Release Notes 2022-11-04 : : This describes an attempt to optimize diet components for an old sick dog, Beauty, creating two partial recoveries from a gradual decline: first with B-12 and then with a more complicated benzoate containing snack. I am releasing it a bit earlier (more note than text form) than other works as I have more topics queued up. There are a lot of interesting topics in this note that derive from Beauty's history and the literature on benzoate. If nothing else, see the comments on tyrosinase. This note also continues to explore the capabilities and limitations of an at-home scientific approach to unsolved problems. The ingredient combination described here, named "zsnack" for now, may make an interesting product for further research. The informal scientific style is a bit of an experiment- for example, use of the dog names could not be common in case reports and units like teaspoons remain even though densities are available etc- but it may be a good fit for a wide range of possible audiences.
The release may use an experimental bibliography code that is not designed to achieve a particular format but to allow multiple links to reference works with modifications to the query string to allow identification of the citing work for tracking purposes. This may be useful for a bill-of-materials and purchases later.
This is a draft and has not been peer reviewed or completely proof read but released in some state where it seems worthwhile given time or other constraints. Typographical errors are quite likely particularly in manually entered numbers. This work may include output from software which has not been fully debugged. For information only, not for use for any particular purpose see fuller disclaimers in the text. Caveat Emptor.
Note that any item given to a non-human must be checked for safety alone and in combination with other ingredients or medicines for that animal. Animals including dogs and cats have decreased tolerance for many common ingredients in things meant for human consumption.
I am not a veterinarian or a doctor or health care professional and this is not particular advice for any given situation. Read the disclaimers in the appendicies or text, take them seriously and take prudent steps to evaluate this information.
This work addresses a controversial topic and likely advances one or more viewspoints that are not well accepted in an attempt to resolve confusion. The reader is assumed familiar with the related literature and controversial issues and in any case should seek additional input from sources the reader trusts likely with differing opinions. For information and thought only not intended for any particular purpose. Caveat Emptor

Clinical and microbiological improvement in dog after metal and benzoate containing supplement mix

Mike Marchywka*
44 Crosscreek Trail, Jasper GA 30143
(Dated: November 4, 2022)

Benzoic acid occurs naturally in foods considered healthy but it tends be a concern when added to more synthesized foods. While it is added to some dog dental products as an active ingredient, larger uses do not appear to be well described beyond product preservation. This work documents the use of a supplement mix containing benzoate as an active ingredient along with more well appreciated components such as niacin, riboflavin, and tin-silver. It is described in the context of one dog, Beauty, in whom the response was best correlated. She had been lethargic and had some response to B-12 after she was found to be anemic but then she had reduced food intake and substantial weight loss. Addition of this supplement mix to her intake improved her eating and reversed significant weight loss for several months even as her underlying diseases remain unknown. Experience with other dogs is noted but it is less detailed o compelling. 16s rRNA analysis on fecal and vomit/spit-up samples demonstrated some favorable changes during recovery. For example, the observed increase in fecal Faecalibacterium prausnitzii is an objective of some other related research. Any role for benzoate is unclear but this may be an interesting case for hypothesis generation involving a therapeutic role for each of these ingredients. A "product" version of this ingredient mix is discussed.

*Electronic address: marchywka@hotmail.com; to cite or credit this work, see bibtex in Appendix H

Contents

FIG. 1: Beauty sitting on couch.

FIG. 2: Brownie on deck. It is unclear how much of abdomen is just fat or swollen stomach from disease or accumulated debris.

1. INTRODUCTION

In a previous work, I described a mixture of riboflavin, niacin, sodium benzoate, citric acid, potassium chloride, and a tin-silver-arginine (SnAg) compound (herein referred to as a zsnack) for use as a dog treat with possible health benefits illustrated with one dog (Happy) [51]. Riboflavin was thought to be an important contributor due to possible problems with the kibble the dogs eat. The current work describes the experiences of another dog, Beauty, with persistent health problems that were characterized with more lab work. As Beauty ate the same kibble as Happy , riboflavin may also be an issue with her.

Thinking outloud
this sounds like it should go in discussion, need better editing for intro

The most notable blood finding for Beauty was anemia without significant deviations in leukocyte counts and an initial response to B-12. As described later she had a marginal macrocytic hyperchromic anemia suggestive of DNA limitation but with some ability to compensate. In humans this is often due to vitamin B-12 insufficiency. A normochromic normocytic non-regenerative riboflavin anemia had been described [39] and hemoglobin may be increased in humans with added riboflavin [73]. However, observed beneficial changes in vomit and fecal microbiome suggest a role for benzoate and SnAg. In actual fact, the components may work together but have little clinical effect on their own.

Benzoate is perhaps the most questionable component as it is an ingredient in natural healthy foods but a controversial preservative [65] . It has been studied at least since 1909 when effects on food decay were explored and the equivalence of sodium benzoate to benzoic acids at low pH was suggested[47]. Other early work demonstrated arguable favorable changes in hemoglobin and red blood cell parameters [63]. However, it may not be obviously beneficial in the presence of anemia based on more contemporary work. One 2020 study found 1-10mg/kgBW given for 21 non-consecutive days(?) decreased hemoglobin and RBC in Wistar rats [17]. A 2022 study in mice demonstrated uniform reductions in blood hemoglobin and RBC counts beginning at 125mg/Kg feed but a large increase in weight gain and appetite at the lowest dose [66]. The authors speculate on increased food palatability but in this work the focus is on more balanced nutrient absorption and GI ecology both of which may make eating more rewarding. In any case the response curves are likely to be highly non-monotonic and probably depend on overall mix of ingredients. Non-monotonic curves should always be expected but may be considered as exceptions [5] or confuse conventional wisdom [54], Benzoate is expected to modulate microbial activity [59] in the food and GI tract. While thought to be active in some canine dental products it does not appear to be recognized for any larger roles in dogs. Benefits to humans claimed for benzoates or mixtures include urea cycle disorders and hyperammonemia [57] although a recent test in dogs failed [93] and in fact metabolism of benzoate can vary among species with glycine conjugation less likely in dogs [7]. But, from the side effects it may not have been optimally designed. Neurological disorders have been considered [97] and recently lithium, and to a lesser extent sodium, benzoate were found to have some activity against an Alzheimer's model and amyloid beta toxicity [46]. While it is easy to get lost in detailed biochemical pathways and mechanisms, a simple role for solubility and uptake enhancement is considered here. All of these things are chemicals with associated physical properties that may be relevant to overall nutrition. Sodium benzoate, alone and in combination with citrate, has been shown to enhance solubility of hydrophobic drugs via "hydrotropy" [48]. Acetate may also participate in this process [78]. These effects may be useful to enhance nutrient uptake in the case of impaired digestion as could occur in old age [52]. Hydrophobic neurotransmitter precursors such as tryptophan and tyrosine would be candidates for uptake enhancement with the aromatic benzoate. Its also worth noting that other drugs and vitamins may demonstrate this effect [72] expanding their range of possible actions to include nutrient uptake improvement.

The tin-silver-arginine (SnAg) component is thought to further modulate microbial status. Various silver products exist and more are being developed for microbe control [82] . Tin is less commonly considered although it is recognized as a potentially active component of some dental products [80] along with arginine and others [75].

This text describes Beauty's response to the zsnack in some detail along with additional observations from other dogs receiving comparable and contrasting supplements. Possible contributions of the zsnack to her temporary recovery are discussed. The use of vitamin B-12 in combination with folate prior to the zsnack is also discussed as it preceeded a short term benefit for Beauty but may have ultimately made her underlying disease worse.

2. DESCRIPTION

This report is mostly about one dog, Beauty, with context from her contemporaries such as Brownie and from dogs at the same location about 4 years earlier (Greta, Moe, and Peapod) [50]. Beauty's relevant events are listed in Table I.

Date	Event
2006-01-01	earliest owner estimated date of birth
2007-01-01	latest owner estimated date of birth
2017-11-09	weight 55.777 lbs (25.3 kg)
2018-11-01	weight 53.418 lbs (24.23 kg)
2021-07-01	dental , blood anemia, high MCH, high normal MCV
2021-07-02	starts clindamycin
2021-07-11	stops clindamycin
2022-01-10	routine consumption of snacks had stopped
2022-01-20	developed appetite for eggs for one week or so
2022-01-22	first sampling of vomit and feces
2022-02-02	distinct preference for shrump
2022-03-03	starts sodium benzoate addition
2022-03-16	weight 49.4 lbs (22.4 kg)
2022-03-19	second vomit sample, rare vomit mostly ok
2022-03-24	noted to be eating kibble most of the time
2022-04-08	may be starting to eat snacks better
2022-04-24	weight 53.8 lbs (24.2 kg)
2022-05-22	weight 55.2 lbs (24.8 kg)
2022-05-23	noted trial of B-12 and folate
2022-05-23	fecal sample 16s and ITS
2022-06-12	weight 54.2 lbs (24.4 kg)
2022-06-20	noted eating kibble ok but otherwise picky
2022-07-07	picky, suspected B-12 and folate
2022-07-21	weight 52.7 lbs (23.72 kg)
2022-08-13	only eating with much prompting
2022-08-20	weight 49.2 lbs (22.14 kg)
2022-08-28	oral tumor removed thought benign
2022-08-05	vomit last of antibiotics despite prior improve.
2022-09-08	put to sleep

TABLE I: Important events in Beauty's life. Beauty was found injured and abandoned and exact DOB is not known.

Beauty had been eating consistently but slowly losing stamina and probably weight for perhaps years. While she usually ate all of her food, she seemed to eat slow and dental pain was suspected. A dental check and clean in July 2021 produced an incidental blood count demonstrating anemia with high-normal MCV, high MCH, shown in Table III. Select blood chemistry was performed at the same time with some similar tests peformed in September 2022 show in Table IV. Based on the marginal hyperchromic near macrocytic anemia, vitamin B-12 was added in higher amounts and by November she seemed to go on more walks but her appetite began to decrease and she was obviously losing weight. Other dietary changes may have been missed over these months and her supplement intake is provided in App E for review. Her response to B-12 as measured in walks and eating behavior is shown in Fig. 4. Her appetite decline was monitored with a few food items in Fig. 3. Note that quantitative measures of her "main meal", largely kibble and cooked chicken, were not recorded. While most of the supplements were recorded in MUQED files [53] her kibble meals were not. In retrospect this would have been a valuable record to keep. While MUQED can allow adjectives to describe her eating reluctance, generally free text comments were made regarding the snacks and not the kibble meals.

By January 2022, vomiting of clear or yellow frothy liquid became common mostly in the morning or after fasting. Feces and vomit were sampled on 2022–01-22 and analyzed for bacteria content by 16s rRNA PCR at Zymo Research as previously described [50]. ITS PCR for analysis of fungal contents was similarly performed on some samples but had not yet been analyzed. Microbial analysis was performed at three times on samples from Beauty. This first sampling of vomit and feces on 2022-01-22 was as she was approaching her lowest weight and appetite.

In March 2022 the zsnack was added to daily supplements for her and her peers including Brownie. This was in a concentrated snack composed of sodium benzoate, niacin, riboflavin, tin-silver and various other components such as potassium chloride and citric acid as described earlier[51]. Her daily intake of sodium benzoate varied around 1/8 to 1/4 tsp or 400-800mg/day (about 16-32 mg/kgBW/day) along with 50mg niacin and maybe 300mg riboflavin. Amounts fluctuated significantly from day to day. By mid March she appeared likely to be recovering. While very subjective, she may have done better when the variable tin-silver concentration was higher.

She demonstrated obvious improvement two weeks after the benzoate addition and another vomit sample was obtained on 2022-03-19, two months after the first, and analyzed for 16s rRNA and ITS content. . The vomit samples likely contained a mixture of oral, esophagus, and stomach contents that varied in composition between samples. The second vomit sample was also notable for lower sample amount and this may skew analysis of lower abundance organisms with read counts near the floor. However, there was some indication of potential pathogens being reduced and reputed beneficial organisms increasing. The two samples are compared in Fig. 6 showing some possible improvements as discussed later. Weighings were begun at roughly 4 week intervals. Her food intakes and weights through the rest of her life are shown in Fig. 5. She continued to eat well and gain weight for over 2 more months. A second fecal sample, the third sampling overall, was obtained in late May just after her peak weight on 2022-06-20, 5 months after the initial sampling, also analyzed for 16s rRNA and ITS content.

Thinking outloud
need to verify this is DNA rather than RNA profiling :)

The ITS results have not been fully explored as some questions existed about which organisms were likely reproducing in the samples and which may reflect spores from ingested food that survived to the sampling conditions. 16s rRNA results are shown along with Brownie and historical dogs in Fig. 7. As discussed later, some notable changes occurred that would mostly be considered beneficial.

Condition	Greta	Moe	Peapod	Beauty 1	Beauty 2	Brownie
Normal Snack		+	+	+/-		+
Silver	+	+	+		+	+
Benzoate					+	+
Antibiotics	Cephalexin					

TABLE II: Recent diet and condition history prior to sampling

Three historical samples from Greta, Moe, and Peapod are included for comparison as described previously [50] in more detail. The samples were taken 2018-01-15 and all dogs had some disease. Greta had had rectal surgery about 6 weeks prior and had cephalexin 5 weeks prior with additional silver products. Greta had not been eating snacks until after sampling. She had persistent intermittent uevitis which I suspected was paraneoplastic. When put to sleep 2020-10-09, she was still eating intermittently although may have benefited from more consistent snacks missed due to my absence. Moe had been eatng well prior to sampling but had several globes on his skin maybe 1-2 cm diameter , at least partially gas filled, including a larger one he bit open 2017-10-25 months prior to sampling. He was digging a lot, took silver products, and had intermittent diarrhea. Seven months later he was moribund from bloat. Peapod was eating more or less ok but several digestive and probably oral issues. She too was taking silver. Put to sleep 2018-04-16 after an unusual panic attack. All three had various silver products but differed in details..

None of the previous dogs had added benzoate exposure although they all ate the prior versions of the snacks along with Beauty and had some silver exposure. Brownie was a relatively new arrival followed for her delivery while heartworm positive [55], with uterine fibroids diagnosed during their later removal(unpublished comment). Currently she has a distended abdomen yet to be diagnosed. Originally a concern due to putative Sarcina ventriculi infection now thought to be collection of undigestible matter after barely passing an 8 inch long fibrous stool that had to be manually extracted. She does not appear to have even intermittent diarhea. Interestingly her coat color appears to fluctuate having been lighter until recently and currently (2022-10-20) it seems quite dark. This is noteworthy due to potential limitations of pigments that may involve aromatics like tyrosine in light of benzoate addition as well as later vinegar and sorbitol.

Beauty's appetite and weight continued to decrease after May 2022. It appeared she may have been losing weight prior to decrease in food intake (again better quantitative intake records would have helped). Despite removal of an oral tumour on August 28, she continued to have difficulty eating and began to vomit often. She was put to sleep September 08, 2022.

Brownie and Beauty's other peers continue to eat the zsnack well except for one, Dexter. However, when added in more dilute form along with turkey and sorbitol Dexter has been eating the benzoate regularly (without niacin or riboflavin) and his overall eating may have improved. Most of the dogs may even prefer the concentrated zsnack, formulation described earlier[51]. The current recipe omits the SnAg, changes citric to acetic acid, adds sorbitol, and includes ground turkey, ground beef, and a thick gelatin-like chicken broth. Most of the dogs consuming the new and improved zsnack feel warm and Brownie's coat appears to be darker lately.

Test	2021-07			2022-09		
	Result	Ref/Units		Result	Ref/Units	
RBC *	4.18	5.83 - 9.01 M/μL	L			
Hemacrit *	29.5	36.6 - 54.5 %	L			
Hemoglobin	13.3	12.2 - 18.4 g/dL				
MCV *	70.6	55.8 - 71.6 fL				
MCH	31.9	17.8 - 28.8 pg	H			
RDW	14.9	14.7 - 17.9 %				
% Reticulo	0.6	%				
Reticulo	25.0	10.0 - 110.0 K/μL				
WBC	7.69	5.50 - 16.90 K/μL				
% Neutro	62.4	%				
% Lympho	27.1	%				
% Mono	8.8	%				
% Eosin	1.4	%				
% Baso	0.4	%				
Neutro	4.80	2.00 - 12.00 K/μL				
Lympho	2.09	0.50 - 4.90 K/μL				
Mono	0.67	0.30 - 2.00 K/μL				
Eosin	0.10	0.10 - 1.49 K/μL				
Baso	0.03	0.00 - 0.10 K/μL				
Plate *	224	175 - 500 K/μL				
PDW	22.7	%				
MPV *	14.4	fL				
Plate-crit *	0.32	%				

TABLE III: Beauty blood test 7/1/21 8:40 AM ROSWELL ANIMAL CARE PLLC DBA FAMILY PET HOSPITAL 12910 HWY 92 Suite 102 Woodstock, GA 30188 Beauty blood test on 2022-08-24. Panceas seems normal some changes may be related to starvation and lower than normal water intake. data/beauty/20220824_200207.jpg C Craig Chester

Test	2021-07			2022-09		
	Result	Ref/Units		Result	Ref/Units	
Glucose	96	70 - 143 mg/dL		78	70-143 mg/dl	
Creatinine	1.4	0.5 - 1.8 mg/dL	normal	2.0	0.5-1.8 mg/dl	high
BUN	35	7 - 27 mg/dL	H	35	7-27 mg/dl	high
BUN:Crea	25			17		
Total Protein	6.9	5.2 - 8.2 g/dL		6.9	5.2-8.2 g/dl	
Albumin	3.2	2.2 - 3.9 g/dL		2.8	2.2-3.9 g/dl	
Globulin	3.7	2.5 - 4.5 g/dL		4.1	2.2-4.5 g/dl	
Alb:Glob	0.9			0.7		
ALT	194	10 - 125 U/L	H	142	10-125 U/L	high
ALP	101	23 - 212 U/L		212	23-212 U/L	
phosphate				4.3	2.5-6.8 mg/dL	
Calcium				11.1	7.9-12.0 mg/dL	
GGT				0	0-11 U/L	
Bilirubin				0.3	0-0.9 mg/dL	
Cholesterol				130	110-320mg/dl	
Amylase				1125	500-1500U/L	normal
Lipase				381	200-1800 U/L	normal

TABLE IV: Beauty blood test 7/1/21 8:40 AM ROSWELL ANIMAL CARE PLLC DBA FAMILY PET HOSPITAL 12910 HWY 92 Suite 102 Woodstock, GA 30188 Beauty blood test on 2022-08-24. Panceas seems normal some changes may be related to starvation and lower than normal water intake. data/beauty/20220824_200207.jpg C Craig Chester

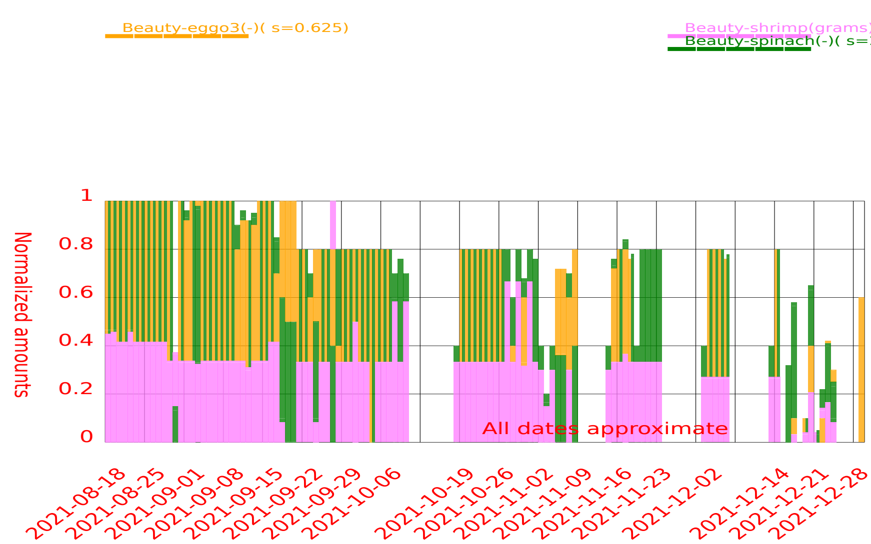

FIG. 3: Beauty decline in normal meal consumption is more or less reflected in a few items such as egg, shrimp, and spinach during this time covering the fall of 2021. Acceptance of her main kibble meal was not recorded.

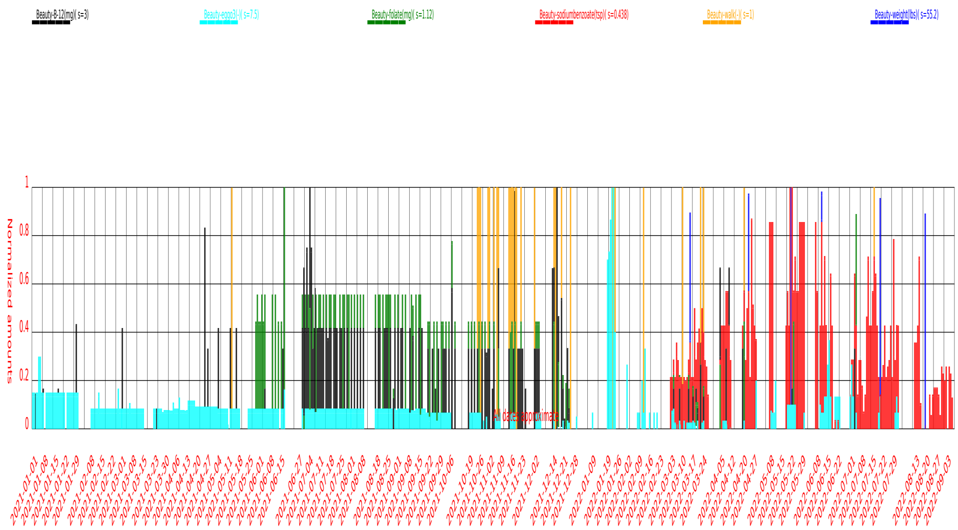

FIG. 4: Vitamin B-12 was emphasized in July 2021 after her first blood test. By mid October she seemed to be more interested in walks (not recorded consistently just when important). Sodium benzoate started in March 2022 along with periodic weightings. Weight may have peaked around the end of May for about 3 months recovery.

