

VETERINARY[®] HPM

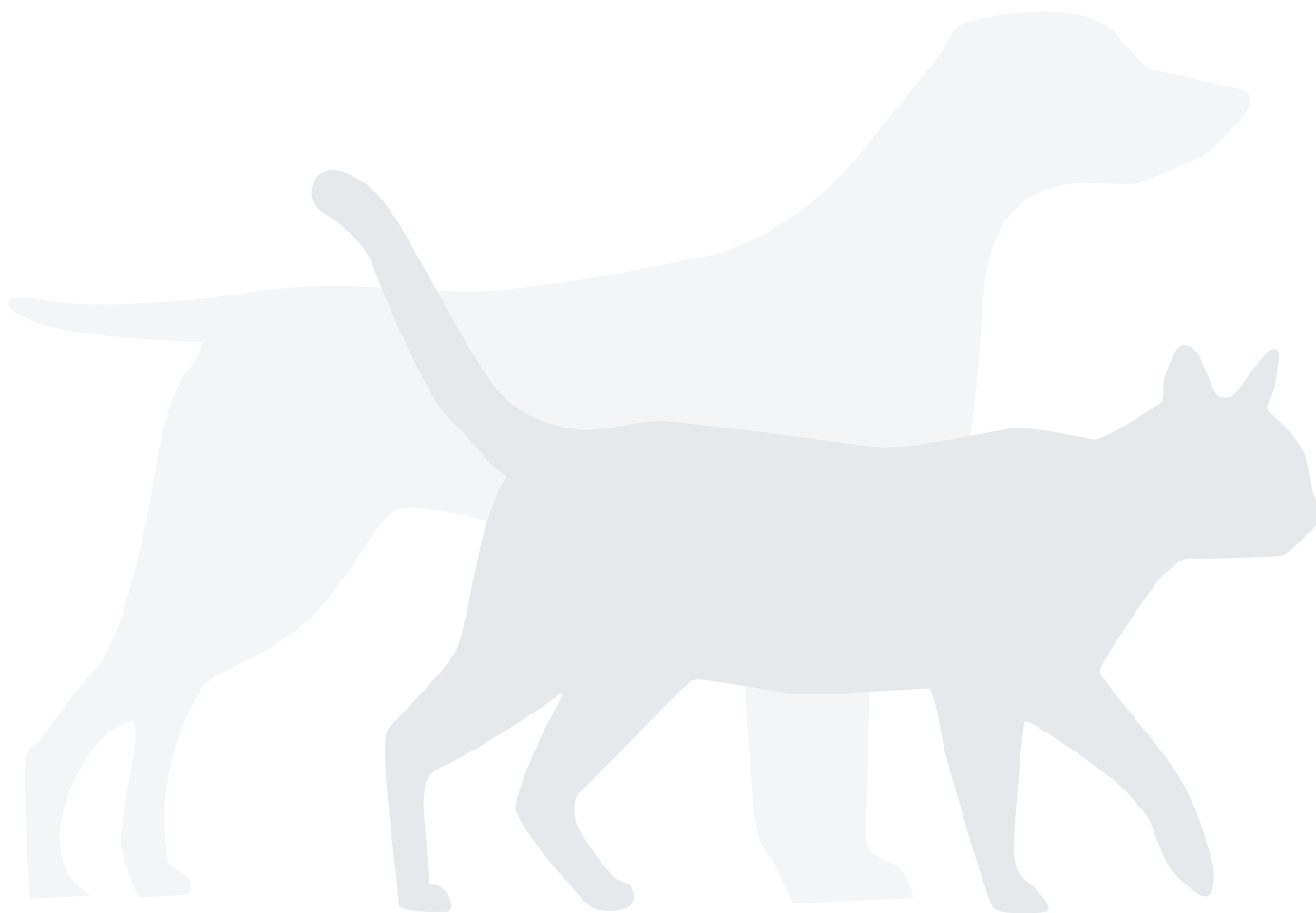
PRODUCT BOOK - FULL RANGE



JANUARY 2025

Shaping the future
of animal health

Virbac





DIETETIC RANGE

VETERINARY[®]
HPM



VETERINARY[®]
HPM







DIETETIC
RANGE



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FELINE RANGE

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AVAILABLE FORMATS FELINE RANGE



