗。儘管如此，結論很清楚：一個正確的配製的生食飲食將滿足成年犬的營養需求。

CONCLUSION

The purpose of this research was to investigate whether a complete species-appropriate (aka raw food) diet could be formulated in such a way as to meet an adult dog’s nutritional requirements.

The first part involved laboratory analysis. Five recipes, which together made up the ‘complete’ diet, were tested using the guidelines established by the European Pet Food Industry (FEDIAF). The diet was found to be wholly adequate.

The second part involved a food trial. Over a period of 26 weeks, 23 dogs were fed a complete species-appropriate diet. Full records were kept and their health and weight were monitored at the beginning and end of the trial. The protocol employed met and exceeded the requirements of the Association of American Feed Control Officials (AAFCO). All 23 dogs were found to have maintained their weight and to be every bit as healthy at the end of the trial as at the beginning.

In short, the raw food diet that was the subject of this research can be described as complete and balanced.

This research will provide reassurance and comfort to those who have been concerned over the nutritional adequacy and safety of raw feeding. Of course, the findings only apply to the complete diet being analysed and trialled. Nevertheless, the conclusion is clear: a properly formulated raw food diet will meet an adult dog’s nutritional requirements.

附錄1：送去分析的五個食譜的詳細信息

牛肉配方
成分：碎牛肉，牛心和細磨骨（67%）。碎胡蘿蔔，捲心菜，
花椰菜，歐洲防風草和其他時令蔬菜，包括羽衣甘藍，大頭菜和芹菜（33%）。
分析成分：水分：67.6%;蛋白質：13.4%;總脂肪：11.4%;灰：6.5%;纖維：1.5%。

羊肉配方
成分：剁碎的羊羔胸部和心臟和細磨骨（67%）。碎胡蘿蔔，
捲心菜，花椰菜，歐洲防風草和其他時令蔬菜，包括羽衣甘藍，大頭菜和
celeriac（33%）。分析成分：水分：68.1%;蛋白質：11.9%;總脂肪：15.4%;灰：
6.6%;纖維：0.9%。

自由放養的雞肉配方
成分：碎雞肉，雞心和細磨骨（67%）。碎胡蘿蔔，
捲心菜，花椰菜，歐洲防風草和其他時令蔬菜，包括羽衣甘藍，大頭菜和
芹菜（33%）。分析成分：水分：74.4%;蛋白質：13.2%;總脂肪：6.7%;灰：
3.1%;纖維：0.5%。

野兔配方
成分：剁碎的野兔，包括細磨骨（55%）。羔羊乳房包括
骨（15%）。切碎的胡蘿蔔，捲心菜，花椰菜，歐洲防風草和其他時令蔬菜，
包括羽衣甘藍，大頭菜和芹菜（30%）。分析成分：水分：75.3%;蛋白：
22.6%;總脂肪：4.1%;灰：3.1%;粗纖維：0.9%。

自由放養的雞肉（不含蔬菜）配方
成分：碎雞肉包括骨頭（85%），雞心（8%），雞肝（7%）。
分析成分：水分：68.3%;蛋白質：18%;總脂肪：9.7%;灰：2.8%;
纖維：1%。

APPENDICES

APPENDIX 1: Details of the five recipes sent for analysis

Prime Beef Formula
Composition: Minced beef, ox heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (33%). Analytical constituents: Moisture: 67.6%; Protein: 13.4%; Total Fat: 11.4%; Ash: 6.5%; Crude Fibre: 1.5%.

Tender Lamb Formula
Composition: Minced lamb breast and heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (33%). Analytical constituents: Moisture: 68.1%; Protein: 11.9%; Total Fat: 15.4%; Ash: 6.6%; Crude Fibre: 0.9%.

Free-range Chicken Formula
Composition: Minced chicken, chicken heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (33%). Analytical constituents: Moisture: 74.4%; Protein: 13.2%; Total Fat: 6.7%; Ash: 3.1%; Crude Fibre: 0.5%.

Wild Rabbit Formula
Composition: Minced wild rabbit including finely ground bone (55%). Lamb breast including bone (15%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (30%). Analytical constituents: Moisture: 75.3%; Protein: 22.6%; Total Fat: 4.1%; Ash: 3.1%; Crude Fibre: 0.9%.

Free-range Chicken (without vegetable) Formula
Composition: Minced chicken including bone (85%), chicken heart (8%), chicken liver (7%). Analytical constituents: Moisture: 68.3%; Protein: 18%; Total Fat: 9.7%; Ash: 2.8%; Crude Fibre: 1%.

附錄2：送去分析的五個食譜的結果

APPENDIX 2: RESULTS FOR THE FIVE RECIPES SENT FOR ANALYSIS

RAW PROOF

APPENDIX 2: Results for the five recipes sent for analysis

Beef Recipe Full Analysis per 1000kcal (Atwater Modified)

Nutrient	UNIT	Adult 2015/16	Adult 2017
Protein	g	65	62.8
Arginine	g	3.86	4.45
Histidine	g	1.53	1.71
Isoleucine	g	2.16	2.9
Leucine	g	4.12	5.13
Lysine	g	4.44	5.13
Methionine	g	1.21	1.43
Methionine + cysteine	g	2.01	1.9
Phenylalanine	g	2.0	2.67
Phenylalanine + tyrosine	g	3.70	3.01
Threonine	g	2.48	2.6
Tryptophan	g	0.58	0.6
Valine	g	2.69	3.6
Fat	g	85.4	72
Linoleic acid	g	2.37	1.8
Minerals			
Calcium	g	5.19	11.5
Ca/P ratio	g	1.85/1	1.9/1
Chloride	g	0.52	0.54
Magnesium	g	0.16	0.27
Phosphorus	g	2.8	5.9
Potassium	g	1.27	1.86
Sodium	g	0.58	0.6
Trace elements			
Copper	mg	1	0.7
Iodine	mg	0.052	0.06
Iron	mg	15	10
Manganese	mg	1	1.1
Selenium	mcg	110	100
Zinc	mg	9	12
Vitamins			
Vitamin A	IU		1396
Vitamin D	IU	132	171
Vitamin E	IU	2.2	1.4
Thiamine	mg	0.26	0.8
Riboflavin	mg	2	1.1
Pantothenic acid	mg	29	16
Vitamin B6 (Pyridoxine)	mg	0.3	1
Vitamin B12	mcg	30	30
Niacin	mg	7	13
Folic acid	mcg	70	100
Choline	mg	290	440

Lamb Recipe Full Analysis per 1000kcal (Atwater Modified)

Nutrient	UNIT	Adult 2015/16	Adult 2017
Protein	g	81.8	85.5
Arginine	g	7.5	7.8
Histidine	g	2.4	1.39
Isoleucine	g	3.52	2.15
Leucine	g	6.89	2.15
Lysine	g	7.47	3.7
Methionine	g	2.01	1.1
Methionine + cysteine	g	3.52	1.5
Phenylalanine	g	5.96	2.15
Phenylalanine + tyrosine	g	4.11	3.54
Threonine	g	1.0	2.15
Tryptophan	g	4.45	0.46
Valine	g	2.85	2.96
Fat	g	68.12	94
Linoleic acid	g	2.86	2.9
Minerals			
Calcium	g	11.85	5.75
Ca/P ratio	g	1.66 /1	1.8 /1
Chloride	g	0.73	0.58
Magnesium	g	0.34	0.191
Phosphorus	g	7.12	3.08
Potassium	g	2.02	1.45
Sodium	g	0.82	0.63
Trace elements			
Copper	mg	3	0.5
Iodine	mg	8	0.05
Iron	mg	20	9
Manganese	mg	1	0.9
Selenium	mcg	400	110
Zinc	mg	17	8
Vitamins			
Vitamin A	IU		1162
Vitamin D	IU	210	145
Vitamin E	IU	2.2	1.2
Thiamine	mg	1	5
Riboflavin	mg	1	0.67
Pantothenic acid	mg	29	11
Vitamin B6 (Pyridoxine)	mg	1	0.76
Vitamin B12	mcg	420	140
Niacin	mg	24	9.8
Folic acid	mcg	100	110
Choline	mg	723	340

Chicken Recipe Full Analysis per 1000kcal (Atwater Modified)

Nutrient	UNIT	Adult 2015 /16	Adult 2017
Protein	g	89.68	68.8
Arginine	g	6.98	7.5
Histidine	g	2.69	2.05
Isoleucine	g	3.65	4.1
Leucine	g	6.42	6.6
Lysine	g	7.3	6.3
Methionine	g	2.22	2.14
Methionine + cysteine	g	3.01	2.76
Phenylalanine	g	3.25	3.39
Phenylalanine + tyrosine	g	5.87	5.7
Threonine	g	4.12	3.39
Tryptophan	g	0.95	0.08
Valine	g	4.2	2.85
Fat	g	59.7	88.7
Linoleic acid	g	19.97	14
Minerals			
Calcium	g	7.58	7.5
Ca/P ratio	g	1.7 /1	1.59/1
Chloride	g	0.79	0.98
Magnesium	g	0.24	0.25
Phosphorus	g	4.44	4.47
Potassium	g	1.9	2.61
Sodium	g	0.61	0.64
Trace elements			
Copper	mg	0.8	0.89
Iodine	mg	0.2	0.16
Iron	mg	40	19
Manganese	mg	3.1	3
Selenium	mcg	160	180
Zinc	mg	12	16
Vitamins			
Vitamin A	IU	2230	1785
Vitamin D	IU	198	223
Vitamin E	IU	3.6	1.8
Thiamine	mg	0.4	0.52
Riboflavin	mg	1.5	0.9
Pantothenic acid	mg	130	35
Vitamin B6 (Pyridoxine)	mg	0.6	1.5
Vitamin B12	mcg	20	18
Niacin	mg	27	24
Folic acid	mcg	25	20
Choline	mg	490	510

Rabbit Recipe Full Analysis per 1000kcal (Atwater Modified)

Nutrient	UNIT	Adult 2015 /16	Adult 2017
Protein	g	199	91.99
Arginine	g	7.52	6.9
Histidine	g	3.18	2.83
Isoleucine	g	4.69	5.04
Leucine	g	8.84	8.76
Lysine	g	9.73	8.05
Methionine	g	2.74	2.83
Methionine + cysteine	g	3.8	3.8
Phenylalanine	g	4.33	4.42
Phenylalanine + tyrosine	g	8.76	7.5
Threonine	g	5.3	4.8
Tryptophan	g	1.41	1.06
Valine	g	5.66	6.01
Fat	g	35.37	49.59
Linoleic acid	g	2.45	2.0
Minerals			
Calcium	g	6.69	2.3
Ca/P ratio	g	1.5/1	1.2/1
Chloride	g	1.06	0.7
Magnesium	g	0.28	0.19
Phosphorus	g	4.47	1.9
Potassium	g	2.74	2.6
Sodium	g	0.66	0.57
Trace elements			
Copper	mg		1.5
Iodine	mg	10	0.88
Iron	mg	20	21
Manganese	mg	0.8	0.8
Selenium	mcg	200	170
Zinc	mg	16	8
Vitamins			
Vitamin A	IU		1769
Vitamin D	IU		212
Vitamin E	IU	3.2	1.8
Thiamine	mg	0.8	1.1
Riboflavin	mg	2.2	1.3
Pantothenic acid	mg	280	35
Vitamin B6 (Pyridoxine)	mg	2.1	2
Vitamin B12	mcg	30	31
Niacin	mg	38.5	30
Folic acid	mcg	20	170
Choline	mg	743	760

Vegetable Free Chicken Recipe

Full Analysis per 1000kcal (Atwater Modified)

Nutrient	UNIT	Adult 2015/16	Adult 2017
Protein	g	85.27	78.15
Arginine	g	9	9.09
Histidine	g	3.17	2.59
Isoleucine	g	4.84	4.81
Leucine	g	8.42	8.22
Lysine	g	9.75	8.37
Methionine	g	2.8	2.59
Methionine + cysteine	g	3.9	3.55
Phenylalanine	g	4.13	4.29
Phenylalanine + tyrosine	g	7.9	7.7
Threonine	g	5.32	4.6
Tryptophan	g	1.3	1.25
Valine	g	5.46	5.77
Fat	g	72	85.47
Linoleic acid	g	14.82	22
Minerals			
Calcium	g	6.42	5.37
Ca/P ratio	g	1.6/1	1.5/1
Chloride	g	0.8	0.96
Magnesium	g	0.22	0.22
Phosphorus	g	4.0	3.5
Potassium	g	1.24	1.87
Sodium	g	0.58	0.7
Trace elements			
Copper	mg	0.74	0.74
Iodine	mg	0.3	0.26
Iron	mg	20	21
Manganese	mg	0.7	0.74
Selenium	mcg	110	140
Zinc	mg	15	15
Vitamins			
Vitamin A	IU	1594	6074
Vitamin D	IU	184	251
Vitamin E	IU	7	4
Thiamine	mg	0.4	0.6
Riboflavin	mg	2.3	1.2
Pantothenic acid	mg	150	95
Vitamin B6 (Pyridoxine)	mg	0.4	1.8
Vitamin B12	mcg	20	22
Niacin	mg	28	36
Folic acid	mcg	160	230
Choline	mg	480	73

圖表1：FEDIAF差異分析

下表提供了所分析的五種配方的符合性和摘要
不同於FEDIAF營養指南。它應該與Key一起閱讀
調查結果（上圖）和附加評論（下文）。
研究人員意識到，一些不足可能需要長達兩年的時間
自己顯而易見，雖然AAFCO協議要求試用期僅為6個月。我們
我覺得可以接受的是，任何一個人都沒有表現出任何缺乏症狀
在我們進行的AAFCO試驗中餵養的餵養狗。但是，我們接受它需要一個
更長時間的試驗，以確保沒有有意義的缺陷。
礦產
FEDIAF指出：’ 一般來說，礦物質的生物利用度會因高鈣水平而降低，
高鋅水平和植酸。’ 需要注意的是，物種適宜的飲食
分析不含有導致高鈣水平，高鋅水平的成分
和植酸。因此，這種飲食應該更俱生物可利用性。
維生素E.
所謂的實用寵物食品中的高水平維生素E（見下文）反映了對此的需求
加工寵物食品中的抗氧化劑。維生素E有助於保護細胞免受損害
由自由基引起的。食用新鮮時，需要較低的水平以保持狗的健康
冷凍原料寵物食品。
生物素
當有抗菌或抗維生素時，只需要在飲食中添加生物素
食物中的化合物。在測試的生食飲食中沒有這樣的化合物。
有機成分
有幾項研究表明有機成分具有更高的營養
可能是2014年和2016年英國營養學雜誌發表的水平
最相關的。
一般原則
當營養水平在FEDIAF之外時，寵物食品可以是足夠和安全的
建議基於製造商的營養充足性證據和
安全。見下面的參考文獻[1]。
定義
‘實用的寵物食品’
從穀物和各種動物副產品製造。見參考文獻[1]。
實用的寵物食品補充了合成的維生素和礦物質混合物和它們的
外觀用添加劑和防腐劑保持。
‘原料最低限度加工的寵物食品’
由新鮮，冷凍和生肉的骨頭，肉，器官肉和蔬菜製成。微創
通過切碎和冷凍加工。沒有補充劑，添加劑或防腐劑。
附加評論
實用的寵物食品可能含有小麥，牛奶，大豆，玉米和許多其他成分
不被認為是狗的進化飲食的一部分。他們使用添加劑和防腐劑 -
如角叉菜膠，瓜爾膠和黃原膠 - 作為食品穩定劑，以及丙酸
和山梨酸作為防腐劑。加工食品中對這些成分的不良反應
涉及腸道炎症的人越來越被認識到。見參考文獻[2]。

CHART 1: Variations from FEDIAF guidelines

The following chart provides a summary of where the five recipes being analysed met and varied from the FEDIAF nutritional guidelines. It should be read in conjunction with Key Findings (above) and the Additional Comments (below).

The researchers are aware that some deficiencies may take up to two years to make themselves apparent, although AAFCO protocol demands a trial period of only 6 months. We feel that it is acceptable to point out that no symptoms of deficiency were displayed in any of the raw fed dogs in the AAFCO trial we conducted. However, we accept that it would take a much longer trial to be certain that there were no meaningful deficiencies.

Minerals
FEDIAF states that: ‘Generally, bioavailability of minerals is reduced by high calcium levels, high zinc levels and phytic acid.’ It is to be noted that the species-appropriate diet being analysed does not contain ingredients that will lead to high calcium levels, high zinc levels and phytic acid. Accordingly, such a diet ought to be more bioavailable.

Vitamin E
High levels of Vitamin E in so-called practical pet foods (see below) reflect the need for antioxidants in a processed pet food product. Vitamin E helps to protect cells from damage caused by free radicals. A lower level is required to keep a dog healthy when consuming fresh frozen raw pet foods.

Biotin
It is only necessary to add biotin to a diet when there are antimicrobial or anti-vitamin compounds in the food. There are no such compounds in the raw food diet being tested.

Organic Ingredients
There have been several studies showing that organic ingredients have higher nutritional levels, and those published by the *British Journal of Nutrition* in 2014 and 2016 are probably the most relevant.

General Principles
Pet foods can be adequate and safe when nutrient levels are outside the FEDIAF recommendations based on the manufacturer’s substantiation of nutrient adequacy and safety. See reference [1] below.

Definitions

‘Practical pet foods’
Manufactured from cereals and various rendered animal by-products. See reference [1]. Practical pet foods are supplemented with synthetic vitamin and mineral mixes and their appearance is maintained with additives and preservatives.

‘Raw minimally processed pet foods’
Made from fresh, frozen and raw meaty bones, meat, organ meats and vegetables. Minimally processed by mincing and freezing. No supplements, additives or preservatives.

