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Olive Oil and Inositol in a Dog Diet: Cause and Effect Chain of Events Welcome to Earth Third Rock from the Sun

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A recent report manuscript [47] described results of feeding a set of supplements to dogs with a particular concern for copper. One objective of that work was to return a dog with heart condition, Happy, back to a high-energy state free from coughing as she briefly obtained in early 2019. This was not achieved so a closer look at the 2019 diet pointed to other possible contributors that had been neglected recently. These included extra virgin olive oil(EVOO) , inositol, PABA, and silicon dioxide. Adding these components did appear to help Happy regain energy and add to feeding eagness by 2 of the other dogs. There is some indication Happy is coughing less now primarily thought to be due to the EVOO and inositol.

Keywords: inositol; olive oil; PABA; canine nutrition ; alzheimer's

CONTENTS

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I. INTRODUCTION

A previous recent report detailed the overall safety and possible benefits of copper supplemetation in a group of dogs with heart benefits thought to be the most relevant [47] . However, results were not entirely successful particularly in the case of Happy who never achieved "cough free" status as she had briefly in early 2019. Further lack of progress motivated a more detailed examination of the last known working diet which revealed likely contributors to overall health. Two differences were found that were may have been important. First, the extra virgin olive oil (EVOO or simply olive oil herein) had been mostly eliminated except as an undisclosed liquid to distribute vitamin D supplements. Seconldy, the earlier diet had used a multi-B vitamin known more or less as Big-B or B-100 or GNC-100 [3]. Most of the active ingredients from the label, pictured in Fig. 1, had been replace by pure versions except for choline, inositol, and PABA. None of the "Other" ingredients had been intentionally replaced although some appear in other vitamin formulations.

FIG. 1. Label from a recent version of the product similar to original. The mcg units on inositol is thought to be a mistake although no attempt was made to investigate.

This work describes the results of adding back these neglected components. While the diet has only been in use for a little over a month with interuption, eating eagnerness has improved with overall energy level. Only three of the dogs were notably "off" but none in particularly bad shape. Dexter had initially been a picky eater but much better with zinc now more consistent and eager. Rocky too would often prefer to sleep through breakfast now rungs to it even when cold. Happy however may be getting some cough reduction with more youthful energy level. 2 of the dogs, Annie and Trixie, have died since the last report and prior to significant consumption of these new components.

II. DISCOVERY AND CONSIDERATION OF SUSPECTS

An inability to entirely return Happy to her high-energy cough-free state motivated a more careful examination of the last known working diet from early 2019. The two most obvious suspects were extra virgin olive oil (EVOO) and ignored components of the GNC B-100 supplement. The latter containing all of those considere below except the EVOO, see the pictureFig. 1.

II.1. Extra Virgin Olive Oil

Olive oil is a complex natural product and a perennial suspect for healthy diets with many questions and paradoxes [18] . A lot of motivation for study comes from its inclusion in the Mediterranean Diet and its complex composition [65].

Thinking outloud: the above claims to look at liquids in Med Diet but fails to mention vinegar, just EVOO and wine ...

Currently most health benefits are thought to relate to the monounsaturated oleic acid which is the majority of extra virgin olive oil although many other components are potentially active such as polyphenols and hydroxytyrosol [43] [49] . While oleic acid is itself a fatty acid, it may paradoxically act to minimize pathological fat accumulation or facilitate lipid homeostasis. In a small lab study in rats, it was concluded that, " [...] the intake of dietary high OA [oleic acid] may enhance the omega-3 fatty acid levels in the blood plasma of rats and may have a positive effect in reducing risks to cardiovascular disease, as evidenced by weight loss, increased HDL-C levels, and decreased TG levels in the blood plasma of experimental animals" [52]. Lipid homeostasis and possible health and longevity improvements may be achieved through endoplasmic reticulum and nuclear mechanisms [13] . It may also act to improve skeletal muscle cell phenotype. Mice supplemented with oleic acid for 4 weeks had improved endurance and benficial changes in skeletal muscle fibre composition over those supplemented with palmitic acid [33]. Its tempting to consider the possibility of similar benefits to heart muscle. Oleic acid can reduce some problems like hepatic insulin resistance from a palmitic acid diet [69].

In addition to these well considered functions, it could also act as a simple yet unique solventt although no direct evidence is available. Interestingly, it is observed that copper can form copper oleate which can diffuse through oil [38] but its not clear how this varies among other fatty acids or biological molecules. Some works have looked at copper compounds but produced with synthetic means such as electrochemistry [17]. (Oleic acid is also the material of choice in particle formation via electric discharge [31] but again hard to get context and relevant to biological systems.) A copper compound highly diffusible in lipids may have significant impact on copper distribution. The biological implications are not clear as no literature was found that addresses the topic directly.

It may have some specific attributes as a fuel although little information currently exists. Saturated and monounsaturated fats appear to be prefered by astrocytes for B-oxidation although some confusion remains about the preference for oleic or palmitic acid [16].

II.2. inositol

Inositol literature was also highly suggestive of a wide range of benefits but no compelling evidence exists of specific efficacy and endogenous production is often considere sufficient. A 2016 report found that inositol was likely safe for dogs and cat but lacking any benefit [2]. While inositol is synthesized the overall regulation of synthesis, uptake, and elimination is not well uderstood [67]. Inositol and derivatives are widely distributed in plant and animal cells and therefore exist in most diets but may be difficult to absorb but the kidneys make several grams per day in humans [42] without dietary inputs.

Inositol phosphates form a family of signalling molecules [41] , including pyphosphates [70], which seem to be common in eukaryotic cells [36] . Carefully regulated inositol derivatives are needed for proper development of Drosophila melanogaster [59] and an inositol hexaphosphate kinase may have an effect on lifespan in mice [50].