	UROLOGY				WEIGHT		GASTRO		DERMATO	ALLERGY		KIDNEY & JOINT				
	1 STRUVITE DISSOLUTION	2 DISSOLUTION & PREVENTION	3 URINARY WIB	WET DISSOLUTION & PREVENTION	1 WEIGHT LOSS & DIABETES	2 WEIGHT LOSS & CONTROL	1 DIGESTIVE SUPPORT	WET DIGESTIVE SUPPORT	1 DERMATOLOGY SUPPORT	1 HYPOALLERGY INSECT	2 HYPOALLERGY HYDROLYSED FISH	1 EARLY KIDNEY & JOINT	2 KIDNEY & JOINT	3 ADVANCED KIDNEY & JOINT	WET EARLY KIDNEY & JOINT	WET KIDNEY & JOINT
1.5kg	X	X	X		X	X	X					X	X	X		
3kg	X	X	X		X	X	X		X	X	X	X	X	X		
7kg		X			X	X										
12x85g				chunks in gravy				loaf							chunks in gravy	
14x85g																loaf

HEALTH CONDITION

DIETETIC FELINE RANGE CORRESPONDENCE



	STRUVITE DISSOLUTION	DISSOLUTION & PREVENTION	URINARY WIB	WET DISSOLUTION & PREVENTION	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	DIGESTIVE SUPPORT	WET DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	EARLY KIDNEY & JOINT	KIDNEY & JOINT	ADVANCED KIDNEY & JOINT	WET EARLY KIDNEY & JOINT	WET KIDNEY & JOINT
Chronic hepatic insufficiency																
Chronic pancreatic insufficiency																
Chronic renal insufficiency													IRIS Stage II	IRIS Stage III & IV		IRIS Stage II to IV
Chylothorax																
Colitis answering a fibre-enhanced diet																
Constipation																
Convalescence																
Cystitis (fic)																
Dermatitis																
Dermatosis																
Diabetes mellitus with associated obesity																
Diabetes mellitus without associated obesity																
Diarrhoea																
Digestive surgery																
Food allergy/intolerance																
Hair loss																
Hyperlipaemia																
Inflammatory bowel disease																
Kidney dysfunction (IRIS stage I)																
Maldigestion malabsorption																
Megacolon																
Obesity (>30%)																
Orthopaedic surgery of the pelvis																
Osteoarthritis																
Overweight (<30%)																
Oxalate urolith prevention																
Small intestinal bacteria overgrowth																
Struvite urolith dissolution	(stones & crystals)	(crystals)														
Struvite urolith prevention																
Weight stabilisation/control after loss																

ANALYTICAL CONSTITUENTS

DRY FELINE RANGE

AS FED (%)	UROLOGY DISSOL	UROLOGY DISSOL & PREV	URINARY W/B	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	EARLY KIDNEY & JOINT	KIDNEY & JOINT	ADVANCED KIDNEY & JOINT
Moisture	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Protein	44	44	44	44	44	44	44	31	31	38	35	30
Animal to vegetal protein ratio	90/10	90/10	90/10	94/06	90/10	92/08	91/09	96/04	100/00	92/08	89/11	86/14
Fat	16	13.5	13.5	11	12	21	17.5	16	16	16.5	20	21
Minerals	7.5	7.5	7.5	8.5	8.5	8.5	8.5	7.5	7.5	7.5	7.5	7
Crude cellulose	4	6.5	6.5	13	11.5	3.5	5	6	4	6.5	3.5	3.5
Total dietary fibre	7.5	12	12	17.5	16.5	6	9	8	9	12.5	9.5	9.5
Starch	15	15	15	12.5	12	13	14	27	32	21	24	28
Calcium	0.65	0.7	0.7	1.3	1.3	1.3	1.3	0.8	0.8	0.9	1	1
Phosphorus	0.65	0.7	0.7	0.9	1.1	1.1	1.1	0.7	0.7	0.6	0.55	0.5
Ca/p ratio	1.0	1.0	1.0	1.4	1.2	1.2	1.2	1.1	1.1	1.5	1.8	2
Sodium	1.3	1.1	1.1	0.9	0.7	0.9	0.7	0.7	0.7	0.4	0.4	0.4
Potassium	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.8	0.8
Magnesium	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.1	0.08	0.06	0.06	0.06
Omega-6	2.5	2.2	2	2	2.1	3.5	3.5	3.3	3	2.5	3	3.2
Omega-3	1	0.7	1.1	0.7	0.7	1	1.1	0.7	0.7	1.5	1.5	1.5
Nitrogen free extract (NFE)	23.0	23.0	23.0	18.0	18.5	17.5	19.5	34.0	36.0	26	28.5	33
Metabolisable Energy (ME) (NRC 2006) (kcal/100g)	397	374	374	331	342	418	395	380	389	384	412	415
In vivo measured ME (kcal/100g)	385	364	364	306	325	419	437	379	383	385	410	410
Protein to calorie ratio (NRC 2006) (g/Mcal)	111	118	118	133	129	105	111	82	80	99	85	72
Calorie from protein (%)	42	44	44	50	48	39	42	30	29	37	31	26
Calorie from fat (%)	37	33	33	30	32	45	40	37	37	39	44	45
Calorie from NFE (%)	21	23	23	20	20	16	18	33	34	24	25	29
Urinary pH	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.0 - 6.5	6.2 - 6.7	6.5 - 7.0	6.5 - 7.0
Struvite RSS	<1	<1	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Oxalate RSS	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12