Additional Comments
Practical pet foods may contain wheat, milk, soybean, corn and many other ingredients not considered part of the evolutionary diet of dogs. They use additives and preservatives – such as carrageenan, guar and xanthan gum – as food stabilizers, as well as propionic acid and sorbic acid as preservatives. Adverse reactions to these ingredients in processed foods involving intestinal inflammation are increasingly being recognized. See reference [2].

由於目前正在製造的寵物食品的性質和它們的性質差異很大
不同的消化率和生物利用度，FEDIAF已開始適應這些建議
與獨立科學家密切合作，研究寵物食品中的營養水平。一個重要的
步驟始於2010年，當時一個科學顧問委員會（SAB）與各種科學家合作
歐洲國家已經安裝。 SAB的作用是保持科學標準
建議的營養水平，它將建議FEDIAF，以便最新的研究結果
轉入指南和目前的餵養實踐。值得注意的是，迄今為止
SAB幾乎沒有（可能沒有）成員具有適合種類的飲食的實際經驗。
見參考文獻[1]。
顯然需要金標準飲食來比較所有製造的
寵物食品。見參考文獻[2]。
多年來，研究突出了實用寵物食品的問題，
除其他因素外：
・牛磺酸水平（擴張型心肌病）
・碘含量（甲亢，甲狀腺機能減退）
・鈣（Ca / P比值的重要性，特別是在幼仔中;膀胱結石，
腎結石和許多其他鈣相關疾病）
・維生素A，D，E和K及其與脂肪質量和數量的關係
在飲食中消耗（維生素E缺乏可能在高消費時發生）
PUFA（）。
更好地了解飲食和宿主相關因素在營養素生物利用度中的作用
因此營養吸收正在發展。越來越多的研究強調了這一點
食用前食物的預先處理可能對生物利用度有顯著影響
在配製營養素飲食時必須考慮營養素
要求。
與宿主相關的因素也被認為是重要的。管腔和粘膜的效率
消化會影響養分的生物利用度，並受到先前加工的影響
食用的食物。目前，需要進行調整以轉化生理需求
對鈣，鎂，鐵，鋅，葉酸，維生素A和蛋白質的飲食要求。
見參考文獻[3]。
正在進行的研究表明，加工過程中營養素的非自然相互作用可能會導致
進一步澄清我們寵物的黃金標準理想營養成分。我們目前
肥胖的流行導致人們意識到需要進一步了解這種疾病
實用的寵物食品可提供能量。由於人們也患有肥胖症，
這些信息可能會相對較快地提供。目前使用Atwater的系統
這些因素被認為低估了高纖維低脂肪食品的可用能量
公眾被給予關於許多食物的能量價值的錯誤信息。
見參考文獻[4]。

Owing to the very different nature of the pet foods currently being manufactured and their different digestibility and bioavailability, FEDIAF has started to adapt the recommendations for nutrient levels in pet food in close cooperation with independent scientists. A significant step was initiated in 2010, when a scientific advisory board (SAB) with scientists from various European countries was installed. The SAB's role is to maintain the scientific standards of the recommended nutrient levels, and it will advise FEDIAF so that the latest research results are transferred into the guidelines and the current feeding practice. It is to be noted that to date the SAB has few (possibly no) members with any real experience of species-appropriate diets. See reference [1].

There is an obvious need for a gold standard diet against which to compare all manufactured pet foods. See reference [2].

Over the years, studies have highlighted the problems with practical pet foods in relation to, amongst other factors:

- taurine levels (dilated cardiomyopathy)
- iodine content (hyperthyroidism, hypothyroidism)
- calcium (the importance of the Ca/P ratio particularly in growing pups; bladder stones, kidney stones and a multitude of other calcium-related diseases)
- Vitamins A, D, E and K and their relationship to the quality and quantity of fats consumed in the diet (Vitamin E deficiency may occur when there is high consumption of PUFAs).

A greater understanding of the role of diet and host-related factors in nutrient bioavailability and thus nutrient absorption is developing. Increasingly, research has emphasised that the prior treatment of food before consumption may have a marked effect on the bioavailability of nutrients and must be taken into account when formulating nutrient based dietary requirements.

Host-related factors are also recognised as important. The efficiency of luminal and mucosal digestion influences nutrient bioavailability and is impacted by the prior processing of the food consumed. Currently, adjustments are needed to translate physiological requirements into dietary requirements for calcium, magnesium, iron, zinc, folate, Vitamin A and protein. See reference [3].

Ongoing studies looking at the unnatural interactions of nutrients due to processing may lead to further clarification of the gold standard ideal nutrient profile for our pets. Our current epidemic of obesity is leading to an awareness of the need for further understanding of the energy available from practical pet foods. As people are also suffering an obesity epidemic, this information may be forthcoming relatively quickly. The current system using Atwater factors is seen as underestimating the energy available from high-fibre low-fat foods, and the public are being given erroneous information about the energy value of many foods.
See reference [4].

Nutrient	2015/16 Analysis	2017 Analysis	Notes
Protein	Met requirements	Met requirements	
Arginine	Met requirements	Met requirements	
Histidine	Met requirements	Met requirements	
Isoleucine	Met requirements	Met requirements	
Leucine	Met requirements	Met requirements	
Lysine	Met requirements	Met requirements	
Methionine	Met requirements	Met requirements	
Methionine + cysteine	Met requirements	4 of 5 of the recipes met requirements The remaining recipe met 78% of requirement	The FEDIAF guidelines are based on a single piece of research conducted in 2001 and not replicated. It may, therefore, be invalid. The minimum value quoted in FEDIAF assumes a diet low in taurine. The test diet has adequate taurine and therefore a lower methionine cysteine value is acceptable as it meets the overall requirement. None of the symptoms of deficiency was displayed in the following AAFCO food trial.
Phenylalanine	Met requirements	Met requirements	
Phenylalanine + tyrosine	Met requirements	Met requirements	
Threonine	Met requirements	Met requirements	
Tryptophan	Met requirements	Met requirements	
Valine	Met requirements	Met requirements	

Nutrient	2015/16 Analysis	2017 Analysis	Notes
Fat			
Linoleic acid	2 of 5 recipes met requirements 3 of 5 recipes met an average of 78% of requirements	2 of 5 recipes met requirements 3 of 5 recipes met an average of 68% of requirements	Although individual recipes were slightly outside the FEDIAF guidelines, the diet as a whole meets FEDIAF requirements. None of the symptoms of deficiency was displayed in the following AAFCO food trial.

CHART 1: VARIATIONS FROM FEDIAF GUIDELINES RAW PROOF

Nutrient	2015/16 Analysis	2017 Analysis	Notes
Minerals			
Calcium	1 of 5 recipes met requirements 4 of 5 recipes exceeded the guidelines by an average of 30%	3 of 5 recipes met requirements 2 of 5 recipes exceeded the guidelines by an average of 54%	FEDIAF guidelines focus on calcium and phosphorus separately but the focus should be on the ratio between them. The individual recipes being tested and the diet as a whole contained natural ingredients with no supplementation. The ingredients were fresh and came (in the case of the animal ingredients) from healthy animals providing a natural balance of calcium and phosphorous. For this reason, the fact that the levels were over the guidelines was deemed irrelevant. It is to be noted that there were no symptoms of excessive calcium following the AAFCO food trial.
Phosphorus	1 of 5 recipes met requirements 4 of 5 recipes exceeded the guidelines by an average of 34%	3 of 5 recipes met requirements 2 of 5 recipes exceeded the guidelines by an average of 30%	FEDIAF guidelines focus on calcium and phosphorus separately but the focus should be on the ratio between them. The individual recipes being tested and the diet as a whole contained natural ingredients with no supplementation. The ingredients were fresh and came (in the case of the animal ingredients) from healthy animals providing a natural balance of calcium and phosphorous. For this reason, the fact that the levels were over the guidelines was deemed irrelevant. It is to be noted that there were no symptoms of excessive phosphorous following the AAFCO food trial.
Ca/p ratio	Met requirements	Met requirements	
Potassium	Met requirements	Met requirements	
Sodium	Met requirements	Met requirements	
Chloride	Met requirements	Met requirements	
Magnesium	4 of 5 recipes met requirements The remaining recipe met 88% of requirement	Met requirements	Although one recipe was slightly outside the FEDIAF guidelines, the diet as a whole meets FEDIAF requirements. None of the symptoms of deficiency was displayed in the following AAFCO food trial. Note the FEDIAF guidelines do not seem to be founded on published, peer-reviewed canine research, but on a study conducted using humans (British Journal of Nutrition, 1995).

Nutrient	2015/16 Analysis	2017 Analysis	Notes
Trace elements			
Copper	Only two recipes tested. One recipe met requirements One recipe met 47% of requirement	The five recipes met an average of 47% of requirement	Copper is best obtained in a natural form from food as some forms of artificial supplementation are less bioavailable than others. It is clear, given the quality of the meat used in the test (certified organic, wild and free-range) that it is likely to have the highest natural levels of copper and yet most of the tests found it was below minimum requirements. This suggests that the FEDIAF guidelines are irrelevant and set much too high. It is to be noted that none of the dogs in the subsequent AAFCO trials suffered signs of deficiency.
Iodine	2 of 5 recipes met requirements 3 of 5 recipes met 49% of requirement	2 of 5 recipes met requirements 3 of 5 recipes met 35% of requirement	FEDIAF guidelines mention the rationale for a maximum level of iodine, but offer no explanation for the proposed minimum requirement. The test diet meets the requirement for iodine if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Iron	Met requirements	4 of 5 recipes met requirements 1 recipe met 88% of requirement	The test diet meets the requirement for iron. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Manganese	1 of 5 recipes met requirements 4 of 5 recipes met an average of 61% of requirement	1 of 5 recipes met requirements 4 of 5 recipes met an average of 62% of requirement	FEDIAF offers no rationale for the minimum or maximum levels. The test diet meets the requirement for manganese. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Selenium	Met requirements	Met requirements	
Zinc	5 of 5 recipes met an average of 77% of requirement	5 of 5 recipes met an average of 65% of requirement	FEDIAF bases its recommendations on a small study conducted in 1991. Its guidelines propose that higher levels of zinc will be required in the case of a cereal-based food in order to compensate for the high levels of phytic acid, which can reduce the bioavailability of zinc. The test diet meets the requirement for zinc, owing to the increased bioavailability when fed in its natural state. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.

Nutrient	2015/16 Analysis	2017 Analysis	Notes
Vitamins			
Vitamin A	Met requirements. Only two recipes tested.	3 of 5 recipes met requirements 2 of 5 recipes met an average of 84% of requirement	FEDIAF guidelines mention the rationale for a maximum level of Vitamin A, but offer no explanation for the proposed minimum requirement. The test diet meets the requirement for Vitamin A if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Vitamin D	2 of 3 recipes met requirements 1 recipe met 96% of requirement. Only 3 recipes tested	Met requirements	The test diet meets the requirement for Vitamin D if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Vitamin E	5 of 5 recipes met an average of 40% of requirement	5 of 5 recipes met an average of 23% of requirement	FEDIAF guidelines discuss how the level of Vitamin E requirement varies depending on the amount of polyunsaturated fatty acids (PUFAs) present in the diet – the assumption being that the quality of those fats will be low, owing to the nature of processed food, which is all the guidelines are concerned with. The test diet meets the requirement for Vitamin E, owing to the increased bioavailability when fed in its natural state. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Thiamine	2 of 5 recipes met requirements 3 of 5 recipes met 35% of requirement	Met requirements	FEDIAF guidelines offer no explanation regarding the minimum requirement. The test diet meets the requirement for thiamine if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Riboflavin	Met requirements	5 of 5 recipes met an average of 68% of requirement	The test diet meets the requirement for riboflavin if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Pantothenic acid	Met requirements	Met requirements	
Vitamin B6 (Pyridoxine)	Met requirements	Met requirements	
Vitamin B12	Met requirements	Met requirements	
Niacin	Met requirements	Met requirements	
Folic acid	3 of 5 recipes met requirements 2 of 5 recipes met 35% of requirement	4 of 5 recipes met requirements 1 recipe met 31% of requirement	FEDIAF guidelines offer no explanation regarding the minimum requirement. The test diet meets the requirement for folic acid if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.
Choline	4 of 5 recipes met requirements The remaining recipe met 71% of requirement	4 of 5 recipes met requirements The remaining recipe met 50% of requirement	FEDIAF guidelines offer no explanation regarding the minimum requirement. The test diet meets the requirement for choline if the recipes are fed in rotation. It is to be noted that in the subsequent AAFCO trials, none of the dogs showed any sign of deficiency.

附錄3：AAFCO試驗餵食的飲食細節

牛肉配方
成分：碎牛肉，牛心和細磨骨（67%）。碎胡蘿蔔，捲心菜，
花椰菜，歐洲防風草和其他時令蔬菜，包括羽衣甘藍，大頭菜和芹菜（33%）。
分析成分：水分：67.6%;蛋白質：13.4%;總脂肪：11.4%;灰：6.5%;纖維：1.5%。

羊肉配方
成分：剁碎的羊羔胸部和心臟和細磨骨（67%）。碎胡蘿蔔，
捲心菜，花椰菜，歐洲防風草和其他時令蔬菜，包括羽衣甘藍，大頭菜和
celeriac（33%）。分析成分：水分：68.1%;蛋白質：11.9%;總脂肪：15.4%;灰：
6.6%;纖維：0.9%。

自由放養的雞肉配方
成分：碎雞肉，雞心和細磨骨（67%）。碎胡蘿蔔，
捲心菜，花椰菜，歐洲防風草和其他時令蔬菜，包括羽衣甘藍，大頭菜和
芹菜（33%）。分析成分：水分：74.4%;蛋白質：13.2%;總脂肪：6.7%;灰：
3.1%;粗纖維：0.5%。
野
兔配方
成分：剁碎的野兔，包括細磨骨（55%）。羔羊乳房包括
骨（15%）。切碎的胡蘿蔔，捲心菜，花椰菜，歐洲防風草和其他時令蔬菜，
包括羽衣甘藍，大頭菜和芹菜（30%）。分析成分：水分：75.3%;蛋白：
22.6%;總脂肪：4.1%;灰：3.1%;纖維：0.9%。

自由放養的雞肉（不含蔬菜）配方
成分：碎雞肉包括骨頭（85%），雞心（8%），雞肝（7%）。
分析成分：水分：68.3%;蛋白質：18%;總脂肪：9.7%;灰：2.8%;
纖維：1%。

APPENDIX 3: Details of the diet fed for the AAFCO trial

Prime Beef Formula
Composition: Minced beef, ox heart and finely ground beef bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (33%). Analytical constituents: Moisture: 67.6%; Protein: 13.4%; Total Fat: 11.4%; Ash: 6.5%; Crude Fibre: 1.5%.

Tender Lamb Formula
Composition: Minced lamb breast, heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (33%). Analytical constituents: Moisture: 68.1%; Protein: 11.9%; Total Fat: 15.4%; Ash: 6.6%; Crude Fibre: 0.9%.

Free-range Chicken Formula
Composition: Minced chicken, heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (33%). Analytical constituents: Moisture: 74.4%; Protein: 13.2%; Total Fat: 6.7%; Ash: 3.1%; Crude Fibre: 0.5%.

Free-range Duck Formula
Composition: Minced duck, heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables (33%). Analytical constituents: Moisture: 69.7%; Protein: 11.4%; Total Fat: 14.7%; Ash: 2.5%; Crude Fibre: 1.1%.

Free-range Pork Formula
Composition: Minced pork, heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables (33%). Analytical constituents: Moisture: 68.5 %; Protein: 13.4%; Total Fat: 11.5%; Ash: 3.7%; Crude Fibre: 1.6%.

Free-range Turkey Formula
Composition: Minced turkey, heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables (33%). Analytical constituents: Moisture: 64.0%; Protein: 11.3%; Total Fat: 17.8%; Ash: 2.1%; Crude Fibre: 0.8%.

Wild Game Formula
Composition: Mix of venison and pheasant, including finely ground bone (67%).
Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables (33%).
Analytical constituents: Moisture: 74.9 %; Protein: 15.3 %; Total Fat: 4.7 %; Ash: 2.7%;
Crude Fibre: 0.6%.

Wild Rabbit Formula
Composition: Minced wild rabbit, including finely ground bone (55%). Lamb breast, including bone (15%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables, including kale, kohlrabi and celeriac (30%). Analytical constituents: Moisture: 75.3%; Protein: 22.6%; Total Fat: 4.1%; Ash: 3.1%; Crude Fibre: 0.9%.

野生鹿肉配方
成分：切碎的鹿肉，鹿肉心臟和細磨骨（67％）。碎胡蘿蔔，
捲心菜，花椰菜，歐洲防風草和其他時令蔬菜（33％）。分析成分：
水分：71.4%;蛋白質：17.8%;總脂肪：3.1%;灰：7.9%;粗纖維：2%。
野雞野雞配方
成分：剁碎的野雞和細磨骨（67％）。碎胡蘿蔔，捲心菜，
花椰菜，歐洲防風草和其他時令蔬菜（33％）。分析成分：水分：
71%;蛋白質：21.6%;總脂肪：2.8%;灰分：4.5%;粗纖維：0.2%。
純牛肝治療
成分：風乾牛肝。分析成分：蛋白質59.6%;水分20.7%;脂肪
5.8%;灰分3.8%;粗纖維0.1%。能量：292千卡/ 100克。注意：給每隻狗的金額
根據大小不同，但每隻狗的總體飲食可以忽略不計。
牛肉指關節骨頭
成分：牛骨。分析成分：鈣，磷，蛋白質和脂肪。
由於成分的性質，數量各不相同，我們無法進行完整的典型分析。
注意：每隻狗的數量根據大小而有所不同，但每種狗的數量可以忽略不計
狗的整體飲食。

Wild Venison Formula
Composition: Minced venison, venison heart and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables (33%). Analytical constituents: Moisture: 71.4%; Protein: 17.8%; Total Fat: 3.1%; Ash: 7.9%; Crude Fibre: 2%.