It is important to note that high inositol has been associated with both heart and kidney pathology suggesting it has a pathological role [55] and " stimulates the transcription of genes underlying hypertrophic growth." [19]. But many results show beneficial effects of exogenous inositol or phosphate derivatives. One recent review considers heart and brain disease, diabetes, cancer and reproductive health [15]. Some reports of heart benefits include moderation of pathological effects of high fat diet on heart including improved rhythm and reduced remodeling [35] or indirectly by improved oxygen delivery from hemoglobin [9] . It is thought to be useful for managing PCOS due to insulin signalling roles but clinical data are inconclusive [21]. Added myo-inositol improved results, at least in part due to improved mitochondria performance, when added during in vitro culture of porcine embryoes [30]. Interestingly inositol appears to be important for mitochondia performance. Energy production was on central concern for Happy and her copper supplementation. Inositol inhibits mitochondrial fission apparently due to the inositol sensing effects of AMPK [28]. Signalling my inositol phosphates is an integral part of mitochondria Ca regulation [23] [80] Other benefits exist for conditions such as diabetic nephropathy [64] and cisplatin exposure [78] [57] It may also have a role to play in thyroid health especially in cases of boarderline low hormone output [8] as has been suspected previously to be a common problem in dogs.

Inositol and derivatives may mitigate various stresses in a range of organisms such as salt stress in the plant Tamarix ramosissima [37] and acute ammonia toxicity in fish [76].

Inotitol's interaction with lithium may be of passing relevance in most people and animals but it may illustrate some common limitations of designing interventions from incomplete pathways. First, it has been observed to reduce effects of toxic lithium dosing in several measures of heart quatlity [34]. But perhaps more interestingly, lithium has recently been considered in Alzheimer's Disease due to lower amounts in the diseased state and the benefits of supplementation [6]. General effects of lithium on the brain have been explored for some time and it was suggested in 2013 and 2014 that the effects of lithium may be due to modulation of inositol signalling [72] [71] suggesting that the inositol system is a better point of intervention if it can be done more directly. It is easy to find reasons why Li may

be depleted in old age such as reduced stomach acid which may reduce absorption of many metals. Suppplementation may coincidentally modulate a related pathway as lithium appears to do in the case of inositol but it does fix the actual problem (if there is an inositol defect) and therefore is likely to have limited clinical benefit. Although it may be quite useful up to a point it is also misleading and ultimately a dead end for a cure. Generally nutrient deficincies are expected [46] and inositol or a related supplement may be worth investigation for this condition. This set of observations gets back to the important role of understanding cause and effect in designing an intervention but recognizing complete pathways are not known and a lot of guessing may be the most scitnfic thing to do.

II.3. PABA

PABA is probably one of the more controversial components. It has been described as "vitamin like" in a report suggesting imrpovement in tumor radiosensitivity related to phenotype changes including reduced melanogeneesis [77]. It is a similar to sodium benzoate which had previously been used due to a variety of speculative considerations from thyroid to dental to microbial health [47] [45] . PABA however may have coontrasting microbial and thyroid effects. It seems to have no value to the mouse but doe create susceptibility to the parasite Plasmodium berghei [29] although it is also claimed to be anti-viral [5]. When combined with a tumor inducer, PABA at .5 percent of diet increased incidence of thyroid tumors and increased TSH and proliferation alone [27]. Its not clear however if these changes are pathological although suggestive of a route to cancer or other diseases. A few years later, in 1948, hypothyroid conditions induced by PABA or other means showed interactions between choline deficiency and liver pathology [25]. That work is somewhat similar to the present work except that more pathways have been ceteched out and, "we've got computers" allowing for many possible deficiencies to be remediated in a tractable way.

It appears to modulate neurotransmitter levels with recently described anti-cholinesterase activity [26] and enhancement tryptophan hydroxylase activity among [14]. It is used controversially in Peyronie's disease where it is thought to improve oxygenation and decrease fibrosis although side effects such as hepatitis are a concern [61].

Thinking outloud:	remember Sildenafil and heart? lol

In 1945 it was observed to improve resistance to decreased barometric pressure [24].

II.4. choline

Choline is not considered a likely suspect due to the egg and lecithin content of the background diet but could not be ruled out. Some experiments have suggested a non-monotonic relationship to heart failure with both high and low intake being deleterious but mediated by a metabolite, TMAO, in the high side [54]. Similar results were shown for ASCVD [39] but association studies of this type can easily be misleading as colinearlity with other food components could modulate apparent response to "choline" intake. Another work showed an L shaped association between choline intake and stroke risk saturating around 276mg/day [75]. Choline supplements may reduce the severity of Alzheimer's Disease [73]. Lack of choline in parenteral feeding appears to create liver steatosis which can be prevented with supplementation [63]. Choline is essential for dogs and commercial foods are supplemented from sources such as choline chloride [20]. Choline bitartate has recently been associated with stones in dogs [44] and so an althernatve, CDP choline was used. This has been used in various experiments with dogs [79] [32] with no obvious acute issues.

II.5. Silica

Additional suspects included silicon dioxide. The biology of silicon is not well known and generally "sand" is considered inert. Silicon appears to have been well established as a nutrient with a structural or metabolic role or both and is beneficial for many conditions [12] [48] [11]. Consumption of soluble silicon may improve age related conditions such as atherosclerosis [74] although evidence is inconclusive. Very recently a silicate based therapy for dilated cardiomyopathy was investigated [68].