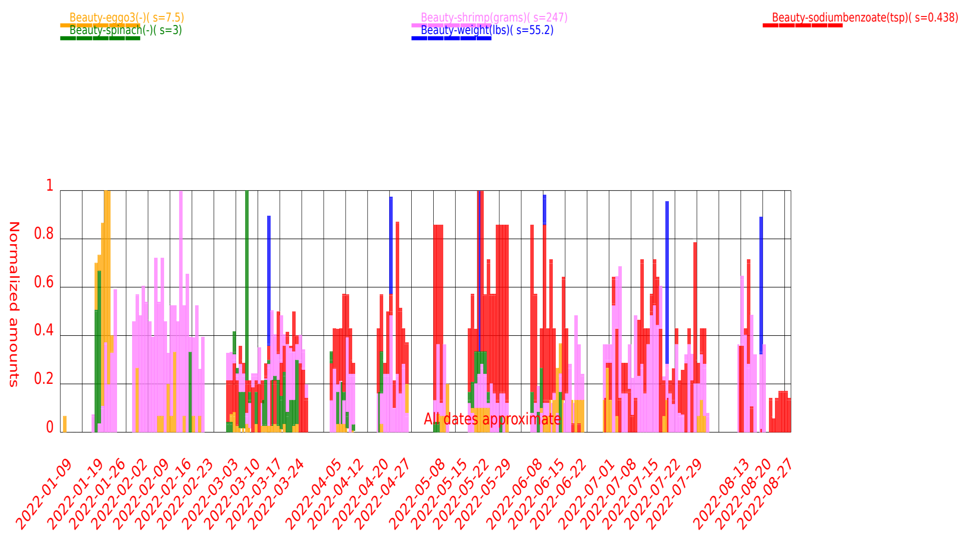

FIG. 5: Weight measurements about every month along with reference food intake for egg, spinach, and shrimp

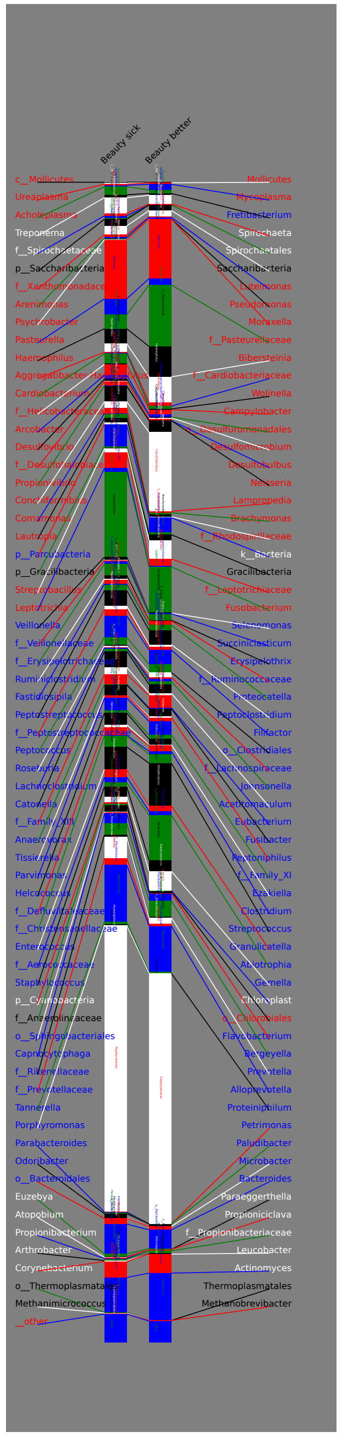

FIG. 6: 16s rRNA vomit samples from her worst (left) and during some improvement 2 months later and 2 weeks after starting benzoate (right). It is likely the mixture of oral and stomach contents changed between samples. However, most changes could be considered beneficial. Original SVG is more readable, available on request.

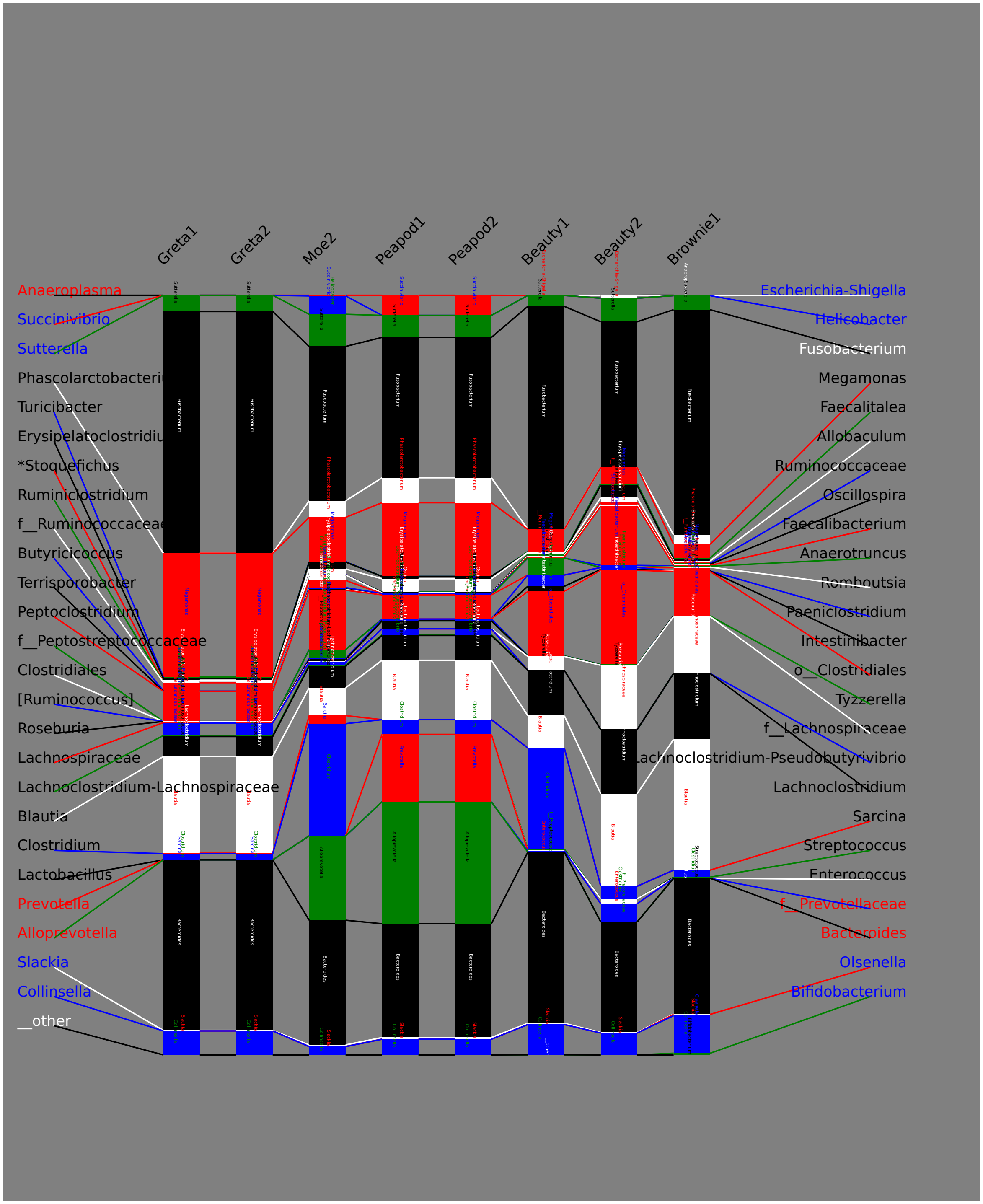

FIG. 7: Genus level comparison of Beauty's samples with historical dogs Greta,Moe, and Peapod as well as contemporary Brownie. Greta had recent antibiotics for tumor surgery and was not eating shared snacks. Moe later died due to bloat. Brownie had begun benzoate with Beauty. Genus names colored by phylum, sorted alphabetically by hierarchy. Original SVG is more readable, available on request

3. DISCUSSION

Beauty's slow decline was initially addressed with B-12 which produced more interest in "walking" but she eventually lost her appetite. She made a second partial recovery after the zsnack was added. These observations are considered in terms of her blood work and microbiome based on known or suspected effects of the dietary components.

3.1. Anemia

Anemia related parameters include RBC, hemoglobin, hemocrit, MCV, MCH, RDW, and reticulocytes. Lower values include hemoglobiin with low RBC and hemacrit. MCV and MCH are near high reference limit with very good RDW. While the lab reference value for reticulocytes extends down to $10000/\mu L$ these levels of .6 percent and 25000/microliter suggest no regeneration. One source defining non-regeneration as, "Maintained a CR percent of less then or equal to 1.0 or absolute reticulocyte concentration of 60000/microliter for 5or more days after diagnosis of anemia." [102]. One small study in dogs suggested that low RDW (and low MCV) could associate with non-regeneration as defined by reticulocytes [60] . That work defined low MCV as 68.2fL however towards the high end of this lab reference ragne of 55.8 - 71.6. Macrocytic hyperchromic nonregenerative anemia could be consistent with B-12 or folate deficiency while not excluding other contributors. The excellently narrow RDW argues against a nutrient deficiency but in humans it is may be normal in about 1/3 of B-12 deficiency cases [79]. A non-regenerative macrocytic anemia in humans is often related to B-12 deficiency but the relationship in dogs has yet to be established [83]. Generally this set of parameters is attributed to compensatory mechanisms designed to preserve oxygen flow with limited cell production due to restricted DNA synthesis. It is worth noting that mature RBC's contain no DNA and in fact circulating nucleated RBC's occur as exceptions. However the high production rate may be limited even with good DNA recycling and perhaps salvage pathways matter. Circulating RBC counts are about 1000 times the WBC's and their 100 day lifetime is larger than most lymphocytes in the week to month range and neutrophils around 5 days. Taking a factor of 10 as the lifetime ratio, RBC production rates would be about 100x faster. The RBC DNA is needed however only during maturation not the entire lifespan. The roles of de-novo and salvage pathways appear to be complex [3] . Besides nutrient intake, fate and allocation may be effected by other fast dividing cells suach as cancer. In fact, PET imaging did demonstrate fast B-12 uptake by a tumor [30].

Thinking outloud
B-12 discussion could be organized a bit with more citations

Empirically, addition of B-12 to her diet did precede more apparent stamina and enthusiasm although the recovery was short lived. This is thought to be due to accelerated cancer growth that may be associated with B-12 supplementation. A recent review on the implications of B-12 status in dogs [33] does note some differences with people but generally recommends immediate correction of hypocobalaminemia.

Low B-12 in canine lymphoma patients was described as, "In dogs, hypocobalaminemia was found in 16percent of 58 patients with multicentric lymphoma and was associated with a poor outcome." [22] However, this may be due to overall poor diet or a general digestive issue effecting protein digestion and consequent absorption. Beauty had been getting a good selection of amino acids and its not clear if additional B-12 was a good addition even if producing short term stamina increase.

Nutrient distribution in the presence of a pathogenic cell population such as in cancer will create a dilemma in the absence of a careful strategy.

Generally a response to B-12 supplementation suggests either a defect in the digestive process or maybe unusual losses or demands. Intrinsic factor is often cited as a limitation but defects in protein digestion such as low stomach acid may also contribute. In the absence of a mechanism such as diffusion, complete intrinsic factor loss would not be overcome with more B-12 supplements. B-12 supplements would bypass issues with protein digestion due to acid or enzyme defects and diffusion could overcome intrinsic factor limitations[84] . The daily main snacks provided significant essential amino acids mitigating possible defects in protein digestion. Oral supplementation appears to be effective after total gastrectomy due to gastric cancer [35].

Beauty made a second partial recovery with the sodium benzoate, niacin, riboflavin, silver-tin-arginine addition. During this time her eating was more robust and weight gain occurred for 2 months that did not appear to be due to tumor or water or other pathological factors.

Blood chemistry was measured in 2021 as well as towards the end of her life. BUN and ALT remained high while creatinine and ALP increased. ALP is thought to arise primarily from liver or bone with unknown clearance rate factors.

It is noteworthy that amylase and lipase were normal reducing likelihood of pancreatic involvement although cholesterol was low-normal arguably suggesting a chronic problem [27] . Other markers suggestive of mild liver or kidney insufficiency include BUN and creatinine.

3.2. Microbial Response

For the micrbiome discussion, organisms can be considered in terms of relative abundance for "community structure" and become components of principal components to distinguish varying types of communities. Alternatively, organisms can be considered indicators of health by their presence or absence. These tend to be pathogens but that need not be the case. Generally pathogenicity depends on phenotype and other factors but some guesses can be made from abundances and known traits. Note that absence of low abundance organisms can relate to sample composition and detection limits rather than eradication.

In the vomit samples, again generally favorable changes occured to the minor components after zsnack exposure. Some were near the detection floor in one sample or the other and comparisons are also complicated by likely change of mix of oral and stomach contents between samples. For example, Porphyromonas decreased slightly but that could be due to more stomach contributions. Family Pasterellaceae increased although some organisms may be pathogens. Two OTU's gained prominence, notably Pasteurellaceae and Conchiformibius. These are listed at similar levels in various oral samples from laboratory dogs [77]. It is not warranted to call this exceptionally normal or definitely healthy but encouraging nonetheless. Conchiformibius increased over a factor of 10 and similar increases were observed after chlorhexidine treatment of a dog's tongue [77] . Most suspected pathogens decreased in relative abundances. Abiotrophia increased although this organism may be associated with gastric distrubance and is pathogenic. It is a significant pathogen [81] thought to be diagnostic of functional dyspepsia [43]. As in the fecal result, Fusobacterium was fractionally reduced along with Bacteroides. Treponema was reduced by about half although sampling contributions as well as numerical offset would need to be considered. No plaque was intentionally sampled. Prevotella and Helcoccus were likewise reduced. Increases in Gracilibacteria [15] may be associated with healthy state. Cardiobacterium decreased while Clostridium increased. Lampropedia decreased a lot .

Community structure in the fecal samples consists mostly of genera Fusobacterium [56] , Megamonas, Blautia, Lachnoclostridium, Clostridium, Prevotella, Alloprevotella, Bacteroides, and the more ambiguous order Clostridiales and family Lachnospiraceaea. Blautia is generally considered a marker of health [44] . It recovered in Beauty after the zsnack and was highest in Brownie. Lachnoclostridium appears to have gotten worse. Lachnoclostridium increased with a level similar to Brownie's suggesting a role for the treatment. It was highest in Brownie and Beauty after zsnack. Clostridium was highest in Moe and Beauty but the zsnack exposure coincided with a remarkable reduction although not as low as Brownie or Greta. Its important to remember Greta had had antibiotics many weeks prior to the sampling. Beauty demonstrated an increase in organisms only identified to the order Clostridiales which may protect against C. diff overgrowth [96]. .

Less common orgxnisms include the desirable Faecalibacterium and Phascolarctobacterium [29] , and an array of putative human of dog pathogens such as Sarcina, Helicobacter, Escherichia-Shigella, Anaerotruncus, Paeniclostridium, Collinsella, and Olsenella. . The second fecal sample demonstrated a unique improvement in one significant way with an increase in Faecalibacterium prausnitzii [45] Thought to be beneficial by consumption of acetate for the production of butyrate and metabolites including salicylic acids [70]. This higher relative abudance however was not replicated in Brownie. Paeniclostridium was unique to Beauty and this pathogen was greatly reduced after treatment. Paeniclostridium, only P. sordeillii was observed only in Beauty and decreased from 1.5 to .27 percent. It is a tetracycline resistant pathogen of uterus and GI tract [95] .

It is unclear if the benzoate or other dietary factors are dominant contributors to change. Brownie was notable for detectable Sarcina ventriculi which may cause or indicate another pathological state. Or, removal of the main snack may encourage growth of the favorable organisms.

Overall, Beauty's fecal microbiome demonstrated several improvements. Reduced Fusobacterium was noted although Brownie did not see a similarly low level. Faecalibacterium prausnitzii was eleveated greatly, higher than any other samples, but again Brownie did not share this increase. Bluatia increased by a factor of 3 with Brownie having an even higher level. Clostridium was reduced almost a factor of 10 with Brownie having an even lower level. Greta had the lowest but also recent antibiotics usage. Bacteroides was reduced although significance hard to determine [100] .

3.3. Possible Contributions of Riboflavin and Niacin

It is possible that part of Beauty's response was due to improved riboflavin uptake as assumed earlier for Happy. The case was outlined in previous work [51]. But briefly, riboflavin can be a quirky nutrient. For example, mosquito larvae appear to rely on gut production of riboflavin because it is not stable in their normal environmental conditions [98]. A number of gut bacteria can synthesize riboflavin. For example, [28]

> A complete riboflavin operon is present in all Baceteroidetes and Fusobacteria, as well as in 92% of Proteobacteria [34], indicating they are the primary riboflavin producers in the gut. In addition, half of the Firmicutes are predicted to be riboflavin producers [34]. Lactic acid bacteria from dairy products also possess riboflavin biosynthesis capacity [35]. These bacteria synthesize riboflavin by utilizing guanosin-50 -triphosphate (GTP), a compound derived from the purine biosynthesis pathway, and ribulose-5-phosphate, an intermediate from the pentose phosphate pathway [36].

Riboflavin supplementation may promote butyrate production without microbial composition changes [42].

It is likely all the effects of riboflavin deficiency in different contexts are not known in humans or dogs. For example, nightblindness in pregnant women in less developed areas resolved with additional riboflavin (and iron) after failing just vitamin A supplementation [21] .

Contributions from the riboflavin have to be suspected.

3.4. Possible Contributions of Benzoates and other acids

Despite being a concern when in synthetic foods, benzoates occur naturally in "healthy" foods [9] .

Possible beneficial effects of benzoate are numerous and response to the zsnack is not particularly diagnostic. Activity against cancer may occur due to HDAC inhibition or epigeneetic modification more generally [31] . Antimicrobial mechanisms were already discussed. Benzoate acts as an uncoupler disspipating PMF which makes energy used for MDR efflux more expensive decreasing fitness [58]. It is thought to inhibit glycolysis at least in yeast [18].

Effects of sodium benzoate on blood appear to be mixed or non-monotonic functions of dose and other variables. As outlined in the introduction, one result from 1909 suggested hemoglobin increases while several animal studies at from 10mg/kgBW/day suggest RBC destruction.

Benzoate intake had conflicting cardiometabolic impacts on lean and obese mice [6]. Neurological disorders have been considered [97] and recently lithium, and to a lesser extent sodium, benzoate were found to have some activity against an Alzheimer's model and amyloid beta toxicity [46]. Amyloid beta may occur in older dogs [86]. One study in 2014 in Taiwan with 60 early stage AD patients demonstrated some improved cognition and functioning with 250-750mg/day attributed to d-amino acid oxidase inhibition [40]. Another study in 2021 demonstrated some benefit for mild cognitive impairment again attributed to DAAO inhibition [38]. It clearly has many effects that could be more relevant if this is a reproducible result. Prior work here with d-serine (unpublished result) seemed to be beneficial to at least one dog.

Thinking outloud

Its worth noting that this strong faith in a particular MOA without consideration of competing mechanisms, ie literature fragmentation, can cause a lot of misdirected effort

At least one trial is planned for refractory schizophrenia [4] and some exploratory results suggest improved cognitive function in women with dementia [41].

An unappreciated component however may be differential solubility of important nutrients. Such an effect is likely most notable in those with damaged digestive systems or poor diets. Suspected nutrient may include aromatics and metals or cations interacting with the pi system. It is possible that mixing with food and vitamins changes the in vivo behavior. Indeed, one motivation was improving solubility of nutrients and that may have been more important than any direct toxicity. Species differences may be a factor too.

The other organic acids may contribute to microbiome and cancer. Citric acid was discussed previously [52]. . However, investigation of Sarcina ventriculi suggests it can be retarded with unionized acetic acid suggesting it could be effective at lower pH than citrate which needs to be ionized [20]. Acid reduction may be useful although overall effects difficult to predict. An anti-Sarcina combination that works under acidic conditions would be beneficial.

3.5. Availability of Aromatics, Tyrosine or Unknowns.

Brownie's coat appeared to darken and at least one dog, Rocky, with signs of thyroid insufficiency ("thick", tongue maybe a little large, eyes) may have felt a bit warm. Suspects would include improved absorption of aromatics such as tyrosine or some unknown similar molecules. In the case of Brownie, it would be a pigment limiting molecule and in the case of Rocky a component of thyroid hormone or some other modulator. Tyrosine would be a suspect in both cases. Indeed, in at least one patient T4 and TSH levels could respond to tyrosine and phenylalanine supplementation [85]. A recent study on rats fed benzoate demonstrated some insignificant indication of increased T4 and decreased TSH which the authors summarize as, [90] ,

> Minor variations in T4 and TSH levels were not considered treatment-related because they were not noted in a dose responsive manner, were not generally statistically significant, or were observed in a direction that would be generally not be considered toxicologically relevant. These minor variations also fell within the range of levels noted for historical controls."

If there is a beneficial effect, it likely depends on many factors such as overall diet and may vary across species.

Benzoic acid is a "substrate analog" inhibitor or tyrosinase (but my be uncompetitive) [67] which could favor pheomelanin production over eumelanin [99] leading to a browner color. In general however reduced tyrosine or tyrosinase activity is expected to lighten coat color which is the opposite of what was observed with Brownie. Reduced tyrosinase activity may be made up for with increased substrate availability or reduced inhibition from other sources. Interestingly, increased tyrosinase activity may result in lighter pigmentation due to product inhibition [74]. Alternatively, removing a downstream bottleneck may help too.

During natural digestion, a significant amount of amino acid uptake is via dipeptide and tripeptides thought to be more available than isolated amino acids. The possible associations of aromatics like benzoate with hydrophobic amino acids should be considered.