Wild Pheasant Formula
Composition: Minced pheasant and finely ground bone (67%). Minced carrot, cabbage, cauliflower, parsnip and other seasonal vegetables (33%). Analytical constituents: Moisture: 71%; Protein: 21.6%; Total Fat: 2.8%; Ash: 4.5%; Crude Fibre: 0.2%.

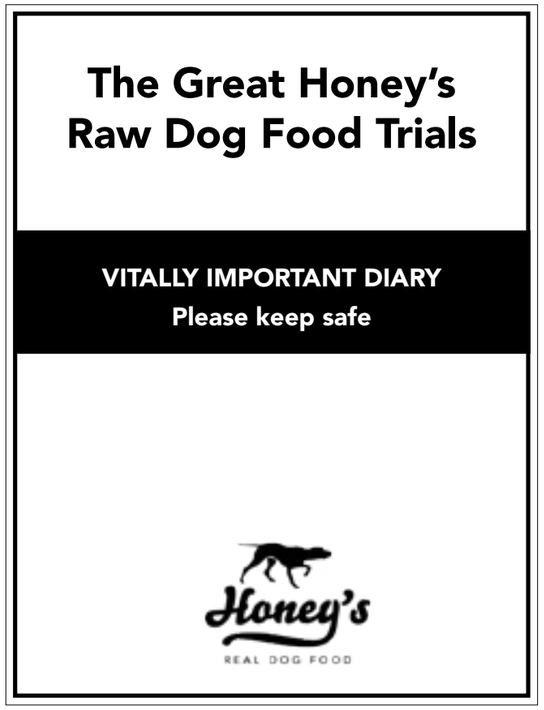
Pure Ox Liver Treats
Composition: air-dried ox liver. Analytical constituents: Protein 59.6 %; Moisture 20.7 %; Fat 5.8%; Ash 3.8 %; Crude Fibre 0.1 %. Energy: 292 kcal/100g. *Note: the amount given to each dog varied according to size but it represented a negligible % of each dog's overall diet.*

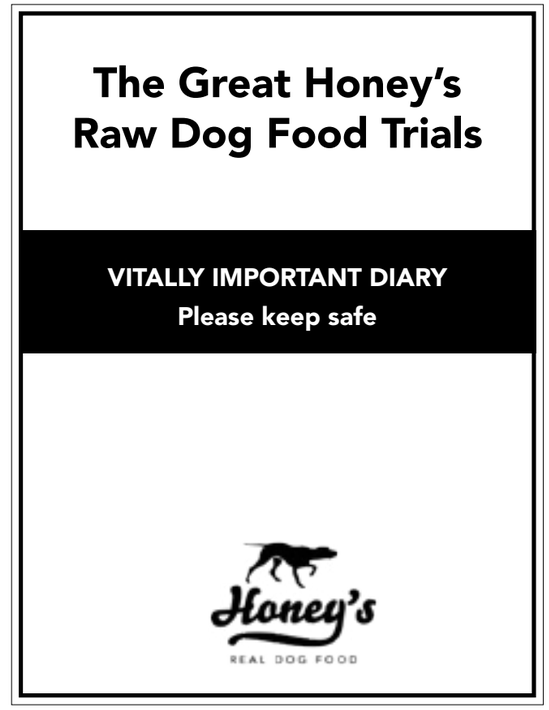
Beef Knuckle End Bones
Composition: Beef bones. Analytical constituents: calcium , phosphorus, protein and fat. Quantities vary and we cannot do a full typical analysis, owing to the nature of the ingredient. *Note: the amount given to each dog varied according to size but it represented a negligible % of each dog's overall diet.*

RAW P

APPENDIX 4: Sample pages from the AAFCO trial diaries

附錄4：AAFCO試驗日記的樣本頁面





"Is the homework fresh?"

The Great Honey's Raw Dog Food Trials

VITALLY IMPORTANT DIARY

The Much Valued Four-Legged Participant's Name

The Much Valued Two-Legged Participant's Name

Start Date:

Contact Telephone:

Any questions? Any concerns?

Please call Katie McCaul on 01672 620260
or email her:
katie@darlingsrealdogfood.com

Week 1
Commencing Monday _____ of _____
Weekly weigh in details
Dog weighed on _____ Dog's weight _____kg _____g
Food record
Please record what food the dog ate every day, i.e. recipe and volume of food as in 'Chicken 450g'.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Daily food record							
Accidental food intake							

Other information
Did your dog suffer from any health issues? If so please supply the following information.
What was the health issue?

Which days this week did it affect the dog? Monday☐ Tuesday☐ Wednesday☐ Thursday☐ Friday☐ Saturday☐ Sunday☐

What medication or treatment was used?

Any other relevant information relating to this week?

Thank you and well done. On to another week.

You can say any foolish thing to a dog, and the dog will give you a look that says, 'Wow, you're right! I never would've thought of that!'
- Dave Barry

附錄5：AAFCO試驗的健康結果
APPENDIX 5: Health results of the AAFCO trial

名字｜犬種｜年齡		
	Angus, Collie, aged 8	
實驗前體檢結果	**PRE-TRIAL MEDICAL EXAMINATION RESULTS**	
體重(KG)	Weight (kg)	23.5
體態分數	Body Condition Score	2.5 （1:非常瘦 5:肥胖）
牙齒分數	Dental Score	2 （1:沒有牙垢 5:牙垢以及牙齦退化）
體溫	Temperature	39.4
呼吸	Respiratory Rate	28
心跳	Heart Rate	124
胸	Chest	Murmur
毛髮/皮膚	Hair/Skin	Nothing Abnormal Diagnosed
癢	Itch	Nothing Abnormal Diagnosed
腹部	Abdomen	Nothing Abnormal Diagnosed
腳	Feet	Excellent
肌肉量	Muscle Mass	Normal
黏膜	Mucous Membranes	Pink Capillary Refill Time <1
水份補充	Hydration	Good
耳朵	Ears	Nothing Abnormal Diagnosed
實驗後體檢結果	**POST-TRIAL MEDICAL EXAMINATION RESULTS**	
	Weight (kg)	25.25
	Body Condition Score	2
	Dental Score	3
	Temperature	39.3
	Respiratory Rate	Panting
	Heart Rate	124
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Nothing Abnormal Diagnosed
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Nothing Abnormal Diagnosed
	Muscle Mass	Normal
	Mucous Membranes	Pink Capillary Refill Time <1
	Hydration	Excellent
	Ears	Nothing Abnormal Diagnosed

GENERAL COMMENT
Fed raw eggs and tinned fish as a treat approximately once a week throughout the trial.

	Bodkin, Staffordshire Bull Terrier, aged 4	
	PRE-TRIAL MEDICAL EXAMINATION RESULTS	
	Weight (kg)	14.6
	Body Condition Score	3
	Dental Score	0
	Temperature	38.8
	Respiratory Rate	24
	Heart Rate	140
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Nothing Abnormal Diagnosed
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Excellent
	Muscle Mass	Excessive
	Mucous Membranes	Pink Capillary Refill Time <1
	Hydration	Normal
	Ears	Nothing Abnormal Diagnosed
	POST-TRIAL MEDICAL EXAMINATION RESULTS	
	Weight (kg)	14.5
	Body Condition Score	2
	Dental Score	0–1
	Temperature	39.3
	Respiratory Rate	28
	Heart Rate	124
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Nothing Abnormal Diagnosed
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Excellent
	Muscle Mass	Excessive
	Mucous Membranes	Pink Capillary Refill Time <1
	Hydration	Normal
	Ears	Nothing Abnormal Diagnosed

RAW PROOF

	Bramble, Collie, aged 6	
	PRE-TRIAL MEDICAL EXAMINATION RESULTS	
	Weight (kg)	13.1
	Body Condition Score	1-2
	Dental Score	1
	Temperature	38.9
	Respiratory Rate	60
	Heart Rate	76
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Nothing Abnormal Diagnosed
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Excellent
	Muscle Mass	Normal
	Mucous Membranes	Sl pale
	Hydration	Good
	Ears	Nothing Abnormal Diagnosed
	POST-TRIAL MEDICAL EXAMINATION RESULTS	
	Weight (kg)	14.5
	Body Condition Score	2
	Dental Score	1
	Temperature	38
	Respiratory Rate	60
	Heart Rate	80
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Dandruff
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Nothing Abnormal Diagnosed
	Muscle Mass	Normal
	Mucous Membranes	Pink Capillary Refill Time <1
	Hydration	Excellent
	Ears	Nothing Abnormal Diagnosed

	Dennis, Mixed, aged 5	
	PRE-TRIAL MEDICAL EXAMINATION RESULTS	
	Weight (kg)	16.95
	Body Condition Score	3
	Dental Score	0
	Temperature	38.5
	Respiratory Rate	32
	Heart Rate	100
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Nothing Abnormal Diagnosed
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Excellent
	Muscle Mass	Normal
	Mucous Membranes	Pink Capillary Refill Time <1
	Hydration	Good
	Ears	Nothing Abnormal Diagnosed
	POST-TRIAL MEDICAL EXAMINATION RESULTS	
	Weight (kg)	17.75
	Body Condition Score	2.5
	Dental Score	1
	Temperature	38.6
	Respiratory Rate	32
	Heart Rate	76
	Chest	Nothing Abnormal Diagnosed
	Hair/Skin	Nothing Abnormal Diagnosed
	Itch	Nothing Abnormal Diagnosed
	Abdomen	Nothing Abnormal Diagnosed
	Feet	Nothing Abnormal Diagnosed
	Muscle Mass	Normal
	Mucous Membranes	Pink Capillary Refill Time <1
	Hydration	Excellent
	Ears	Nothing Abnormal Diagnosed

Fletcher, Labradoodle, aged 3

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	15.9
Body Condition Score	3.5
Dental Score	0
Temperature	38.9
Respiratory Rate	Panting
Heart Rate	108
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	17
Body Condition Score	3
Dental Score	1
Temperature	39
Respiratory Rate	Panting
Heart Rate	156
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Folie, Labrador, aged 6

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	25.5
Body Condition Score	2.5
Dental Score	1
Temperature	38.5
Respiratory Rate	12
Heart Rate	140
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Dark Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	26.1
Body Condition Score	2
Dental Score	0
Temperature	39
Respiratory Rate	24
Heart Rate	200
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Gerwen, Mixed (Pug/Boxer) aged 2

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	17
Body Condition Score	3
Dental Score	0
Temperature	39.1
Respiratory Rate	32
Heart Rate	84
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	17.2
Body Condition Score	2+
Dental Score	1
Temperature	38.6
Respiratory Rate	16
Heart Rate	132
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Gladdis, Mixed, aged 4

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	11.5
Body Condition Score	3.5
Dental Score	1
Temperature	38.3
Respiratory Rate	24
Heart Rate	76
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	10.05
Body Condition Score	3
Dental Score	0
Temperature	38.9
Respiratory Rate	32
Heart Rate	Murmur (followed up)
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Harvey D, Cavalier King Charles, aged 9

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	9
Body Condition Score	3
Dental Score	1
Temperature	38.7
Respiratory Rate	12
Heart Rate	112
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	8.6
Body Condition Score	2
Dental Score	2
Temperature	38.4
Respiratory Rate	16
Heart Rate	156
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Sl dull
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

GENERAL COMMENT

Harvey D was given Dentastix to chew on a regular basis as his human companions preferred not to give raw bones.

Harvey J, Labrador, aged 5

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	36
Body Condition Score	3
Dental Score	0 Broken Carnassial
Temperature	39.2
Respiratory Rate	Panting
Heart Rate	104
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	38.1
Body Condition Score	3
Dental Score	0-1
Temperature	38.5
Respiratory Rate	20
Heart Rate	132
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Houbie, Cocker Spaniel, aged 9

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	14.2
Body Condition Score	3
Dental Score	1
Temperature	38.9
Respiratory Rate	Panting
Heart Rate	96
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	14.6
Body Condition Score	3
Dental Score	0
Temperature	38.7
Respiratory Rate	40
Heart Rate	124
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Jaffa, Vizsla, aged 3

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	30.5
Body Condition Score	2.5
Dental Score	1
Temperature	38.2
Respiratory Rate	28
Heart Rate	100
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	31.2
Body Condition Score	2
Dental Score	1
Temperature	38.4
Respiratory Rate	24
Heart Rate	76
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Keshi, Vizsla, aged 2

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	27.6
Body Condition Score	2.5
Dental Score	1
Temperature	38.4
Respiratory Rate	20
Heart Rate	100
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	27.7
Body Condition Score	2
Dental Score	0
Temperature	38.3
Respiratory Rate	20
Heart Rate	108
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

Maisie, Collie, aged 3

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	20
Body Condition Score	3.5
Dental Score	1
Temperature	39
Respiratory Rate	Panting
Heart Rate	124
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	17.35
Body Condition Score	2
Dental Score	2
Temperature	38.7
Respiratory Rate	28
Heart Rate	104
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Ollie, Mixed, aged 5

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	32
Body Condition Score	3.5
Dental Score	0
Temperature	39.1
Respiratory Rate	Panting
Heart Rate	84
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	31.3
Body Condition Score	3
Dental Score	1
Temperature	38.9
Respiratory Rate	24
Heart Rate	100
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Otis, Vizsla, aged 10

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	31.2
Body Condition Score	3
Dental Score	1
Temperature	38.2
Respiratory Rate	20
Heart Rate	100
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	28.4
Body Condition Score	2+
Dental Score	0
Temperature	38.4
Respiratory Rate	16
Heart Rate	88
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Purdy, Sprocker, aged 6

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	12.7
Body Condition Score	4
Dental Score	1
Temperature	39.4
Respiratory Rate	28
Heart Rate	124
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	14.05
Body Condition Score	3
Dental Score	2
Temperature	39.6
Respiratory Rate	40
Heart Rate	160
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Scooby, Mixed, aged 6

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	27.3
Body Condition Score	3
Dental Score	0
Temperature	38.4
Respiratory Rate	32
Heart Rate	84
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Sl Long Nails
Muscle Mass	Normal
Mucous Membranes	Sl Pale Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	27.5
Body Condition Score	2.5
Dental Score	1
Temperature	38.3
Respiratory Rate	16
Heart Rate	88
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Sl Long Nails
Muscle Mass	Sl Under Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Spoof, Collie, aged 5

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	15.2
Body Condition Score	2.5
Dental Score	1
Temperature	39.2
Respiratory Rate	56
Heart Rate	80
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	15.9
Body Condition Score	2
Dental Score	3
Temperature	39.3
Respiratory Rate	28
Heart Rate	88
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

GENERAL COMMENT

Fed raw eggs and tinned fish as a treat approximately once a week throughout the trial.

Taylor, Puggle (Pug/Beagle), aged 2

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	12
Body Condition Score	4
Dental Score	0
Temperature	Normal
Respiratory Rate	28
Heart Rate	68
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Normal
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	10.8
Body Condition Score	2+
Dental Score	0-1
Temperature	38.4
Respiratory Rate	20
Heart Rate	144
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

Tegan, German Shorthaired Pointer, aged 7

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	22
Body Condition Score	2
Dental Score	0
Temperature	37.7
Respiratory Rate	16
Heart Rate	88
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	19.8
Body Condition Score	2
Dental Score	1
Temperature	37.7
Respiratory Rate	12
Heart Rate	108
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

Todd, German Shorthaired Pointer, aged 3

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	27.7
Body Condition Score	1.5
Dental Score	1
Temperature	37.9
Respiratory Rate	Panting
Heart Rate	Murmur 112
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Excellent
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	31.7
Body Condition Score	2.5
Dental Score	1-2
Temperature	38.8
Respiratory Rate	Panting
Heart Rate	76
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

Zola, German Shorthaired Pointer, aged 2

PRE-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	23.2
Body Condition Score	2
Dental Score	0
Temperature	38.4
Respiratory Rate	20
Heart Rate	140
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Long nails
Muscle Mass	Excessive
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Good
Ears	Nothing Abnormal Diagnosed

POST-TRIAL MEDICAL EXAMINATION RESULTS

Weight (kg)	23.5
Body Condition Score	2
Dental Score	0
Temperature	38.6
Respiratory Rate	20
Heart Rate	168
Chest	Nothing Abnormal Diagnosed
Hair/Skin	Nothing Abnormal Diagnosed
Itch	Nothing Abnormal Diagnosed
Abdomen	Nothing Abnormal Diagnosed
Feet	Nothing Abnormal Diagnosed
Muscle Mass	Normal
Mucous Membranes	Pink Capillary Refill Time <1
Hydration	Excellent
Ears	Nothing Abnormal Diagnosed

Note re: Body Condition Score

The Body Condition Score referred to in these results was determined by the Clinical Veterinary Surgeon using the guidelines set down by the Pet Food Manufacturers Association (PFMA) by which 1 is 'Very Thin' and 5 is 'Obese'. The figure chosen in each case – between 1 and 5 – represents the best judgement of the dog's body condition at the time of each examination.

Note re: Dental Score

The Dental Score referred to in these results was determined by the Clinical Veterinary Surgeon using a scale of 0 to 5, with 0 representing 'no tartar or gingivitis' and 5 representing 'marked tartar and gingivitis with marked gum recession'. The figure chosen in each case – between 0 and 5 – represents the best judgement of the dog's dental condition at the time of each examination.