Added vitamins & trace elements:

Vitamin A (IU/kg)	17000	17000	17000	20000	17000	19600	17000	17000	17000	17000	17000	17000
Vitamin D3 (IU/kg)	1700	1700	1700	2000	1700	1700	1700	1700	1700	1700	1700	1700
Vitamin E (mg/kg)	610	610	610	700	610	610	610	610	610	610	610	610
Vitamin K3 (mg/kg)	0.22	0.22	0.22	0.25	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Vitamin B1 thiamine (mg/kg)	11.2	11.2	11.2	13	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
Vitamin B2 (riboflavine) (mg/kg)	8	8	8	9	8	8	8	8	8	8	8	8
Vitamin B3 (PP, niacin, nicotinic ac) (mg/kg)	113.4	113.4	113.4	130	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4
Vitamin B5 (pantothenic ac) (mg/kg)	14.5	14.5	14.5	17.4	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Vitamin B6 (pyridoxine) (mg/kg)	7.6	7.6	7.6	9.1	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Vitamin B8 (biotine, vitamin H) (mg/kg)	0.15	0.15	0.15	0.18	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Vitamin B9 (folic ac) (mg/kg)	1.9	1.9	1.9	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Vitamin B12 (cobalamine) (mg/kg)	0.046	0.046	0.046	0.055	0.046	0.053	0.046	0.046	0.046	0.046	0.046	0.046
Choline (mg/kg)	1760	1760	1760	2100	1760	1760	1760	1760	1760	1760	1760	1760
Taurine (mg/kg)	2460	2460	2460	2900	2900	2460	2460	2460	2460	2460	2460	2460
Copper (mg/kg)	12	12	12	14	12	12	12	12	12	12	12	12
Iodine (mg/kg)	0.4	0.4	0.4	0.45	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Zinc (mg/kg)	110	110	110	130	110	126	110	110	110	110	110	110

Specific functional ingredients / additives:

Bentonite (g/kg)	5	5	5	5	5	5	5	5	5	5	5	5
Lactobacillus acidophilus (mg/kg)	7	7	7	7	7	7	7	7	7	7	7	7
Beta-glucan (mg/kg)	0	0	0	0	0	500	0	0	0	0	0	0
L-carnitine (mg/kg)	540	540	540	540	540	0	540	540	540	540	540	540
Chitosan (mg/kg)	800	800	800	800	800	800	800	800	800	1200	1200	1200
Chondroitine sulfate (mg/kg)	0	0	0	440	215	0	0	0	0	1200	1200	1200
Egg shell membrane (mg/kg)										1200	1200	1200
Nucleotides (mg/kg)	0	0	0	0	0	560	0	0	0	0	0	0
Butyrate (mg/kg)	0	0	0	0	0	430	0	0	0	0	0	0
K citrate (%)	0.3	0.3	0.3	0	0	0	0	0	0	0	0	0
Ca carbonate (%)	0	0	0	0	0	0	0	0	0	0.7	1	1
Green tea concentrate (%)	0	0	0.26	0	0	0	0	0	0	0	0	0