3.6. Dissolution of ingested debris

During the creation of this manuscript, Brownie attempted to pass an approximately 8 inch long fibrous stool likely containing previously ingested pieces from toys or cushions. Foreign object ingestion is common in dogs and possibly her distention is due to accumulated debris. This creates a mechanical hazard and a surface for bacterial growth. Most materials will degrade under stomach conditions but many synthetic and natural polymers may not. Dogs consume a lot of non-food indigestible material from various sources. Items may include bone, undigestible plant matter such as wood, stones, plastics from toys and furniture. Ingested materials may include nylon, polyethyelene, cotton, silk, wood, other cellulose , or similar polymers. Hard materials such as bone, ceramics, or stone eventually likely dissolve in stomach acid as would many metals although those may be toxic. Many plastics however have less obvious means of dissolution and passage.

Nylon has shown some susceptibility to proteolytic enzymes [71] and is considered incompatible with ingredients such as benzoic and acetic acid [1]. It is possible that prolonged ingestion of a modified zsnack can help clear some polymers. In humans, diet coke has been used with cellulase to clear a phytobezoar [36].

3.7. Silver Tin

The contributions of the tin-silver-arginine can not be ignored however it has been dropped in recent formulations.

The SnAg solution is derived from corrosion of a 96 percent Sn and 4 percent Ag alloy intended for use as solder. It readily discolors and erodes slowly in various acids including diet cola products. In this work, it was allowed to set with arginine HCL in water. Presumably, tin and silver salts are created which may be of biolotical significance. Silver is well known but the other components have demonstrated possible activity. Arginine itself, or in combination with zinc, is used commercially in dental products [2] While stannous fluoride is a well known source of fluoride for commercial dental products, the contribution of tin is not clear. In one small test, SnF2 was compared to an arginine-calcium carbonate- sodium monofluorophosphate dentrifice and shown to be superior for tooth sensitivity [26]. A recent study demonstrated a protective effect on tin chloride on a dental erosion model independent of fluoride [34]. A review of relevant tin chemistry also exists [49].

3.8. Overall Experience

The zsnack added to the already highly supplemented diet for a variety of dogs seems beneficial and almost all of them like it. The effect in Beauty appeared to be significant although only lasting a couple months.

> **Thinking outloud**
> The microbiome and B-12 comments look suitable for their respective prior subsections but wanted to try to integrate them here.

Beauty had been slowly losing weight and stamina for perhaps years. She recovered some stamina with B-12 suggesting a problem with digestion or a greater need . Cancer and stomach atrophy may be considered as possibilities. This was only temporary however as appetite and weight dropped in a few months. Addition of the zsnack with reduced B-12 and folate appeared to reverse the trend for a few more months until finally she stopped eating altogether. Her clinical recovery was also reflected in her vomit and fecal microbiome. A relationship of the change to benzoate or silver was ambiguous but somewhat substantiated by comparison to her contemporary Brownie who was also getting the zsnack and her deceased former housemates who had not gotten any added benzoate. Increased fecal Blautia and decreased Clostridium may be common features of zsnack supplementation. Benzoate may modify the microbiome and was described as in the mouse gut microbiome as, increasing " Bacteroides, Blautia, Ruminococcus, Oscillospira, and Dorea in mice fed with benzoate " [59] but silver nanoparticle exposure dose dependently increased Balutia abundance in the mouse gut [14] too suggesting it may be a contributor or the only relevant term.

The detection of a Sarcina organism in Brownie along with distended abdomen is a concern. Apparently this diet can not eradicate this organism although Sarcina decrease with benzoate was reported previously [59] . It remains encouraging that she does not appear to have even intermittent diarrhea as Moe did prior to his bloat.

Happy had been discussed earlier and her overall activity and conditions continues to remain good although she still coughs or honks when excited. While benzoate and tin-sikver are the focus for Beauty, its important to remember that riboflavin and niacin were added to this mix thought to stabilize or improve riboflavin uptake. Either of these may contribute. All of the dogs who were eating well had similar kibble and anti-vitamins or other particular components may create idiosyncratic symptoms.

Everyone except Dexter liked the zsnack but more recently his eating has improved with a lower amount of benzoate combined with sorbitol. He however is not getting much added riboflavin or niacin.

Its unclear why Beauty stopped responding to the zsnack. It may have been purely palliative allowing her to eat more food and simply improve calorie intake. Unfortunately quantitative calorie estimates are not available. It is also possible it slowed disease progression eliminating some symptoms associated with a cancer growth but ultimately the cumulative burden or damage was limiting. While the B-12 did appear to help Beauty perk up, it probably was not a good idea without some way to control side effects like cancer growth. In at least one case of prostate cancer, supplement intake was associated with significant and reversible PSA increase [88]. Macrocytic anemia is thought to be compensation for reduced availability of DNA which is often a consequence of B-12 limitation. That may be due to specific GI problems such as pernicious anemia, decreased protein digestion, increased demand for cell division, or any cancer. In 2020 the relationshup between pernicious anemia and gastric adenocarcinoma was just being described [32]. Isolated B-12 supplementation would likely just feed the DNA needs of the cancer without allowing host to gain control. Since Beauty was generally getting amino acids and other vitamins the relative effect on the host may have been better than a diet with only undigestable protein. A large meta analysis suggested B-12 intake had no significant benefit on cancers overall although there was an insigificant general increase [105]. The origins of B-12 deficiency may be worth diganosing before supplementing.

3.9. Product Candidates

The zsnack has potential for broad utility as part of a diet for many dogs. Many variants were explored but the complete formulations all contained benzoate, niacin, riboflavin, and potassium chloride. An acid was also included using either citric or acetic acid. Sorbitol was used in later formulations. The tin-silver was dropped too despite some suggestion of benefit for Beauty.

The food component consists of ground beef of varying fat content from 7 to 16 percent along with chicken thigh broth and ground turkey in variable amounts.

Stability of a mixed product including silver-tin could be investigated.

4. CONCLUSIONS

Results obtained so far suggest a beneficial role for the zsnack in a diet already containing a large list of supplements. The role of the tin-silver can not be ignored but further work suggests other benzoate combinations may have favorable effects without it. Exact roles are not known but several suspected roles are plausible mechanisms to improve health in dogs and humans. Interesting but fragmented literature exists on cognitive performance effects concnetrate on DAAO inhibition but other work demonstrates roles of low solubility nutrients being potential factors. This work may point to a useful dog treat and begin to reconcile results which are confusing within an isolated literature fragment.

5. SUPPLEMENTAL INFORMATION

5.1. Computer Code

Commands used to make the concise data files,

```
3093 ./mjm_zymo.out -cmd "load-recon x data/2022-02-18/zr5958_sv.seq.fna 1" -cmd "load-recon y data
    /2022-04-19/zr6409_sv.seqs.fna 1" -cmd "load-recon z data/2022-07-11/zr6948_sv.seqs.fna 1" -cmd "bioms
    -to-ssv assdf r 1 9 x y z" -cmd "set-param crp_n1 0" -cmd "set-param crp_n2 3" -cmd "set-param
    crp_ngroupx 9" -cmd "count-key-select poop6rmgy r 2" -cmd "quit" 2>&1 | tee xxx
```

```
3095 ./mjm_zymo.out -cmd "load-recon x data/2022-02-18/zr5958_sv.seq.fna 1" -cmd "load-recon y data
    /2022-04-19/zr6409_sv.seqs.fna 1" -cmd "load-recon z data/2022-07-11/zr6948_sv.seqs.fna 1" -cmd "bioms
    -to-ssv assdf r 0 9 x y z" -cmd "set-param crp_n1 0" -cmd "set-param crp_n2 3" -cmd "set-param
    crp_ngroup 9" -cmd "count-key-select poop7rmgy r 2" -cmd "quit" 2>&1 | tee xxx
3115 ./mjm_zymo.out -cmd "load-recon x data/2022-02-18/zr5958_sv.seq.fna 1" -cmd "load-recon y data
    /2022-04-19/zr6409_sv.seqs.fna 1" -cmd "load-recon z data/2022-07-11/zr6948_sv.seqs.fna 1" -cmd "bioms
    -to-ssv assdf r 0 9 x y z" -cmd "set-param crp_n1 1" -cmd "set-param crp_n2 2" -cmd "set-param
    crp_ngroup 9" -cmd "count-key-select vomit7rmgy r 2" -cmd "quit" 2>&1 | tee xxx
3116 ./mjm_zymo.out -cmd "load-recon x data/2022-02-18/zr5958_sv.seq.fna 1" -cmd "load-recon y data
    /2022-04-19/zr6409_sv.seqs.fna 1" -cmd "load-recon z data/2022-07-11/zr6948_sv.seqs.fna 1" -cmd "bioms
    -to-ssv assdf r 1 9 x y z" -cmd "set-param crp_n1 1" -cmd "set-param crp_n2 2" -cmd "set-param
    crp_ngroupx 9" -cmd "count-key-select vomit6rmgy r 2" -cmd "quit" 2>&1 | tee xxx
```

```
Historical and current genus level bar chart,

edit this script ,

2299 some_zymo_plots -grand data 2>&1 | cat - > xxx

then use the mjm_svg_plotter thing,

2361 echo layout foodoo ../zymo/data/grand_xxx.ssv dogs.txt | ./mjm_bar_intervals.out 2>&1
```

Comprehensive annotated fasta file revealing trimming issues for exact string match,

```
dumping assignments, this IIRC looks for duplicates
but ignores trimming that prevents exact string match, need
to make trimming an option,

2841 ./mjm_sequence_reconcile.out "load x data/2022-02-18/zr5958_sv.seq.fna 1 " "load-ass x data
    /2022-02-18/zr5958_tax_assignments.txt 0" "load y data/2022-04-19/zr6409_sv.seqs.fna 1" "load-ass y
    data/2022-04-19/zr6409_tax_assignments.txt 0" "load a data/2018-02-16/rep_set.seqs.fna 1" "load-ass a
    data/2018-02-16/tax_assignments.txt 0" "load b data/2018-03-09/zr2097_sv.seqs.fna 1" "load-ass b data
    /2018-03-09/tax_assignments.txt" "load z data/2022-07-11/zr6948_sv.seqs.fna 1" "load-ass z data
    /2022-07-11/zr6948_tax_assignments.txt 0" "dump-ass 1" quit 2>&1

making the asn fasta file,

2923 ./mjm_sequence_reconcile.out "load x data/2022-02-18/zr5958_sv.seq.fna 1 " "load-ass x data
    /2022-02-18/zr5958_tax_assignments.txt 0" "load y data/2022-04-19/zr6409_sv.seqs.fna 1" "load-ass y
    data/2022-04-19/zr6409_tax_assignments.txt 0" "load a data/2018-02-16/rep_set.seqs.fna 1" "load-ass a
    data/2018-02-16/tax_assignments.txt 0" "load b data/2018-03-09/zr2097_sv.seqs.fna 1" "load-ass b data
    /2018-03-09/tax_assignments.txt" "load z data/2022-07-11/zr6948_sv.seqs.fna 1" "load-ass z data
    /2022-07-11/zr6948_tax_assignments.txt 0" "dump-ass-fasta allanno.fasta 1" quit 2>&1 | tee xxx
```

```
2199 cat keep/poop7rmgy | awk '{printf "%5i %5i %1.3e %s %s %1.3e %1.3e\n", $1, $2, $3, $4, $5, $6, $7}' |
    latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & before abundance &
    after \\\\" 40 > keep/p7.tex
2200 cat keep/poop6rmgy | awk '{printf "%5i %5i %1.3e %s %s %1.3e %1.3e\n", $1, $2, $3, $4, $5, $6, $7}' |
    latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & before abundance
    & after \\\\" 40 > keep/p6.tex

2175 cat keep/poop7rmgy | sort -g -k 1 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n",
    $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7top1.tex
2176 m
2177 cat keep/poop7rmgy | sort -g -k 2 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n",
    $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7top2.tex
```

```
cat keep/poop6rmgy | sort -g -k 2 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & genus & phylum & \% before & \% after \\\\" 40 > keep/p6top2.tex
marchywka@happy:/home/documents/latex/proj/sbenz$ cat keep/poop6rmgy | sort -g -k 1 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & genus & phylum & \% before & \% after \\\\" 40 > keep/p6top1.tex
 2194  cat keep/poop6rmgy | sort -g -k 1 -r | head -n 15 > p6h.txt
 2195  cat keep/poop6rmgy | sort -g -k 2 -r | head -n 15 >> p6h.txt
 2196  cat p6h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & genus & phylum & \% before & \% after \\\\" 40 > keep/p6topr.tex

cat keep/poop7rmgy | sort -g -k 1 -r | head -n 15 > p7h.txtmarchywka@happy:/home/documents/latex/proj/sbenz$ cat keep/poop7rmgy | sort -g -k 3 -r | head -n 15 >> p7h.txt
marchywka@happy:/home/documents/latex/proj/sbenz$ cat p7h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7topr.tex

 2211  cat keep/poop7rmgy| awk '{ if ($2=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7tope.tex
 2212  cat  keep/p7tope.tex
 2213  cat keep/poop7rmgy| awk '{ if ($1=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7topn.tex


 2230  cat keep/vomit7rmgy | sort -g -k 1 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/v7top1.tex
 2231  history| grep 7top2
 2232  cat keep/poop7rmgy | sort -g -k 2 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7top2.tex
 2233  cat keep/vomit7rmgy | sort -g -k 2 -r | head -n 15 | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/v7top2.tex
 2234  ls keep
 2235  history | grep 6topr
 2236  cat p6h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & genus & phylum & \% before & \% after \\\\" 40 > keep/p6topr.tex
 2237  #cat p6h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & genus & phylum & \% before & \% after \\\\" 40 > keep/v6topr.tex
 2238  history | grep p6h
 2239  cat keep/poop6rmgy | sort -g -k 1 -r | head -n 15 > p6h.txt
 2240  cat keep/vomit6rmgy | sort -g -k 1 -r | head -n 15 > v6h.txt
 2241  cat keep/vomit6rmgy | sort -g -k 2 -r | head -n 15 >> v6h.txt
 2242  cat b6h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & genus & phylum & \% before & \% after \\\\" 40 > keep/v6topr.tex
 2243  history | grep p7h
 2244  cat keep/poop7rmgy | sort -g -k 1 -r | head -n 15 > p7h.txt
 2245  cat keep/vomit7rmgy | sort -g -k 1 -r | head -n 15 > v7h.txt
 2246  cat keep/vomit7rmgy | sort -g -k 2 -r | head -n 15 >> v7h.txt
 2247  cat p7h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7topr.tex
 2248  cat v7h.txt | sort -g -k 3 | uniq | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance ratio & species & genus & \% before & \% after \\\\" 40 > keep/v7topr.tex
 2249  ls keep
```

```
2250 history | grep p7topn
2251 cat keep/poop7rmgy| awk '{ if ($1=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n
    ", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7topn.tex
2252 cat keep/vomit7rmgy| awk '{ if ($1=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n
    ", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/v7topn.tex
2253 history | grep p7tope
2254 cat keep/poop7rmgy| awk '{ if ($2=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n
    ", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/p7tope.tex
2255 cat keep/poop7rmgy| awk '{ if ($2=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n
    ", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/v7tope.tex
2256 cat keep/vomit7rmgy| awk '{ if ($2=="0") print $0}' | awk '{printf "%5i %5i %1.3f %s %s %1.3f %1.3f\n
    ", $1, $2, $3, $4, $5, $6*100, $7*100}' | latex_util -mct "|r|r|r|l|l|r|r|" "before &after&abundance
    ratio & species & genus & \% before & \% after \\\\" 40 > keep/v7tope.tex
2257 history
```

```
2128 ./run_linc_graph -dt-mo txt/beauty4.txt
2129 mv xxxtable xxxtable.tex
2130 texfrag -include xxxtable
2141 cp xxxtable.tex /home/documents/latex/proj/sbenz/keep/diettable.tex

2149 ./run_linc_graph -some-diet-plots txt/pin_beauty.txt "eggo3(-)" "sodiumbenzoate(tsp)" "shrimp(grams)"
     "spinach(-)" "weight(lbs)" 2> xxx
2150 eog diettablex.svg
2152 cp diettablex.svg /home/documents/latex/proj/sbenz/keep/beuaty_spring22.svg
```

```
2023 inkscape -D -z --file=beauty_baseline.svg --export-pdf=beauty_baseline.pdf
 2024 inkscape -D -z --file=beuaty_spring22.svg --export-pdf=beuaty_spring22.pdf
```

```
2370 ./run_linc_graph -some-diet-plots txt/pin_beauty.txt "walk(-)" "sodiumbenzoate(tsp)" "weight(lbs)" "B
    -12(mg)" "folate(mg)" "eggo3(-)" 2> xxx
```

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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: Genus Level Commentary Notes

Greta1 Greta2 Moe2 Peapod1 Peapod2 Beauty1 Beauty2 Brownie1
0 0 0 0 0 0.0197482 0.382713 0 Escherichia-Shigella
0 0 2.41928 0 0 0 0 0 Helicobacter
31.8122 31.8122 20.3204 18.4739 18.4739 29.3541 19.158 29.6718 Fusobacterium
Fusobacterium continue to be prominent in the fecal samples. Fusobacterium in general and nucleatum in particular is associated with colorecal cancers while being very common in the healthy oral cavity [56].
0 0 2.1804 3.28369 3.28369 0 0 1.21692 Phascolarctobacterium
Generally considered beneficial butryrate producting bacteria [29]
16.3099 16.3099 5.8352 9.70843 9.70843 2.94907 2.15711 1.80614 Megamonas
Generally thought bad increased in smoking in middle aged people [103] although more abundant in healthy than rheumatoid arthritis patients [104] and higher in healthy ialysis patients than sarcopenic [106]. Considered beneficial butyrate producing bacteria along with Faecalbacterium and Roseburia [92].
1.06369 1.06369 0.940905 0 0 0.148112 7.78101 0.046571 Faecalibacterium
Generally considered desirable with effort made to improve populations of prausnitzii [45] Thought to be beneficial by consumption of acetate for the production of butyrate and also metabolites including salicylic acids [70].
0 0 0 0 0 2.23978 0 0.11744 Anaerotruncus
Butyrate producer [16].
0 0 0 0 0 1.48276 0.270881 0 Paeniclostridium
Only P sordeillii was observed which is a tetracycline resistant pathogen of uterus and GI tract [95] .
0 0 0 0 0 0 0 0.0587199 Clostridiales
Right now just reflects Brownie Sarcina.
0 0 0 0 0 8.4835 12.3934 5.85377 o__Clostridiales
Reductions thought to precede Clostridium difficile infection [96].
1.64675 1.64675 0.384855 0.772429 0.772429 0 0 0 Lachnoclostridium-Pseudobutyrivibrio
0.130007 0.130007 0.120765 0.0956838 0.0956838 0 0 0 Lachnoclostridium-Lachnospiraceae
2.62902 2.62902 2.85589 3.26891 3.26891 5.98206 8.44951 8.6703 Lachnoclostridium
"Coprococcus may play an important role in host health by its production of vitamins B and SCFAs, whereas Lachnoclostridium might have an opposing effect by influencing negatively the circulating levels of acetate and being involved in the biosynthesis of detrimental lipid compounds." [62] Thought to produce detrmiental trimethylamine [8].
12.7301 12.7301 3.66011 7.81215 7.81215 4.25903 12.1772 17.2232 Blautia
Generally considered favorable probiotic [44]
0.0617203 0.0617203 1.06565 0 0 0 0 0 Sarcina
Generally puatative pathogens of people and animals ventriculi is the usual suspect [68] [76]. Brownie appears as zero here due to a pipeline issue and both her and Greta had an identical read attributed to Sarcina but variously to maxima or ventriculi.
0.816809 0.816809 14.7771 1.94238 1.94238 13.3037 1.65014 0.92332 Clostridium
Really mixed on both commensals and pathogenics [23].
0 0 0 8.87163 8.87163 0 0 0 Prevotella
In humans considered a marker of a vegetarian diet beneficial versus the competing Bacteroides [89].