附錄6：AAFCO試驗的血液結果

APPENDIX 6: Blood results of the AAFCO trial

名字｜犬種｜年齡
Angus, Border Collie, aged 7

實驗前血液分析 **PRE-TRIAL BLOOD ANALYSIS RESULTS**

BIOCHEMISTRY

Total protein	*106	g/L	High (54.0–77.0)
Albumin	*48	g/L	High (26.0–40.0)
Globulin	*58	g/L	High (20–47)
Sodium	*157	mmol/L	High (139–154)
Potassium	*6.2	mmol/L	High (3.5–6.0)
Na:K ratio	25		(25.0–35.0)
Chloride	102	mmol/L	(99–125)
Total calcium	2.32	mmol/L	(2.0–3.0)
Phosphate	*8.60	mmol/L	High (0.8–1.6)
Urea	8.5	mmol/L	(2.0–9.0)
Creatinine	*163	umol/L	High (40–106)
Alk phos	0	U/L	(0.0–25.0)
ALT	*68	U/L	High (0–25)
GLDH	*20	U/L	High (0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	*12	umol/L	High (0–10.0)
Glucose	4.9	mmol/L	(3.0–5.5)
CK	*332	U/L	High (0–190)
Cholesterol	7.0	mmol/L	(3.8–7.0)
Triglycerides	*9.3	mmol/L	High (0.45–1.9)
Amylase	458	U/L	(0–1800)
Lipase	58	U/L	(0–150)
Serum haemolysed and lipaemic insufficient for lipoclear.			

HAEMATOLOGY

RBC	7.93	x10^12/L	(5.0–8.5)
Hb	*19.8	g/dl	High (12.0–18.0)
HCT	*66.0	%	High (37.0–55.0)
MCV	*83.2	fl	High (60.0–80.0)
MCH	25.0	pg	(19.0–26.0)
MCHC	*30.0	g/dl	Low (30.8–37.0)
RDW	17.7	%	(12.9–17.8)
Platelets	285	x10^9/L	(160–500)
WBC	7.86	x10^9/L	(6.0–15.0)
Neutrophils	6.21	x10^9/L	(3.0–11.5)
Bands	0.08	x10^9/L	(0–0.3)
Lymphocytes	1.02	x10^9/L	(1.0–4.8)
Monocytes	0.16	x10^9/L	(0–1.3)
Eosinophils	0.39	x10^9/L	(0–1.25)
Reticulocyte %	1.3	%	
Reticulocyte count	103.09	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is lipaemic and haemolysed and this will be causing artefactual elevation of TP, albumin, globulin, CK, K, creatinine and PO_4. This will also be artefactually elevating haemoglobuin in the HAEMATOLOGY profile.

實驗後血液分析 **POST-TRIAL BLOOD ANALYSIS RESULTS**

BIOCHEMISTRY

Total protein	64	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	28	g/L	(20–47)
Sodium	152	mmol/L	(139–154)
Potassium	4.5	mmol/L	(3.5–6.0)
Na:K ratio	34		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.35	mmol/L	(2.0–3.0)
Phosphate	1.30	mmol/L	(0.8–1.6)
Urea	8.5	mmol/L	(2.0–9.0)
Creatinine	81	umol/L	(40–106)
Alk phos	14	U/L	(0.0–25.0)
ALT	*40	U/L	High (0–25)
GLDH	4	U/L	(0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	2	umol/L	(0–10.0)
Glucose	5.0	mmol/L	(3.0–5.5)
CK	130	U/L	(0–190)
Cholesterol	4.8	mmol/L	(3.8–7.0)
Triglycerides	1.2	mmol/L	(0.45–1.9)
Amylase	658	U/L	(0–1800)
Lipase	61	U/L	(0–150)

HAEMATOLOGY

RBC	8.43	x10^12/L	(5.0–8.5)
Hb	*19.3	g/dl	High (12.0–18.0)
HCT	*58.7	%	High (37.0–55.0)
MCV	69.6	fl	(60.0–80.0)
MCH	22.9	pg	(19.0–26.0)
MCHC	32.9	g/dl	(30.8–37.0)
RDW	17.7	%	(12.9–17.8)
Platelets	297	x10^9/L	(160–500)
WBC	8.80	x10^9/L	(6.0–15.0)
Neutrophils	6.54	x10^9/L	(3.0–11.5)
Lymphocytes	1.39	x10^9/L	(1.0–4.8)
Monocytes	0.54	x10^9/L	(0–1.3)
Eosinophils	0.33	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.9	%	
Reticulocyte count	75.87	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
HCT much lower than previously. Essentially an unremarkable profile.

Bodkin, Staffordshire Bull Terrier, aged 3

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	73	g/L	(54.0–77.0)
Albumin	39	g/L	(26.0–40.0)
Globulin	34	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	5.5	mmol/L	(3.5–6.0)
Na:K ratio	27		(25.0–35.0)
Chloride	100	mmol/L	(99–125)
Total calcium	2.48	mmol/L	(2.0–3.0)
Phosphate	*4.0	mmol/L	High (0.8–1.6)
Urea	*9.9	mmol/L	High (2.0–9.0)
Creatinine	*122	umol/L	High (40–106)
Alk phos	7	U/L	(0.0–25.0)
ALT	*50	U/L	High (0–25)
GLDH	5	U/L	(0–10.0)
Total bilirubin	4	umol/L	(0–9.0)
Bile acids	*79	umol/L	High (0–10.0)
Glucose	4.8	mmol/L	(3.0–5.5)
CK	*545	U/L	High (0–190)
Cholesterol	6.3	mmol/L	(3.8–7.0)
Triglycerides	*2.9	mmol/L	High (0.45–1.9)
Amylase	792	U/L	(0–1800)
Lipase	23	U/L	(0–150)
Serum haemolysed and lipaemic.			

HAEMATOLOGY

RBC	*8.51	x10^12/L	High (5.0–8.5)
Hb	*20.2	g/dl	High (12.0–18.0)
HCT	*63.9	%	High (37.0–55.0)
MCV	75.1	fl	(60.0–80.0)
MCH	23.7	pg	(19.0–26.0)
MCHC	31.6	g/dl	(30.8–37.0)
RDW	15.6	%	(12.9–17.8)
Platelets	330	x10^9/L	(160–500)
WBC	9.44	x10^9/L	(6.0–15.0)
Neutrophils	6.89	x10^9/L	(3.0–11.5)
Bands	0.19	x10^9/L	(0–0.3)
Lymphocytes	1.98	x10^9/L	(1.0–4.8)
Monocytes	0.19	x10^9/L	(0–1.3)
Eosinophils	0.19	x10^9/L	(0–1.25)
Reticulocyte %	1.1	%	
Reticulocyte count	93.61	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia. Slight anisocytosis		
Leukocyte comment	Döhle bodies present.		

CLINICAL COMMENTS
Sample artefact will be affecting the phosphate, bilirubin, CK and potentially the creatinine values.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	60	g/L	(54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	23	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	4.5	mmol/L	(3.5–6.0)
Na:K ratio	33		(25.0–35.0)
Chloride	106	mmol/L	(99–125)
Total calcium	2.34	mmol/L	(2.0–3.0)
Phosphate	1.50	mmol/L	(0.8–1.6)
Urea	*9.7	mmol/L	High (2.0–9.0)
Creatinine	77	umol/L	(40–106)
Alk phos	25	U/L	(0.0–25.0)
ALT	*38	U/L	High (0–25)
GLDH	5	U/L	(0–10.0)
Total bilirubin	3	umol/L	(0–9.0)
Bile acids	*33	umol/L	High (0–10.0)
Glucose	5.1	mmol/L	(3.0–5.5)
CK	*192	U/L	High (0–190)
Cholesterol	5.1	mmol/L	(3.8–7.0)
Triglycerides	*2.0	mmol/L	High (0.45–1.9)
Amylase	355	U/L	(0–1800)
Lipase	12	U/L	(0–150)
Serum slightly lipaemic.			

HAEMATOLOGY

RBC	8.46	x10^12/L	(5.0–8.5)
Hb	*19.5	g/dl	High (12.0–18.0)
HCT	*58.5	%	High (37.0–55.0)
MCV	69.1	fl	(60.0–80.0)
MCH	23.0	pg	(19.0–26.0)
MCHC	33.3	g/dl	(30.8–37.0)
RDW	17.4	%	(12.9–17.8)
Platelets	357	x10^9/L	(160–500)
WBC	9.74	x10^9/L	(6.0–15.0)
Neutrophils	6.57	x10^9/L	(3.0–11.5)
Lymphocytes	2.57	x10^9/L	(1.0–4.8)
Monocytes	0.28	x10^9/L	(0–1.3)
Eosinophils	0.31	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	1.3	%	
Reticulocyte count	109.98	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Lipaemia tends to artefactually elevate CK.

Bramble, Collie, aged 6

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	68	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	33	g/L	(20–47)
Sodium	*157	mmol/L	High (139–154)
Potassium	5.6	mmol/L	(3.5–6.0)
Na:K ratio	28		(25.0–35.0)
Chloride	103	mmol/L	(99–125)
Total calcium	2.35	mmol/L	(2.0–3.0)
Phosphate	*5.70	mmol/L	High (0.8–1.6)
Urea	7.8	mmol/L	(2.0–9.0)
Creatinine	*153	umol/L	High (40–106)
Alk phos	*34	U/L	High (0.0–25.0)
ALT	*67	U/L	High (0–25)
GLDH	*12	U/L	High (0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	*15	umol/L	High (0–10.0)
Glucose	4.5	mmol/L	(3.0–5.5)
CK	181	U/L	(0–190)
Cholesterol	5.2	mmol/L	(3.8–7.0)
Triglycerides	1.3	mmol/L	(0.45–1.9)
Amylase	489	U/L	(0–1800)
Lipase	22	U/L	(0–150)
Serum slightly haemolysed and slightly lipaemic.			

HAEMATOLOGY

RBC	6.57	x10^12/L	(5.0–8.5)
Hb	15.7	g/dl	(12.0–18.0)
HCT	*59.0	%	High (37.0–55.0)
MCV	*89.8	fl	High (60.0–80.0)
MCH	23.9	pg	(19.0–26.0)
MCHC	*26.6	g/dl	Low (30.8–37.0)
RDW	13.5	%	(12.9–17.8)
Platelets	247	x10^9/L	(160–500)
WBC	8.10	x10^9/L	(6.0–15.0)
Neutrophils	4.21	x10^9/L	(3.0–11.5)
Lymphocytes	3.08	x10^9/L	(1.0–4.8)
Monocytes	0.08	x10^9/L	(0–1.3)
Eosinophils	0.73	x10^9/L	(0–1.25)
Reticulocyte %	0.5	%	
Reticulocyte count	32.85	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	61	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	26	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.4	mmol/L	(3.5–6.0)
Na:K ratio	34		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.30	mmol/L	(2.0–3.0)
Phosphate	*1.80	mmol/L	High (0.8–1.6)
Urea	6.3	mmol/L	(2.0–9.0)
Creatinine	76	umol/L	(40–106)
Alk phos	21	U/L	(0.0–25.0)
ALT	*54	U/L	High (0–25)
GLDH	9	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	*13	umol/L	High (0–10.0)
Glucose	4.8	mmol/L	(3.0–5.5)
CK	111	U/L	(0–190)
Cholesterol	4.8	mmol/L	(3.8–7.0)
Triglycerides	0.8	mmol/L	(0.45–1.9)
Amylase	428	U/L	(0–1800)
Lipase	15	U/L	(0–150)

HAEMATOLOGY

RBC	7.19	x10^12/L	(5.0–8.5)
Hb	17.1	g/dl	(12.0–18.0)
HCT	51.7	%	(37.0–55.0)
MCV	71.9	fl	(60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	33.1	g/dl	(30.8–37.0)
RDW	14.3	%	(12.9–17.8)
Platelets	284	x10^9/L	(160–500)
WBC	7.79	x10^9/L	(6.0–15.0)
Neutrophils	4.99	x10^9/L	(3.0–11.5)
Lymphocytes	1.56	x10^9/L	(1.0–4.8)
Monocytes	0.39	x10^9/L	(0–1.3)
Eosinophils	0.86	x10^9/L	(0–1.25)
Reticulocyte %	0.5	%	
Reticulocyte count	35.95	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Dennis, Mixed, aged 5

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	60	g/L	(54.0–77.0)
Albumin	34	g/L	(26.0–40.0)
Globulin	26	g/L	(20–47)
Sodium	153	mmol/L	(139–154)
Potassium	5.2	mmol/L	(3.5–6.0)
Na:K ratio	29		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.65	mmol/L	(2.0–3.0)
Phosphate	*1.80	mmol/L	High (0.8–1.6)
Urea	*9.5	mmol/L	High (2.0–9.0)
Creatinine	*119	umol/L	High (40–106)
Alk phos	3	U/L	(0.0–25.0)
ALT	*33	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	2	umol/L	(0–10.0)
Glucose	4.4	mmol/L	(3.0–5.5)
CK	*265	U/L	High (0–190)
Cholesterol	6.5	mmol/L	(3.8–7.0)
Triglycerides	0.5	mmol/L	(0.45–1.9)
Amylase	581	U/L	(0–1800)
Lipase	14	U/L	(0–150)

HAEMATOLOGY

RBC	7.19	x10^12/L	(5.0–8.5)
Hb	17.1	g/dl	(12.0–18.0)
HCT	*56.6	%	High (37.0–55.0)
MCV	78.7	fl	(60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	*30.2	g/dl	Low (30.8–37.0)
RDW	14.2	%	(12.9–17.8)
Platelets	263	x10^9/L	(160–500)
WBC	7.22	x10^9/L	(6.0–15.0)
Neutrophils	4.02	x10^9/L	(3.0–11.5)
Lymphocytes	2.40	x10^9/L	(1.0–4.8)
Monocytes	0.24	x10^9/L	(0–1.3)
Eosinophils	0.55	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.5	%	
Reticulocyte count	35.95	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	61	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	26	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	5.2	mmol/L	(3.5–6.0)
Na:K ratio	29		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.26	mmol/L	(2.0–3.0)
Phosphate	1.60	mmol/L	(0.8–1.6)
Urea	8.5	mmol/L	(2.0–9.0)
Creatinine	99	umol/L	(40–106)
Alk phos	6	U/L	(0.0–25.0)
ALT	*31	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	8	umol/L	(0–10.0)
Glucose	4.6	mmol/L	(3.0–5.5)
CK	91	U/L	(0–190)
Cholesterol	5.1	mmol/L	(3.8–7.0)
Triglycerides	*2.1	mmol/L	High (0.45–1.9)
Amylase	529	U/L	(0–1800)
Lipase	16	U/L	(0–150)
Serum lipaemic.			

HAEMATOLOGY

RBC	7.80	x10^12/L	(5.0–8.5)
Hb	*18.4	g/dl	High (12.0–18.0)
HCT	*61.5	%	High (37.0–55.0)
MCV	78.8	fl	(60.0–80.0)
MCH	23.6	pg	(19.0–26.0)
MCHC	*29.9	g/dl	Low (30.8–37.0)
RDW	15.9	%	(12.9–17.8)
Platelets	213	x10^9/L	(160–500)
WBC	6.65	x10^9/L	(6.0– 15.0)
Neutrophils	3.28	x10^9/L	(3.0–11.5)
Lymphocytes	2.51	x10^9/L	(1.0–4.8)
Monocytes	0.13	x10^9/L	(0–1.3)
Eosinophils	0.73	x10^9/L	(0–1.25)
Basophils	0	x10^9/L	(0–0.2)
Reticulocyte %	0.7	%	
Reticulocyte count	54.60	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Fletcher, Labradoodle, aged 2

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	76	g/L	(54.0–77.0)
Albumin	*41	g/L	High (26.0–40.0)
Globulin	35	g/L	(20–47)
Sodium	153	mmol/L	(139–154)
Potassium	5.5	mmol/L	(3.5–6.0)
Na:K ratio	28		(25.0–35.0)
Chloride	103	mmol/L	(99–125)
Total calcium	2.67	mmol/L	(2.0–3.0)
Phosphate	*3.70	mmol/L	High (0.8–1.6)
Urea	7.2	mmol/L	(2.0–9.0)
Creatinine	* 115	umol/L	High (40–106)
Alk phos	0	U/L	(0.0–25.0)
ALT	*41	U/ LHigh	(0–25)
GLDH	6	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	*39	umol/ LHigh	(0–10.0)
Glucose	3.7	mmol/L	(3.0–5.5)
CK	*563	U/ LHigh	(0–190)
Cholesterol	5.5	mmol/L	(3.8–7.0)
Triglycerides	1.7	mmol/L	(0.45–1.9)
Amylase	682	U/L	(0–1800)
Lipase	23	U/L	(0–150)
Serum haemolysed and lipaemic.			

HAEMATOLOGY

RBC	*8.85	x10^12/L	High (5.0–8.5)
Hb	*20.8	g/dl	High (12.0–18.0)
HCT	*67.2	%	High (37.0–55.0)
MCV	75.9	fl	(60.0–80.0)
MCH	23.5	pg	(19.0–26.0)
MCHC	31.0	g/dl	(30.8–37.0)
RDW	17.2	%	(12.9–17.8)
Platelets	177	x10^9/L	(160–500)
WBC	8.98	x10^9/L	(6.0–15.0)
Neutrophils	5.25	x10^9/L	(3.0–11.5)
Lymphocytes	3.05	x10^9/L	(1.0–4.8)
Monocytes	0.35	x10^9/L	(0–1.3)
Eosinophils	0.32	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	1.1	%	
Reticulocyte count	97.35	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	67	g/L	(54.0–77.0)
Albumin	40	g/L	(26.0–40.0)
Globulin	27	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	4.1	mmol/L	(3.5–6.0)
Na:K ratio	*37	High	(25.0–35.0)
Chloride	107	mmol/L	(99–125)
Total calcium	2.47	mmol/L	(2.0–3.0)
Phosphate	1.60	mmol/L	(0.8–1.6)
Urea	7.1	mmol/L	(2.0–9.0)
Creatinine	66	umol/L	(40–106)
Alk phos	*26	U/L	High (0.0–25.0)
ALT	*28	U/L	High (0–25)
GLDH	6	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	6	umol/L	(0–10.0)
Glucose	4.5	mmol/L	(3.0–5.5)
CK	135	U/L	(0–190)
Cholesterol	5.8	mmol/L	(3.8–7.0)
Triglycerides	1.4	mmol/L	(0.45–1.9)
Amylase	543	U/L	(0–1800)
Lipase	19	U/L	(0–150)
Serum slightly haemolysed and slightly lipaemic.			