ON DRY MATTER (%)	UROLOGY DISSOL	UROLOGY DISSOL & PREV	URINARY WIB	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	EARLY KIDNEY & JOINT	KIDNEY & JOINT	ADVANCED KIDNEY & JOINT
Protein	46.6	46.6	46.6	46.6	46.6	46.6	46.6	32.8	32.8	40.2	37	31.7
Fat	16.9	14.3	14.3	11.6	12.7	22.2	18.5	16.9	16.9	17.5	21.2	22.2
Minerals	7.9	7.9	7.9	9.0	9.0	9.0	9.0	7.9	7.9	7.9	7.9	7.4
Crude cellulose	4.2	6.9	6.9	13.8	12.2	3.7	5.3	6.3	4.2	6.9	3.7	3.7
Total dietary fibre	7.9	12.7	12.7	18.5	17.5	6.3	9.5	8.5	9.5	13.2	10.1	10.1
Starch	15.9	15.9	15.9	13.2	12.7	13.8	14.8	28.6	33.9	22.2	25.4	29.6
Calcium	0.7	0.7	0.7	1.4	1.4	1.4	1.4	0.8	0.8	0.95	1.06	1.06
Phosphorus	0.7	0.7	0.7	1.0	1.2	1.2	1.2	0.7	0.7	0.63	0.58	0.53
Ca/P ratio	1.0	1.0	1.0	1.4	1.2	1.2	1.2	1.1	1.1	1.5	1.8	2.0
Sodium	1.4	1.2	1.2	1.0	0.7	1.0	0.7	0.7	0.7	0.42	0.42	0.42
Potassium	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.85	0.85	0.85
Magnesium	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.06	0.06	0.06
Omega-6	2.6	2.3	2.1	2.1	2.2	3.7	3.7	3.5	3.2	2.65	3.17	3.39
Omega-3	1.1	0.7	1.2	0.7	0.7	1.1	1.2	0.7	0.7	1.59	1.59	1.59
Nitrogen Free Extract (NFE)	24.3	24.3	24.3	19.0	19.6	18.5	20.6	36.0	38.1	27.5	30.2	34.9
Metabolisable Energy (ME) (NRC 2006) (kcal/100g)	420	396	396	350	362	442	418	402	412	406	436	439

ON 1000 KCAL (G)	UROLOGY DISSOL	UROLOGY DISSOL & PREV	URINARY WIB	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	EARLY KIDNEY & JOINT	KIDNEY & JOINT	ADVANCED KIDNEY & JOINT
Protein	110.8	117.6	117.6	131.3	123.2	105.3	111.4	81.6	79.7	99	85	72.3
Fat	40.3	36.1	36.1	33.2	35.1	50.2	44.3	42.1	41.1	43.0	48.5	50.6
Minerals	18.9	20.1	20.1	25.4	23.8	20.3	21.5	19.7	19.3	19.5	18.2	16.9
Crude cellulose	10.1	17.4	17.4	39.3	33.6	8.4	12.7	15.8	10.3	16.9	8.5	8.4
Total dietary fibre	18.9	32.1	32.1	52.9	48.2	14.4	22.8	21.1	23.1	32.6	23.1	22.9
Starch	37.8	40.1	40.1	37.8	35.1	31.1	35.4	71.1	82.3	54.7	58.3	67.5
Calcium	1.6	1.9	1.9	3.9	3.6	3.1	3.3	2.1	2.1	2.34	2.43	2.41
Phosphorus	1.6	1.9	1.9	2.7	3.1	2.6	2.8	1.8	1.8	1.56	1.33	1.20
Ca/P ratio	1.0	1.0	1.0	1.4	1.2	1.2	1.2	1.1	1.1	1.5	1.8	2.0
Sodium	3.3	2.9	2.9	2.7	2.0	2.2	1.8	1.8	1.8	1.04	0.97	0.96
Potassium	1.8	1.9	1.9	2.1	2.0	1.9	1.8	1.8	1.8	2.08	1.94	1.93
Magnesium	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.16	0.15	0.14
Omega-6	6.3	5.9	5.3	6.0	6.1	8.4	8.9	8.7	7.7	6.51	7.28	7.71
Omega-3	2.5	1.9	2.9	2.1	2.0	2.4	2.8	1.8	1.8	3.91	3.64	3.61
Nitrogen Free Extract (NFE)	57.9	61.5	61.5	54.4	54.1	41.9	49.4	89.5	92.5	67.7	69.2	79.5