0 0 0 0 0 0.190899 2.39072 0 f__Prevotellaceae
0 0 11.0958 16.0479 16.0479 0 0 0 Alloprevotella
Along with prevotella precede rheumatoid arthritis development [101].
22.4439 22.4439 16.4094 14.9841 14.9841 22.5245 14.553 17.8812 Bacteroides
OK in gut but found in many anaerobic infections [100]
0 0 0 0 0 0 0 0.164011 Olsenella
3.16218 3.16218 1.09617 2.0659 2.0659 3.98256 2.88526 4.95475 Collinsella
Increase in arthritis [10] and low dietary fiber intake [19]
24.7093 21.5998 Porphyromonas
The predominent species was cangingivalis with the largest reduction in canoris. Other species included gulae gingivicanis and several unknowns This composition is more or less inline with prior observations [64] but it does come from a mixed sample likely including stomach contents. The relative reduction in the genus is low and may relate to change in sample contributions.
0.524522 6.81189 Conchiformibius
iInteretingly, a chlorhexidine disinfectant intervention on hospital therapy dogs increased this genra [12]. Common on dog tongue [77] .
1.20858 5.30582 f__Pasteurellaceae
Largely adapted to life on vertebrates mostly commensal although some pathogens[11].
5.07723 5.12909 Moraxella
Generally a pathogen at genus level [37]
3.00694 4.08406 Actinomyces
Digester, common in infections but role may be over rated [13].
4.91649 3.95343 Alloprevotella
7.33968 3.93422 Fusobacterium
0.35653 3.86507 Abiotrophia
Previously a nutrional variant of streptococci a significant pathogen [81] Thought to be diagnostic of functional dyspepsia [43].
1.92889 3.68834 Streptococcus
1.28592 2.61641 Haemophilus
0.737231 2.18611 Bibersteinia
0.512436 1.67896 Gemella
1.37294 1.64054 Corynebacterium
2.56339 1.62133 Bacteroides
0.321481 1.62133 Streptobacillus
0.958401 1.36776 Bergeyella
1.86121 1.29476 k__Bacteria
1.34998 1.24481 Peptostreptococcus
1.82978 1.22945 Filifactor
1.06959 1.16029 Parvimonas
0.833917 1.06424 f__Family_XIII
1.34394 0.998924 Neisseria
0.853255 0.95282 Staphylococcus
1.37657 0.768403 Catonella
0.953567 0.764561 f__Christensenellaceae
1.36207 0.741509 Treponema
Plague pathogens thought to be rare in dogs and cats [91]
0.323898 0.706931 ./2022-02-18/beuty5958.biom:;seq101,./2022-04-19/beuty6409.biom:;seq37
0.682845 0.699247 Peptococcus
0.894346 0.687721 Fusibacter
0.894346 0.618565 Capnocytophaga
1.37778 0.607039 f__Leptotrichiaceae
1.37294 0.549408 Pasteurella
0.758986 0.545566 Saccharibacteria
1.87571 0.526356 Prevotella
Likely pathogens in this genus [69] but many unidenfied.
0.968069 0.507146 f__Erysipelotrichaceae
0.686471 0.491778 f__Defluviitaleaceae
1.00795 0.487936 Helcococcus

likely pathogens
0.117232 0.487936 Mycoplasma
0.575282 0.480252 p__Saccharibacteria
0.0374659 0.47641 Gracilibacteria
maybe spurious although 4 reads assigned to this genus.
"the abundance profiles of Streptococcus, Catonella morbi, and Granulicatella elegans were enriched in caries-positive subjects, while Tannerella forsythia, Gracilibacteria, Capnocytophaga gingivalis, Bacteroides sp. oral taxon 274, and Campylobacter gracilis were more abundant in the healthy cohor" [15]
0.656257 0.464884 Granulicatella
0.505185 0.445674 Proteocatella
0.155906 0.426464 Roseburia
Generally considered beneficial [61] although no species identified.
0.905223 0.422622 Campylobacter
generally pathogens
0.366199 0.357308 f__Ruminococcaceae
0.223587 0.349623 f__Family_XI
0.461676 0.341939 f__Aerococcaceae
0.0531773 0.341939 Aggregatibacter-Haemophilus
0.227212 0.326571 Peptoniphilus
0.693723 0.299677 Acholeplasma
Notable for reduced biosynthetic genes and increased transporters [24]
0.481013 0.299677 o__Bacteroidales
0.574074 0.261257 f__Peptostreptococcaceae
0.0386744 0.257415 Clostridium
0.199415 0.253573 Johnsonella
0.871383 0.238205 Cardiobacterium
Lumped with other genera as common cause of infective endocarditis [25]
0.107563 0.230521 f__Propionibacteriaceae
0.304561 0.215153 Arcobacter
In humans associated with persistent diarheea similar to campylobacter [94].
0.39037 0.207469 Odoribacter
0.111189 0.207469 Lachnoclostridium
0.642962 0.203627 ./2022-02-18/beuty5958.biom:;seq57,./2022-04-19/beuty6409.biom:;seq118
0.374659 0.203627 Lautropia
0.269512 0.203627 Peptoclostridium
0.612748 0.195943 Acetitomaculum
0.454425 0.195943 ./2022-02-18/beuty5958.biom:;seq79,./2022-04-19/beuty6409.biom:;seq120
0.561988 0.192101 f__Prevotellaceae
0.279181 0.188259 ./2022-02-18/beuty5958.biom:;seq118,./2022-04-19/beuty6409.biom:;seq126
0.181286 0.180575 ./2022-02-18/beuty5958.biom:;seq165,./2022-04-19/beuty6409.biom:;seq133
0.167992 0.176733 p__Gracilibacteria
0.36499 0.169049 f__Desulfohalobiaceae
0.252592 0.165207 Fretibacterium
Thought to be a marker for periodontal disease [87]
0.586159 0.153681 o__Chlorobiales
0.33961 0.145997 Brachymonas
0.0930604 0.142155 Luteimonas
0.0193372 0.142155 f__Lachnospiraceae
0.0966861 0.130629 Ureaplasma
0.478596 0.122945 Lampropedia
0.107563 0.119103 ./2022-02-18/beuty5958.biom:;seq234,./2022-04-19/beuty6409.biom:;seq162
0.079766 0.119103 Propioniciclava
0.227212 0.11526 Tannerella
T forsythia consiered a pathogen [69]
0.131735 0.111418 ./2022-02-18/beuty5958.biom:;seq211,./2022-04-19/beuty6409.biom:;seq169
0 0.0922084 Tissierella
0.235672 0.0845244 Ezakiella
0.196998 0.0845244 Spirochaeta

0.158323 0.0845244 f__Rikenellaceae
0.244132 0.0729983 Euzebya
0.154698 0.0729983 f__Rhodospirillaceae
0.0362573 0.0729983 Desulfomicrobium
0.311813 0.0691563 Leptotrichia
0.157115 0.0691563 Desulfovibrio
0.0459259 0.0653143 Wolinella
0.113606 0.0614723 f__Anaerolineaceae
0.0265887 0.0614723 Eubacterium
0.308187 0.0576302 Erysipelothrix
0.248967 0.0576302 Succiniclasticum
0.227212 0.0576302 Veillonella
0.0882261 0.0537882 ./2022-02-18/beuty5958.biom:;seq264,./2022-04-19/beuty6409.biom:;seq233
0 0.0499462 Arthrobacter
0.217544 0.0461042 f__Xanthomonadaceae
0.0894346 0.0461042 Flavobacterium
0.079766 0.0461042 c__Mollicutes
0.0253801 0.0461042 Methanobrevibacter
0.0676803 0.0422622 f__Veillonellaceae
0.0543859 0.0422622 ./2022-02-18/beuty5958.biom:;seq353,./2022-04-19/beuty6409.biom:;seq251
0.0531773 0.0422622 ./2022-02-18/beuty5958.biom:;seq359,./2022-04-19/beuty6409.biom:;seq250
0.201832 0 f__Spirochaetaceae
0.107563 0 p__Cyanobacteria
0 0 __other
0.0966861 0 Spirochaetales
0.0894346 0 Mollicutes
0.0809746 0 Arenimonas
0.079766 0 Leucobacter
0.0773489 0 f__Cardiobacteriaceae
0.0725146 0 Propionibacterium
0.071306 0 Parabacteroides
0.0700974 0 Paludibacter
0.0700974 0 Methanimicrococcus
0.0676803 0 Selenomonas
0.0664717 0 Ruminiclostridium
0.062846 0 Fastidiosipila
0.0604288 0 Comamonas
0.0580117 0 Paraeggerthella
0.0555945 0 o__Clostridiales
0.0507602 0 Proteiniphilum
0.048343 0 ./2022-02-18/beuty5958.biom:;seq370
0.0471345 0 Anaerovorax
0.0410916 0 ./2022-02-18/beuty5958.biom:;seq396
0.0374659 0 o__Desulfuromonadales
0.0338401 0 Psychrobacter
0.0326316 0 o__Thermoplasmatales
0.0302144 0 p__Parcubacteria
0.0290058 0 f__Helicobacteraceae
0.0277972 0 Propionivibrio
0.0277972 0 Microbacter
0.0241715 0 Thermoplasmatales
0.0241715 0 ./2022-02-18/beuty5958.biom:;seq469
0.0205458 0 Petrimonas
0.0205458 0 Desulfobulbus
0.0193372 0 Pseudomonas
0.0181286 0 Enterococcus
0.0169201 0 Atopobium
0.0157115 0 Chloroplast

0.0145029 0 o__Sphingobacteriales
0.0145029 0 ./2022-02-18/beuty5958.biom:;seq509
Beauty_sick Beauty_better

Appendix D: Complete Species and Genus Level data

before	after	abundance ratio	genus	phylum	% before	% after
90	3131	0.019	Faecalibacterium	Firmicutes	0.148	7.781
19	265	0.047	Enterococcus	Firmicutes	0.031	0.659
116	962	0.080	NA	Bacteroidetes	0.191	2.391
1107	3402	0.215	NA	Firmicutes	1.822	8.454
150	0	0.247	x;seq164	x;seq164	0.247	0.000
2588	4900	0.350	Blautia	Firmicutes	4.259	12.177
874	1250	0.463	Sutterella	Proteobacteria	1.438	3.106
188	260	0.479	Allobaculum	Firmicutes	0.309	0.646
4876	4862	0.664	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024	12.083
3635	3400	0.708	Lachnoclostridium	Firmicutes	5.982	8.450
1792	868	1.367	Megamonas	Firmicutes	2.949	2.157
2420	1161	1.380	Collinsella	Actinobacteria	3.983	2.885
17837	7709	1.532	Fusobacterium	Fusobacteria	29.354	19.158
13687	5856	1.548	Bacteroides	Bacteroidetes	22.524	14.553
0	647	1.608	Erysipelatoclostridium	Firmicutes	0.000	1.608
1361	0	2.240	Anaerotruncus	Firmicutes	2.240	0.000
901	109	5.474	Paeniclostridium	Firmicutes	1.483	0.271
404	47	5.692	Intestinibacter	Firmicutes	0.665	0.117
8084	664	8.062	Clostridium	Firmicutes	13.304	1.650

TABLE V: Beauty genus level top fecal changes p6topr.tex

before	after	abundance ratio	species	genus	% before	% after
2466	4823	0.339	sp12209	Bacteroides	4.058	11.986
4876	4862	0.664	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024	12.083
1412	1284	0.728	sp31989	Blautia	2.324	3.191
1162	688	1.118	sp37464	Fusobacterium	1.912	1.710
10603	5216	1.346	mortiferum	Fusobacterium	17.449	12.962
2886	1401	1.364	sp32345	Lachnoclostridium	4.749	3.482
1792	868	1.367	funiformis	Megamonas	2.949	2.157
2420	1137	1.409	intestinalis-stercoris	Collinsella	3.983	2.826
6072	1805	2.228	sp37458	Fusobacterium	9.993	4.486
1361	0	2.240	sp34464	Anaerotruncus	2.240	0.000
3445	492	4.637	coprocola	Bacteroides	5.669	1.223
901	109	5.474	sordellii	Paeniclostridium	1.483	0.271
7904	540	9.693	perfringens	Clostridium	13.008	1.342
2171	81	17.749	stercoris	Bacteroides	3.573	0.201
5605	47	78.972	vulgatus	Bacteroides	9.224	0.117

TABLE VI: Beauty fecal top rato between samples. p7topr.tex

before	after	abundance ratio	species	genus	% before	% after
1361	0	2.240	sp34464	Anaerotruncus	2.240	0.000
150	0	0.247	x;seq164	x;seq164	0.247	0.000
129	0	0.212	x;seq190	x;seq190	0.212	0.000
110	0	0.181	equinus-infantarius-lutetiensis	Streptococcus	0.181	0.000
81	0	0.133	sp33656	NA	0.133	0.000
80	0	0.132	sp34905-sp34912	Ruminiclostridium	0.132	0.000
19	0	0.031	sp34659	Oscillospira	0.031	0.000
17	0	0.028	sp32002-sp32027	Blautia	0.028	0.000
13	0	0.021	sp32369	Lachnoclostridium	0.021	0.000
13	0	0.021	sp32032	Blautia	0.021	0.000
11	0	0.018	x;seq517	x;seq517	0.018	0.000

TABLE VII: Beauty species level fecal eliminated p7tope.tex

before	after	abundance ratio	species	genus	% before	% after
0	496	1.233	wadsworthensis	Sutterella	0.000	1.233
0	413	1.026	plebeius	Bacteroides	0.000	1.026
0	404	1.004	sp36621	Erysipelatoclostridium	0.000	1.004
0	243	0.604	sp36616	Erysipelatoclostridium	0.000	0.604
0	125	0.311	z;seq40	z;seq40	0.000	0.311
0	110	0.273	sp36593	*Stoquefichus	0.000	0.273
0	110	0.273	pullicaecorum	Butyricicoccus	0.000	0.273
0	45	0.112	sp32046	Blautia	0.000	0.112
0	38	0.094	baratii	Clostridium	0.000	0.094
0	24	0.060	tanakaei	Collinsella	0.000	0.060
0	24	0.060	sp35413	NA	0.000	0.060
0	15	0.037	sp32371-sp32374	Lachnoclostridium	0.000	0.037
0	14	0.035	sp32362	Lachnoclostridium	0.000	0.035

TABLE VIII: Beauty species new to the second fecal sample p7topn.tex

before	after	abundance ratio	species	genus	% before	% after
10603	5216	1.346	mortiferum	Fusobacterium	17.449	12.962
7904	540	9.693	perfringens	Clostridium	13.008	1.342
6072	1805	2.228	sp37458	Fusobacterium	9.993	4.486
5605	47	78.972	vulgatus	Bacteroides	9.224	0.117
4876	4862	0.664	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024	12.083
3445	492	4.637	coprocola	Bacteroides	5.669	1.223
2886	1401	1.364	sp32345	Lachnoclostridium	4.749	3.482
2466	4823	0.339	sp12209	Bacteroides	4.058	11.986
2420	1137	1.409	intestinalis-stercoris	Collinsella	3.983	2.826
2171	81	17.749	stercoris	Bacteroides	3.573	0.201
1792	868	1.367	funiformis	Megamonas	2.949	2.157
1412	1284	0.728	sp31989	Blautia	2.324	3.191
1361	0	2.240	sp34464	Anaerotruncus	2.240	0.000
1162	688	1.118	sp37464	Fusobacterium	1.912	1.710
901	109	5.474	sordellii	Paeniclostridium	1.483	0.271

TABLE IX: Beauty species level top in first fecal p7topr.tex

before	after	abundance ratio	species	genus	% before	% after
10603	5216	1.346	mortiferum	Fusobacterium	17.449	12.962
4876	4862	0.664	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024	12.083
2466	4823	0.339	sp12209	Bacteroides	4.058	11.986
90	3131	0.019	prausnitzii	Faecalibacterium	0.148	7.781
851	2485	0.227	hansenii-producta	Blautia	1.400	6.176
288	2404	0.079	sp33422	NA	0.474	5.974
6072	1805	2.228	sp37458	Fusobacterium	9.993	4.486
266	1499	0.118	sp32341-sp32430	Lachnoclostridium	0.438	3.725
2886	1401	1.364	sp32345	Lachnoclostridium	4.749	3.482
1412	1284	0.728	sp31989	Blautia	2.324	3.191
2420	1137	1.409	intestinalis-stercoris	Collinsella	3.983	2.826
295	1086	0.180	sp32042	Blautia	0.485	2.699
116	962	0.080	sp14118	NA	0.191	2.391
1792	868	1.367	funiformis	Megamonas	2.949	2.157
874	754	0.768	stercoricanis	Sutterella	1.438	1.874

TABLE X: Beauty top fecal species in sample 2 p7top2.tex

before	after	abundance ratio	genus	phylum	% before	% after
17837	7709	1.532	Fusobacterium	Fusobacteria	29.354	19.158
13687	5856	1.548	Bacteroides	Bacteroidetes	22.524	14.553
8084	664	8.062	Clostridium	Firmicutes	13.304	1.650
4876	4862	0.664	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024	12.083
3635	3400	0.708	Lachnoclostridium	Firmicutes	5.982	8.450
2588	4900	0.350	Blautia	Firmicutes	4.259	12.177
2420	1161	1.380	Collinsella	Actinobacteria	3.983	2.885
1792	868	1.367	Megamonas	Firmicutes	2.949	2.157
1361	0	2.240	Anaerotruncus	Firmicutes	2.240	0.000
1107	3402	0.215	NA	Firmicutes	1.822	8.454
901	109	5.474	Paeniclostridium	Firmicutes	1.483	0.271
874	1250	0.463	Sutterella	Proteobacteria	1.438	3.106
404	47	5.692	Intestinibacter	Firmicutes	0.665	0.117
188	260	0.479	Allobaculum	Firmicutes	0.309	0.646
150	0	0.247	x;seq164	x;seq164	0.247	0.000

TABLE XI: Most significant fecal changes in Beauty at the genus level. p6top1.tex

before	after	abundance ratio	genus	phylum	% before	% after
17837	7709	1.532	Fusobacterium	Fusobacteria	29.354	19.158
13687	5856	1.548	Bacteroides	Bacteroidetes	22.524	14.553
2588	4900	0.350	Blautia	Firmicutes	4.259	12.177
4876	4862	0.664	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024	12.083
1107	3402	0.215	NA	Firmicutes	1.822	8.454
3635	3400	0.708	Lachnoclostridium	Firmicutes	5.982	8.450
90	3131	0.019	Faecalibacterium	Firmicutes	0.148	7.781
874	1250	0.463	Sutterella	Proteobacteria	1.438	3.106
2420	1161	1.380	Collinsella	Actinobacteria	3.983	2.885
116	962	0.080	NA	Bacteroidetes	0.191	2.391
1792	868	1.367	Megamonas	Firmicutes	2.949	2.157
8084	664	8.062	Clostridium	Firmicutes	13.304	1.650
0	647	1.608	Erysipelatoclostridium	Firmicutes	0.000	1.608
19	265	0.047	Enterococcus	Firmicutes	0.031	0.659
188	260	0.479	Allobaculum	Firmicutes	0.309	0.646

TABLE XII: Top genus level fecal changes in Beaty. p6top2.tex

before	after	abundance ratio	species	genus	before abundance	after
0	496	1.233e+00	wadsworthensis	Sutterella	0.000e+00	1.233e-02
0	413	1.026e+00	plebeius	Bacteroides	0.000e+00	1.026e-02
0	404	1.004e+00	sp36621	Erysipelatoclostridium	0.000e+00	1.004e-02
0	243	6.039e-01	sp36616	Erysipelatoclostridium	0.000e+00	6.039e-03
0	125	3.106e-01	z;seq40	z;seq40	0.000e+00	3.106e-03
0	110	2.734e-01	sp36593	*Stoquefichus	0.000e+00	2.734e-03
0	110	2.734e-01	pullicaecorum	Butyricicoccus	0.000e+00	2.734e-03
0	45	1.118e-01	sp32046	Blautia	0.000e+00	1.118e-03
0	38	9.444e-02	baratii	Clostridium	0.000e+00	9.444e-04
0	24	5.964e-02	tanakaei	Collinsella	0.000e+00	5.964e-04
0	24	5.964e-02	sp35413	NA	0.000e+00	5.964e-04
0	15	3.728e-02	sp32371-sp32374	Lachnoclostridium	0.000e+00	3.728e-04
0	14	3.479e-02	sp32362	Lachnoclostridium	0.000e+00	3.479e-04
5605	47	7.897e+01	vulgatus	Bacteroides	9.224e-02	1.168e-03
2171	81	1.775e+01	stercoris	Bacteroides	3.573e-02	2.013e-03
7904	540	9.693e+00	perfringens	Clostridium	1.301e-01	1.342e-02
404	47	5.692e+00	sp34281	Intestinibacter	6.649e-03	1.168e-03
901	109	5.474e+00	sordellii	Paeniclostridium	1.483e-02	2.709e-03
3445	492	4.637e+00	coprocola	Bacteroides	5.669e-02	1.223e-02
148	22	4.455e+00	sp32424	Lachnoclostridium	2.436e-03	5.467e-04
101	29	2.306e+00	piriformis	Slackia	1.662e-03	7.207e-04
6072	1805	2.228e+00	sp37458	Fusobacterium	9.993e-02	4.486e-02
524	246	1.411e+00	sp33707	NA	8.623e-03	6.113e-03
2420	1137	1.409e+00	intestinalis-stercoris	Collinsella	3.983e-02	2.826e-02
180	86	1.386e+00	colicanis	Clostridium	2.962e-03	2.137e-03
1792	868	1.367e+00	funiformis	Megamonas	2.949e-02	2.157e-02
2886	1401	1.364e+00	sp32345	Lachnoclostridium	4.749e-02	3.482e-02
10603	5216	1.346e+00	mortiferum	Fusobacterium	1.745e-01	1.296e-01
1162	688	1.118e+00	sp37464	Fusobacterium	1.912e-02	1.710e-02
20	12	1.104e+00	sp32167	NA	3.291e-04	2.982e-04
21	15	9.271e-01	sp33161-sp33189	Roseburia	3.456e-04	3.728e-04
29	23	8.350e-01	sp33301	Tyzzerella	4.772e-04	5.716e-04
53	44	7.977e-01	sp35829	NA	8.722e-04	1.093e-03
874	754	7.676e-01	stercoricanis	Sutterella	1.438e-02	1.874e-02
1412	1284	7.282e-01	sp31989	Blautia	2.324e-02	3.191e-02
156	147	7.027e-01	sp32443	Lachnoclostridium	2.567e-03	3.653e-03
4876	4862	6.641e-01	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024e-02	1.208e-01
17	20	5.629e-01	sp34794	NA	2.798e-04	4.970e-04
188	260	4.788e-01	stercoricanis	Allobaculum	3.094e-03	6.461e-03
31	49	4.189e-01	sp33756	NA	5.102e-04	1.218e-03