Candidates for supplementation include silicon dioxide and sodium metasilicate both or which are readily available. The metasilicate is fairly soluble but corrosive and concerns about safety of side reactions argued against its use. Finally, a food grade anti-caking sio2 source was purchased [1] although adding to dog diets was delayed. Silica appears in the Carlson copper supplement and possibly others. Many sources have been discussed in the literature along with suggested dosing. Interestinghly, alcohol free beer absorption was quite high and as expected absorption from colloidal silia rather low in one small test [66]. In a work exploring collagen and proteoglycan silicon, it was

suggested that about 25mg of silicon/day is beneficial and orthosilicic acid as possible supplement source [60]. Another work recommended similar intake amount from grains and vegetables and beverages made from grains [51]. Doses as high as 20mg/kg/day have been explored in postmenopausal animals and desmonstrated increased bone mineral density [56]. Synthetic silicon delivery molecules such as "monomethylsilanetriol, a monomeric, organosilicon molecule $[Si(OH)_3CH_3]$ have been designed around the details of the GI tract [62]

Silicon chemistry is probably best known from integrated circuit processing. A common form of silicon, silicon dioxide, may differ in details of structure and purity with changes in dissolution and surface properties. In high concentrations, hydroxide and fluoride may both etch at appreciable rates [10] but as optic people know even finger prints can stain glass and organic acids have some dissolution abilities mostly at higher pH [7].

Thinking outloud: another hour trying to get bibtex wtf?

Silicate urinary stones occur in dogs although not as commonly as other types [53] [58] and can be induced in humans with supplements containing silicon sources [22].

III. RESULTS

Adding inositol, olive oil (EVOO) , and incidental CDP choline and PABA appeared to restore energy in everyone and remove minor feeding indifference in Rocky. After a couple weeks, it was noted that Happy would be quiet at time she used to cough.

The monthly diet characteristics are described in the appendix Appendix C for several contrasting months. In the Spring of 2019 Happy had a cough free period that was never well repeated. The months prior to Oct 2025 she was coughing a bit with good energy but notably acting slower than in 2019 or when Daisy was first introduced to her a few years before. A variety of caveats and footnotes are associated with the diet records. For a more complete discussion see the earlier manuscript [47] . Briefly, 2 supplemented snacks were generally given each day with consistent and rotating components. Care was taken to either server immediately or within a few hours and stored in a refrigerator due to concerns about reactions particulary with copper supplements. Vitamins for specific snacks were selected for many considerations including mutual interactions in the recipe and once consumed. Commercial kibble dinners were also given but not well recorded and other components such as table scraps and yard debris were sometimes consumed. Total calories are not reflected in the records.

Happy went through a period of reduced coughing early on the arrival of Daisy. Neither the EVOO nor inositol were considered at that time although incidental consumption could occur through foods or vitamin D which was usually mixed with EVOO.

Its also worth noting marrow was largely discontinued soon after Annie died.

In the month of Oct 2025 and following Rocky ate very eagerly even getting up in the morning with everyone else which he had not consistently done before although otherwsie ate vigorously. Dexter expressed more consistent eagerness although continuing to eat only one meal a day. **Thinking outloud:** once formulated split into discussion as approporia

Its been difficult to give him any copper since he only eats the riboflavin snack now but that may be worth adding back to his overall diet too as apparently the lack of zinc was a bigger problem than any possible copper toxicity.

IV. DISCUSSION

The initial motivation was to get Happy back to a cough free high energy state similar to 2019. It becamse evident however small benefits appeared in the other dogs such as more consisent enthusiasm about eating.

Annie's feeding hesitatancy partially resolved with zinc earlier but its likely she had decliming kidney function for sometime. Dexter had been eating mostly consistently but is now completely consistent and more animtated. Rocky too eliminated any indifference.

Confusing results with inositol, a prescursor or skeleton for several signalling molecules, are probably due to adaptive responses under a variety of other limitations or states. That is, the heart is supposed to grow to accomodate additional load as occurs with exercise. Growth may occur due to cell growth, proliferation, or deposition of various matrix proteins. Each of these may be limited by different resources and have different outcomes on heart function. Inositol status may not be able to achieve a more beneficial result in all cases just reduce one which appears to be pathological. Signalling may be a best guess over evolutionary time scales for reproductive age individuals but may have some flaws.

Since inositol can be synthesized and is plentiful in the diet its important to consider why supplementation would be beneficial especially if age related and not generally provable. Age related GI atrophy has been considered before and the steps needed to free and absorb inositol investigated for potential bottlenecks. While internal synthesis could also decrease with age, its also possible, although not suggested, that requirements increase with age.

The contributions of these components to clinical outcomes remains undertermined but empirically this appears to work well on this group of dogs. Its much easier to work backward from a known working solution and tweak values or remove things than it is to look for small signals in a trial of a partial solution. If non-interacting and only one is active, from a group of N it would be possile to find "the one " in log base 2 trials instead of N trials by testin half of the candidates at once. Mixing things always creates risks but testing one partial solution at a time may not provide enough signal to be informative. In all of these cases, the hope is to find unexpected but stark error signals unless of course a solution emerges by luck.