ANALYTICAL CONSTITUENTS

WET FELINE RANGE

AS FED (%)	WET - DISSOLUTION AND PREVENTION	WET - DIGESTIVE SUPPORT	WET - EARLY KIDNEY & JOINT	WET - KIDNEY & JOINT
Moisture	79.5	72	78.5	76
Protein	11	14	12	11
Animal/vegetal protein ratio	89/11	84/16	100/00	100/00
Fat	4.5	8,5	5.5	9
Minerals	2.1	2,3	2	2
Crude cellulose	0.8	0,9	0.8	0.8
Starch	0.8	0,4	0.8	0.4
Calcium	0.16	0,25	0.25	0.28
Phosphorus	0.15	0,2	0.17	0.15
Ca/P ratio	1.1	1,3	1.5	1.9
Sodium	0.30	0,3	0.2	0.2
Potassium	0.23	0,3	0.22	0.28
Magnesium	0.014	0,02	0.014	0.014
Omega-6	0.85	2,2	1.5	2.5
Omega-3	0.28	0,7	0.5	1.1
Nitrogen Free Extract (NFE)	2.1	2,3	1.2	1.2
Metabolisable Energy (ME) (NRC 2006) (kcal/100g)	93	136	99	124
In vivo measured ME (kcal/100g)	81	137	97	124
Protein to calorie ratio (NRC 2006) (g/Mcal)	118	103	121	89
Calorie from protein (%)	47	40	47	34
Calorie from fat (%)	44	54	48	62
Calorie from NFE (%)	9	6	5	4
Urinary pH	6.0 - 6.5	6,0 - 6,5	6.2 - 6.7	6.5 - 7.0
Struvite RSS	<1	<2.5	<2.5	<2.5
Ca oxalate RSS	<12	<12	<12	<12

Total vitamins & trace elements:

Vitamin A (IU/kg)	29000	22000	11600	15000
Vitamin D3 (IU/kg)	150	250	130	450
Vitamin E (mg/kg)	130	200	125	130
Vitamin B1 thiamine (mg/kg)	5	4	6	7
Vitamin B2 (riboflavine) (mg/kg)	3	4	2.5	4
Vitamin B3 (PP. niacine. nicotinic ac) (mg/kg)	45	50	44	60
Vitamin B5 (pantothenic ac) (mg/kg)	8	10	6.5	10
Vitamin B6 (pyridoxine) (mg/kg)	1.7	2.5	1.4	2
Vitamin B8 (biotine. vitamin H) (mg/kg)	0.06	0.08	0.05	0.05
Vitamin B9 (folic ac) (mg/kg)	0.8	0.5	0.75	1.0
Vitamin B12 (cobalamine) (mg/kg)	0.03	0.04	0.04	0.04
Choline (mg/kg)	1300	1500	1330	1900
Taurine (mg/kg)	1200	2000	1390	2400
Copper (mg/kg)	2.6	3	2.1	5
Iron (mg/kg)	60	80	60	75
Iodine (mg/kg)	1.5	1	1	1.2
Manganese (mg/kg)	5	4	5	5
Selenium (mg/kg)	0.4	0.4	0.3	0.35
Zinc (mg/kg)	35	55	40	45



Specific functional ingredients / additives:	WET - DISSOLUTION AND PREVENTION	WET - DIGESTIVE SUPPORT	WET - EARLY KIDNEY & JOINT	WET - KIDNEY & JOINT
Bentonite (mg/kg)	900	900	1000	1000
Chitosan (mg/kg)			300	300
Chondroitine sulfate (mg/kg)			300	
Egg shell membrane (mg/kg)			300	300
Ca carbonate (%)			0.1	0.2

ON 1000 kcal (g)