TABLE XIII: 1 of 2 Species level changes in Beauty fecal sample. p7.tex

before	after	abundance ratio	species	genus	before abundance	after
54	92	3.887e-01	sp36732	Faecalitalea	8.887e-04	2.286e-03
83	144	3.817e-01	sp33387	NA	1.366e-03	3.579e-03
57	103	3.665e-01	sp32364	Lachnoclostridium	9.380e-04	2.560e-03
109	199	3.627e-01	sp32386	Lachnoclostridium	1.794e-03	4.945e-03
2466	4823	3.386e-01	sp12209	Bacteroides	4.058e-02	1.199e-01
851	2485	2.268e-01	hansenii-producta	Blautia	1.400e-02	6.176e-02
295	1086	1.799e-01	sp32042	Blautia	4.855e-03	2.699e-02
266	1499	1.175e-01	sp32341-sp32430	Lachnoclostridium	4.378e-03	3.725e-02
45	281	1.060e-01	sp33271	NA	7.406e-04	6.983e-03
35	266	8.713e-02	sp32615-sp32802	NA	5.760e-04	6.611e-03
116	962	7.985e-02	sp14118	NA	1.909e-03	2.391e-02
288	2404	7.933e-02	sp33422	NA	4.740e-03	5.974e-02
12	154	5.160e-02	coli	Escherichia-Shigella	1.975e-04	3.827e-03
19	265	4.748e-02	faecium-hirae-ratti	Enterococcus	3.127e-04	6.586e-03
90	3131	1.903e-02	prausnitzii	Faecalibacterium	1.481e-03	7.781e-02
1361	0	2.240e+00	sp34464	Anaerotruncus	2.240e-02	0.000e+00
150	0	2.469e-01	x;seq164	x;seq164	2.469e-03	0.000e+00
129	0	2.123e-01	x;seq190	x;seq190	2.123e-03	0.000e+00
110	0	1.810e-01	equinus-infantarius-lutetiensis	Streptococcus	1.810e-03	0.000e+00
81	0	1.333e-01	sp33656	NA	1.333e-03	0.000e+00
80	0	1.317e-01	sp34905-sp34912	Ruminiclostridium	1.317e-03	0.000e+00
19	0	3.127e-02	sp34659	Oscillospira	3.127e-04	0.000e+00
17	0	2.798e-02	sp32002-sp32027	Blautia	2.798e-04	0.000e+00
13	0	2.139e-02	sp32369	Lachnoclostridium	2.139e-04	0.000e+00
13	0	2.139e-02	sp32032	Blautia	2.139e-04	0.000e+00
11	0	1.810e-02	x;seq517	x;seq517	1.810e-04	0.000e+00

TABLE XIV: 2 of 2 Species level changes in Beauty fecal sample. p7.tex

before	after	abundance ratio	genus	phylum	before abundance	after
0	647	1.608e+00	Erysipelatoclostridium	Firmicutes	0.000e+00	1.608e-02
0	125	3.106e-01	z;seq40	z;seq40	0.000e+00	3.106e-03
0	110	2.734e-01	*Stoquefichus	Firmicutes	0.000e+00	2.734e-03
0	110	2.734e-01	Butyricicoccus	Firmicutes	0.000e+00	2.734e-03
8084	664	8.062e+00	Clostridium	Firmicutes	1.330e-01	1.650e-02
404	47	5.692e+00	Intestinibacter	Firmicutes	6.649e-03	1.168e-03
901	109	5.474e+00	Paeniclostridium	Firmicutes	1.483e-02	2.709e-03
101	29	2.306e+00	Slackia	Actinobacteria	1.662e-03	7.207e-04
13687	5856	1.548e+00	Bacteroides	Bacteroidetes	2.252e-01	1.455e-01
17837	7709	1.532e+00	Fusobacterium	Fusobacteria	2.935e-01	1.916e-01
2420	1161	1.380e+00	Collinsella	Actinobacteria	3.983e-02	2.885e-02
1792	868	1.367e+00	Megamonas	Firmicutes	2.949e-02	2.157e-02
21	15	9.271e-01	Roseburia	Firmicutes	3.456e-04	3.728e-04
29	23	8.350e-01	Tyzzerella	Firmicutes	4.772e-04	5.716e-04
3635	3400	7.080e-01	Lachnoclostridium	Firmicutes	5.982e-02	8.450e-02
4876	4862	6.641e-01	z;seq1;X;;x;seq4	z;seq1;X;;x;seq4	8.024e-02	1.208e-01
70	88	5.268e-01	NA	Firmicutes	1.152e-03	2.187e-03
188	260	4.788e-01	Allobaculum	Firmicutes	3.094e-03	6.461e-03
874	1250	4.630e-01	Sutterella	Proteobacteria	1.438e-02	3.106e-02
54	92	3.887e-01	Faecalitalea	Firmicutes	8.887e-04	2.286e-03
2588	4900	3.498e-01	Blautia	Firmicutes	4.259e-02	1.218e-01
1107	3402	2.155e-01	NA	Firmicutes	1.822e-02	8.454e-02
116	962	7.985e-02	NA	Bacteroidetes	1.909e-03	2.391e-02
12	154	5.160e-02	Escherichia-Shigella	Proteobacteria	1.975e-04	3.827e-03
19	265	4.748e-02	Enterococcus	Firmicutes	3.127e-04	6.586e-03
90	3131	1.903e-02	Faecalibacterium	Firmicutes	1.481e-03	7.781e-02
1361	0	2.240e+00	Anaerotruncus	Firmicutes	2.240e-02	0.000e+00
150	0	2.469e-01	x;seq164	x;seq164	2.469e-03	0.000e+00
129	0	2.123e-01	x;seq190	x;seq190	2.123e-03	0.000e+00
110	0	1.810e-01	Streptococcus	Firmicutes	1.810e-03	0.000e+00
80	0	1.317e-01	Ruminiclostridium	Firmicutes	1.317e-03	0.000e+00
19	0	3.127e-02	Oscillospira	Firmicutes	3.127e-04	0.000e+00
11	0	1.810e-02	x;seq517	x;seq517	1.810e-04	0.000e+00

TABLE XV: Genus level Fecal changes in Beauty. p6.tex

before	after	abundance ratio	species	genus	% before	% after
129	968	0.042	sp49784	Conchiformibius	0.156	3.719
295	1006	0.092	sp28087	Abiotrophia	0.357	3.865
305	805	0.119	steedae	Conchiformibius	0.369	3.093
1000	1381	0.228	sp62273	NA	1.209	5.306
511	569	0.283	sp62095	Bibersteinia	0.618	2.186
1049	788	0.419	fryi	Streptococcus	1.268	3.028
1489	1078	0.434	sp13368	Porphyromonas	1.800	4.142
948	645	0.462	sp62189	Haemophilus	1.146	2.478
1093	733	0.469	sp13365	Porphyromonas	1.321	2.816
1017	500	0.640	canis	Actinomyces	1.229	1.921
2534	858	0.929	sp62638	Moraxella	3.063	3.296
1353	457	0.931	sp13490	Alloprevotella	1.635	1.756
4324	1121	1.213	gulae	Porphyromonas	5.226	4.307
2442	569	1.350	gingivicanis	Porphyromonas	2.951	2.186
1239	274	1.422	sp19816	NA	1.497	1.053
5436	1195	1.431	cangingivalis	Porphyromonas	6.570	4.591
1989	392	1.596	sp13484	Alloprevotella	2.404	1.506
2244	332	2.126	sp37445	Fusobacterium	2.712	1.276
1140	158	2.270	sp37541	NA	1.378	0.607
1073	143	2.360	dagmatis	Pasteurella	1.297	0.549
2988	363	2.589	canoris	Porphyromonas	3.611	1.395
1105	110	3.160	sp14101	Prevotella	1.335	0.423
1910	182	3.301	equinum-gonidiaformans	Fusobacterium	2.308	0.699

TABLE XVI: Beauty species level vomit top ratio v7topr.tex

before	after	abundance ratio	species	genus	% before	% after
340	0	0.411	weaveri	Neisseria	0.411	0.000
310	0	0.375	caviae-cuniculi	Moraxella	0.375	0.000
175	0	0.212	sp37198	Veillonella	0.212	0.000
147	0	0.178	sp13364-sp13368	Porphyromonas	0.178	0.000
144	0	0.174	sp32118	Catonella	0.174	0.000
143	0	0.173	sp4762	Actinomyces	0.173	0.000
138	0	0.167	sp31454	Fusibacter	0.167	0.000
137	0	0.166	sp37518	Leptotrichia	0.166	0.000
123	0	0.149	sp48857	Brachymonas	0.149	0.000
118	0	0.143	catarrhalis-nonliquefaciens	Moraxella	0.143	0.000
110	0	0.133	mitis-oralis-sanguinis	Streptococcus	0.133	0.000
107	0	0.129	medium-vincentii	Treponema	0.129	0.000
101	0	0.122	cardiffensis	Actinomyces	0.122	0.000
99	0	0.120	sp62096	Bibersteinia	0.120	0.000
97	0	0.117	sp66795	Treponema	0.117	0.000
96	0	0.116	canimorsus	Capnocytophaga	0.116	0.000
93	0	0.112	minor	Streptococcus	0.112	0.000
89	0	0.108	sp23682	NA	0.108	0.000
80	0	0.097	bacterium	Firmicutes	0.097	0.000
75	0	0.091	sp36859	Succiniclasticum	0.091	0.000
75	0	0.091	sp67613	Acholeplasma	0.091	0.000
70	0	0.085	sp34399	NA	0.085	0.000
67	0	0.081	sp64995	Arenimonas	0.081	0.000
66	0	0.080	sp6730	Leucobacter	0.080	0.000
64	0	0.077	sp37508-sp37510	Leptotrichia	0.077	0.000
64	0	0.077	sp57146	NA	0.077	0.000
63	0	0.076	micra	Parvimonas	0.076	0.000
63	0	0.076	aerogenes	Pasteurella	0.076	0.000
61	0	0.074	bacterium	Acholeplasmatales	0.074	0.000
59	0	0.071	sp13269	Parabacteroides	0.071	0.000
58	0	0.070	sp13190	Paludibacter	0.070	0.000
58	0	0.070	blatticola	Methanimicrococcus	0.070	0.000
56	0	0.068	sp37072	Selenomonas	0.068	0.000
55	0	0.066	sp67103	Fretibacterium	0.066	0.000
55	0	0.066	sp34943	Ruminiclostridium	0.066	0.000
53	0	0.064	*Saccharibacteria	NA	0.064	0.000
52	0	0.063	sp66797	Treponema	0.063	0.000
52	0	0.063	sp34580	Fastidiosipila	0.063	0.000
50	0	0.060	sp48916	Comamonas	0.060	0.000
49	0	0.059	animaloris	Neisseria	0.059	0.000

TABLE XVII: 1 of 3 Beauty species eliminated in second vomit sample v7tope.tex

before	after	abundance ratio	species	genus	% before	% after
49	0	0.059	sp66621	NA	0.059	0.000
48	0	0.058	hongkongensis	Paraeggerthella	0.058	0.000
47	0	0.057	sp13489	Alloprevotella	0.057	0.000
46	0	0.056	sp32287	Johnsonella	0.056	0.000
46	0	0.056	sp31126	NA	0.056	0.000
44	0	0.053	sp31699	NA	0.053	0.000
44	0	0.053	zoodegmatis	Neisseria	0.053	0.000
42	0	0.051	sp32285	Johnsonella	0.051	0.000
42	0	0.051	sp13394-sp13418	Proteiniphilum	0.051	0.000
41	0	0.050	sp31686	NA	0.050	0.000
40	0	0.048	x;seq370	x;seq370	0.048	0.000
40	0	0.048	sp66119	NA	0.048	0.000
39	0	0.047	clarus	Bacteroides	0.047	0.000
39	0	0.047	sp38143	NA	0.047	0.000
34	0	0.041	x;seq396	x;seq396	0.041	0.000
34	0	0.041	sp34372	Proteocatella	0.041	0.000
33	0	0.040	sp30201	NA	0.040	0.000
33	0	0.040	sp32118-sp32120	Catonella	0.040	0.000
33	0	0.040	sp66653	NA	0.040	0.000
32	0	0.039	sp16518	Capnocytophaga	0.039	0.000
32	0	0.039	acnes	Propionibacterium	0.039	0.000
32	0	0.039	sp13774	NA	0.039	0.000
31	0	0.037	bacterium	NA	0.037	0.000
30	0	0.036	equinus-infantarius-lutetiensis	Streptococcus	0.036	0.000
29	0	0.035	sp31467	Fusibacter	0.035	0.000
28	0	0.034	propionicum	Propionibacterium	0.034	0.000
28	0	0.034	sp62723	Psychrobacter	0.034	0.000
27	0	0.033	sp1275	NA	0.033	0.000
27	0	0.033	bowdenii	Actinomyces	0.033	0.000
26	0	0.031	sp36724	NA	0.031	0.000
26	0	0.031	denitrificans	Brachymonas	0.031	0.000
26	0	0.031	sp31513	Anaerovorax	0.031	0.000
26	0	0.031	sp7803	Propioniciclava	0.031	0.000
25	0	0.030	sp66723	NA	0.030	0.000
25	0	0.030	*Saccharibacteria-sp65941	NA	0.030	0.000
25	0	0.030	sp40081	NA	0.030	0.000
25	0	0.030	sp67037	NA	0.030	0.000
24	0	0.029	sp55662	NA	0.029	0.000
23	0	0.028	sp50395	Propionivibrio	0.028	0.000
23	0	0.028	lipophilum	Mycoplasma	0.028	0.000

TABLE XVIII: 2 of 3 Beauty species eliminated in second vomit sample v7tope.tex

before	after	abundance ratio	species	genus	% before	% after
23	0	0.028	sp13164	Microbacter	0.028	0.000
23	0	0.028	sp31583	NA	0.028	0.000
22	0	0.027	sp31623	NA	0.027	0.000
21	0	0.025	sp30072	Streptococcus	0.025	0.000
21	0	0.025	mucosalis	Campylobacter	0.025	0.000
21	0	0.025	edwardii	Mycoplasma	0.025	0.000
20	0	0.024	sp35348-sp35356	NA	0.024	0.000
20	0	0.024	sp1266	*Methanomethylophilus	0.024	0.000
20	0	0.024	x;seq469	x;seq469	0.024	0.000
19	0	0.023	sp57123	Cardiobacterium	0.023	0.000
19	0	0.023	sp14589	NA	0.023	0.000
18	0	0.022	sp35734	NA	0.022	0.000
17	0	0.021	sp13305	Petrimonas	0.021	0.000
17	0	0.021	sp51846	Desulfobulbus	0.021	0.000
16	0	0.019	aeruginosa	Pseudomonas	0.019	0.000
16	0	0.019	sp33411	NA	0.019	0.000
15	0	0.018	sp66045	NA	0.018	0.000
15	0	0.018	fastidiosum	Fretibacterium	0.018	0.000
15	0	0.018	lemanii	Enterococcus	0.018	0.000
14	0	0.017	sp10394	Atopobium	0.017	0.000
13	0	0.016	sp31493	Anaerovorax	0.016	0.000
13	0	0.016	sp65968	*Saccharimonas	0.016	0.000
13	0	0.016	oral	Firmicutes	0.016	0.000
13	0	0.016	sp66672	NA	0.016	0.000
13	0	0.016	neophronis	Mycoplasma	0.016	0.000
13	0	0.016	mollissima	Castanea	0.016	0.000
12	0	0.015	x;seq509	x;seq509	0.015	0.000
12	0	0.015	bacterium	NA	0.015	0.000
12	0	0.015	sp32121	Catonella	0.015	0.000
12	0	0.015	sp12429	NA	0.015	0.000
12	0	0.015	parvum	Treponema	0.015	0.000
11	0	0.013	pectinovorum	Treponema	0.013	0.000
11	0	0.013	sp66695	NA	0.013	0.000
11	0	0.013	sp66678	NA	0.013	0.000

TABLE XIX: 3 of 3 Beauty species eliminated in second vomit sample v7tope.tex

before	after	abundance ratio	species	genus	% before	% after
0	100	0.384	falconis-neophronis	Mycoplasma	0.000	0.384
0	46	0.177	parasuis-sp30071	Streptococcus	0.000	0.177
0	37	0.142	sp32831-sp33519	NA	0.000	0.142
0	31	0.119	y;seq161	y;seq161	0.000	0.119
0	24	0.092	sp31385	Tissierella	0.000	0.092
0	19	0.073	medium	Treponema	0.000	0.073
0	17	0.065	colicanis	Clostridium	0.000	0.065
0	14	0.054	sp16512	Capnocytophaga	0.000	0.054
0	13	0.050	medium-sp66799	Treponema	0.000	0.050
0	13	0.050	cumminsii-pigmenti	Arthrobacter	0.000	0.050
0	13	0.050	curvus	Campylobacter	0.000	0.050
0	12	0.046	suis	Streptococcus	0.000	0.046
0	12	0.046	sp31623-sp31689	NA	0.000	0.046

TABLE XX: Beauty species new to second vomit sample v7topn.tex

before	after	abundance ratio	species	genus	% before	% after
5436	1195	1.431	cangingivalis	Porphyromonas	6.570	4.591
4324	1121	1.213	gulae	Porphyromonas	5.226	4.307
2988	363	2.589	canoris	Porphyromonas	3.611	1.395
2534	858	0.929	sp62638	Moraxella	3.063	3.296
2442	569	1.350	gingivicanis	Porphyromonas	2.951	2.186
2244	332	2.126	sp37445	Fusobacterium	2.712	1.276
1989	392	1.596	sp13484	Alloprevotella	2.404	1.506
1910	182	3.301	equinum-gonidiaformans	Fusobacterium	2.308	0.699
1489	1078	0.434	sp13368	Porphyromonas	1.800	4.142
1353	457	0.931	sp13490	Alloprevotella	1.635	1.756
1239	274	1.422	sp19816	NA	1.497	1.053
1140	158	2.270	sp37541	NA	1.378	0.607
1105	110	3.160	sp14101	Prevotella	1.335	0.423
1093	733	0.469	sp13365	Porphyromonas	1.321	2.816
1073	143	2.360	dagmatis	Pasteurella	1.297	0.549

TABLE XXI: Beauty top species in first vomit sample. v7top1.tex

before	after	abundance ratio	species	genus	% before	% after
1000	1381	0.228	sp62273	NA	1.209	5.306
5436	1195	1.431	cangingivalis	Porphyromonas	6.570	4.591
4324	1121	1.213	gulae	Porphyromonas	5.226	4.307
1489	1078	0.434	sp13368	Porphyromonas	1.800	4.142
295	1006	0.092	sp28087	Abiotrophia	0.357	3.865
129	968	0.042	sp49784	Conchiformibius	0.156	3.719
2534	858	0.929	sp62638	Moraxella	3.063	3.296
305	805	0.119	steedae	Conchiformibius	0.369	3.093
1049	788	0.419	fryi	Streptococcus	1.268	3.028
1093	733	0.469	sp13365	Porphyromonas	1.321	2.816
948	645	0.462	sp62189	Haemophilus	1.146	2.478
511	569	0.283	sp62095	Bibersteinia	0.618	2.186
2442	569	1.350	gingivicanis	Porphyromonas	2.951	2.186
1017	500	0.640	canis	Actinomyces	1.229	1.921
1353	457	0.931	sp13490	Alloprevotella	1.635	1.756

TABLE XXII: Beauty top species in second vomit sample v7top2.tex

before	after	abundance ratio	genus	phylum	% before	% after
20445	5622	1.144	Porphyromonas	Bacteroidetes	24.709	21.600
6073	1024	1.866	Fusobacterium	Fusobacteria	7.340	3.934
4201	1335	0.990	Moraxella	Proteobacteria	5.077	5.129
4068	1029	1.244	Alloprevotella	Bacteroidetes	4.916	3.953
2488	1032	0.758	Actinomyces	Actinobacteria	3.007	3.965
2121	422	1.581	Bacteroides	Bacteroidetes	2.563	1.621
1552	137	3.564	Prevotella	Bacteroidetes	1.876	0.526
1540	337	1.437	NA	NA	1.861	1.295
1514	320	1.488	Filifactor	Firmicutes	1.830	1.229
1475	924	0.502	Streptococcus	Firmicutes	1.783	3.550
1140	158	2.270	NA	Fusobacteria	1.378	0.607
1139	200	1.791	Catonella	Firmicutes	1.377	0.768
1136	427	0.837	Corynebacterium	Actinobacteria	1.373	1.641
1136	143	2.499	Pasteurella	Proteobacteria	1.373	0.549
1127	193	1.837	Treponema	Spirochaetae	1.362	0.742

TABLE XXIII: Beauty genus level top species in first vomit sample v6top1.tex

before	after	abundance ratio	species	genus	% before	% after
20445	5622	1.144	Porphyromonas	Bacteroidetes	24.709	21.600
434	1773	0.077	Conchiformibius	Proteobacteria	0.525	6.812
1000	1381	0.228	NA	Proteobacteria	1.209	5.306
4201	1335	0.990	Moraxella	Proteobacteria	5.077	5.129
2488	1032	0.758	Actinomyces	Actinobacteria	3.007	3.965
4068	1029	1.244	Alloprevotella	Bacteroidetes	4.916	3.953
6073	1024	1.866	Fusobacterium	Fusobacteria	7.340	3.934
295	1006	0.092	Abiotrophia	Firmicutes	0.357	3.865
1475	924	0.502	Streptococcus	Firmicutes	1.783	3.550
1064	681	0.491	Haemophilus	Proteobacteria	1.286	2.616
610	569	0.337	Bibersteinia	Proteobacteria	0.737	2.186
424	437	0.305	Gemella	Firmicutes	0.512	1.679
1136	427	0.837	Corynebacterium	Actinobacteria	1.373	1.641
266	422	0.198	Streptobacillus	Fusobacteria	0.321	1.621
2121	422	1.581	Bacteroides	Bacteroidetes	2.563	1.621