Thinking outloud: need citations of course, case reports on other cause hypoglycemia and see if there is a pattern of symptom severity. Sugar per se is not a clinical endpoint. Earlier, lipoic acid was considered a suspect due to insulin mimetic properties in dogs. In one case of poisoning, blood sugar reached undetectable (<1.1 mmol/L [20 mg/dL]) and remained low for days yet the dog survived[40]. Note of course that blood level does not reflect velocity and consumption could be high with production almost keeping up. In which case cells are burning a lot of it and in no need of any other fuel. Its likely that sugar can be as much a nuisance as a fuel. While clinical hypoglycemia apparently occurs, it may be the case that lipids can largely replace it under the right conditions. As lipoic acid is thought to increase uptake the former is more likely the case

Previously, I considered the ability of lipoic acid to reduce blood sugar to control cancer. It may be that inositol could be of benefit here with reduced blood sugar and better signalling which could allow cells to better fit into their environment. Insulin resistance is thought to precede and facilitate cancer [4] and that may be partially causal but also related to associated signalling systems. There is some reason to consider inositol as a possible factor.

IV.1. Picky Eating

This set of ingredients made all six dogs eat enthusiastically as they were all generally more animated. As with copper, energy and "well being" may precede reversal of adaptations to starvation such as weak or enlarged tissue. Eating "dysphoria" here has been a matter of degrees with diverse suspects. With mild amounts absent a specific cause like dental pain, considerations may include mild liver or kidney insufficiency or effective deficiency of some nutrient. Some benefits have been seen with zinc, probably more likely when ALP is near zero, and sodium benzoate which can enahance flavor, moderate microbes in mouth and stomach, and sequester amino acids. Zinc may also be suspected with a high copper diet as used here. The current set of suspects may also be broadly applicable to older dogs due to the reasons outlined earlier.

IV.2. Its the Greatest Derivative Charlie Brown

The literature on nutrition and perhaps medicine in general is filled with confusing or disappointing results. Its possible that a lot of anecdotes about folk remedies have some basis but the critical components are not always identifed leading to tests of single nutrients that may not even be given to a population in the right state.

Dose-response curves for entities of interest are going to be have a maximal benefit at some does while becoming perhaps toxic at high doses. It is often pointed out but not fully appreciated that this "typical" curve applies to specific current states and is just a section of a larger surface. In the right state, the curve could "flat line" or even invert. The result of a randomized trial would depend on the population being explored. For any given state, there is probably only a small number of entities with easily measured positive slopes. In this case, a prior success was identified and the suspects were easy to test.

Consider the case of inositol and thyroid hormone. While inositol may have a signalling role, it can't replace say iodine or amino acids required to respond to TSH. Tested on a general population of hypothyroid patients in isolation it may have no effect yet the underlying cause of low inositol may be a combintation of other nutrional issues.

V. CONCLUSIONS

Certainly in retrospect both inositol and EVOO should have been considered for potential relevance. Prior work showing inconsistent results often tried to test "one thing" against a random background state consisting of genetirc and metabolics. Except for the case where the sample is drawn from a population already replate with a variety of other nutrients neither of these may show much effect. That is, the differential response is not significant in any sense. The present work again illustrates that randomization is not substitute for understanding cause and effect or at least a better defined present state. While great advances have been made with empirical natural products,

better solutions may derive from using more of what is known and remembering "we have computers" to sort out difficult data. Certainly again luck provided the opportunity but it still needed to be recognized. Launching into a well controlled trial of a single entity may not have produced even a useful error signal. An incremtnal approach. staying locked to an error signal, builing line upon line and precept upon precept, may make more sense if it can be reduced to a cookbook formula.

VI. SUPPLEMENTAL INFORMATION

Dog diet data files are available online at https://github.com/mmarchywka/dogdata or other locations as may be required. The author may also be contacted if onlines sources are not avialble. Some MUQED code is available too although probably not in a state that is easy for others to build and only written for Linux, https://github.com/mmarchywka/muqed_util

The source code for this paper is available too,
https://github.com/mmarchywka/inooil
for verficiation of bibliography or other checks. Please credit or retain credits for any info downloaded.

VI.1. Computer Code

```
2036 ./run_linc_graph -dt-mo txt/happy3.txt
2037 texfrag -include xxxtable
2038 cp xxxtable /home/documents/latex/proj/inooil/keep/oldtable.tex
2039 ./run_linc_graph -dt-mo txt/happy4.txt
2040 cp xxxtable /home/documents/latex/proj/inooil/keep/newtable.tex
2041 history
```

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Appendix A: Statement of Conflicts

No specific funding was used in this effort and there are no relationships with others that could create a conflict of interest. I would like to develop these ideas further and have obvious bias towards making them appear successful. Barbara Cade, the dog owner, has worked in the pet food industry but this does not likely create a conflict. We have no interest in the makers of any of the products named in this work.

Appendix B: About the Authors and Facility

This work was performed at a dog rescue run by Barbara Cade and housed in rural Georgia. The author of this report ,Mike Marchywka, has a background in electrical engineering and has done extensive research using free online literature sources. I hope to find additional people interested in critically examining the results and verify that they can be reproduced effectively to treat other dogs.

Appendix C: Happy Monthly Diet Tables

The earlier months are during periods of little coughing. The Control month was bad coughing recently and the current data is regarding October 2025.