HAEMATOLOGY

RBC	*9.03	x10^12/L	High (5.0–8.5)
Hb	*21.2	g/dl	High (12.0–18.0)
HCT	*63.4	%	High (37.0–55.0)
MCV	70.2	fl	(60.0–80.0)
MCH	23.5	pg	(19.0–26.0)
MCHC	33.4	g/dl	(30.8–37.0)
RDW	*17.9	%	High (12.9–17.8)
Platelets	171	x10^9/L	(160–500)
WBC	8.11	x10^9/L	(6.0–15.0)
Neutrophils	4.20	x10^9/L	(3.0–11.5)
Lymphocytes	3.11	x10^9/L	(1.0–4.8)
Monocytes	0.39	x10^9/L	(0–1.3)
Eosinophils	0.40	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	1.7	%	
Reticulocyte count	153.51	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Polychromasia +, slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
HCT was similarly elevated in this dog previously.

Folie, Retriever Labrador, aged 5

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	70	g/L	(54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	33	g/L	(20–47)
Sodium	*157	mmol/L	High (139–154)
Potassium	*6.5	mmol/L	High (3.5–6.0)
Na:K ratio	*24		Low (25.0–35.0)
Chloride	103	mmol/L	(99–125)
Total calcium	2.64	mmol/L	(2.0–3.0)
Phosphate	*7.0	mmol/L	High (0.8–1.6)
Urea	8.3	mmol/L	(2.0–9.0)
Creatinine	*182	umol/L	High (40–106)
Alk phos	15	U/L	(0.0–25.0)
ALT	*58	U/L	High (0–25)
GLDH	0	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	4	umol/L	(0–10.0)
Glucose	4.0	mmol/L	(3.0–5.5)
CK	*467	U/L	High (0–190)
Cholesterol	*7.4	mmol/L	High (3.8–7.0)
Triglycerides	1.1	mmol/L	(0.45–1.9)
Amylase	962	U/L	(0–1800)
Lipase	87	U/L	(0–150)
Serum haemolysed.			

HAEMATOLOGY

RBC	8.37	x10^12/L	(5.0–8.5)
Hb	*19.1	g/dl	High (12.0–18.0)
HCT	*63.0	%	High (37.0–55.0)
manual pcv			
MCV	75.2	fl	(60.0–80.0)
MCH	22.8	pg	(19.0–26.0)
MCHC	*30.1	g/dl	Low (30.8–37.0)
RDW	16.0	%	(12.9–17.8)
Platelets	185	x10^9/L	(160–500)
WBC	6.03	x10^9/L	(6.0–15.0)
Neutrophils	3.07	x10^9/L	(3.0–11.5)
Lymphocytes	2.22	x10^9/L	(1.0–4.8)
Monocytes	0.18	x10^9/L	(0–1.3)
Eosinophils	0.56	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	1.3	%	
Reticulocyte count	108.81	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	57	g/L	(54.0–77.0)
Albumin	34	g/L	(26.0–40.0)
Globulin	23	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.8	mmol/L	(3.5–6.0)
Na:K ratio	31		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.40	mmol/L	(2.0–3.0)
Phosphate	1.0	mmol/L	(0.8–1.6)
Urea	6.0	mmol/L	(2.0–9.0)
Creatinine	91	umol/L	(40–106)
Alk phos	18	U/L	(0.0–25.0)
ALT	*32	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	4	umol/L	(0–9.0)
Bile acids	8	umol/L	(0–10.0)
Glucose	4.5	mmol/L	(3.0–5.5)
CK	133	U/L	(0–190)
Cholesterol	4.9	mmol/L	(3.8–7.0)
Triglycerides	1.4	mmol/L	(0.45–1.9)
Amylase	799	U/L	(0–1800)
Lipase	53	U/L	(0–150)

HAEMATOLOGY

RBC	8.07	x10^12/L	(5.0–8.5)
Hb	*18.4	g/dl	High (12.0–18.0)
HCT	*55.6	%	High (37.0–55.0)
MCV	68.9	fl	(60.0–80.0)
MCH	22.8	pg	(19.0–26.0)
MCHC	33.1	g/dl	(30.8–37.0)
RDW	15.4	%	(12.9–17.8)
Platelets	204	x10^9/L	(160–500)
WBC	7.50	x10^9/L	(6.0– 15.0)
Neutrophils	3.51	x10^9/L	(3.0–11.5)
Lymphocytes	2.63	x10^9/L	(1.0–4.8)
Monocytes	0.39	x10^9/L	(0–1.3)
Eosinophils	0.96	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	1.6	%	
Reticulocyte count	129.12	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Polychromasia +, slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of CK, K, creatinine and PO4.

Gerwen, Boxer, aged 2

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	62	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	27	g/L	(20–47)
Sodium	153	mmol/L	(139–154)
Potassium	5.2	mmol/L	(3.5–6.0)
Na:K ratio	29		(25.0–35.0)
Chloride	107	mmol/L	(99–125)
Total calcium	2.76	mmol/L	(2.0–3.0)
Phosphate	*2.20	mmol/L	High (0.8–1.6)
Urea	6.8	mmol/L	(2.0–9.0)
Creatinine	*128	umol/L	High (40–106)
Alk phos	*28	U/L	High (0.0–25.0)
ALT	*30	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	3	umol/L	(0–10.0)
Glucose	5.0	mmol/L	(3.0–5.5)
CK	*562	U/L	High (0–190)
Cholesterol	*7.1	mmol/L	High (3.8–7.0)
Triglycerides	0.9	mmol/L	(0.45–1.9)
Amylase	614	U/L	(0–1800)
Lipase	14	U/L	(0–150)

HAEMATOLOGY

RBC	6.83	x10^12/L	(5.0–8.5)
Hb	15.9	g/dl	(12.0–18.0)
HCT	51.5	%	(37.0–55.0)
MCV	75.4	fl	(60.0–80.0)
MCH	23.3	pg	(19.0–26.0)
MCHC	30.9	g/dl	(30.8–37.0)
RDW	13.6	%	(12.9–17.8)
Platelets	360	x10^9/L	(160–500)
WBC	10.51	x10^9/L	(6.0–15.0)
Neutrophils	6.73	x10^9/L	(3.0–11.5)
Lymphocytes	3.36	x10^9/L	(1.0–4.8)
Monocytes	0.11	x10^9/L	(0–1.3)
Eosinophils	0.32	x10^9/L	(0–1.25)
Reticulocyte %	0.6	%	
Reticulocyte count	40.98	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	60	g/L	(54.0–77.0)
Albumin	38	g/L	(26.0–40.0)
Globulin	22	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	5.1	mmol/L	(3.5–6.0)
Na:K ratio	29		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.56	mmol/L	(2.0–3.0)
Phosphate	1.60	mmol/L	(0.8–1.6)
Urea	7.8	mmol/L	(2.0–9.0)
Creatinine	89	umol/L	(40–106)
Alk phos	25	U/L	(0.0–25.0)
ALT	*28	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	5.4	mmol/L	(3.0–5.5)
CK	140	U/L	(0–190)
Cholesterol	6.4	mmol/L	(3.8–7.0)
Triglycerides	*0.4	mmol/L	Low (0.45–1.9)
Amylase	605	U/L	(0–1800)
Lipase	13	U/L	(0–150)

HAEMATOLOGY

RBC	7.69	x10^12/L	(5.0–8.5)
Hb	17.6	g/dl	(12.0–18.0)
HCT	52.4	%	(37.0–55.0)
MCV	68.1	fl	(60.0–80.0)
MCH	22.9	pg	(19.0–26.0)
MCHC	33.6	g/dl	(30.8–37.0)
RDW	15.6	%	(12.9–17.8)
Platelets	301	x10^9/L	(160–500)
WBC	9.20	x10^9/L	(6.0–15.0)
Neutrophils	5.95	x10^9/L	(3.0–11.5)
Lymphocytes	2.55	x10^9/L	(1.0–4.8)
Monocytes	0.33	x10^9/L	(0–1.3)
Eosinophils	0.36	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	1.0	%	
Reticulocyte count	76.90	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Gladdis, Mixed, aged 4

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	73	g/L	(54.0–77.0)
Albumin	40	g/L	(26.0–40.0)
Globulin	33	g/L	(20–47)
Sodium	*156	mmol/L	High (139–154)
Potassium	5.8	mmol/L	(3.5–6.0)
Na:K ratio	27		(25.0–35.0)
Chloride	105	mmol/L	(99–125)
Total calcium	*1.93	mmol/L	Low (2.0–3.0)
Phosphate	*3.70	mmol/L	High (0.8–1.6)
Urea	6.6	mmol/L	(2.0–9.0)
Creatinine	*122	umol/L	High (40–106)
Alk phos	0	U/L	(0.0–25.0)
ALT	*38	U/L	High (0–25)
GLDH	5	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	0	umol/L	(0–10.0)
Glucose	4.7	mmol/L	(3.0–5.5)
CK	*1069	U/L	High (0–190)
Cholesterol	5.2	mmol/L	(3.8–7.0)
Triglycerides	0.6	mmol/L	(0.45–1.9)
Amylase	535	U/L	(0–1800)
Lipase	30	U/L	(0–150)
Serum haemolysed.			

HAEMATOLOGY

RBC	7.39	x10^12/L	(5.0–8.5)
Hb	17.1	g/dl	(12.0–18.0)
HCT	*61.8	%	High (37.0–55.0)
MCV	*83.6	fl	High (60.0–80.0)
MCH	23.1	pg	(19.0–26.0)
MCHC	*27.7	g/dl	Low (30.8–37.0)
RDW	17.0	%	(12.9–17.8)
Platelets	215	x10^9/L	(160–500)
WBC	6.47	x10^9/L	(6.0–15.0)
Neutrophils	4.55	x10^9/L	(3.0–11.5)
Lymphocytes	1.58	x10^9/L	(1.0–4.8)
Monocytes	0.13	x10^9/L	(0–1.3)
Eosinophils	0.20	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.8	%	
Reticulocyte count	59.12	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis Occasional crenated cell.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4 and the slight reduction in calcium.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	63	g/L	(54.0–77.0)
Albumin	38	g/L	(26.0–40.0)
Globulin	25	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.3	mmol/L	(3.5–6.0)
Na:K ratio	35		(25.0–35.0)
Chloride	107	mmol/L	(99–125)
Total calcium	2.38	mmol/L	(2.0–3.0)
Phosphate	1.10	mmol/L	(0.8–1.6)
Urea	6.0	mmol/L	(2.0–9.0)
Creatinine	80	umol/L	(40–106)
Alk phos	24	U/L	(0.0–25.0)
ALT	24	U/L	(0–25)
GLDH	4	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	5.3	mmol/L	(3.0–5.5)
CK	*236	U/L	High (0–190)
Cholesterol	4.5	mmol/L	(3.8–7.0)
Triglycerides	0.5	mmol/L	(0.45–1.9)
Amylase	552	U/L	(0–1800)
Lipase	20	U/L	(0–150)

HAEMATOLOGY

RBC	7.87	x10^12/L	(5.0–8.5)
Hb	*18.2	g/dl	High (12.0–18.0)
HCT	*56.2	%	High (37.0–55.0)
MCV	71.4	fl	(60.0–80.0)
MCH	23.1	pg	(19.0–26.0)
MCHC	32.4	g/dl	(30.8–37.0)
RDW	15.2	%	(12.9–17.8)
Platelets	285	x10^9/L	(160–500)
WBC	*5.84	x10^9/L	Low (6.0–15.0)
Neutrophils	3.99	x10^9/L	(3.0–11.5)
Lymphocytes	1.39	x10^9/L	(1.0–4.8)
Monocytes	0.23	x10^9/L	(0–1.3)
Eosinophils	0.22	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	1.2	%	
Reticulocyte count	94.44	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Polychromasia +		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Mild changes only here.

Harvey D, Cavalier King Charles, aged 9

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	70	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	34	g/L	(20–47)
Sodium	154	mmol/L	(139–154)
Potassium	5.2	mmol/L	(3.5–6.0)
Na:K ratio	30		(25.0–35.0)
Chloride	104	mmol/L	(99–125)
Total calcium	2.36	mmol/L	(2.0–3.0)
Phosphate	*5.0	mmol/L	High (0.8–1.6)
Urea	6.3	mmol/L	(2.0–9.0)
Creatinine	*121	umol/L	High (40–106)
Alk phos	1	U/L	(0.0–25.0)
ALT	*47	U/L	High (0–25)
GLDH	*19	U/L	High (0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	*11	umol/L	High (0–10.0)
Glucose	4.7	mmol/L	(3.0–5.5)
CK	*408	U/L	High (0–190)
Cholesterol	6.1	mmol/L	(3.8–7.0)
Triglycerides	*3.6	mmol/L	High (0.45–1.9)
Amylase	743	U/L	(0–1800)
Lipase	44	U/L	(0–150)
Serum lipaemic and slightly haemolysed.			

HAEMATOLOGY

RBC	6.10	x10^12/L	(5.0–8.5)
Hb	14.4	g/dl	(12.0–18.0)
HCT	54.8	%	(37.0–55.0)
MCV	*89.8	fl	High (60.0–80.0)
MCH	23.6	pg	(19.0–26.0)
MCHC	*26.3	g/dl	Low (30.8–37.0)
RDW	14.9	%	(12.9–17.8)
Platelets	See haematologist's comment		
WBC	6.28	x10^9/L	(6.0–15.0)
Neutrophils	4.54	x10^9/L	(3.0–11.5)
Lymphocytes	1.62	x10^9/L	(1.0–4.8)
Monocytes	0.12	x10^9/L	(0–1.3)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.5	%	
Reticulocyte count	30.50	x10^9/L	
Platelet comment	Giant platelets and platelet clumps. Actual platelet count appears normal.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis. Occasional target cell. Occasional crenated cell.		
Leukocyte comment	Leukocyte morphology unremarkable		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	66	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	30	g/L	(20–47)
Sodium	154	mmol/L	(139–154)
Potassium	4.3	mmol/L	(3.5–6.0)
Na:K ratio	*36		High (25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.49	mmol/L	(2.0–3.0)
Phosphate	*2.0	mmol/L	High (0.8–1.6)
Urea	5.6	mmol/L	(2.0–9.0)
Creatinine	71	umol/L	(40–106)
Alk phos	*37	U/L	High (0.0–25.0)
ALT	*32	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	*37	umol/L	High (0–10.0)
Glucose	5.0	mmol/L	(3.0–5.5)
CK	111	U/L	(0–190)
Cholesterol	5.4	mmol/L	(3.8–7.0)
Triglycerides	*4.2	mmol/L	High (0.45–1.9)
Amylase	753	U/L	(0–1800)
Lipase	25	U/L	(0–150)
Serum slightly lipaemic.			

HAEMATOLOGY

RBC	6.85	x10^12/L	(5.0–8.5)
Hb	16.3	g/dl	(12.0–18.0)
HCT	*57.1	%	High (37.0–55.0)
MCV	*83.4	fl	High (60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	*28.5	g/dl	Low (30.8–37.0)
RDW	16.0	%	(12.9–17.8)
Platelets	*27 See haematologist's comment		
WBC	6.01	x10^9/L	(6.0–15.0)
Neutrophils	3.89	x10^9/L	(3.0–11.5)
Lymphocytes	1.46	x10^9/L	(1.0–4.8)
Monocytes	0.08	x10^9/L	(0–1.3)
Eosinophils	0.58	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.7	%	
Reticulocyte count	47.95	x10^9/L	
Platelet comment	Giant platelets– Actual platelet count appears normal.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Harvey J, Labrador, aged 5

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	69	g/L	(54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	32	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	5.4	mmol/L	(3.5–6.0)
Na:K ratio	28		(25.0–35.0)
Chloride	105	mmol/L	(99–125)
Total calcium	2.68	mmol/L	(2.0–3.0)
Phosphate	*1.70	mmol/L	High (0.8–1.6)
Urea	5.1	mmol/L	(2.0–9.0)
Creatinine	103	umol/L	(40–106)
Alk phos	*67	U/L	High (0–25)
ALT	*41	U/L	High (0–25)
GLDH	4	U/L	(0–10.0)
Total bilirubin	4	umol/L	(0–9.0)
Bile acids	3	umol/L	(0–10.0)
Glucose	4.9	mmol/L	(3.0–5.5)
CK	*331	U/L	High (0–190)
Cholesterol	5.2	mmol/L	(3.8–7.0)
Triglycerides	1.8	mmol/L	(0.45–1.9)
Amylase	711	U/L	(0–1800)
Lipase	17	U/L	(0–150)
Serum slightly lipaemic.			