TABLE XXIV: Beauty top genera in second vomit sample v6top2.tex

before	after	abundance ratio	species	genus	before abundance	after
0	100	3.842e-01	falconis-neophronis	Mycoplasma	0.000e+00	3.842e-03
0	46	1.767e-01	parasuis-sp30071	Streptococcus	0.000e+00	1.767e-03
0	37	1.422e-01	sp32831-sp33519	NA	0.000e+00	1.422e-03
0	31	1.191e-01	y;seq161	y;seq161	0.000e+00	1.191e-03
0	24	9.221e-02	sp31385	Tissierella	0.000e+00	9.221e-04
0	19	7.300e-02	medium	Treponema	0.000e+00	7.300e-04
0	17	6.531e-02	colicanis	Clostridium	0.000e+00	6.531e-04
0	14	5.379e-02	sp16512	Capnocytophaga	0.000e+00	5.379e-04
0	13	4.995e-02	medium-sp66799	Treponema	0.000e+00	4.995e-04
0	13	4.995e-02	cumminsii-pigmenti	Arthrobacter	0.000e+00	4.995e-04
0	13	4.995e-02	curvus	Campylobacter	0.000e+00	4.995e-04
0	12	4.610e-02	suis	Streptococcus	0.000e+00	4.610e-04
0	12	4.610e-02	sp31623-sp31689	NA	0.000e+00	4.610e-04
428	24	5.610e+00	sp12206	Bacteroides	5.173e-03	9.221e-04
255	15	5.348e+00	sp36653	Erysipelothrix	3.082e-03	5.763e-04
447	27	5.208e+00	intermedia	Prevotella	5.402e-03	1.037e-03
187	12	4.902e+00	sp49018	Lampropedia	2.260e-03	4.610e-04
180	12	4.719e+00	sp65479	NA	2.175e-03	4.610e-04
485	40	3.814e+00	sp20053	NA	5.862e-03	1.537e-03
702	62	3.562e+00	sp57124	Cardiobacterium	8.484e-03	2.382e-03
202	19	3.344e+00	sp10631	Euzebya	2.441e-03	7.300e-04
294	28	3.303e+00	sp12884	NA	3.553e-03	1.076e-03
1910	182	3.301e+00	equinum-gonidiaformans	Fusobacterium	2.308e-02	6.992e-03
209	20	3.287e+00	hyalina	Lampropedia	2.526e-03	7.684e-04
334	32	3.283e+00	sp49941	Neisseria	4.037e-03	1.229e-03
1105	110	3.160e+00	sp14101	Prevotella	1.335e-02	4.226e-03
532	53	3.158e+00	y;seq118;X;;x;seq57	y;seq118;X;;x;seq57	6.430e-03	2.036e-03
507	51	3.127e+00	sp31920	Acetitomaculum	6.127e-03	1.959e-03
452	46	3.091e+00	sp36764	NA	5.463e-03	1.767e-03
240	26	2.904e+00	sp66801	Treponema	2.901e-03	9.989e-04
265	29	2.874e+00	morum	Acholeplasma	3.203e-03	1.114e-03
195	22	2.788e+00	sp31233	Ezakiella	2.357e-03	8.452e-04
131	15	2.747e+00	sp36849-sp36859	Succiniclasticum	1.583e-03	5.763e-04
289	34	2.674e+00	sp16516	Capnocytophaga	3.493e-03	1.306e-03
158	19	2.616e+00	sp34402	NA	1.910e-03	7.300e-04
2988	363	2.589e+00	canoris	Porphyromonas	3.611e-02	1.395e-02
536	66	2.555e+00	sp13488	Alloprevotella	6.478e-03	2.536e-03
628	79	2.501e+00	denticanum-pyogenes	Bacteroides	7.590e-03	3.035e-03
728	97	2.361e+00	rectus-showae	Campylobacter	8.798e-03	3.727e-03
1073	143	2.360e+00	dagmatis	Pasteurella	1.297e-02	5.494e-03

TABLE XXV: 1 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
163	22	2.331e+00	sp66555	Spirochaeta	1.970e-03	8.452e-04
376	51	2.319e+00	y;seq120;X;;x;seq79	y;seq120;X;;x;seq79	4.544e-03	1.959e-03
130	18	2.272e+00	sp52597	Desulfovibrio	1.571e-03	6.916e-04
1140	158	2.270e+00	sp37541	NA	1.378e-02	6.070e-03
176	25	2.215e+00	sp36726	NA	2.127e-03	9.605e-04
302	44	2.159e+00	sp52441	NA	3.650e-03	1.690e-03
2244	332	2.126e+00	sp37445	Fusobacterium	2.712e-02	1.276e-02
128	19	2.119e+00	sp46470	NA	1.547e-03	7.300e-04
523	78	2.109e+00	villosus	Filifactor	6.321e-03	2.997e-03
834	127	2.066e+00	sp31258	Helcococcus	1.008e-02	4.879e-03
210	33	2.002e+00	canis	Corynebacterium	2.538e-03	1.268e-03
139	22	1.988e+00	sp14284	NA	1.680e-03	8.452e-04
840	133	1.987e+00	sp13367	Porphyromonas	1.015e-02	5.110e-03
188	30	1.971e+00	forsythia	Tannerella	2.272e-03	1.153e-03
361	58	1.958e+00	sp30313	NA	4.363e-03	2.228e-03
74	12	1.940e+00	sp16983	Flavobacterium	8.943e-04	4.610e-04
323	54	1.882e+00	denticanis	Odoribacter	3.904e-03	2.075e-03
94	16	1.848e+00	sp20572	NA	1.136e-03	6.147e-04
310	53	1.840e+00	mirabilis	Lautropia	3.747e-03	2.036e-03
204	36	1.783e+00	sp65955	*Saccharimonas	2.465e-03	1.383e-03
350	62	1.776e+00	sp34368	Peptostreptococcus	4.230e-03	2.382e-03
66	12	1.730e+00	sp68302	NA	7.977e-04	4.610e-04
889	164	1.705e+00	sp32120	Catonella	1.074e-02	6.301e-03
297	55	1.699e+00	sp12425	NA	3.589e-03	2.113e-03
74	14	1.663e+00	sp36784	NA	8.943e-04	5.379e-04
73	14	1.640e+00	sp31635	NA	8.823e-04	5.379e-04
73	14	1.640e+00	y;seq233;X;;x;seq264	y;seq233;X;;x;seq264	8.823e-04	5.379e-04
145	28	1.629e+00	sp65946	*Saccharimonas	1.752e-03	1.076e-03
112	22	1.601e+00	sp14717	NA	1.354e-03	8.452e-04
56	11	1.601e+00	sp37039	NA	6.768e-04	4.226e-04
1989	392	1.596e+00	sp13484	Alloprevotella	2.404e-02	1.506e-02
247	49	1.586e+00	sp34397	NA	2.985e-03	1.883e-03
586	119	1.549e+00	denticola	Treponema	7.082e-03	4.572e-03
239	49	1.534e+00	sp19824	NA	2.889e-03	1.883e-03
504	104	1.524e+00	creviorícanis	Porphyromonas	6.091e-03	3.996e-03
234	49	1.502e+00	sp67593	Acholeplasma	2.828e-03	1.883e-03
231	49	1.483e+00	y;seq126;X;;x;seq118	y;seq126;X;;x;seq118	2.792e-03	1.883e-03
5436	1195	1.431e+00	cangingivalis	Porphyromonas	6.570e-02	4.591e-02
1239	274	1.422e+00	sp19816	NA	1.497e-02	1.053e-02
252	56	1.416e+00	thereius	Arcobacter	3.046e-03	2.152e-03

TABLE XXVI: 2 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
543	121	1.412e+00	adiacens	Granulicatella	6.563e-03	4.649e-03
550	123	1.407e+00	sp34271	Filifactor	6.647e-03	4.726e-03
568	128	1.396e+00	sp31140	NA	6.865e-03	4.918e-03
341	77	1.393e+00	sp31441	Fusibacter	4.121e-03	2.958e-03
62	14	1.393e+00	sp19817	NA	7.493e-04	5.379e-04
203	46	1.388e+00	caprae-equi	Moraxella	2.453e-03	1.767e-03
70	16	1.376e+00	sp38170	NA	8.460e-04	6.147e-04
104	24	1.363e+00	sp31677	NA	1.257e-03	9.221e-04
176	41	1.350e+00	sp34345	Peptoclostridium	2.127e-03	1.575e-03
382	89	1.350e+00	sp28129	NA	4.617e-03	3.419e-03
2442	569	1.350e+00	gingivicanis	Porphyromonas	2.951e-02	2.186e-02
80	19	1.325e+00	sp67106	Fretibacterium	9.669e-04	7.300e-04
45	11	1.287e+00	y;seq251;X;;x;seq353	y;seq251;X;;x;seq353	5.439e-04	4.226e-04
436	109	1.258e+00	macacae	Porphyromonas	5.269e-03	4.188e-03
44	11	1.258e+00	y;seq250;X;;x;seq359	y;seq250;X;;x;seq359	5.318e-04	4.226e-04
51	13	1.234e+00	sp13366	Porphyromonas	6.164e-04	4.995e-04
47	12	1.232e+00	sp34343	Peptoclostridium	5.680e-04	4.610e-04
89	23	1.217e+00	sp13034	NA	1.076e-03	8.837e-04
4324	1121	1.213e+00	gulae	Porphyromonas	5.226e-02	4.307e-02
723	190	1.197e+00	zoohelcum	Bergeyella	8.738e-03	7.300e-03
516	136	1.194e+00	canifelinum-nucleatum	Fusobacterium	6.236e-03	5.225e-03
279	74	1.186e+00	matruchotii	Corynebacterium	3.372e-03	2.843e-03
1044	277	1.186e+00	sp37444	Fusobacterium	1.262e-02	1.064e-02
109	29	1.182e+00	y;seq169;X;;x;seq211	y;seq169;X;;x;seq211	1.317e-03	1.114e-03
441	119	1.166e+00	alocis	Filifactor	5.330e-03	4.572e-03
359	97	1.164e+00	nucleatum	Fusobacterium	4.339e-03	3.727e-03
71	20	1.117e+00	sp30247	NA	8.581e-04	7.684e-04
132	38	1.093e+00	sp48850	Brachymonas	1.595e-03	1.460e-03
224	65	1.084e+00	sp65943	*Saccharimonas	2.707e-03	2.497e-03
695	204	1.072e+00	sp13363	Porphyromonas	8.400e-03	7.838e-03
121	36	1.057e+00	y;seq149;X;;x;seq198	y;seq149;X;;x;seq198	1.462e-03	1.383e-03
384	116	1.041e+00	sp34373	Proteocatella	4.641e-03	4.457e-03
69	21	1.034e+00	sp31535	NA	8.339e-04	8.068e-04
430	131	1.033e+00	sp34120	Peptococcus	5.197e-03	5.033e-03
42	13	1.016e+00	sp65948	*Saccharimonas	5.076e-04	4.995e-04
116	36	1.014e+00	sp62184	Haemophilus	1.402e-03	1.383e-03
1026	319	1.012e+00	sp12145	Bacteroides	1.240e-02	1.226e-02
150	47	1.004e+00	y;seq133;X;;x;seq165	y;seq133;X;;x;seq165	1.813e-03	1.806e-03
57	18	9.961e-01	sp37508	Leptotrichia	6.889e-04	6.916e-04
60	19	9.934e-01	sp35859	NA	7.251e-04	7.300e-04

TABLE XXVII: 3 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
1353	457	9.313e-01	sp13490	Alloprevotella	1.635e-02	1.756e-02
2534	858	9.290e-01	sp62638	Moraxella	3.063e-02	3.296e-02
767	262	9.209e-01	canis	Peptostreptococcus	9.270e-03	1.007e-02
136	47	9.102e-01	canis	Streptococcus	1.644e-03	1.806e-03
89	31	9.031e-01	y;seq162;X;;x;seq234	y;seq162;X;;x;seq234	1.076e-03	1.191e-03
323	113	8.992e-01	cynodegmi	Capnocytophaga	3.904e-03	4.341e-03
706	248	8.955e-01	delphini-intermedius-pseudintermedius	Staphylococcus	8.533e-03	9.528e-03
799	281	8.944e-01	sp31283	Parvimonas	9.657e-03	1.080e-02
258	93	8.727e-01	sp30336	NA	3.118e-03	3.573e-03
205	74	8.714e-01	sp35348	NA	2.478e-03	2.843e-03
343	125	8.632e-01	sp65941	NA	4.145e-03	4.803e-03
135	51	8.327e-01	sp34115	Peptococcus	1.632e-03	1.959e-03
37	14	8.314e-01	sp31447	Fusibacter	4.472e-04	5.379e-04
250	96	8.192e-01	sp5220	Corynebacterium	3.021e-03	3.688e-03
39	15	8.179e-01	sp31556	NA	4.713e-04	5.763e-04
41	16	8.061e-01	sp30214	NA	4.955e-04	6.147e-04
622	244	8.019e-01	coleocanis	Actinomyces	7.517e-03	9.375e-03
59	24	7.733e-01	feline	Fretibacterium	7.131e-04	9.221e-04
1036	431	7.561e-01	cuniculi	Moraxella	1.252e-02	1.656e-02
80	34	7.402e-01	parvum-urealyticum	Ureaplasma	9.669e-04	1.306e-03
170	74	7.227e-01	sp31462	Fusibacter	2.055e-03	2.843e-03
403	176	7.203e-01	hordeovulneris	Actinomyces	4.871e-03	6.762e-03
38	17	7.032e-01	succinogenes	Wolinella	4.593e-04	6.531e-04
188	85	6.957e-01	sp31312	Peptoniphilus	2.272e-03	3.266e-03
160	73	6.895e-01	sp31397	NA	1.934e-03	2.805e-03
124	58	6.725e-01	sp31701	NA	1.499e-03	2.228e-03
34	16	6.685e-01	sp7833	NA	4.109e-04	6.147e-04
25	12	6.553e-01	sp30248	NA	3.021e-04	4.610e-04
77	37	6.546e-01	sp65067	Luteimonas	9.306e-04	1.422e-03
1017	500	6.398e-01	canis	Actinomyces	1.229e-02	1.921e-02
30	16	5.898e-01	sp4755	Actinomyces	3.626e-04	6.147e-04
30	16	5.898e-01	animaloris-zoodegmatis	Neisseria	3.626e-04	6.147e-04
25	14	5.617e-01	sp31458	Fusibacter	3.021e-04	5.379e-04
397	224	5.575e-01	freiburgense	Corynebacterium	4.798e-03	8.606e-03
21	12	5.505e-01	oralis	Methanobrevibacter	2.538e-04	4.610e-04
92	54	5.359e-01	sp32408	Lachnoclostridium	1.112e-03	2.075e-03
61	36	5.330e-01	sp32119	Catonella	7.372e-04	1.383e-03
65	39	5.243e-01	canis	Neisseria	7.856e-04	1.498e-03
30	19	4.967e-01	orale	Desulfomicrobium	3.626e-04	7.300e-04
78	50	4.907e-01	slackii	Actinomyces	9.427e-04	1.921e-03

TABLE XXVIII: 4 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
73	47	4.886e-01	sp36778	NA	8.823e-04	1.806e-03
1093	733	4.691e-01	sp13365	Porphyromonas	1.321e-02	2.816e-02
40	27	4.660e-01	canis	Mycoplasma	4.834e-04	1.037e-03
948	645	4.623e-01	sp62189	Haemophilus	1.146e-02	2.478e-02
268	184	4.582e-01	y;seq37;X;;x;seq101	y;seq37;X;;x;seq101	3.239e-03	7.069e-03
67	46	4.582e-01	oris	Actinomyces	8.097e-04	1.767e-03
250	173	4.546e-01	shayeganii	Neisseria	3.021e-03	6.647e-03
25	18	4.369e-01	sp31414	NA	3.021e-04	6.916e-04
1489	1078	4.345e-01	sp13368	Porphyromonas	1.800e-02	4.142e-02
22	16	4.325e-01	pedis	Treponema	2.659e-04	6.147e-04
22	16	4.325e-01	sp31674	Eubacterium	2.659e-04	6.147e-04
31	23	4.240e-01	sp7814	NA	3.747e-04	8.837e-04
1049	788	4.188e-01	fryi	Streptococcus	1.268e-02	3.028e-02
40	31	4.059e-01	sp7799	Propioniciclava	4.834e-04	1.191e-03
143	114	3.946e-01	sp13512-sp13517	Alloprevotella	1.728e-03	4.380e-03
83	71	3.677e-01	sp31624	NA	1.003e-03	2.728e-03
77	66	3.670e-01	sp32284	Johnsonella	9.306e-04	2.536e-03
129	111	3.656e-01	sp33201	Roseburia	1.559e-03	4.265e-03
36	31	3.653e-01	cameli	Streptococcus	4.351e-04	1.191e-03
24	21	3.595e-01	sp7836	NA	2.901e-04	8.068e-04
68	62	3.450e-01	sp31550	NA	8.218e-04	2.382e-03
23	21	3.445e-01	sp31278	Parvimonas	2.780e-04	8.068e-04
30	30	3.146e-01	sp38230	NA	3.626e-04	1.153e-03
424	437	3.052e-01	palaticanis	Gemella	5.124e-03	1.679e-02
511	569	2.825e-01	sp62095	Bibersteinia	6.176e-03	2.186e-02
13	15	2.726e-01	parvula	Veillonella	1.571e-04	5.763e-04
1000	1381	2.278e-01	sp62273	NA	1.209e-02	5.306e-02
32	50	2.013e-01	perfringens	Clostridium	3.867e-04	1.921e-03
266	422	1.983e-01	moniliformis	Streptobacillus	3.215e-03	1.621e-02
44	89	1.555e-01	sp62087-sp62189	Aggregatibacter-Haemophilus	5.318e-04	3.419e-03
70	166	1.326e-01	sp16466	Bergeyella	8.460e-04	6.378e-03
305	805	1.192e-01	steedae	Conchiformibius	3.686e-03	3.093e-02
295	1006	9.224e-02	sp28087	Abiotrophia	3.565e-03	3.865e-02
31	124	7.864e-02	bacterium	Gracilibacteria	3.747e-04	4.764e-03
129	968	4.192e-02	sp49784	Conchiformibius	1.559e-03	3.719e-02
340	0	4.109e-01	weaveri	Neisseria	4.109e-03	0.000e+00
310	0	3.747e-01	caviae-cuniculi	Moraxella	3.747e-03	0.000e+00
175	0	2.115e-01	sp37198	Veillonella	2.115e-03	0.000e+00
147	0	1.777e-01	sp13364-sp13368	Porphyromonas	1.777e-03	0.000e+00
144	0	1.740e-01	sp32118	Catonella	1.740e-03	0.000e+00

TABLE XXIX: 5 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
143	0	1.728e-01	sp4762	Actinomyces	1.728e-03	0.000e+00
138	0	1.668e-01	sp31454	Fusibacter	1.668e-03	0.000e+00
137	0	1.656e-01	sp37518	Leptotrichia	1.656e-03	0.000e+00
123	0	1.487e-01	sp48857	Brachymonas	1.487e-03	0.000e+00
118	0	1.426e-01	catarrhalis-nonliquefaciens	Moraxella	1.426e-03	0.000e+00
110	0	1.329e-01	mitis-oralis-sanguinis	Streptococcus	1.329e-03	0.000e+00
107	0	1.293e-01	medium-vincentii	Treponema	1.293e-03	0.000e+00
101	0	1.221e-01	cardiffensis	Actinomyces	1.221e-03	0.000e+00
99	0	1.196e-01	sp62096	Bibersteinia	1.196e-03	0.000e+00
97	0	1.172e-01	sp66795	Treponema	1.172e-03	0.000e+00
96	0	1.160e-01	canimorsus	Capnocytophaga	1.160e-03	0.000e+00
93	0	1.124e-01	minor	Streptococcus	1.124e-03	0.000e+00
89	0	1.076e-01	sp23682	NA	1.076e-03	0.000e+00
80	0	9.669e-02	bacterium	Firmicutes	9.669e-04	0.000e+00
75	0	9.064e-02	sp36859	Succiniclasticum	9.064e-04	0.000e+00
75	0	9.064e-02	sp67613	Acholeplasma	9.064e-04	0.000e+00
70	0	8.460e-02	sp34399	NA	8.460e-04	0.000e+00
67	0	8.097e-02	sp64995	Arenimonas	8.097e-04	0.000e+00
66	0	7.977e-02	sp6730	Leucobacter	7.977e-04	0.000e+00
64	0	7.735e-02	sp37508-sp37510	Leptotrichia	7.735e-04	0.000e+00
64	0	7.735e-02	sp57146	NA	7.735e-04	0.000e+00
63	0	7.614e-02	micra	Parvimonas	7.614e-04	0.000e+00
63	0	7.614e-02	aerogenes	Pasteurella	7.614e-04	0.000e+00
61	0	7.372e-02	bacterium	Acholeplasmatales	7.372e-04	0.000e+00
59	0	7.131e-02	sp13269	Parabacteroides	7.131e-04	0.000e+00
58	0	7.010e-02	sp13190	Paludibacter	7.010e-04	0.000e+00
58	0	7.010e-02	blatticola	Methanimicrococcus	7.010e-04	0.000e+00
56	0	6.768e-02	sp37072	Selenomonas	6.768e-04	0.000e+00
55	0	6.647e-02	sp67103	Fretibacterium	6.647e-04	0.000e+00
55	0	6.647e-02	sp34943	Ruminiclostridium	6.647e-04	0.000e+00
53	0	6.405e-02	*Saccharibacteria	NA	6.405e-04	0.000e+00
52	0	6.285e-02	sp66797	Treponema	6.285e-04	0.000e+00
52	0	6.285e-02	sp34580	Fastidiosipila	6.285e-04	0.000e+00
50	0	6.043e-02	sp48916	Comamonas	6.043e-04	0.000e+00
49	0	5.922e-02	animaloris	Neisseria	5.922e-04	0.000e+00
49	0	5.922e-02	sp66621	NA	5.922e-04	0.000e+00
48	0	5.801e-02	hongkongensis	Paraeggerthella	5.801e-04	0.000e+00
47	0	5.680e-02	sp13489	Alloprevotella	5.680e-04	0.000e+00
46	0	5.559e-02	sp32287	Johnsonella	5.559e-04	0.000e+00
46	0	5.559e-02	sp31126	NA	5.559e-04	0.000e+00