Name	2019-04 Apr	2019-05 May	2019-06 Jun	2023-05 May	2025-03 Mar
FOOD					
KCl(tsp kcl)	0.12 ;0.25;30/30	0.22 ;0.25;31/31	0.2 ;0.25;18/18	0.077 ;0.062;25/25	0.092 ;0.062;18/18
KibbleAmJrLaPo	0.15 ;0.15;30/30	0.15 ;0.3;31/31	0.15 ;0.15;18/18	0.037 ;0.037;25/25	0.037 ;0.037;18/18
KibbleLogic	0.099 ;0.1;30/30	0.1 ;0.2;31/31	0.1 ;0.1;18/18	0.025 ;0.025;25/25	0.025 ;0.025;18/18
b10ngnc[(c)]	0.34 ;1;10/30	0.11 ;1;4/31			
b15ngnc[(c)]	0.078 ;1;2/30	0.39 ;1;12/31		0.043 ;0.25;4/25	
b20ngnc[(c)]	0.53 ;1;11/30	0.26 ;1;10/31	0.25 ;1;5/18	0.25 ;0.25;17/25	
b20ng			0.056 ;1;1/18		
b7ngnc[(c)]	0.33 ;1;9/30	0.27 ;1;9/31	0.74 ;1;13/18	0.14 ;0.25;10/25	
blueberry				2.1 ;3;14/25	
canned		0.097 ;1;3/31			
carrot	0.6 ;1;30/30	0.56 ;1;31/31	0.53 ;1;18/18	0.37 ;0.25;25/25	0.37 ;0.25;18/18
cb20ngnc					0.43 ;0.25;18/18
cbbrothbs				1.00e-02 ;0.25;1/25	
cbbroth				0.25 ;0.25;16/25	0.21 ;0.12;18/18
citrate(tsp citrate)	0.12 ;0.25;30/30	0.22 ;0.25;31/31	0.2 ;0.25;18/18	0.05 ;0.062;25/25	0.092 ;0.062;18/18
clbrothbs					0.22 ;0.12;18/18
ctbrothbs	0.72 ;1;29/30	0.79 ;1;31/31	0.6 ;0.25;17/18	0.12 ;0.25;8/25	
ctbroth				0.052 ;0.25;3/25	6.94e-03 ;0.12;1/18
eggo3	0.23 ;0.25;30/30	0.24 ;0.25;31/31	0.2 ;0.12;17/18	0.065 ;0.12;25/25	0.035 ;0.062;10/18
eggo					0.028 ;0.12;7/18
egg					3.47e-03 ;0.062;1/18
garlic	0.25 ;0.25;30/30	0.25 ;0.25;31/31	0.25 ;0.25;18/18	0.2 ;0.25;20/25	1.6 ;1;18/18
marrow					0.28 ;0.25;14/18
oliveoil(tsp)				0.03 ;0.12;9/25	
oliveoil	0.12 ;0.25;15/30	0.1 ;0.33;16/31	0.2 ;0.25;12/18		
pepper				0.085 ;0.25;6/25	
salmon	0.28 ;1;9/30		0.19 ;0.25;6/18	0.03 ;0.25;2/25	
shrimp(grams)	3 ;20;12/30	6 ;20;28/31	3 ;10;10/18	7.3 ;16;14/25	7.6 ;8.1;17/18
sorbitol(tsp)				5.94e-03 ;0.016;7/25	
spinach	0.43 ;0.25;30/30	0.46 ;0.33;31/31	0.081 ;0.25;3/18	0.28 ;0.25;20/25	0.37 ;0.25;18/18
turkey				0.35 ;0.25;24/25	
vinegar(tsp)				0.067 ;0.062;23/25	
VITAMIN					
B-1(mg)				5.64e-03 ;0.012;18/25	3.26e-03 ;0.012;9/18
B-100(count)	0.063 ;0.25;9/30	0.075 ;0.25;10/31	0.12 ;0.25;9/18		
B-12(mg)				0.05 ;0.25;7/25	0.042 ;0.25;5/18
B-2(mg)				16 ;25;17/25	8.6 ;16;18/18
B-3(mg)	8.2 ;25;10/30	4.8 ;25;7/31	6.9 ;25;5/18	7.9 ;12;22/25	13 ;24;18/18
B-6(mg)	6.5 ;25;9/30	6.3 ;25;9/31	6.9 ;25;5/18	5 ;12;12/25	1.7 ;6.2;9/18
B-multi(count)				5.00e-03 ;0.12;1/25	
Cu(mg)	2.2 ;5;29/30	1.8 ;5;31/31	0.7 ;5;17/18	0.38 ;2;17/25	8 ;6.3;18/18
D-3(iu)				58 ;300;5/25	28 ;125;4/18
Iodine(mg)[(a)]	0.022 ;0.25;3/30	0.012 ;0.25;2/31	0.041 ;0.25;3/18	0.12 ;0.25;21/25	0.13 ;0.78;4/18
K1(mg)				0.7 ;2.5;13/25	1.4 ;2.5;18/18
K2(mg)	1 ;3.8;9/30	0.82 ;4.9;7/31	1 ;3.8;5/18	0.4 ;1.2;12/25	0.49 ;3.1;5/18
K2MK7(mg)				0.5 ;6.2;15/25	2.08e-03 ;0.013;4/18
MgCitrate(mg)	113 ;202;19/30	76 ;202;13/31	43 ;102;8/18	96 ;100;24/25	36 ;100;12/18
MgCitrate				1.00e-02 ;0.25;1/25	
Mn(mg)		0.36 ;2;9/31			0.1 ;0.62;3/18

TABLE I. Part 1 of 2. Events Summary for Happy from 2019-04-01 to 2025-03-31A summary of most dietary components and events for selected months between 2019-04-01and 2025-03-31. Format is average daily amount ;maximum; days given/ days in interval . Units are arbitrary except where noted. Any superscripts are defined as follows: **a)** SMVT substrate. Biotin, Pantothenate, Lipoic Acid, and Iodine known to compete..**c)** hamburger with varying fat percentages- 7,10,15,20, etc. ..