HAEMATOLOGY

RBC	6.98	x10^12/L	(5.0–8.5)
Hb	17.6	g/dl	(12.0–18.0)
HCT	*55.7	%	High (37.0–55.0)
MCV	79.8	fl	(60.0–80.0)
MCH	25.2	pg	(19.0–26.0)
MCHC	31.6	g/dl	(30.8–37.0)
RDW	13.9	%	(12.9–17.8)
Platelets	*136	x10^9/L	Low (160–500)
WBC	*5.70	x10^9/L	Low (6.0–15.0)
Neutrophils	*2.59	x10^9/L	Low (3.0–11.5)
Lymphocytes	2.14	x10^9/L	(1.0–4.8)
Monocytes	0.42	x10^9/L	(0–1.3)
Eosinophils	0.55	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.6	%	
Reticulocyte count	41.88	x10^9/L	
Platelet comment	Giant platelets and platelet clumps. Actual platelet count appears normal.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	66	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	30	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.5	mmol/L	(3.5–6.0)
Na:K ratio	34		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.43	mmol/L	(2.0–3.0)
Phosphate	*2.0	mmol/L	High (0.8–1.6)
Urea	6.6	mmol/L	(2.0–9.0)
Creatinine	70	umol/L	(40–106)
Alk phos	*76	U/L	High (0.0–25.0)
ALT	*27	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	3	umol/L	(0–9.0)
Bile acids	3	umol/L	(0–10.0)
Glucose	5.5	mmol/L	(3.0–5.5)
CK	*215	U/L	High (0–190)
Cholesterol	4.5	mmol/L	(3.8–7.0)
Triglycerides	1.7	mmol/L	(0.45–1.9)
Amylase	669	U/L	(0–1800)
Lipase	18	U/L	(0–150)
Serum slightly lipaemic.			

HAEMATOLOGY

RBC	7.13	x10^12/L	(5.0–8.5)
Hb	17.5	g/dl	(12.0–18.0)
HCT	52.2	%	(37.0–55.0)
MCV	73.2	fl	(60.0–80.0)
MCH	24.5	pg	(19.0–26.0)
MCHC	33.5	g/dl	(30.8–37.0)
RDW	15.7	%	(12.9–17.8)
Platelets	249	x10^9/L	(160–500)
WBC	7.58	x10^9/L	(6.0–15.0)
Neutrophils	5.0	x10^9/L	(3.0–11.5)
Lymphocytes	1.53	x10^9/L	(1.0–4.8)
Monocytes	0.43	x10^9/L	(0–1.3)
Eosinophils	0.61	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.5	%	
Reticulocyte count	35.65	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Lipaemia will falsely elevate phosphate and CK.

Houbie, Cocker Spaniel, aged 9

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	*88	g/L	High (54.0–77.0)
Albumin	38	g/L	(26.0–40.0)
Globulin	*50	g/L	High (20–47)
Sodium	152	mmol/L	(139–154)
Potassium	5.5	mmol/L	(3.5–6.0)
Na:K ratio	28		(25.0–35.0)
Chloride	105	mmol/L	(99–125)
Total calcium	2.85	mmol/L	(2.0–3.0)
Phosphate	*2.80	mmol/L	High (0.8–1.6)
Urea	5.3	mmol/L	(2.0–9.0)
Creatinine	101	umol/L	(40–106)
Alk phos	*41	U/L	High (0.0–25.0)
ALT	*70	U/L	High (0–25)
GLDH	8	U/L	(0–10.0)
Total bilirubin	3	umol/L	(0–9.0)
Bile acids	*75	umol/L	High (0–10.0)
Glucose	4.7	mmol/L	(3.0–5.5)
CK	*421	U/L	High (0–190)
Cholesterol	6.6	mmol/L	(3.8–7.0)
Triglycerides	*9.0	mmol/L	High (0.45–1.9)
Amylase	508	U/L	(0–1800)
Lipase	21	U/L	(0–150)
Serum lipaemic.			

HAEMATOLOGY

RBC	7.49	x10^12/L	(5.0–8.5)
Hb	*18.5	g/dl	High (12.0–18.0)
HCT	*57.1	%	High (37.0–55.0)
MCV	76.2	fl	(60.0–80.0)
MCH	24.6	pg	(19.0–26.0)
MCHC	32.2	g/dl	(30.8–37.0)
RDW	15.8	%	(12.9–17.8)
Platelets	264	x10^9/L	(160–500)
WBC	*5.88	x10^9/L	Low (6.0–15.0)
Neutrophils	3.91	x10^9/L	(3.0–11.5)
Lymphocytes	1.39	x10^9/L	(1.0–4.8)
Monocytes	0.31	x10^9/L	(0–1.3)
Eosinophils	0.27	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.7	%	
Reticulocyte count	52.43	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

Please note sample lipaemia will be affecting protein, globulin, phosphate, CK values and likely bile acids to some degree.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	*80	g/L	High (54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	43	g/L	(20–47)
Sodium	149	mmol/L	(139–154)
Potassium	4.4	mmol/L	(3.5–6.0)
Na:K ratio	34		(25.0–35.0)
Chloride	108	mmol/L	(99–125)
Total calcium	2.50	mmol/L	(2.0–3.0)
Phosphate	*1.80	mmol/L	High (0.8–1.6)
Urea	8.7	mmol/L	(2.0–9.0)
Creatinine	76	umol/L	(40–106)
Alk phos	*32	U/L	High (0.0–25.0)
ALT	18	U/L	(0–25)
GLDH	6	U/L	(0–10.0)
Total bilirubin	*14	umol/L	High (0–9.0)
Bile acids	*44	umol/L	High (0–10.0)
Glucose	4.3	mmol/L	(3.0–5.5)
CK	168	U/L	(0–190)
Cholesterol	5.9	mmol/L	(3.8–7.0)
Triglycerides	*6.8	mmol/L	High (0.451.9)
Amylase	567	U/L	(0–1800)
Lipase	21	U/L	(0–150)
Serum lipaemic.			

HAEMATOLOGY

RBC	7.36	x10^12/L	(5.0–8.5)
Hb	17.7	g/dl	(12.0–18.0)
HCT	52.5	%	(37.0–55.0)
MCV	71.3	fl	(60.0–80.0)
MCH	24.0	pg	(19.0–26.0)
MCHC	33.7	g/dl	(30.8–37.0)
RDW	16.3	%	(12.9–17.8)
Platelets	239	x10^9/L	(160–500)
WBC	7.73	x10^9/L	(6.0–15.0)
Neutrophils	5.72	x10^9/L	(3.0–11.5)
Lymphocytes	1.41	x10^9/L	(1.0–4.8)
Monocytes	0.24	x10^9/L	(0–1.3)
Eosinophils	0.35	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.9	%	
Reticulocyte count	66.24	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

Lipaemia will falsely elevate total phosphate, phosphate and possibily total bilirubin. Was he fasted? If not this may partly explain the bile acid result.

Jaffa, Vizsla, aged 3

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	74	g/L	(54.0–77.0)
Albumin	40	g/L	(26.0–40.0)
Globulin	34	g/L	(20–47)
Sodium	*157	mmol/L	High (139–154)
Potassium	6.0	mmol/L	(3.5–6.0)
Na:K ratio	26		(25.0–35.0)
Chloride	101	mmol/L	(99–125)
Total calcium	2.28	mmol/L	(2.0–3.0)
Phosphate	*6.80	mmol/L	High (0.8–1.6)
Urea	6.7	mmol/L	(2.0–9.0)
Creatinine	*146	umol/L	High (40–106)
Alk phos	*34	U/L	High (0.0–25.0)
ALT	*84	U/L	High (0–25)
GLDH	5	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	0	umol/L	(0–10.0)
Glucose	4.7	mmol/L	(3.0–5.5)
CK	*532	U/L	High (0–190)
Cholesterol	5.3	mmol/L	(3.8–7.0)
Triglycerides	0.5	mmol/L	(0.45–1.9)
Amylase	1616	U/L	(0–1800)
Lipase	51	U/L	(0–150)
Serum haemolysed.			

HAEMATOLOGY

RBC	7.99	x10^12/L	(5.0–8.5)
Hb	*18.5	g/dl	High (12.0–18.0)
HCT	*58.0	%	High (37.0–55.0)
manual pcv			
MCV	75.0	fl	(60.0–80.0)
MCH	23.2	pg	(19.0–26.0)
MCHC	31.8	g/dl	(30.8–37.0)
RDW	17.8	%	(12.9–17.8)
Platelets	217	x10^9/L	(160–500)
WBC	11.98	x10^9/L	(6.0–15.0)
Neutrophils	8.98	x10^9/L	(3.0–11.5)
Lymphocytes	2.52	x10^9/L	(1.0–4.8)
Monocytes	0.24	x10^9/L	(0–1.3)
Eosinophils	0.24	x10^9/L	(0–1.25)
Reticulocyte %	0.6	%	
Reticulocyte count	47.94	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	58	g/L	(54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	21	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.5	mmol/L	(3.5–6.0)
Na:K ratio	34		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.44	mmol/L	(2.0–3.0)
Phosphate	1.20	mmol/L	(0.8–1.6)
Urea	4.4	mmol/L	(2.0–9.0)
Creatinine	65	umol/L	(40–106)
Alk phos	*52	U/L	High (0.0–25.0)
ALT	*28	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	5.1	mmol/L	(3.0–5.5)
CK	144	U/L	(0–190)
Cholesterol	3.9	mmol/L	(3.8–7.0)
Triglycerides	*0.3	mmol/L	Low (0.45–1.9)
Amylase	1605	U/L	(0–1800)
Lipase	47	U/L	(0–150)

HAEMATOLOGY

RBC	7.53	x10^12/L	(5.0–8.5)
Hb	17.7	g/dl	(12.0–18.0)
HCT	53.7	%	(37.0–55.0)
MCV	71.3	fl	(60.0–80.0)
MCH	23.5	pg	(19.0–26.0)
MCHC	33.0	g/dl	(30.8–37.0)
RDW	16.1	%	(12.9–17.8)
Platelets	222	x10^9/L	(160–500)
WBC	11.06	x10^9/L	(6.0–15.0)
Neutrophils	6.26	x10^9/L	(3.0–11.5)
Lymphocytes	3.61	x10^9/L	(1.0–4.8)
Monocytes	0.50	x10^9/L	(0–1.3)
Eosinophils	0.65	x10^9/L	(0–1.25)
Basophils	0.04	x10^9/L	(0–0.2)
Reticulocyte %	0.4	%	
Reticulocyte count	30.12	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Keshi, Vizsla, aged 1

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	69	g/L	(54.0–77.0)
Albumin	38	g/L	(26.0–40.0)
Globulin	31	g/L	(20–47)
Sodium	*158	mmol/L	High (139–154)
Potassium	5.6	mmol/L	(3.5–6.0)
Na:K ratio	28		(25.0–35.0)
Chloride	104	mmol/L	(99–125)
Total calcium	2.63	mmol/L	(2.0–3.0)
Phosphate	*7.30	mmol/L	High (0.8–1.6)
Urea	5.8	mmol/L	(2.0–9.0)
Creatinine	*152	umol/L	High (40–106)
Alk phos	17	U/L	(0.0–25.0)
ALT	*95	U/L	High (0–25)
GLDH	0	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	4.8	mmol/L	(3.0–5.5)
CK	*581	U/L	High (0–190)
Cholesterol	5.6	mmol/L	(3.8–7.0)
Triglycerides	*0.4	mmol/L	Low (0.45–1.9)
Amylase	746	U/L	(0–1800)
Lipase	38	U/L	(0–150)
Serum slightly haemolysed.			

HAEMATOLOGY

RBC	8.06	x10^12/L	(5.0–8.5)
Hb	17.9	g/dl	(12.0–18.0)
HCT	55.0	%	(37.0–55.0)
manual pcv			
MCV	66.9	fl	(60.0–80.0)
MCH	22.2	pg	(19.0–26.0)
MCHC	32.5	g/dl	(30.8–37.0)
RDW	*18.2	%	High (12.9–17.8)
Platelets	233	x10^9/L	(160–500)
WBC	10.37	x10^9/L	(6.0– 15.0)
Neutrophils	6.56	x10^9/L	(3.0–11.5)
Lymphocytes	2.84	x10^9/L	(1.0–4.8)
Monocytes	0.20	x10^9/L	(0–1.3)
Eosinophils	0.76	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.6	%	
Reticulocyte count	48.36	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	63	g/L	(54.0–77.0)
Albumin	38	g/L	(26.0–40.0)
Globulin	25	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	5.7	mmol/L	(3.5–6.0)
Na:K ratio	26		(25.0–35.0)
Chloride	111	mmol/L	(99–125)
Total calcium	2.41	mmol/L	(2.0–3.0)
Phosphate	1.50	mmol/L	(0.8–1.6)
Urea	4.5	mmol/L	(2.0–9.0)
Creatinine	70	umol/L	(40–106)
Alk phos	21	U/L	(0.0–25.0)
ALT	*41	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	0	umol/L	(0–10.0)
Glucose	4.9	mmol/L	(3.0–5.5)
CK	*199	U/L	High (0190)
Cholesterol	3.9	mmol/L	(3.8–7.0)
Triglycerides	*0.4	mmol/L	Low (0.45–1.9)
Amylase	874	U/L	(0–1800)
Lipase	27	U/L	(0–150)

HAEMATOLOGY

RBC	8.26	x10^12/L	(5.0–8.5)
Hb	*18.6	g/dl	High (12.0–18.0)
HCT	*55.2	%	High (37.0–55.0)
MCV	66.8	fl	(60.0–80.0)
MCH	22.5	pg	(19.0–26.0)
MCHC	33.7	g/dl	(30.8–37.0)
RDW	17.7	%	(12.9–17.8)
Platelets	259	x10^9/L	(160–500)
WBC	9.77	x10^9/L	(6.0–15.0)
Neutrophils	6.0	x10^9/L	(3.0–11.5)
Lymphocytes	2.98	x10^9/L	(1.0–4.8)
Monocytes	0.41	x10^9/L	(0–1.3)
Eosinophils	0.37	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.2	%	
Reticulocyte count	16.52	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	No polychromasia seen.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Mild and non-specific changes here.

Maisie, Border Collie, aged 3

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	75	g/L	(54.0–77.0)
Albumin	40	g/L	(26.0–40.0)
Globulin	35	g/L	(20–47)
Sodium	*159	mmol/L	High (139–154)
Potassium	5.8	mmol/L	(3.5–6.0)
Na:K ratio	27		(25.0–35.0)
Chloride	103	mmol/L	(99–125)
Total calcium	2.28	mmol/L	(2.0–3.0)
Phosphate	*7.10	mmol/L	High (0.8–1.6)
Urea	6.0	mmol/L	(2.0–9.0)
Creatinine	*190	umol/L	High (40–106)
Alk phos	19	U/L	(0.0–25.0)
ALT	*91	U/L	High (0-25)
GLDH	0	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	*18	umol/L	High (0–10.0)
Glucose	4.0	mmol/L	(3.0–5.5)
CK	*260	U/L	High (0–190)
Cholesterol	*9.5	mmol/L	High (3.8–7.0)
Triglycerides	1.1	mmol/L	(0.45–1.9)
Amylase	479	U/L	(0–1800)
Lipase	33	U/L	(0–150)
Serum haemolysed.			

HAEMATOLOGY

RBC	7.75	x10^12/L	(5.0–8.5)
Hb	17.6	g/dl	(12.0–18.0)
HCT	*58.0	%	High (37.0–55.0)
MCV	75.3	fl	(60.0–80.0)
MCH	22.7	pg	(19.0–26.0)
MCHC	*30.3	g/dl	Low (30.8–37.0)
RDW	15.7	%	(12.9–17.8)
Platelets	230	x10^9/L	(160–500)
WBC	6.77	x10^9/L	(6.0–15.0)
Neutrophils	5.01	x10^9/L	(3.0–11.5)
Lymphocytes	1.62	x10^9/L	(1.0–4.8)
Monocytes	0.0	x10^9/L	(0–1.3)
Eosinophils	0.14	x10^9/L	(0–1.25)
Reticulocyte %	0.7	%	(0–0.2)
Reticulocyte count	54.25	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	56	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	21	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.6	mmol/L	(3.5–6.0)
Na:K ratio	33		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.38	mmol/L	(2.0–3.0)
Phosphate	1.60	mmol/L	(0.8–1.6)
Urea	7.1	mmol/L	(2.0–9.0)
Creatinine	87	umol/L	(40–106)
Alk phos	21	U/L	(0.0–25.0)
ALT	17	U/L	(0–25)
GLDH	2	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	*23	umol/L	High (0–10.0)
Glucose	4.1	mmol/L	(3.0–5.5)
CK	71	U/L	(0–190)
Cholesterol	5.7	mmol/L	(3.8–7.0)
Triglycerides	0.7	mmol/L	(0.45–1.9)
Amylase	442	U/L	(0–1800)
Lipase	21	U/L	(0–150)

HAEMATOLOGY

RBC	7.36	x10^12/L	(5.0–8.5)
Hb	16.7	g/dl	(12.0–18.0)
HCT	50.2	%	(37.0–55.0)
MCV	68.2	fl	(60.0–80.0)
MCH	22.7	pg	(19.0–26.0)
MCHC	33.3	g/dl	(30.8–37.0)
RDW	14.3	%	(12.9–17.8)
Platelets	224	x10^9/L	(160–500)
WBC	6.82	x10^9/L	(6.0–15.0)
Neutrophils	4.03	x10^9/L	(3.0–11.5)
Lymphocytes	1.97	x10^9/L	(1.0–4.8)
Monocytes	0.28	x10^9/L	(0–1.3)
Eosinophils	0.54	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.4	%	
Reticulocyte count	29.44	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Please note the sample haemolysis and lipaemia may be affecting albumin, phosphate, creatinine, bile acids and CK values.