TABLE XXX: 6 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
44	0	5.318e-02	sp31699	NA	5.318e-04	0.000e+00
44	0	5.318e-02	zoodegmatis	Neisseria	5.318e-04	0.000e+00
42	0	5.076e-02	sp32285	Johnsonella	5.076e-04	0.000e+00
42	0	5.076e-02	sp13394-sp13418	Proteiniphilum	5.076e-04	0.000e+00
41	0	4.955e-02	sp31686	NA	4.955e-04	0.000e+00
40	0	4.834e-02	x;seq370	x;seq370	4.834e-04	0.000e+00
40	0	4.834e-02	sp66119	NA	4.834e-04	0.000e+00
39	0	4.713e-02	clarus	Bacteroides	4.713e-04	0.000e+00
39	0	4.713e-02	sp38143	NA	4.713e-04	0.000e+00
34	0	4.109e-02	x;seq396	x;seq396	4.109e-04	0.000e+00
34	0	4.109e-02	sp34372	Proteocatella	4.109e-04	0.000e+00
33	0	3.988e-02	sp30201	NA	3.988e-04	0.000e+00
33	0	3.988e-02	sp32118-sp32120	Catonella	3.988e-04	0.000e+00
33	0	3.988e-02	sp66653	NA	3.988e-04	0.000e+00
32	0	3.867e-02	sp16518	Capnocytophaga	3.867e-04	0.000e+00
32	0	3.867e-02	acnes	Propionibacterium	3.867e-04	0.000e+00
32	0	3.867e-02	sp13774	NA	3.867e-04	0.000e+00
31	0	3.747e-02	bacterium	NA	3.747e-04	0.000e+00
30	0	3.626e-02	equinus-infantarius-lutetiensis	Streptococcus	3.626e-04	0.000e+00
29	0	3.505e-02	sp31467	Fusibacter	3.505e-04	0.000e+00
28	0	3.384e-02	propionicum	Propionibacterium	3.384e-04	0.000e+00
28	0	3.384e-02	sp62723	Psychrobacter	3.384e-04	0.000e+00
27	0	3.263e-02	sp1275	NA	3.263e-04	0.000e+00
27	0	3.263e-02	bowdenii	Actinomyces	3.263e-04	0.000e+00
26	0	3.142e-02	sp36724	NA	3.142e-04	0.000e+00
26	0	3.142e-02	denitrificans	Brachymonas	3.142e-04	0.000e+00
26	0	3.142e-02	sp31513	Anaerovorax	3.142e-04	0.000e+00
26	0	3.142e-02	sp7803	Propioniciclava	3.142e-04	0.000e+00
25	0	3.021e-02	sp66723	NA	3.021e-04	0.000e+00
25	0	3.021e-02	*Saccharibacteria-sp65941	NA	3.021e-04	0.000e+00
25	0	3.021e-02	sp40081	NA	3.021e-04	0.000e+00
25	0	3.021e-02	sp67037	NA	3.021e-04	0.000e+00
24	0	2.901e-02	sp55662	NA	2.901e-04	0.000e+00
23	0	2.780e-02	sp50395	Propionivibrio	2.780e-04	0.000e+00
23	0	2.780e-02	lipophilum	Mycoplasma	2.780e-04	0.000e+00
23	0	2.780e-02	sp13164	Microbacter	2.780e-04	0.000e+00
23	0	2.780e-02	sp31583	NA	2.780e-04	0.000e+00
22	0	2.659e-02	sp31623	NA	2.659e-04	0.000e+00
21	0	2.538e-02	sp30072	Streptococcus	2.538e-04	0.000e+00
21	0	2.538e-02	mucosalis	Campylobacter	2.538e-04	0.000e+00

TABLE XXXI: 7 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
21	0	2.538e-02	edwardii	Mycoplasma	2.538e-04	0.000e+00
20	0	2.417e-02	sp35348-sp35356	NA	2.417e-04	0.000e+00
20	0	2.417e-02	sp1266	*Methanomethylophilus	2.417e-04	0.000e+00
20	0	2.417e-02	x;seq469	x;seq469	2.417e-04	0.000e+00
19	0	2.296e-02	sp57123	Cardiobacterium	2.296e-04	0.000e+00
19	0	2.296e-02	sp14589	NA	2.296e-04	0.000e+00
18	0	2.175e-02	sp35734	NA	2.175e-04	0.000e+00
17	0	2.055e-02	sp13305	Petrimonas	2.055e-04	0.000e+00
17	0	2.055e-02	sp51846	Desulfobulbus	2.055e-04	0.000e+00
16	0	1.934e-02	aeruginosa	Pseudomonas	1.934e-04	0.000e+00
16	0	1.934e-02	sp33411	NA	1.934e-04	0.000e+00
15	0	1.813e-02	sp66045	NA	1.813e-04	0.000e+00
15	0	1.813e-02	fastidiosum	Fretibacterium	1.813e-04	0.000e+00
15	0	1.813e-02	lemanii	Enterococcus	1.813e-04	0.000e+00
14	0	1.692e-02	sp10394	Atopobium	1.692e-04	0.000e+00
13	0	1.571e-02	sp31493	Anaerovorax	1.571e-04	0.000e+00
13	0	1.571e-02	sp65968	*Saccharimonas	1.571e-04	0.000e+00
13	0	1.571e-02	oral	Firmicutes	1.571e-04	0.000e+00
13	0	1.571e-02	sp66672	NA	1.571e-04	0.000e+00
13	0	1.571e-02	neophronis	Mycoplasma	1.571e-04	0.000e+00
13	0	1.571e-02	mollissima	Castanea	1.571e-04	0.000e+00
12	0	1.450e-02	x;seq509	x;seq509	1.450e-04	0.000e+00
12	0	1.450e-02	bacterium	NA	1.450e-04	0.000e+00
12	0	1.450e-02	sp32121	Catonella	1.450e-04	0.000e+00
12	0	1.450e-02	sp12429	NA	1.450e-04	0.000e+00
12	0	1.450e-02	parvum	Treponema	1.450e-04	0.000e+00
11	0	1.329e-02	pectinovorum	Treponema	1.329e-04	0.000e+00
11	0	1.329e-02	sp66695	NA	1.329e-04	0.000e+00
11	0	1.329e-02	sp66678	NA	1.329e-04	0.000e+00

TABLE XXXII: 8 Vomit species level abundances for Beauty v7.tex

before	after	abundance ratio	species	genus	before abundance	after
0	31	1.191e-01	y;seq161	y;seq161	0.000e+00	1.191e-03
0	24	9.221e-02	Tissierella	Firmicutes	0.000e+00	9.221e-04
0	13	4.995e-02	Arthrobacter	Actinobacteria	0.000e+00	4.995e-04
255	15	5.348e+00	Erysipelothrix	Firmicutes	3.082e-03	5.763e-04
180	12	4.719e+00	NA	Proteobacteria	2.175e-03	4.610e-04
258	18	4.509e+00	Leptotrichia	Fusobacteria	3.118e-03	6.916e-04
206	15	4.320e+00	Succiniclasticum	Firmicutes	2.490e-03	5.763e-04
188	15	3.943e+00	Veillonella	Firmicutes	2.272e-03	5.763e-04
396	32	3.893e+00	Lampropedia	Proteobacteria	4.786e-03	1.229e-03
485	40	3.814e+00	NA	Chlorobi	5.862e-03	1.537e-03
721	62	3.658e+00	Cardiobacterium	Proteobacteria	8.714e-03	2.382e-03
1552	137	3.564e+00	Prevotella	Bacteroidetes	1.876e-02	5.264e-03
202	19	3.344e+00	Euzebya	Actinobacteria	2.441e-03	7.300e-04
532	53	3.158e+00	y;seq118;X;;x;seq57	y;seq118;X;;x;seq57	6.430e-03	2.036e-03
507	51	3.127e+00	Acetitomaculum	Firmicutes	6.127e-03	1.959e-03
465	50	2.925e+00	NA	Bacteroidetes	5.620e-03	1.921e-03
195	22	2.788e+00	Ezakiella	Firmicutes	2.357e-03	8.452e-04
1136	143	2.499e+00	Pasteurella	Proteobacteria	1.373e-02	5.494e-03
163	22	2.331e+00	Spirochaeta	Spirochaetae	1.970e-03	8.452e-04
281	38	2.326e+00	Brachymonas	Proteobacteria	3.396e-03	1.460e-03
376	51	2.319e+00	y;seq120;X;;x;seq79	y;seq120;X;;x;seq79	4.544e-03	1.959e-03
574	78	2.315e+00	Acholeplasma	Tenericutes	6.937e-03	2.997e-03
130	18	2.272e+00	Desulfovibrio	Proteobacteria	1.571e-03	6.916e-04
1140	158	2.270e+00	NA	Fusobacteria	1.378e-02	6.070e-03
475	68	2.197e+00	NA	Firmicutes	5.741e-03	2.613e-03
302	44	2.159e+00	NA	Proteobacteria	3.650e-03	1.690e-03
749	110	2.142e+00	Campylobacter	Proteobacteria	9.052e-03	4.226e-03
128	19	2.119e+00	NA	Proteobacteria	1.547e-03	7.300e-04
834	127	2.066e+00	Helcococcus	Firmicutes	1.008e-02	4.879e-03
188	30	1.971e+00	Tannerella	Bacteroidetes	2.272e-03	1.153e-03
74	12	1.940e+00	Flavobacterium	Bacteroidetes	8.943e-04	4.610e-04
801	132	1.909e+00	NA	Firmicutes	9.681e-03	5.071e-03
323	54	1.882e+00	Odoribacter	Bacteroidetes	3.904e-03	2.075e-03
131	22	1.873e+00	NA	Bacteroidetes	1.583e-03	8.452e-04
6073	1024	1.866e+00	Fusobacterium	Fusobacteria	7.340e-02	3.934e-02
94	16	1.848e+00	NA	Chloroflexi	1.136e-03	6.147e-04
310	53	1.840e+00	Lautropia	Proteobacteria	3.747e-03	2.036e-03
1127	193	1.837e+00	Treponema	Spirochaetae	1.362e-02	7.415e-03
1139	200	1.791e+00	Catonella	Firmicutes	1.377e-02	7.684e-03
66	12	1.730e+00	NA	Tenericutes	7.977e-04	4.610e-04

TABLE XXXIII: Beauty vomit genus level changes. v6.tex

before	after	abundance ratio	species	genus	before abundance	after
73	14	1.640e+00	y;seq233;X;;x;seq264	y;seq233;X;;x;seq264	8.823e-04	5.379e-04
398	78	1.605e+00	NA	Bacteroidetes	4.810e-03	2.997e-03
56	11	1.601e+00	NA	Firmicutes	6.768e-04	4.226e-04
2121	422	1.581e+00	Bacteroides	Bacteroidetes	2.563e-02	1.621e-02
209	43	1.529e+00	Fretibacterium	Synergistetes	2.526e-03	1.652e-03
1514	320	1.488e+00	Filifactor	Firmicutes	1.830e-02	1.229e-02
231	49	1.483e+00	y;seq126;X;;x;seq118	y;seq126;X;;x;seq118	2.792e-03	1.883e-03
740	161	1.446e+00	Capnocytophaga	Bacteroidetes	8.943e-03	6.186e-03
1540	337	1.437e+00	NA	NA	1.861e-02	1.295e-02
252	56	1.416e+00	Arcobacter	Proteobacteria	3.046e-03	2.152e-03
543	121	1.412e+00	Granulicatella	Firmicutes	6.563e-03	4.649e-03
568	128	1.396e+00	NA	Firmicutes	6.865e-03	4.918e-03
628	142	1.391e+00	*Saccharimonas	Saccharibacteria	7.590e-03	5.456e-03
382	89	1.350e+00	NA	Firmicutes	4.617e-03	3.419e-03
1112	260	1.345e+00	Neisseria	Proteobacteria	1.344e-02	9.989e-03
223	53	1.324e+00	Peptoclostridium	Firmicutes	2.695e-03	2.036e-03
740	179	1.300e+00	Fusibacter	Firmicutes	8.943e-03	6.877e-03
45	11	1.287e+00	y;seq251;X;;x;seq353	y;seq251;X;;x;seq353	5.439e-04	4.226e-04
44	11	1.258e+00	y;seq250;X;;x;seq359	y;seq250;X;;x;seq359	5.318e-04	4.226e-04
789	199	1.247e+00	NA	Firmicutes	9.536e-03	7.646e-03
4068	1029	1.244e+00	Alloprevotella	Bacteroidetes	4.916e-02	3.953e-02
476	125	1.198e+00	NA	Saccharibacteria	5.753e-03	4.803e-03
109	29	1.182e+00	y;seq169;X;;x;seq211	y;seq169;X;;x;seq211	1.317e-03	1.114e-03
20445	5622	1.144e+00	Porphyromonas	Bacteroidetes	2.471e-01	2.160e-01
418	116	1.134e+00	Proteocatella	Firmicutes	5.052e-03	4.457e-03
1117	324	1.084e+00	Peptostreptococcus	Firmicutes	1.350e-02	1.245e-02
121	36	1.057e+00	y;seq149;X;;x;seq198	y;seq149;X;;x;seq198	1.462e-03	1.383e-03
303	93	1.025e+00	NA	Firmicutes	3.662e-03	3.573e-03
150	47	1.004e+00	y;seq133;X;;x;seq165	y;seq133;X;;x;seq165	1.813e-03	1.806e-03
4201	1335	9.899e-01	Moraxella	Proteobacteria	5.077e-02	5.129e-02
565	182	9.765e-01	Peptococcus	Firmicutes	6.828e-03	6.992e-03
139	46	9.505e-01	NA	Gracilibacteria	1.680e-03	1.767e-03
885	302	9.218e-01	Parvimonas	Firmicutes	1.070e-02	1.160e-02
89	31	9.031e-01	y;seq162;X;;x;seq234	y;seq162;X;;x;seq234	1.076e-03	1.191e-03
706	248	8.955e-01	Staphylococcus	Firmicutes	8.533e-03	9.528e-03
1136	427	8.369e-01	Corynebacterium	Actinobacteria	1.373e-02	1.641e-02
165	66	7.864e-01	Johnsonella	Firmicutes	1.994e-03	2.536e-03
690	277	7.836e-01	NA	Firmicutes	8.339e-03	1.064e-02
2488	1032	7.584e-01	Actinomyces	Actinobacteria	3.007e-02	3.965e-02
80	34	7.402e-01	Ureaplasma	Tenericutes	9.669e-04	1.306e-03

TABLE XXXIV: Beauty vomit genus level changes. v6.tex

before	after	abundance ratio	species	genus	before abundance	after
38	17	7.032e-01	Wolinella	Proteobacteria	4.593e-04	6.531e-04
793	356	7.007e-01	Bergeyella	Bacteroidetes	9.584e-03	1.368e-02
188	85	6.957e-01	Peptoniphilus	Firmicutes	2.272e-03	3.266e-03
66	31	6.697e-01	Propioniciclava	Actinobacteria	7.977e-04	1.191e-03
77	37	6.546e-01	Luteimonas	Proteobacteria	9.306e-04	1.422e-03
185	91	6.395e-01	NA	Firmicutes	2.236e-03	3.496e-03
21	12	5.505e-01	Methanobrevibacter	Euryarchaeota	2.538e-04	4.610e-04
92	54	5.359e-01	Lachnoclostridium	Firmicutes	1.112e-03	2.075e-03
1475	924	5.022e-01	Streptococcus	Firmicutes	1.783e-02	3.550e-02
30	19	4.967e-01	Desulfomicrobium	Proteobacteria	3.626e-04	7.300e-04
1064	681	4.915e-01	Haemophilus	Proteobacteria	1.286e-02	2.616e-02
89	60	4.666e-01	NA	Actinobacteria	1.076e-03	2.305e-03
268	184	4.582e-01	y;seq37;X;;x;seq101	y;seq37;X;;x;seq101	3.239e-03	7.069e-03
22	16	4.325e-01	Eubacterium	Firmicutes	2.659e-04	6.147e-04
129	111	3.656e-01	Roseburia	Firmicutes	1.559e-03	4.265e-03
610	569	3.372e-01	Bibersteinia	Proteobacteria	7.372e-03	2.186e-02
424	437	3.052e-01	Gemella	Firmicutes	5.124e-03	1.679e-02
97	127	2.403e-01	Mycoplasma	Tenericutes	1.172e-03	4.879e-03
1000	1381	2.278e-01	NA	Proteobacteria	1.209e-02	5.306e-02
266	422	1.983e-01	Streptobacillus	Fusobacteria	3.215e-03	1.621e-02
44	89	1.555e-01	Aggregatibacter-Haemophilus	Proteobacteria	5.318e-04	3.419e-03
32	67	1.502e-01	Clostridium	Firmicutes	3.867e-04	2.574e-03
16	37	1.360e-01	NA	Firmicutes	1.934e-04	1.422e-03
295	1006	9.224e-02	Abiotrophia	Firmicutes	3.565e-03	3.865e-02
31	124	7.864e-02	Gracilibacteria	Gracilibacteria	3.747e-04	4.764e-03
434	1773	7.700e-02	Conchiformibius	Proteobacteria	5.245e-03	6.812e-02
167	0	2.018e-01	NA	Spirochaetae	2.018e-03	0.000e+00
89	0	1.076e-01	NA	Cyanobacteria	1.076e-03	0.000e+00
80	0	9.669e-02	Firmicutes	Spirochaetae	9.669e-04	0.000e+00
67	0	8.097e-02	Arenimonas	Proteobacteria	8.097e-04	0.000e+00
66	0	7.977e-02	Leucobacter	Actinobacteria	7.977e-04	0.000e+00
64	0	7.735e-02	NA	Proteobacteria	7.735e-04	0.000e+00
61	0	7.372e-02	Acholeplasmatales	Tenericutes	7.372e-04	0.000e+00
60	0	7.251e-02	Propionibacterium	Actinobacteria	7.251e-04	0.000e+00
59	0	7.131e-02	Parabacteroides	Bacteroidetes	7.131e-04	0.000e+00
58	0	7.010e-02	Methanimicrococcus	Euryarchaeota	7.010e-04	0.000e+00
58	0	7.010e-02	Paludibacter	Bacteroidetes	7.010e-04	0.000e+00
56	0	6.768e-02	Selenomonas	Firmicutes	6.768e-04	0.000e+00
55	0	6.647e-02	Ruminiclostridium	Firmicutes	6.647e-04	0.000e+00
52	0	6.285e-02	Fastidiosipila	Firmicutes	6.285e-04	0.000e+00

TABLE XXXV: Beauty vomit genus level changes. v6.tex

before	after	abundance ratio	species	genus	before abundance	after
50	0	6.043e-02	Comamonas	Proteobacteria	6.043e-04	0.000e+00
48	0	5.801e-02	Paraeggerthella	Actinobacteria	5.801e-04	0.000e+00
46	0	5.559e-02	NA	Firmicutes	5.559e-04	0.000e+00
42	0	5.076e-02	Proteiniphilum	Bacteroidetes	5.076e-04	0.000e+00
40	0	4.834e-02	x;seq370	x;seq370	4.834e-04	0.000e+00
39	0	4.713e-02	Anaerovorax	Firmicutes	4.713e-04	0.000e+00
34	0	4.109e-02	x;seq396	x;seq396	4.109e-04	0.000e+00
31	0	3.747e-02	NA	Proteobacteria	3.747e-04	0.000e+00
28	0	3.384e-02	Psychrobacter	Proteobacteria	3.384e-04	0.000e+00
27	0	3.263e-02	NA	Euryarchaeota	3.263e-04	0.000e+00
25	0	3.021e-02	NA	Parcubacteria	3.021e-04	0.000e+00
24	0	2.901e-02	NA	Proteobacteria	2.901e-04	0.000e+00
23	0	2.780e-02	Propionivibrio	Proteobacteria	2.780e-04	0.000e+00
23	0	2.780e-02	Microbacter	Bacteroidetes	2.780e-04	0.000e+00
20	0	2.417e-02	x;seq469	x;seq469	2.417e-04	0.000e+00
20	0	2.417e-02	*Methanomethylophilus	Euryarchaeota	2.417e-04	0.000e+00
17	0	2.055e-02	Petrimonas	Bacteroidetes	2.055e-04	0.000e+00
17	0	2.055e-02	Desulfobulbus	Proteobacteria	2.055e-04	0.000e+00
16	0	1.934e-02	Pseudomonas	Proteobacteria	1.934e-04	0.000e+00
15	0	1.813e-02	Enterococcus	Firmicutes	1.813e-04	0.000e+00
14	0	1.692e-02	Atopobium	Actinobacteria	1.692e-04	0.000e+00
13	0	1.571e-02	Castanea	Cyanobacteria	1.571e-04	0.000e+00
13	0	1.571e-02	Firmicutes	Tenericutes	1.571e-04	0.000e+00
12	0	1.450e-02	x;seq509	x;seq509	1.450e-04	0.000e+00
12	0	1.450e-02	NA	Bacteroidetes	1.450e-04	0.000e+00