Name	2019-04 Apr	2019-05 May	2019-06 Jun	2023-05 May	2025-03 Mar
Se(mcg)				1 ;12;3/25	
Zn(mg zn)				1.6 ;5.9;10/25	0.24 ;1.5;3/18
arginine(mg)	110 ;250;15/30	87 ;325;11/31	41 ;250;4/18	98 ;350;11/25	117 ;175;8/18
biotin(mg)[a]	1.6 ;2.5;22/30	1.6 ;3.2;22/31	1.5 ;2.5;11/18	4.8 ;5;24/25	0.97 ;2.5;13/18
folate(mg)				0.025 ;0.12;6/25	0.017 ;0.062;5/18
histidine(mg)					
histidine(tsp)					1.74e-03 ;0.0078;4/18
histidinehcl(mg)	46 ;162;10/30	108 ;325;13/31	23 ;260;2/18	8.5 ;85;3/25	
iron(mg)					1.5 ;11;4/18
isoleucine(mg)	57 ;250;10/30	64 ;250;9/31	21 ;250;2/18	72 ;200;9/25	21 ;100;4/18
lecithin(lecu)	518 ;300;30/30	390 ;390;23/31	219 ;300;10/18		
lecithin(mg)				216 ;225;24/25	331 ;225;18/18
lecithin(tsp)				0.05 ;0.19;25/25	
leucine(mg)	174 ;162;30/30	268 ;325;31/31	146 ;162;16/18	84 ;162;25/25	68 ;162;14/18
lipoicacid(mg)[a]	5 ;20;10/30	5.5 ;30;9/31	5.3 ;20;5/18	5.5 ;12;11/25	4.2 ;12;6/18
lysinehcl(mg)	295 ;325;29/30	451 ;325;31/31	242 ;325;15/18	231 ;325;25/25	135 ;162;11/18
methionine(mg)	16 ;62;9/30	35 ;125;12/31	20 ;121;3/18	60 ;62;23/25	16 ;62;8/18
pantothenate(mg)[a]	32 ;125;10/30	35 ;125;10/31	14 ;125;2/18	14 ;39;9/25	39 ;78;17/18
phenylalanine(mg)	72 ;125;20/30	56 ;150;14/31	27 ;125;4/18	25 ;125;8/25	6.9 ;62;2/18
taurine(mg)	423 ;250;30/30	442 ;500;31/31	458 ;250;17/18	333 ;225;25/25	138 ;225;17/18
threonine(mg)	124 ;162;26/30	92 ;162;17/31	76 ;162;8/18	169 ;325;25/25	235 ;162;18/18
tryptophan(mg)	70 ;100;22/30	93 ;130;23/31	76 ;100;11/18	75 ;150;17/25	3.6 ;38;2/18
tyrosine(mg)	16 ;125;4/30	14 ;125;4/31	6.9 ;125;1/18	52 ;100;13/25	5.6 ;50;2/18
valine(mg)	79 ;206;13/30	92 ;206;16/31	78 ;212;7/18	112 ;200;14/25	189 ;200;17/18
vitamina(iu)				1260 ;4500;9/25	312 ;2250;4/18
vitaminc(mg)				5 ;31;7/25	
vitaminc(tsp)				3.13e-03 ;0.0078;18/25	1.95e-03 ;0.0039;9/18
vitamine(iu)				11 ;50;6/25	3.1 ;19;3/18
MEDICINE					
Ivermectin	0.067 ;1;2/30	0.065 ;1;2/31			
SnAg					0.056 ;1;1/18
doxycycline	0.4 ;1;12/30				
sodiumbenzoate(mg)					16 ;49;9/18

TABLE II. Part 2 of 2. Events Summary for Happy from 2019-04-01 to 2025-03-31A summary of most dietary components and events for selected months between 2019-04-01and 2025-03-31. Format is average daily amount ;maximum; days given/ days in interval . Units are arbitrary except where noted. Any superscripts are defined as follows: **a)** SMVT substrate. Biotin, Pantothenate, Lipoic Acid, and Iodine known to compete..**c)** hamburger with varying fat percentages- 7,10,15,20, etc. ..