Ollie, Mixed, aged 5

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	59	g/L	(54.0–77.0)
Albumin	32	g/L	(26.0–40.0)
Globulin	27	g/L	(20–47)
Sodium	154	mmol/L	(139–154)
Potassium	5.0	mmol/L	(3.5–6.0)
Na:K ratio	31		(25.0–35.0)
Chloride	112	mmol/L	(99–125)
Total calcium	2.52	mmol/L	(2.0–3.0)
Phosphate	1.20	mmol/L	(0.8–1.6)
Urea	7.4	mmol/L	(2.0–9.0)
Creatinine	*115	umol/L	High (40–106)
Alk phos	*41	U/L	High (0.0–25.0)
ALT	*33	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	3	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	5.0	mmol/L	(3.0–5.5)
CK	*232	U/L	High (0–190)
Cholesterol	5.4	mmol/L	(3.8–7.0)
Triglycerides	*0.4	mmol/L	Low (0.45–1.9)
Amylase	617	U/L	(0–1800)
Lipase	12	U/L	(0–150)

HAEMATOLOGY

RBC	6.10	x10^12/L	(5.0–8.5)
Hb	14.6	g/dl	(12.0–18.0)
HCT	48.8	%	(37.0–55.0)
MCV	80.0	fl	(60.0–80.0)
MCH	23.9	pg	(19.0–26.0)
MCHC	*29.9	g/dl	Low (30.8–37.0)
RDW	13.8	%	(12.9–17.8)
Platelets	219	x10^9/L	(160–500)
WBC	*5.35	x10^9/L	Low (6.0–15.0)
Neutrophils	*2.95	x10^9/L	Low (3.0–11.5)
Lymphocytes	1.46	x10^9/L	(1.0–4.8)
Monocytes	0.32	x10^9/L	(0–1.3)
Eosinophils	0.62	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.5	%	
Reticulocyte count	30.50	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

The signficance of the creatinine value will depend on the breed, as if this is a well-muscled dog such as a greyhound then this value would be within acceptable limits. Similarly, the significance of the mild neutropenia may depend on the breed, and also whether it was sampled under sedation.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	60	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	24	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.3	mmol/L	(3.5–6.0)
Na:K ratio	35		(25.0–35.0)
Chloride	109	mmol/L	(99–125)
Total calcium	2.50	mmol/L	(2.0–3.0)
Phosphate	*1.80	mmol/L	High (0.8–1.6)
Urea	7.5	mmol/L	(2.0–9.0)
Creatinine	95	umol/L	(40–106)
Alk phos	*33	U/L	High (0.0–25.0)
ALT	*33	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	3	umol/L	(0–9.0)
Bile acids	*11	umol/L	High (0–10.0)
Glucose	4.9	mmol/L	(3.0–5.5)
CK	104	U/L	(0–190)
Cholesterol	5.8	mmol/L	(3.8–7.0)
Triglycerides	0.5	mmol/L	(0.45–1.9)
Amylase	732	U/L	(0–1800)
Lipase	14	U/L	(0–150)

HAEMATOLOGY

RBC	6.68	x10^12/L	(5.0–8.5)
Hb	15.9	g/dl	(12.0–18.0)
HCT	48.5	%	(37.0–55.0)
MCV	72.6	fl	(60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	32.8	g/dl	(30.8–37.0)
RDW	14.1	%	(12.9–17.8)
Platelets	219	x10^9/L	(160–500)
WBC	*5.59	x10^9/L	Low (6.0–15.0)
Neutrophils	*2.74	x10^9/L	Low (3.0–11.5)
Lymphocytes	1.90	x10^9/L	(1.0–4.8)
Monocytes	0.25	x10^9/L	(0–1.3)
Eosinophils	0.70	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.4	%	
Reticulocyte count	26.72	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

The pattern is very similar to previously.

Otis, Vizsla, aged 9

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	71	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	35	g/L	(20–47)
Sodium	*155	mmol/L	High (139–154)
Potassium	5.7	mmol/L	(3.5–6.0)
Na:K ratio	27		(25.0–35.0)
Chloride	104	mmol/L	(99–125)
Total calcium	2.62	mmol/L	(2.0–3.0)
Phosphate	*6.30	mmol/L	High (0.8–1.6)
Urea	6.1	mmol/L	(2.0–9.0)
Creatinine	*142	umol/L	High (40–106)
Alk phos	20	U/L	(0.0–25.0)
ALT	*65	U/L	High (0–25)
GLDH	1	U/L	(0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	4.9	mmol/L	(3.0–5.5)
CK	*961	U/L	High (0–190)
Cholesterol	6.5	mmol/L	(3.8–7.0)
Triglycerides	*0.4	mmol/L	Low (0.45–1.9)
Amylase	703	U/L	(0–1800)
Lipase	16	U/L	(0–150)
Serum slightly haemolysed.			

HAEMATOLOGY

RBC	7.09	x10^12/L	(5.0–8.5)
Hb	16.6	g/dl	(12.0–18.0)
HCT	*60.8	%	High (37.0–55.0)
MCV	*85.8	fl	High (60.0–80.0)
MCH	23.4	pg	(19.0–26.0)
MCHC	*27.3	g/dl	Low (30.8–37.0)
RDW	17.2	%	(12.9–17.8)
Platelets	218	x10^9/L	(160–500)
WBC	7.03	x10^9/L	(6.0–15.0)
Neutrophils	6.05	x10^9/L	(3.0–11.5)
Bands	0.21	x10^9/L	(0–0.3)
Lymphocytes	*0.70	x10^9/L	Low (1.0–4.8)
Monocytes	0.07	x10^9/L	(0–1.3)
Eosinophils	0.0	x10^9/L	(0–1.25)
Reticulocyte %	0.4	%	
Reticulocyte count	28.36	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	59	g/L	(54.0–77.0)
Albumin	34	g/L	(26.0–40.0)
Globulin	25	g/L	(20–47)
Sodium	149	mmol/L	(139–154)
Potassium	4.4	mmol/L	(3.5–6.0)
Na:K ratio	34		(25.0–35.0)
Chloride	111	mmol/L	(99–125)
Total calcium	2.32	mmol/L	(2.0–3.0)
Phosphate	1.10	mmol/L	(0.8–1.6)
Urea	4.8	mmol/L	(2.0–9.0)
Creatinine	66	umol/L	(40–106)
Alk phos	20	U/L	(0.0–25.0)
ALT	24	U/L	(0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	5.2	mmol/L	(3.0–5.5)
CK	*198	U/L	High (0–190)
Cholesterol	4.3	mmol/L	(3.8–7.0)
Triglycerides	*0.3	mmol/L	Low (0.45–1.9)
Amylase	710	U/L	(0–1800)
Lipase	23	U/L	(0–150)

HAEMATOLOGY

RBC	6.89	x10^12/L	(5.0–8.5)
Hb	16.0	g/dl	(12.0–18.0)
HCT	49.6	%	(37.0–55.0)
MCV	72.0	fl	(60.0–80.0)
MCH	23.2	pg	(19.0–26.0)
MCHC	32.3	g/dl	(30.8–37.0)
RDW	15.4	%	(12.9–17.8)
Platelets	299	x10^9/L	(160–500)
WBC	6.28	x10^9/L	(6.0–15.0)
Neutrophils	4.60	x10^9/L	(3.0–11.5)
Lymphocytes	1.22	x10^9/L	(1.0–4.8)
Monocytes	0.26	x10^9/L	(0–1.3)
Eosinophils	0.20	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.3	%	
Reticulocyte count	20.67	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS

Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

Purdy, Sprocker, aged 6

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	*103	g/L	High (54.0–77.0)
Albumin	*44	g/L	High (26.0–40.0)
Globulin	*59	g/L	High (20–47)
Sodium	154	mmol/L	(139–154)
Potassium	*6.1	mmol/L	High (3.5–6.0)
Na:K ratio	25		(25.0–35.0)
Chloride	101	mmol/L	(99–125)
Total calcium	2.93	mmol/L	(2.0–3.0)
Phosphate	*4.30	mmol/L	High (0.8–1.6)
Urea	8.7	mmol/L	(2.0–9.0)
Creatinine	*107	umol/L	High (40–106)
Alk phos	5	U/L	(0.0–25.0)
ALT	*44	U/L	High (0–25)
GLDH	7	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	*37	umol/L	High (0–10.0)
Glucose	3.7	mmol/L	(3.0–5.5)
CK	*1113	U/L	High (0–190)
Cholesterol	*9.5	mmol/L	High (3.8–7.0)
Triglycerides	*9.8	mmol/L	High (0.45–1.9)
Amylase	515	U/L	(0–1800)
Lipase	23	U/L	(0–150)
Serum haemolysed and lipaemic.			

HAEMATOLOGY

RBC	7.94	x10^12/L	(5.0–8.5)
Hb	*18.9	g/dl	High (12.0–18.0)
HCT	*58.3	%	High (37.0–55.0)
MCV	73.4	fl	(60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	32.4	g/dl	(30.8–37.0)
RDW	16.6	%	(12.9–17.8)
Platelets	364	x10^9/L	(160–500)
WBC	7.64	x10^9/L	(6.0–15.0)
Neutrophils	5.63	x10^9/L	(3.0–11.5)
Lymphocytes	1.55	x10^9/L	(1.0–4.8)
Monocytes	0.31	x10^9/L	(0–1.3)
Eosinophils	0.14	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	2.3	%	
Reticulocyte count	182.62	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Polychromasia + slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
The protein, K, phosphate, creatinine, bile acids and CK will be affected by sample artefact. However, the degree of CK elevation likely exceeds that attributable to artefact.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	*89	g/L	High (54.0–77.0)
Albumin	*43	g/L	High (26.0–40.0)
Globulin	46	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.6	mmol/L	(3.5–6.0)
Na:K ratio	33		(25.0–35.0)
Chloride	107	mmol/L	(99–125)
Total calcium	2.64	mmol/L	(2.0–3.0)
Phosphate	*2.60	mmol/L	High (0.8–1.6)
Urea	7.4	mmol/L	(2.0–9.0)
Creatinine	70	umol/L	(40–106)
Alk phos	*42	U/L	High (0.0–25.0)
ALT	21	U/L	(0–25)
GLDH	*20	U/L	High (0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	5	umol/L	(0–10.0)
Glucose	5.5	mmol/L	(3.0–5.5)
CK	171	U/L	(0–190)
Cholesterol	*7.7	mmol/L	High (3.8–7.0)
Triglycerides	*8.6	mmol/L	High (0.45–1.9)
Amylase	440	U/L	(0–1800)
Lipase	18	U/L	(0–150)
Serum lipaemic and slightly haemolysed.			

HAEMATOLOGY

RBC	8.01	x10^12/L	(5.0–8.5)
Hb	*18.5	g/dl	High (12.0–18.0)
HCT	*55.3	%	High (37.0–55.0)
MCV	69.0	fl	(60.0–80.0)
MCH	23.1	pg	(19.0–26.0)
MCHC	33.5	g/dl	(30.8–37.0)
RDW	17.5	%	(12.9–17.8)
Platelets	283	x10^9/L	(160–500)
WBC	8.57	x10^9/L	(6.0–15.0)
Neutrophils	6.27	x10^9/L	(3.0–11.5)
Lymphocytes	1.70	x10^9/L	(1.0–4.8)
Monocytes	0.45	x10^9/L	(0–1.3)
Eosinophils	0.12	x10^9/L	(0–1.25)
Basophils	0.03	x10^9/L	(0–0.2)
Reticulocyte %	1.0	%	
Reticulocyte count	80.10	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Lipaemia may artefactually elevate TP and phosphate.

Scooby, Mixed, aged 6

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	65	g/L	(54.0–77.0)
Albumin	34	g/L	(26.0–40.0)
Globulin	31	g/L	(20–47)
Sodium	154	mmol/L	(139–154)
Potassium	5.2	mmol/L	(3.5–6.0)
Na:K ratio	30		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.46	mmol/L	(2.0–3.0)
Phosphate	*1.80	mmol/L	High (0.8–1.6)
Urea	6.4	mmol/L	(2.0–9.0)
Creatinine	*119	umol/L	High (40–106)
Alk phos	8	U/L	(0.0–25.0)
ALT	23	U/L	(0–25)
GLDH	2	U/L	(0–10.0)
Total bilirubin	3	umol/L	(0–9.0)
Bile acids	3	umol/L	(010.0)
Glucose	4.9	mmol/L	(3.0–5.5)
CK	*524	U/L	High (0190)
Cholesterol	4.2	mmol/L	(3.8–7.0)
Triglycerides	1.2	mmol/L	(0.45–1.9)
Amylase	429	U/L	(0–1800)
Lipase	22	U/L	(0–150)

HAEMATOLOGY

RBC	7.47	x10^12/L	(5.0–8.5)
Hb	16.6	g/dl	(12.0–18.0)
HCT	54.2	%	(37.0–55.0)
MCV	72.8	fl	(60.0–80.0)
MCH	22.2	pg	(19.0–26.0)
MCHC	*30.5	g/dl	Low (30.8–37.0)
RDW	15.0	%	(12.9–17.8)
Platelets	202	x10^9/L	(160–500)
WBC	9.73	x10^9/L	(6.0–15.0)
Neutrophils	5.35	x10^9/L	(3.0–11.5)
Lymphocytes	3.16	x10^9/L	(1.0–4.8)
Monocytes	0.35	x10^9/L	(0–1.3)
Eosinophils	0.86	x10^9/L	(0–1.25)
Basophils	0.01	x10^9/L	(0–0.2)
Reticulocyte %	0.3	%	
Reticulocyte count	22.41	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Lipaemia may artefactually elevate TP and phosphate.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	63	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	28	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	4.7	mmol/L	(3.5–6.0)
Na:K ratio	32		(25.0–35.0)
Chloride	111	mmol/L	(99–125)
Total calcium	2.25	mmol/L	(2.0–3.0)
Phosphate	1.20	mmol/L	(0.8–1.6)
Urea	4.2	mmol/L	(2.0–9.0)
Creatinine	104	umol/L	(40–106)
Alk phos	12	U/L	(0.0–25.0)
ALT	19	U/L	(0–25)
GLDH	2	U/L	(0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	4.7	mmol/L	(3.0–5.5)
CK	78	U/L	(0–190)
Cholesterol	4.6	mmol/L	(3.8–7.0)
Triglycerides	*0.4	mmol/L	Low (0.45–1.9)
Amylase	374	U/L	(0–1800)
Lipase	15	U/L	(0–150)

HAEMATOLOGY

RBC	7.29	x10^12/L	(5.0–8.5)
Hb	15.8	g/dl	(12.0–18.0)
HCT	54.7	%	(37.0–55.0)
MCV	75.0	fl	(60.0–80.0)
MCH	21.7	pg	(19.0–26.0)
MCHC	*28.9	g/dl	Low (30.8–37.0)
RDW	15.6	%	(12.9–17.8)
Platelets	*149 See haematologist's comment		
WBC	7.45	x10^9/L	(6.0– 15.0)
Neutrophils	3.84	x10^9/L	(3.0–11.5)
Lymphocytes	2.47	x10^9/L	(1.0–4.8)
Monocytes	0.12	x10^9/L	(0–1.3)
Eosinophils	1.02	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	1.0	%	
Reticulocyte count	72.90	x10^9/L	
Platelet comment	Giant platelets and platelet clumps. Actual platelet count appears normal.		
RBC comment	Slight polychromasia. Slight anisocytosis Occasional target cell. Occasional crenated cell.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Spoof, Collie, aged 5

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	75	g/L	(54.0–77.0)
Albumin	38	g/L	(26.0–40.0)
Globulin	37	g/L	(20–47)
Sodium	*158	mmol/L	High (139–154)
Potassium	5.4	mmol/L	(3.5–6.0)
Na:K ratio	29		(25.0–35.0)
Chloride	106	mmol/L	(99–125)
Total calcium	2.43	mmol/L	(2.0–3.0)
Phosphate	*6.30	mmol/L	High (0.8–1.6)
Urea	*10.5	mmol/L	High (2.0–9.0)
Creatinine	*161	umol/L	High (40–106)
Alk phos	3	U/L	(0.0–25.0)
ALT	*87	U/L	High (0–25)
GLDH	7	U/L	(0–10.0)
Total bilirubin	6	umol/L	(0–9.0)
Bile acids	*36	umol/L	High (0–10.0)
Glucose	4.4	mmol/L	(3.0–5.5)
CK	*345	U/L	High (0–190)
Cholesterol	5.9	mmol/L	(3.8–7.0)
Triglycerides	*3.4	mmol/L	High (0.45–1.9)
Amylase	467	U/L	(0–1800)
Lipase	28	U/L	(0–150)
Serum haemolysed and lipaemic.			

HAEMATOLOGY

RBC	7.03	x10^12/L	(5.0–8.5)
Hb	*18.4	g/dl	High (12.0–18.0)
HCT	*58.0	%	High (37.0–55.0)
manual pcv			
MCV	*82.5	fl	High (60.0–80.0)
MCH	*26.2	pg	High (19.0–26.0)
MCHC	31.7	g/dl	(30.8–37.0)
RDW	13.1	%	(12.9–17.8)
Platelets	193	x10^9/L	(160–500)
WBC	*3.80	x10^9/L	Low (6.0–15.0)
Neutrophils	*2.70	x10^9/L	Low (3.0–11.5)
Lymphocytes	*0.64	x10^9/L	Low (1.0–4.8)
Monocytes	0.13	x10^9/L	(0–1.3)
Eosinophils	0.33	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.7	%	
Reticulocyte count	49.21	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Serum is haemolysed and this will be contributing to the elevation of CK, creatinine and PO4.