TABLE XXXVI: Beauty vomit genus level changes. v6.tex

Appendix E: Beauty Diet History

Name	2022-03 1-9	2022-03 10-19	2022-03 20-	2022-04 1-9	2022-04 10-19
FOOD					
KCl(tsp kcl)	0.12 ;0.12;7/7	0.17 ;0.12;8/10	0.23 ;0.12;9/9	0.29 ;0.12;5/5	0.22 ;0.062;3/3
b10ngnc[(c)]		0.25 ;1;1/10	1.8 ;1;5/9		
b15ngnc[(c)]			0.94 ;1;4/9	0.5 ;0.5;2/5	1.2 ;1;3/3
b20ngnc[(c)]	1.3 ;1;4/7	0.72 ;1;4/10			
b7ngnc[(c)]	3.9 ;1;7/7	1.8 ;1;8/10		0.78 ;1;4/5	
carrot	0.9 ;1;7/7	0.49 ;0.5;8/10	0.35 ;0.5;6/9	0.53 ;1;4/5	0.12 ;0.25;2/3
cbbroth	0.91 ;1;4/7	0.62 ;1;4/10	0.51 ;1;4/9	0.42 ;1;3/5	
citrate(tsp citrate)	0.12 ;0.12;7/7	0.16 ;0.12;8/10	0.23 ;0.12;9/9	0.29 ;0.12;5/5	0.22 ;0.062;3/3
ctbrothbs	1.4 ;1;4/7	0.95 ;1;6/10	1 ;1;6/9	0.1 ;0.5;1/5	0.12 ;0.25;2/3
ctbroth	0.14 ;1;1/7				
eggo3	0.27 ;0.5;6/7	0.16 ;0.25;8/10	0.089 ;0.25;4/9	0.15 ;0.25;3/5	0.058 ;0.12;2/3
eggo					
garlic	0.018 ;0.12;1/7				
oliveoil(tsp)	0.036 ;0.12;3/7	0.02 ;0.2;1/10	0.011 ;0.1;1/9	0.16 ;0.5;2/5	
salmon	0.49 ;1;2/7				
scallop					
shrimp(grams)	65 ;40;7/7	69 ;60;10/10	89 ;70;9/9	46 ;32;5/5	72 ;40;3/3
spinach	0.9 ;1;7/7	0.49 ;0.5;8/10	0.35 ;0.5;6/9	0.53 ;1;4/5	0.12 ;0.25;2/3
tuna(oz)	0.45 ;0.5;5/7	0.36 ;0.5;7/10	0.89 ;1;6/9	0.3 ;1.5;1/5	
VITAMIN					
B-1(mg)	5.8 ;25;2/7	33 ;100;4/10	11 ;100;1/9	6.2 ;31;1/5	
B-12(mg)	0.14 ;0.5;2/7	0.09 ;0.5;2/10	0.22 ;0.8;4/9	0.6 ;2;2/5	0.67 ;2;1/3
B-2(mg)	14 ;50;1/7	99 ;100;6/10	332 ;200;8/9	300 ;100;5/5	300 ;100;3/3
B-3(mg)	9.8 ;16;3/7	52 ;70;6/10	97 ;70;8/9	52 ;18;5/5	52 ;18;3/3
B-6(mg)	3.4 ;12;1/7	16 ;40;4/10	18 ;50;4/9	27 ;50;3/5	
B-multi(count)	0.055 ;0.2;3/7	0.14 ;0.4;5/10	0.033 ;0.2;2/9	0.05 ;0.25;1/5	0.12 ;0.25;2/3
Cu(mg)	0.9 ;5;3/7	1.2 ;2.5;6/10	0.56 ;2.5;2/9	1.5 ;5;2/5	0.58 ;1.2;2/3
D-3(iu)	29 ;200;1/7	120 ;800;2/10		200 ;1000;1/5	
Iodine(mg)[(a)]	0.036 ;0.25;1/7		0.028 ;0.25;1/9		
K1(mg)	2.3 ;5;3/7	1.4 ;5;5/10	1 ;4;3/9	0.25 ;1.2;1/5	
K2(mg)			1.1 ;6;2/9	1 ;5;1/5	
Mg(mg)	93 ;200;3/7	48 ;200;4/10	69 ;160;5/9	90 ;400;2/5	
Se(mcg)					
arginine(mg)		70 ;350;2/10	101 ;560;2/9	35 ;175;1/5	
biotin(mg)[(a)]	1.6 ;5;2/7	2.8 ;10;4/10	3.7 ;20;4/9	2.2 ;10;2/5	6.7 ;20;1/3
folate(mg)	0.071 ;0.25;2/7	0.045 ;0.25;2/10	0.094 ;0.4;4/9	0.06 ;0.3;1/5	
histidinehcl(mg)		56 ;340;3/10	19 ;85;2/9		
isoleucine(mg)		32 ;325;1/10	18 ;162;1/9	65 ;325;1/5	
lecithin(mg)	437 ;450;7/7	423 ;450;8/10	315 ;450;6/9	472 ;900;4/5	105 ;225;2/3
leucine(mg)	133 ;256;7/7	185 ;325;7/10	116 ;325;4/9	130 ;325;2/5	76 ;162;2/3
lipoicacid(mg)[(a)]		3.2 ;20;3/10			
lysinehcl(mg)	631 ;650;7/7	546 ;650;8/10	325 ;650;5/9	650 ;1300;4/5	152 ;325;2/3
lysinehcl(tsp)					
methionine(mg)	27 ;96;3/7	52 ;125;5/10	44 ;125;4/9	25 ;125;1/5	
pantothenate(mg)[(a)]	45 ;156;3/7	38 ;125;3/10	35 ;156;2/9	62 ;156;2/5	
phenylalanine(mg)	116 ;250;3/7	10 ;100;1/10	86 ;200;5/9	100 ;500;1/5	
taurine(mg)	501 ;900;7/7	423 ;450;8/10	304 ;450;6/9	466 ;900;4/5	180 ;450;2/3
threonine(mg)	330 ;650;6/7	715 ;3250;8/10	231 ;650;4/9	520 ;650;4/5	152 ;325;2/3
tryptophan(mg)	84 ;230;4/7	209 ;460;8/10	123 ;460;3/9	322 ;920;3/5	

TABLE XXXVII: Part 1 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-03 1-9	2022-03 10-19	2022-03 20-	2022-04 1-9	2022-04 10-19
tyrosine(mg)	93 ;200;3/7	8 ;80;1/10	69 ;160;5/9	80 ;400;1/5	
valine(mg)	171 ;400;2/7	76 ;200;4/10	93 ;320;3/9	20 ;100;1/5	
valine(tsp)					
vitamina(iu)	718 ;2400;3/7	2370 ;7200;5/10	800 ;7200;1/9	5400 ;1.8e+04;2/5	2100 ;4500;2/3
vitaminc(mg)	1.4 ;10;1/7	12 ;60;2/10	8.3 ;75;1/9		
zn(mg zn)	2.6 ;9.4;3/7	2.1 ;12;2/10	1.6 ;9.4;2/9	2.3 ;12;1/5	
MEDICINE					
SnAg	4.4 ;2;7/7	2.4 ;2;10/10	2.2 ;1;8/9	0.75 ;0.25;5/5	0.75 ;0.25;3/3
sodiumbenzoate(tsp)	0.11 ;0.031;7/7	0.11 ;0.062;10/10	0.15 ;0.062;9/9	0.19 ;0.062;5/5	0.19 ;0.062;3/3
swings	0.64 ;2;2/7				
RESULT					
photo					
vomit		0.5 ;1;5/10		0.4 ;1;1/5	0.33 ;1;1/3
walk		0.1 ;1;1/10	0.22 ;1;2/9		
weight(lbs)		4.9 ;49;1/10			
carprofen(mg)					
heartworm					
sample		0.1 ;1;1/10			
sorbitol(tsp)					

TABLE XXXVIII: Part 2 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-04 20-	2022-05 1-9	2022-05 10-19	2022-05 20-	2022-06 1-9
FOOD					
KCl(tsp kcl)	0.25 ;0.12;10/10	0.41 ;0.19;2/2	0.14 ;0.19;2/5	0.43 ;0.19;12/12	0.38 ;0.19;2/2
b10ngnc[c]					
b15ngnc[c]	0.98 ;0.5;10/10	3.1 ;1;2/2	1.1 ;1;3/5	1.2 ;1;9/12	1.5 ;0.75;2/2
b20ngnc[c]					
b7ngnc[c]				0.75 ;0.75;5/12	
carrot	0.15 ;0.5;2/10	1.6 ;1;2/2	0.9 ;1;3/5	0.53 ;1;7/12	0.25 ;0.5;1/2
cbbroth	0.05 ;0.5;1/10			0.19 ;0.75;2/12	
citrate(tsp citrate)	0.25 ;0.12;10/10	0.41 ;0.19;2/2	0.14 ;0.19;2/5	0.43 ;0.19;12/12	0.38 ;0.19;2/2
ctbrothbs	0.52 ;0.5;7/10	2.4 ;1;2/2	1.3 ;1;3/5	1.7 ;1;11/12	0.62 ;0.75;1/2
ctbroth					
eggo3	0.17 ;1;2/10	0.28 ;0.5;1/2	0.5 ;1.5;3/5	0.42 ;0.5;7/12	
eggo				0.21 ;0.5;4/12	
garlic					
oliveoil(tsp)				0.01 ;0.12;1/12	
salmon				0.17 ;0.5;3/12	
scallop					
shrimp(grams)	53 ;70;10/10	61 ;30;2/2	32 ;70;4/5	43 ;40;12/12	25 ;10;2/2
spinach	0.15 ;0.5;2/10	0.12 ;0.12;2/2	0.1 ;0.5;1/5	0.44 ;0.5;7/12	0.25 ;0.5;1/2
tuna(oz)	0.45 ;1;5/10	1.3 ;1.4;2/2	0.48 ;1.4;2/5	0.3 ;1;4/12	0.5 ;1;1/2
VITAMIN					
B-1(mg)	12 ;125;1/10	16 ;31;1/2	25 ;125;1/5	31 ;125;3/12	62 ;125;1/2
B-12(mg)	0.1 ;1;1/10			0.042 ;0.5;1/12	
B-2(mg)	333 ;200;10/10	600 ;300;2/2	180 ;300;2/5	519 ;300;12/12	500 ;300;2/2
B-3(mg)	58 ;35;10/10	105 ;52;2/2	32 ;52;2/5	96 ;52;12/12	88 ;52;2/2
B-6(mg)	5 ;50;1/10		5 ;25;1/5	7.6 ;25;5/12	12 ;25;1/2
B-multi(count)	0.05 ;0.5;1/10	0.031 ;0.062;1/2		0.021 ;0.25;1/12	
Cu(mg)	0.25 ;2.5;1/10	0.31 ;0.62;1/2		0.62 ;2.5;3/12	
D-3(iu)			200 ;1000;1/5	167 ;1000;2/12	
Iodine(mg)[a]					
K1(mg)	0.5 ;5;1/10			0.27 ;2;2/12	2.5 ;5;1/2
K2(mg)	0.75 ;7.5;1/10	0.94 ;1.9;1/2	1.5 ;7.5;1/5	3.7 ;11;4/12	
Mg(mg)	40 ;200;2/10	25 ;50;1/2	40 ;200;1/5	61 ;200;5/12	100 ;200;1/2
Se(mcg)				2.1 ;25;1/12	
arginine(mg)	70 ;700;1/10			131 ;700;3/12	
biotin(mg)[a]	2.5 ;10;3/10	0.94 ;1.9;1/2	1 ;5;1/5	2.5 ;7.5;6/12	3.8 ;7.5;1/2
folate(mg)	0.05 ;0.5;1/10			0.042 ;0.5;1/12	
histidinehcl(mg)					
isoleucine(mg)				27 ;325;1/12	
lecithin(mg)	135 ;450;2/10	112 ;112;2/2	90 ;450;1/5	399 ;450;7/12	225 ;450;1/2
leucine(mg)	65 ;325;2/10	81 ;81;2/2	65 ;325;1/5	162 ;325;6/12	162 ;325;1/2
lipoicacid(mg)[a]	5 ;50;1/10				
lysinehcl(mg)	130 ;650;2/10	162 ;162;2/2	130 ;650;1/5	455 ;650;7/12	325 ;650;1/2
lysinehcl(tsp)					
methionine(mg)	12 ;125;1/10	16 ;31;1/2		21 ;125;2/12	
pantothenate(mg)[a]				65 ;156;5/12	
phenylalanine(mg)	25 ;250;1/10		50 ;250;1/5	43 ;250;3/12	125 ;250;1/2
taurine(mg)	135 ;450;2/10	112 ;112;2/2	90 ;450;1/5	399 ;450;7/12	225 ;450;1/2
threonine(mg)	130 ;650;2/10	81 ;162;1/2		347 ;650;7/12	325 ;650;1/2
tryptophan(mg)	46 ;460;1/10			134 ;460;4/12	

TABLE XXXIX: Part 1 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-04 20-	2022-05 1-9	2022-05 10-19	2022-05 20-	2022-06 1-9
tyrosine(mg)	40 ;200;2/10	25 ;50;1/2	40 ;200;1/5	38 ;200;3/12	100 ;200;1/2
valine(mg)	40 ;400;1/10			122 ;400;5/12	
valine(tsp)					
vitamina(iu)	900 ;9000;1/10	1125 ;2250;1/2		2250 ;9000;3/12	
vitaminc(mg)					
zn(mg zn)				4.9 ;23;3/12	
MEDICINE					
SnAg	0.83 ;0.5;10/10	1.5 ;0.75;2/2	0.45 ;0.75;2/5	1.3 ;0.75;12/12	1.2 ;0.75;2/2
sodiumbenzoate(tsp)	0.21 ;0.12;10/10	0.38 ;0.19;2/2	0.11 ;0.19;2/5	0.32 ;0.19;12/12	0.31 ;0.19;2/2
swings					
RESULT					
photo					
vomit	0.3 ;1;2/10	1 ;2;1/2		0.083 ;1;1/12	0.5 ;1;1/2
walk	0.1 ;1;1/10				
weight(lbs)	5.4 ;54;1/10			4.6 ;55;1/12	
carprofen(mg)					
heartworm			0.2 ;1;1/5		
sample				0.083 ;1;1/12	
sorbitol(tsp)					

TABLE XL: Part 2 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-06 10-19	2022-06 20-	2022-07 1-9	2022-07 10-19	2022-07 20-
FOOD					
KCl(tsp kcl)	0.21 ;0.19;9/10	6.25e-03 ;0.016;2/5	0.07 ;0.062;7/9	0.016 ;0.031;4/10	0.023 ;0.031;9/12
b10ngnc[c]	0.44 ;0.75;5/10				
b15ngnc[c]	0.4 ;0.75;4/10	0.025 ;0.062;2/5	0.78 ;1;6/9		0.17 ;1;2/12
b20ngnc[c]					
b7ngnc[c]				0.2 ;1;2/10	0.17 ;1;2/12
carrot	0.15 ;0.5;3/10	1 ;1;3/5	0.78 ;1;6/9	0.2 ;1;2/10	0.33 ;1;4/12
cbbroth					
citrate(tsp citrate)	0.21 ;0.19;9/10	6.25e-03 ;0.016;2/5	0.015 ;0.031;3/9	4.69e-03 ;0.031;2/10	0.018 ;0.031;7/12
ctbrothbs	0.54 ;0.75;7/10	1.2 ;1;4/5	2.6 ;1;9/9	2.7 ;1;10/10	1.4 ;1;12/12
ctbroth					
eggo3	0.95 ;1;8/10	0.8 ;1;4/5	0.5 ;1;4/9		0.17 ;1;3/12
eggo					
garlic	0.05 ;0.5;1/10				
oliveoil(tsp)					
salmon				2.3 ;1;7/10	0.91 ;1;10/12
scallop					0.88 ;5;3/12
shrimp(grams)	35 ;30;10/10	74 ;60;5/5	1e+02 ;80;9/9	94 ;60;10/10	56 ;40;12/12
spinach	0.15 ;0.5;3/10				
tuna(oz)	0.36 ;1;5/10	0.5 ;1;3/5	1 ;1.5;3/9	0.11 ;0.75;3/10	8.33e-03 ;0.1;1/12
VITAMIN					
B-1(mg)	7.5 ;75;1/10		56 ;125;3/9	6.2 ;62;1/10	
B-12(mg)			0.11 ;1;1/9		
B-2(mg)	275 ;300;7/10	10 ;25;2/5	111 ;200;6/9	132 ;100;9/10	98 ;100;11/12
B-3(mg)	48 ;52;7/10	1.8 ;4.4;2/5	40 ;35;7/9	45 ;35;9/10	34 ;35;11/12
B-6(mg)			11 ;50;2/9		
B-multi(count)					
Cu(mg)	0.5 ;2.5;2/10		0.22 ;2;1/9		
D-3(iu)					
Iodine(mg)[a]	0.025 ;0.25;1/10				
K1(mg)					
K2(mg)	1.1 ;6;2/10	8 ;20;2/5	20 ;22;9/9	6.8 ;15;5/10	1.4 ;15;2/12
Mg(mg)	22 ;120;2/10		89 ;200;4/9		
Se(mcg)					
arginine(mg)	42 ;420;1/10	16 ;80;1/5	40 ;187;2/9		
biotin(mg)[a]	0.45 ;4.5;1/10		6.7 ;20;5/9		0.17 ;2;1/12
folate(mg)			0.11 ;1;1/9		
histidinehcl(mg)			151 ;340;4/9	4.2 ;42;1/10	
isoleucine(mg)			22 ;200;1/9		
lecithin(mg)	140 ;450;3/10		3.1 ;28;1/9		
leucine(mg)	65 ;325;2/10		124 ;160;7/9	24 ;160;2/10	
lipoicacid(mg)[a]					
lysinehcl(mg)	162 ;650;3/10	192 ;160;3/5	427 ;320;9/9	32 ;160;2/10	
lysinehcl(tsp)					
methionine(mg)	25 ;125;2/10		49 ;250;4/9	3.2 ;32;1/10	
pantothenate(mg)[a]	31 ;156;2/10		17 ;78;2/9		
phenylalanine(mg)	15 ;150;1/10	50 ;250;1/5	174 ;250;7/9		
taurine(mg)	140 ;450;3/10				
threonine(mg)	130 ;650;2/10	158 ;160;3/5	659 ;650;9/9	48 ;320;2/10	
tryptophan(mg)	46 ;230;2/10	276 ;230;3/5	518 ;460;8/9	167 ;230;8/10	38 ;230;3/12

TABLE XLI: Part 1 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-06 10-19	2022-06 20-	2022-07 1-9	2022-07 10-19	2022-07 20-
tyrosine(mg)	12 ;120;1/10	60 ;100;2/5	203 ;100;9/9	15 ;100;2/10	
valine(mg)	44 ;240;2/10		94 ;200;5/9		
valine(tsp)					
vitamina(iu)					675 ;8100;1/12
vitaminc(mg)					
zn(mg zn)			2.6 ;23;1/9		
MEDICINE					
SnAg	0.69 ;0.75;7/10	0.025 ;0.062;2/5	1.2 ;1;5/9	3.4 ;2;10/10	1.7 ;2;12/12
sodiumbenzoate(tsp)	0.17 ;0.19;7/10	6.25e-03 ;0.016;2/5	0.13 ;0.12;9/9	0.2 ;0.094;10/10	0.14 ;0.11;12/12
swings					
RESULT					
photo					
vomit		0.4 ;2;1/5	0.33 ;1;3/9		0.25 ;1;3/12
walk				0.1 ;1;1/10	
weight(lbs)	5.4 ;54;1/10				4.4 ;53;1/12
carprofen(mg)					
heartworm		0.2 ;1;1/5			
sample					
sorbitol(tsp)					

TABLE XLII: Part 2 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-08 1-9	2022-08 10-19	2022-08 20-
FOOD			
KCl(tsp kcl)		0.12 ;0.19;4/7	0.012 ;0.031;5/10
b10ngnc$^{(c)}$			
b15ngnc$^{(c)}$	1 ;1;2/3		
b20ngnc$^{(c)}$			
b7ngnc$^{(c)}$			
carrot	1 ;1;2/3	0.43 ;3;1/7	0.3 ;1;3/10
cbbroth			0.8 ;1;4/10
citrate(tsp citrate)		2.23e-03 ;0.016;1/7	0.017 ;0.031;5/10
ctbrothbs	1.7 ;1;2/3	2 ;1;5/7	1.00e-02 ;0.1;1/10
ctbroth			
eggo3	0.5 ;0.5;2/3		
eggo			
garlic			
oliveoil(tsp)			
salmon	0.67 ;1;2/3	0.14 ;1;1/7	0.51 ;1;1/10
scallop			
shrimp(grams)	56 ;50;3/3	88 ;80;6/7	17 ;90;2/10
spinach			
tuna(oz)		0.53 ;2;3/7	
VITAMIN			
B-1(mg)			
B-12(mg)			
B-2(mg)	67 ;100;2/3	64 ;100;5/7	1 ;10;1/10
B-3(mg)	12 ;35;1/3	22 ;35;5/7	0.35 ;3.5;1/10
B-6(mg)			
B-multi(count)			
Cu(mg)			
D-3(iu)			
Iodine(mg)$^{(a)}$			
K1(mg)			
K2(mg)			
Mg(mg)		71 ;200;2/7	
Se(mcg)			
arginine(mg)			
biotin(mg)$^{(a)}$			
folate(mg)			
histidinehcl(mg)			
isoleucine(mg)			
lecithin(mg)			
leucine(mg)			
lipoicacid(mg)$^{(a)}$			
lysinehcl(mg)		17 ;120;1/7	
lysinehcl(tsp)			3.13e-03 ;0.031;1/10
methionine(mg)			
pantothenate(mg)$^{(a)}$			
phenylalanine(mg)			
taurine(mg)			
threonine(mg)			
tryptophan(mg)			

TABLE XLIII: Part 1 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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	2022-08 1-9	2022-08 10-19	2022-08 20-
tyrosine(mg)			
valine(mg)			
valine(tsp)			3.13e-03 ;0.031;1/10
vitamina(iu)			
vitaminc(mg)			
zn(mg zn)			
MEDICINE			
SnAg	1.3 ;1;2/3	2.2 ;1;6/7	1.9 ;1;10/10
sodiumbenzoate(tsp)	0.12 ;0.094;2/3	0.12 ;0.094;5/7	0.044 ;0.062;8/10
swings			
RESULT			
photo			0.1 ;1;1/10
vomit		0.57 ;2;3/7	0.2 ;2;1/10
walk			
weight(lbs)			4.9 ;49;1/10
carprofen(mg)			22 ;38;5/10
heartworm			
sample			
sorbitol(tsp)		0.15 ;0.19;5/7	0.029 ;0.062;8/10

TABLE XLIV: Part 2 of 2. Events Summary for Beauty from 2022-03-03 to 2022-08-29A summary of most dietary components and events for selected months between 2022-03-03and 2022-08-29. 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 F: Symbols, Abbreviations and Colloquialisms

TERM definition and meaning

Appendix G: 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 H: 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-2022-013.

Version	Date	Comments
0.01	2022-08-21	Create from empty.tex template
-	November 4, 2022	version 0.10 MJM-2022-013
-	2022-11-04	email copy to Barb 0.10 MJM-2022-013
1.0	20xx-xx-xx	First revision for distribution

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

Version	Date	URL
0.10	2022-11-04	https://zenodo.org/record/7293723#.Y2WaP3XMLCI
0.10	2022-11-04	https://www.researchgate.net/publication/365127664_Clinical_and_microbiological_improvement_in_dog_af
0.10	2022-11-04	https://www.linkedin.com/posts/marchywka_benzoate-containing-snack-improved-microbiome-activity-6994

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type =”techreport” ,
doi =”10.5281/zenodo.7293723” ,
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startdate =”2022-08-21” ,
day =”4” ,
month =”11” ,
year =”2022” ,
author1email =”marchywka@hotmail.com” ,
contact =”marchywka@hotmail.com” ,
author1id =”orcid.org/0000-0001-9237-455X” ,
pages =” 62”
}

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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