Name	2025-03 Mar	2025-08 Aug	2025-09 Sep	2025-10 Oct
FOOD				
KCl(tsp kcl)	0.092 ;0.062;18/18	0.085 ;0.062;31/31	0.081 ;0.12;21/21	0.077 ;0.062;24/24
KibbleAmJrLaPo	0.037 ;0.037;18/18	0.036 ;0.037;30/31	0.036 ;0.037;20/21	0.037 ;0.037;24/24
KibbleLogic	0.025 ;0.025;18/18	0.024 ;0.025;30/31	0.024 ;0.025;20/21	0.025 ;0.025;24/24
b10ngnc[c]				0.073 ;0.25;6/24
b15ngnc[c]				0.19 ;0.25;13/24
b20ngnc[c]		0.018 ;0.12;3/31	0.22 ;0.25;20/21	0.057 ;0.062;22/24
b7ngnc[c]			0.13 ;0.5;7/21	0.12 ;0.25;8/24
carrot	0.37 ;0.25;18/18	0.37 ;0.25;31/31	0.38 ;0.5;21/21	0.38 ;0.25;24/24
cb10ngnc		0.014 ;0.12;2/31		
cb20ngnc	0.43 ;0.25;18/18	0.4 ;0.25;29/31	0.22 ;0.25;12/21	
cb25ngnc		0.014 ;0.12;2/31		
cbbrothbs			1.49e-03 ;0.031;1/21	
cbbroth	0.21 ;0.12;18/18	0.21 ;0.12;31/31		0.055 ;0.12;6/24
citrate(tsp citrate)	0.092 ;0.062;18/18	0.085 ;0.062;31/31	0.081 ;0.12;21/21	0.077 ;0.062;24/24
clbrothbs	0.22 ;0.12;18/18			
ctbrothbs		0.21 ;0.12;31/31	0.22 ;0.25;21/21	0.22 ;0.12;24/24
ctbroth	6.94e-03 ;0.12;1/18	5.04e-03 ;0.12;1/31	0.22 ;0.25;21/21	0.16 ;0.12;18/24
eggo3	0.035 ;0.062;10/18	0.054 ;0.062;27/31	0.071 ;0.25;21/21	0.062 ;0.062;24/24
eggo	0.028 ;0.12;7/18	8.06e-03 ;0.062;4/31		
eggshell		0.044 ;0.12;11/31	0.024 ;0.12;4/21	0.021 ;0.12;4/24
egg	3.47e-03 ;0.062;1/18			
garlic	1.6 ;1;18/18	0.15 ;0.25;19/31	0.071 ;0.25;6/21	0.094 ;0.25;9/24
marrow	0.28 ;0.25;14/18	0.19 ;0.25;21/31	0.083 ;0.5;11/21	0.089 ;0.25;16/24
oliveoil(tsp)			0.074 ;0.38;8/21	0.18 ;0.12;24/24
oliveoil		8.06e-03 ;0.25;1/31		7.81e-03 ;0.12;2/24
salmon		0.03 ;0.25;3/31		0.051 ;0.25;4/24
salt(tsp)		1.39e-03 ;0.0039;15/31		4.88e-04 ;0.0039;3/24
shrimp(grams)	7.6 ;8.1;17/18	3.1 ;8.1;12/31	7.3 ;8.1;19/21	6.4 ;8.1;19/24
spinach	0.37 ;0.25;18/18	0.37 ;0.25;31/31	0.38 ;0.5;21/21	0.38 ;0.25;24/24
vinegar(tsp)		0.016 ;0.12;6/31	0.024 ;0.12;7/21	0.034 ;0.062;13/24
VITAMIN				
B-1(mg)	3.26e-03 ;0.012;9/18	4.55e-03 ;0.012;23/31	6.71e-03 ;0.024;21/21	5.88e-03 ;0.0059;24/24
B-12(mg)	0.042 ;0.25;5/18	0.024 ;0.12;6/31	0.048 ;0.5;5/21	0.021 ;0.12;4/24
B-2(mg)	8.6 ;16;18/18	8.1 ;8.1;31/31	9.3 ;32;21/21	7.8 ;8.1;23/24
B-3(mg)	13 ;24;18/18	11 ;12;31/31	16 ;48;21/21	12 ;12;24/24
B-6(mg)	1.7 ;6.2;9/18	1.4 ;3.1;14/31	1.9 ;12;10/21	1.7 ;3.1;13/24
Cu(mg)	8 ;6.3;18/18	3.3 ;5;24/31	2.3 ;5;18/21	3.1 ;5;23/24
D-3(iu)	28 ;125;4/18	27 ;150;6/31	21 ;150;3/21	25 ;150;4/24
Iodine(mg)[a]	0.13 ;0.78;4/18	0.26 ;3.1;5/31	0.3 ;3.1;4/21	0.065 ;0.39;4/24
K1(mg)	1.4 ;2.5;18/18	1.2 ;1.2;31/31	1.4 ;5;21/21	0.57 ;1.2;11/24
K2(mg)	0.49 ;3.1;5/18	0.06 ;0.62;3/31		0.89 ;1.9;13/24
K2MK7(mg)	2.08e-03 ;0.013;4/18	0.013 ;0.1;7/31	9.52e-03 ;0.05;4/21	6.25e-03 ;0.1;2/24
MgCitrate(mg)	36 ;100;12/18	50 ;50;31/31	57 ;200;21/21	50 ;50;24/24
Mn(mg)	0.1 ;0.62;3/18	0.048 ;0.5;3/31	0.03 ;0.62;1/21	0.052 ;0.5;3/24
PABA(mg)			0.21 ;2;5/21	0.45 ;3.9;6/24
Zn(mg zn)	0.24 ;1.5;3/18	0.24 ;1.5;5/31	0.14 ;1.5;3/21	0.24 ;1.5;4/24
arginine(mg)	117 ;175;8/18	124 ;175;16/31	133 ;175;11/21	117 ;175;12/24
arginine(tsp)		4.03e-03 ;0.062;2/31		1.30e-03 ;0.031;1/24
biotin(mg)[a]	0.97 ;2.5;13/18	0.95 ;2.5;20/31	0.54 ;2.5;11/21	0.73 ;1.2;15/24

TABLE III. Part 1 of 2. Events Summary for Happy from 2025-03-01 to 2025-10-24A summary of most dietary components and events for selected months between 2019-04-01and 2025-03-31. Format is average daily amount ;maximum; days given/ days in interval . Units are arbitrary except where noted. Any superscripts are defined as follows: **a)** SMVT substrate. Biotin, Pantothenate, Lipoic Acid, and Iodine known to compete..**c)** hamburger with varying fat percentages- 7,10,15,20, etc. ..