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	*53	g/L	Low (54.0–77.0)
Albumin	33	g/L	(26.0–40.0)
Globulin	20	g/L	(20–47)
Sodium	150	mmol/L	(139–154)
Potassium	4.3	mmol/L	(3.5–6.0)
Na:K ratio	35		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.36	mmol/L	(2.0–3.0)
Phosphate	0.80	mmol/L	(0.8–1.6)
Urea	*11.0	mmol/L	High (2.0–9.0)
Creatinine	86	umol/L	(40–106)
Alk phos	*28	U/L	High (0.0–25.0)
ALT	*27	U/L	High (0–25)
GLDH	4	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	8	umol/L	(0–10.0)
Glucose	5.4	mmol/L	(3.0–5.5)
CK	86	U/L	(0–190)
Cholesterol	5.5	mmol/L	(3.8–7.0)
Triglycerides	0.8	mmol/L	(0.45–1.9)
Amylase	481	U/L	(0–1800)
Lipase	18	U/L	(0–150)

HAEMATOLOGY

RBC	6.83	x10^12/L	(5.0–8.5)
Hb	17.3	g/dl	(12.0–18.0)
HCT	54.2	%	(37.0–55.0)
MCV	79.4	fl	(60.0–80.0)
MCH	25.3	pg	(19.0–26.0)
MCHC	31.9	g/dl	(30.8–37.0)
RDW	13.2	%	(12.9–17.8)
Platelets	188	x10^9/L	(160–500)
WBC	*4.26	x10^9/L	Low (6.0–15.0)
Neutrophils	3.13	x10^9/L	(3.0–11.5)
Lymphocytes	*0.66	x10^9/L	Low (1.0–4.8)
Monocytes	0.21	x10^9/L	(0–1.3)
Eosinophils	0.26	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.4	%	
Reticulocyte count	27.32	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells.		
Leukocyte comment	Leukocyte morphology unremarkable.		

CLINICAL COMMENTS
Mild elevation of urea remains, as does a moderate lymphopaenia. The neutrophil count is within the reference interval on this occasion.

Taylor, Puggle(Beagle/Pug cross), aged 2

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	64	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	29	g/L	(20–47)
Sodium	152	mmol/L	(139–154)
Potassium	5.0	mmol/L	(3.5–6.0)
Na:K ratio	30	`	(25.0–35.0)
Chloride	108	mmol/L	(99–125)
Total calcium	2.72	mmol/L	(2.0–3.0)
Phosphate	*1.90	mmol/L	High (0.8–1.6)
Urea	6.5	mmol/L	(2.0–9.0)
Creatinine	106	umol/L	(40–106)
Alk phos	*26	U/L	High (0.0–25.0)
ALT	*34	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	1	umol/L	(0–10.0)
Glucose	4.6	mmol/L	(3.0–5.5)
CK	*817	U/L	High (0–190)
Cholesterol	*7.4	mmol/L	High (3.8–7.0)
Triglycerides	0.7	mmol/L	(0.45–1.9)
Amylase	607	U/L	(0–1800)
Lipase	15	U/L	(0–150)

HAEMATOLOGY

RBC	7.01	x10^12/L	(5.0–8.5)
Hb	16.5	g/dl	(12.0–18.0)
HCT	*55.7	%	High (37.0–55.0)
MCV	79.5	fl	(60.0–80.0)
MCH	23.5	pg	(19.0–26.0)
MCHC	*29.6	g/dl	Low (30.8–37.0)
RDW	14.3	%	(12.9–17.8)
Platelets	287	x10^9/L	(160–500)
WBC	8.39	x10^9/L	(6.0–15.0)
Neutrophils	4.71	x10^9/L	(3.0–11.5)
Lymphocytes	2.70	x10^9/L	(1.0–4.8)
Monocytes	0.48	x10^9/L	(0–1.3)
Eosinophils	0.47	x10^9/L	(0–1.25)
Basophils	0.03	x10^9/L	(0–0.2)
Reticulocyte %	1.0	%	
Reticulocyte count	70.10	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	59	g/L	(54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	22	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.6	mmol/L	(3.5–6.0)
Na:K ratio	33		(25.0–35.0)
Chloride	111	mmol/L	(99–125)
Total calcium	2.40	mmol/L	(2.0–3.0)
Phosphate	1.40	mmol/L	(0.8–1.6)
Urea	6.5	mmol/L	(2.0–9.0)
Creatinine	83	umol/L	(40–106)
Alk phos	20	U/L	(0.0–25.0)
ALT	*28	U/L	High (0–25)
GLDH	4	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	7	umol/L	(0–10.0)
Glucose	4.7	mmol/L	(3.0–5.5)
CK	108	U/L	(0–190)
Cholesterol	5.9	mmol/L	(3.8–7.0)
Triglycerides	0.6	mmol/L	(0.45–1.9)
Amylase	551	U/L	(0–1800)
Lipase	20	U/L	(0–150)

HAEMATOLOGY

RBC	7.15	x10^12/L	(5.0–8.5)
Hb	16.7	g/dl	(12.0–18.0)
HCT	51.9	%	(37.0–55.0)
MCV	72.6	fl	(60.0–80.0)
MCH	23.4	pg	(19.0–26.0)
MCHC	32.2	g/dl	(30.8–37.0)
RDW	14.7	%	(12.9–17.8)
Platelets	262	x10^9/L	(160–500)
WBC	6.73	x10^9/L	(6.0–15.0)
Neutrophils	3.41	x10^9/L	(3.0–11.5)
Lymphocytes	2.59	x10^9/L	(1.0–4.8)
Monocytes	0.39	x10^9/L	(0–1.3)
Eosinophils	0.32	x10^9/L	(0–1.25)
Basophils	0.02	x10^9/L	(0–0.2)
Reticulocyte %	0.8	%	
Reticulocyte count	57.20	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Tegan, German Shorthaired Pointer, aged 7

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	62	g/L	(54.0–77.0)
Albumin	34	g/L	(26.0–40.0)
Globulin	28	g/L	(20–47)
Sodium	153	mmol/L	(139–154)
Potassium	5.1	mmol/L	(3.5–6.0)
Na:K ratio	30		(25.0–35.0)
Chloride	107	mmol/L	(99–125)
Total calcium	2.53	mmol/L	(2.0–3.0)
Phosphate	*2.30	mmol/L	High (0.8–1.6)
Urea	*10.0	mmol/L	High (2.0–9.0)
Creatinine	*109	umol/L	High (40–106)
Alk phos	8	U/L	(0.0–25.0)
ALT	*29	U/L	High (0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	1	umol/L	(0–9.0)
Bile acids	2	umol/L	(0–10.0)
Glucose	4.3	mmol/L	(3.0–5.5)
CK	*526	U/L	High (0–190)
Cholesterol	4.3	mmol/L	(3.8–7.0)
Triglycerides	1.0	mmol/L	(0.45–1.9)
Amylase	451	U/L	(0–1800)
Lipase	32	U/L	(0–150)
Serum slightly haemolysed.			

HAEMATOLOGY

RBC	7.83	x10^12/L	(5.0–8.5)
Hb	*18.6	g/dl	High (12.0–18.0)
HCT	*59.5	%	High (37.0–55.0)
MCV	76.0	fl	(60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	31.2	g/dl	(30.8–37.0)
RDW	14.5	%	(12.9–17.8)
Platelets	223	x10^9/L	(160–500)
WBC	8.59	x10^9/L	(6.0–15.0)
Neutrophils	6.79	x10^9/L	(3.0–11.5)
Lymphocytes	1.37	x10^9/L	(1.0–4.8)
Monocytes	0.34	x10^9/L	(0–1.3)
Eosinophils	0.09	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.3	%	
Reticulocyte count	23.49	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	56	g/L	(54.0–77.0)
Albumin	33	g/L	(26.0–40.0)
Globulin	23	g/L	(20–47)
Sodium	151	mmol/L	(139–154)
Potassium	4.8	mmol/L	(3.5–6.0)
Na:K ratio	31		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.35	mmol/L	(2.0–3.0)
Phosphate	1.30	mmol/L	(0.8–1.6)
Urea	7.2	mmol/L	(2.0–9.0)
Creatinine	92	umol/L	(40–106)
Alk phos	17	U/L	(0.0–25.0)
ALT	20	U/L	(0–25)
GLDH	3	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	*11	umol/L	High (0–10.0)
Glucose	4.5	mmol/L	(3.0–5.5)
CK	91	U/L	(0–190)
Cholesterol	4.1	mmol/L	(3.8–7.0)
Triglycerides	0.6	mmol/L	(0.45–1.9)
Amylase	413	U/L	(0–1800)
Lipase	26	U/L	(0–150)

HAEMATOLOGY

RBC	7.10	x10^12/L	(5.0–8.5)
Hb	16.9	g/dl	(12.0–18.0)
HCT	*56.9	%	High (37.0–55.0)
MCV	*80.1	fl	High (60.0–80.0)
MCH	23.8	pg	(19.0–26.0)
MCHC	*29.7	g/dl	Low (30.8–37.0)
RDW	14.5	%	(12.9–17.8)
Platelets	225	x10^9/L	(160–500)
WBC	7.83	x10^9/L	(6.0–15.0)
Neutrophils	5.25	x10^9/L	(3.0–11.5)
Lymphocytes	2.08	x10^9/L	(1.0–4.8)
Monocytes	0.11	x10^9/L	(0–1.3)
Eosinophils	0.39	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	0.5	%	
Reticulocyte count	35.50	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Todd, German Shorthaired Pointer, aged 3

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	58	g/L	(54.0–77.0)
Albumin	33	g/L	(26.0–40.0)
Globulin	25	g/L	(20–47)
Sodium	*155	mmol/L	High (139–154)
Potassium	5.3	mmol/L	(3.5–6.0)
Na:K ratio	29		(25.0–35.0)
Chloride	110	mmol/L	(99–125)
Total calcium	2.62	mmol/L	(2.0–3.0)
Phosphate	*2.10	mmol/L	High (0.8–1.6)
Urea	7.1	mmol/L	(2.0–9.0)
Creatinine	104	umol/L	(40–106)
Alk phos	*55	U/L	High (0.0–25.0)
ALT	*42	U/L	High (0–25)
GLDH	7	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	*18	umol/L	High (0–10.0)
Glucose	4.4	mmol/L	(3.0–5.5)
CK	*691	U/L	High (0–190)
Cholesterol	6.0	mmol/L	(3.8–7.0)
Triglycerides	1.0	mmol/L	(0.45–1.9)
Amylase	478	U/L	(0–1800)
Lipase	16	U/L	(0–150)

HAEMATOLOGY

RBC	6.88	x10^12/L	(5.0–8.5)
Hb	16.9	g/dl	(12.0–18.0)
HCT	*55.6	%	High (37.0–55.0)
MCV	*80.8	fl	High (60.0–80.0)
MCH	24.6	pg	(19.0–26.0)
MCHC	*30.4	g/dl	Low (30.8–37.0)
RDW	13.7	%	(12.9–17.8)
Platelets	216	x10^9/L	(160–500)
WBC	8.40	x10^9/L	(6.0–15.0)
Neutrophils	6.64	x10^9/L	(3.0–11.5)
Lymphocytes	0.17	x10^9/L	(0–0.3)
Monocytes	1.26	x10^9/L	(1.0–4.8)
Eosinophils	0.17	x10^9/L	(0–1.3)
Basophils	0.17	x10^9/L	(0–1.25)
Reticulocyte %	0.6	%	
Reticulocyte count	41.28	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	57	g/L	(54.0–77.0)
Albumin	36	g/L	(26.0–40.0)
Globulin	21	g/L	(20–47)
Sodium	153	mmol/L	(139–154)
Potassium	4.9	mmol/L	(3.5–6.0)
Na:K ratio	31		(25.0–35.0)
Chloride	112	mmol/L	(99–125)
Total calcium	2.39	mmol/L	(2.0–3.0)
Phosphate	*1.70	mmol/L	High (0.8–1.6)
Urea	8.3	mmol/L	(2.0–9.0)
Creatinine	69	umol/L	(40–106)
Alk phos	*67	U/L	High (0.0–25.0)
ALT	*220	U/L	High (0–25)
GLDH	*25	U/L	High (010.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	*30	umol/L	High (010.0)
Glucose	5.1	mmol/L	(3.0–5.5)
CK	*375	U/L	High (0–190)
Cholesterol	4.6	mmol/L	(3.8–7.0)
Triglycerides	0.6	mmol/L	(0.45–1.9)
Amylase	1045	U/L	(0–1800)
Lipase	57	U/L	(0–150)

HAEMATOLOGY

RBC	7.31	x10^12/L	(5.0–8.5)
Hb	17.9	g/dl	(12.0–18.0)
HCT	*55.7	%	High (37.0–55.0)
MCV	76.2	fl	(60.0–80.0)
MCH	24.5	pg	(19.0–26.0)
MCHC	32.1	g/dl	(30.8–37.0)
RDW	14.4	%	(12.9–17.8)
Platelets	177	x10^9/L	(160–500)
WBC	11.91	x10^9/L	(6.0–15.0)
Neutrophils	7.21	x10^9/L	(3.0–11.5)
Lymphocytes	3.12	x10^9/L	(1.0–4.8)
Monocytes	0.59	x10^9/L	(0–1.3)
Eosinophils	0.97	x10^9/L	(0–1.25)
Basophils	0.02	x10^9/L	(0–0.2)
Reticulocyte %	0.5	%	
Reticulocyte count	36.55	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia.		
Leukocyte comment	Leukocyte morphology unremarkable.		

Zola, German Shorthaired Pointer, aged 2

PRE-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	64	g/L	(54.0–77.0)
Albumin	37	g/L	(26.0–40.0)
Globulin	27	g/L	(20–47)
Sodium	153	mmol/L	(139–154)
Potassium	5.6	mmol/L	(3.5–6.0)
Na:K ratio	27		(25.0–35.0)
Chloride	107	mmol/L	(99–125)
Total calcium	2.75	mmol/L	(2.0–3.0)
Phosphate	*2.10	mmol/L	High (0.8–1.6)
Urea	*11.0	mmol/L	High (2.0–9.0)
Creatinine	101	umol/L	(40–106)
Alk phos	13	U/L	(0.0–25.0)
ALT	*34	U/L	High (025)
GLDH	4	U/L	(0–10.0)
Total bilirubin	2	umol/L	(0–9.0)
Bile acids	6	umol/L	(010.0)
Glucose	4.1	mmol/L	(3.0–5.5)
CK	*680	U/L	High (0–190)
Cholesterol	5.0	mmol/L	(3.8–7.0)
Triglycerides	0.9	mmol/L	(0.45–1.9)
Amylase	472	U/L	(0–1800)
Lipase	15	U/L	(0–150)

HAEMATOLOGY

RBC	7.66	x10^12/L	(5.0–8.5)
Hb	*18.7	g/dl	High (12.0–18.0)
HCT	*61.7	%	High (37.0–55.0)
MCV	*80.5	fl	High (60.0–80.0)
MCH	24.4	pg	(19.0–26.0)
MCHC	*30.3	g/dl	Low (30.8–37.0)
RDW	13.3	%	(12.9–17.8)
Platelets	219	x10^9/L	(160–500)
WBC	8.26	x10^9/L	(6.0–15.0)
Neutrophils	6.28	x10^9/L	(3.0–11.5)
Bands	0.25	x10^9/L	(00.3)
Lymphocytes	1.24	x10^9/L	(1.0–4.8)
Monocytes	0.41	x10^9/L	(0–1.3)
Eosinophils	0.08	x10^9/L	(0–1.25)
Reticulocyte %	0.6	%	
Reticulocyte count	45.96	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Scanty polychromatic cells. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

POST-TRIAL BLOOD ANALYSIS RESULTS

BIOCHEMISTRY

Total protein	58	g/L	(54.0–77.0)
Albumin	35	g/L	(26.0–40.0)
Globulin	23	g/L	(20–47)
Sodium	152	mmol/L	(139–154)
Potassium	4.9	mmol/L	(3.5–6.0)
Na:K ratio	31		(25.0–35.0)
Chloride	111	mmol/L	(99–125)
Total calcium	2.45	mmol/L	(2.0–3.0)
Phosphate	1.20	mmol/L	(0.8–1.6)
Urea	6.9	mmol/L	(2.0–9.0)
Creatinine	92	umol/L	(40–106)
Alk phos	23	U/L	(0.0–25.0)
ALT	21	U/L	(0–25)
GLDH	4	U/L	(0–10.0)
Total bilirubin	0	umol/L	(0–9.0)
Bile acids	6	umol/L	(0–10.0)
Glucose	3.9	mmol/L	(3.0–5.5)
CK	137	U/L	(0–190)
Cholesterol	4.3	mmol/L	(3.8–7.0)
Triglycerides	0.6	mmol/L	(0.45–1.9)
Amylase	556	U/L	(0–1800)
Lipase	14	U/L	(0–150)

HAEMATOLOGY

RBC	7.64	x10^12/L	(5.0–8.5)
Hb	*18.6	g/dl	High (12.0–18.0)
HCT	*63.2	%	High (37.0–55.0)
MCV	*82.7	fl	High (60.0–80.0)
MCH	24.3	pg	(19.0–26.0)
MCHC	*29.4	g/dl	Low (30.8–37.0)
RDW	14.3	%	(12.9–17.8)
Platelets	162	x10^9/L	(160–500)
WBC	8.27	x10^9/L	(6.0–15.0)
Neutrophils	5.58	x10^9/L	(3.0–11.5)
Lymphocytes	1.83	x10^9/L	(1.0–4.8)
Monocytes	0.17	x10^9/L	(0–1.3)
Eosinophils	0.69	x10^9/L	(0–1.25)
Basophils	0.0	x10^9/L	(0–0.2)
Reticulocyte %	1.1	%	
Reticulocyte count	84.04	x10^9/L	
Platelet comment	Platelet count appears normal in film.		
RBC comment	Slight polychromasia. Slight anisocytosis.		
Leukocyte comment	Leukocyte morphology unremarkable.		

A note regarding the results

In Appendix 6, where the results were outside the normal range this was noted by the Clinical Veterinary Surgeon and has been indicated by the addition of an asterix. In such cases the Clinical Veterinary Surgeon confirmed that there was no cause for medical concern.