Name	2025-03 Mar	2025-08 Aug	2025-09 Sep	2025-10 Oct
cdpcholine(mg)			5.3 ;38;4/21	9.4 ;38;11/24
folate(mg)	0.017 ;0.062;5/18	0.016 ;0.062;8/31	8.93e-03 ;0.062;3/21	0.016 ;0.062;6/24
histidine(mg)				
histidine(tsp)	1.74e-03 ;0.0078;4/18			
histidinehcl(mg)		47 ;86;21/31	58 ;183;15/21	21 ;86;11/24
inositol(mg)			1.8 ;7.8;8/21	5.7 ;16;17/24
iron(mg)	1.5 ;11;4/18	0.6 ;1.3;14/31	0.57 ;5.3;6/21	0.33 ;1.3;6/24
isoleucine(mg)	21 ;100;4/18	16 ;100;5/31	14 ;100;3/21	17 ;100;4/24
lecithin(mg)	331 ;225;18/18	330 ;225;31/31	327 ;450;21/21	328 ;225;24/24
leucine(mg)	68 ;162;14/18	73 ;162;26/31	101 ;325;20/21	83 ;162;22/24
lipoicacid(mg)[(a)]	4.2 ;12;6/18	9.7 ;25;20/31	12 ;12;18/21	13 ;25;23/24
lysinehcl(mg)	135 ;162;11/18	110 ;162;15/31	120 ;325;11/21	107 ;162;12/24
methionine(mg)	16 ;62;8/18	14 ;31;14/31	16 ;125;8/21	14 ;31;11/24
pantothenate(mg)[(a)]	39 ;78;17/18	25 ;39;20/31	22 ;39;12/21	21 ;39;13/24
phenylalanine(mg)	6.9 ;62;2/18	14 ;62;7/31	27 ;250;6/21	16 ;62;6/24
taurine(mg)	138 ;225;17/18	112 ;112;31/31	107 ;112;20/21	112 ;112;24/24
threonine(mg)	235 ;162;18/18	239 ;162;31/31	244 ;325;21/21	215 ;162;24/24
tryptophan(mg)	3.6 ;38;2/18	5.8 ;28;13/31	6.5 ;55;7/21	3.4 ;14;9/24
tyrosine(mg)	5.6 ;50;2/18	7.3 ;50;8/31	6 ;25;5/21	5.2 ;25;5/24
valine(mg)	189 ;200;17/18	187 ;200;30/31	167 ;200;19/21	150 ;200;22/24
vitamina(iu)	312 ;2250;4/18	254 ;1125;7/31	161 ;1125;3/21	281 ;1125;6/24
vitaminc(tsp)	1.95e-03 ;0.0039;9/18	3.78e-04 ;0.002;6/31	8.37e-04 ;0.002;9/21	5.70e-04 ;0.002;7/24
vitamine(iu)	3.1 ;19;3/18	4.506e+04 ;1.396e+06;6/31	13 ;133;2/21	28 ;266;3/24
MEDICINE				
Drontal(mg)		1.1 ;34;1/31	1.6 ;34;1/21	
Ivermectin		0.032 ;1;1/31		0.042 ;1;1/24
SnAg	0.056 ;1;1/18			
sodiumbenzoate(mg)	16 ;49;9/18	4 ;25;5/31	5.9 ;25;5/21	9.2 ;25;9/24
RESULT				
weight(lbs)				0.73 ;18;1/24
advecta		0.032 ;1;1/31		

TABLE IV. Part 2 of 2. Events Summary for Happy from 2025-03-01 to 2025-10-24A summary of most dietary components and events for selected months between 2019-04-01and 2025-03-31. Format is average daily amount ;maximum; days given/ days in interval . Units are arbitrary except where noted. Any superscripts are defined as follows: **a)** SMVT substrate. Biotin, Pantothenate, Lipoic Acid, and Iodine known to compete..**c)** hamburger with varying fat percentages- 7,10,15,20, etc. ..

Appendix D: Symbols, Abbreviations and Colloquialisms

TERM definition and meaning

Appendix E: General caveats and disclaimer

This document was created in the hope it will be interesting to someone including me by providing information about some topic that may include personal experience or a literature review or description of a speculative theory or idea. There is no assurance that the content of this work will be useful for any paricular purpose.

All statements in this document were true to the best of my knowledge at the time they were made and every attempt is made to assure they are not misleading or confusing. However, information provided by others and observations that can be manipulated by unknown causes ("gaslighting") may be misleading. Any use of this information should be preceded by validation including replication where feasible. Errors may enter into the final work at every step from conception and research to final editing.

Documents labelled "NOTES" or "not public" contain substantial informal or speculative content that may be terse

and poorly edited or even sarcastic or profane. Documents labelled as "public" have generally been edited to be more coherent but probably have not been reviewed or proof read.

Generally non-public documents are labelled as such to avoid confusion and embarassment and should be read with that understanding.

Appendix F: Citing this as a tech report or white paper

Note: This is mostly manually entered and not assured to be error free.
This is tech report MJM-2025-004.

Version	Date	Comments
0.01	2025-10-22	Create from empty.tex template
-	November 10, 2025	version 0.00 MJM-2025-004
1.0	20xx-xx-xx	First revision for distribution

Released versions,
build script needs to include empty releases.tex

Version	Date	URL

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run-date ={November 10, 2025} ,
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author ={Mike J Marchywka } ,
type ={techreport} ,
name ={marchywka-MJM-2025-004} ,
number ={MJM-2025-004} ,
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address ={ 157 Zachary Dr Talking Rock GA 30175 USA} ,
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startdate ={2025-10-22} ,
day ={10} ,
month ={11} ,
year ={2025} ,
sourcecode ={https://github.com/mmarchywka/inooil} ,
author1email ={marchywka@hotmail.com} ,
contact ={marchywka@hotmail.com} ,
author1id ={orcid.org/0000-0001-9237-455X} ,
pages ={ 19}
}

Supporting files. Note that some dates,sizes, and md5's will change as this is rebuilt.

This really needs to include the data analysis code but right now it is auto generated picking up things from prior build in many cases

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5712750 Jul 10 19:07 /var/lib/texmf/web2c/luahbtex/lualatex.fmt a41ebf2b4a8fce76020b8e7c277eca3a
18230273 Nov 9 19:15 inooil.pdf 6cb63c1760dde95a87e1727c6134f1ed
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