Protein	118.3	102.9	121.2	88.7
Fat	48.4	62.5	55.6	72.6
Minerals	22.6	16.9	20.2	16.1
Crude cellulose	8.6	6.6	8.1	6.5
Starch	8.6	2.9	8.1	3.2
Calcium	1.72	1.8	2.53	2.26
Phosphorus	1.61	1.5	1.72	1.21
Sodium	3.23	2.2	2.02	1.61
Potassium	2.47	2.2	2.22	2.26
Magnesium	0.15	0,1	0.14	0.11
Omega-6	9.14	16,2	15.15	20.16
Omega-3	3.01	5,1	5.05	8.87
Nitrogen Free Extract (NFE)	22.6	16,9	12.1	9.7
Vitamin A (IU/kg)	31183	16176	11717	12097
Vitamin D3 (IU/kg)	161	184	131	363
Vitamin E (mg/kg)	140	147	126	105
Vitamin B1 thiamine) (mg/kg)	5.4	2,9	6.1	5.6
Vitamin B2 (riboflavine) (mg/kg)	3.2	2,9	2.5	3.2
Vitamin B3 (PP. niacine. nicotinic ac) (mg/kg)	48.4	36,8	44.4	48.4
Vitamin B5 (pantothenic ac) (mg/kg)	8.6	7,4	6.6	8.1
Vitamin B6 (pyridoxine) (mg/kg)	1.8	1,8	1.4	1.6
Vitamin B8 (biotine. vitamin H) (mg/kg)	0.06	0,06	0.051	0.040
Vitamin B9 (folic ac) (mg/kg)	0.9	0,4	0.758	0.806
Vitamin B12 (cobalamine) (mg/kg)	0.03	0,03	0.040	0.032
Choline (mg/kg)	1398	1103	1343	1532
Taurine (mg/kg)	1290	1471	1404	1935
Copper (mg/kg)	2.8	2,2	2.1	4.0
Iron (mg/kg)	64.5	58,8	60.6	60.5
Iodine (mg/kg)	1.6	0,7	1.0	1.0
Manganese (mg/kg)	5.4	2,9	5.1	4.0
Selenium (mg/kg)	0.4	0,3	0.3	0.3
Zinc (mg/kg)	37.6	40,4	40.4	36.3



FELINE LOWER URINARY TRACT DISEASES (FLUTD)

STONES/CRYSTALS

STRUVITE

Short term (5-12 weeks):
DIETARY DISSOLUTION

Stones



1 STRUVITE DISSOLUTION
Struvite stones

Crystals



WET DISSOLUTION & PREVENTION
Struvite & Oxalate Crystals

2 DISSOLUTION & PREVENTION
Struvite & Oxalate Crystals

CALCIUM OXALATE

Stones or Crystals
NO DIETARY DISSOLUTION

**REMOVAL
BY SURGERY**

FELINE IDIOPATHIC CYSTITIS (FIC)
(with or without crystals)

DIETARY MANAGEMENT

in the long term⁽¹⁾

AFTER DISSOLUTION

AFTER REMOVAL

In the long term⁽¹⁾:
DIETARY PREVENTION⁽¹⁾

Prevention of struvite and/or calcium oxalate formation



2 DISSOLUTION & PREVENTION
Struvite & Oxalate Crystals



WET DISSOLUTION & PREVENTION
Struvite & Oxalate Crystals



3 URINARY W/B
Water Intake & Behaviour



WET DISSOLUTION & PREVENTION
Struvite & Oxalate Crystals

⁽¹⁾ A veterinarian's opinion should be sought before use.

1

STRUVITE DISSOLUTION

Struvite stones



AVAILABLE FORMATS

1.5 kg, 3 kg

DIETETIC INDICATIONS*

- Dissolution of struvite stones (5 to 12 weeks).

OTHER USE

- Reduction of Calcium oxalate formation.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).
- Cardiac insufficiency.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	90/10
• Fat	16
• Minerals	7.5
• Crude Fibre	4
• NFE*	23
• Starch	15
• Calcium	0.65
• Phosphorus	0.65
• Sodium	1.3
• Potassium	0.7
• Magnesium	0.08
• Chloride	1.8
• Sulphur	0.7
• Methionine + Cystine	1.5
• Omega-6 fatty acids	2.5
• Omega-3 fatty acids	1
• EPA+DHA	0.3

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	397
• ME** measured in vivo (kcal/100g)	385
• Protein digestibility (in vivo; %)	87
• Fat digestibility (in vivo; %)	96
• Energy from protein (%)	42
• Energy from fat (%)	37
• Energy from NFE (%)	21
• Protein to Calorie ratio (g/Mcal)	111

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 23%
HIGH PROTEIN 44%
of ANIMAL ORIGIN 90%

COMPOSITION

Dehydrated pork and poultry proteins, potato starch, hydrolysed pork and poultry proteins, animal fats, minerals, peas, faba bean hulls, rice, beet pulp, linseed, brewers yeast, fish oil, lignocellulose, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg
• Potassium Citrate	0.3%

FEEDING GUIDELINES



Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
2	20	20	25
3	30	35	35
4	40	45	50
5	50	55	60
6	60	65	75
7	70	75	85
8	75	85	95
9	85	100	110
10	95	110	120

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every month.

*adult, neutered indoor cat with optimal body weight

KEY BENEFITS & CHARACTERISTICS

> **Increases Water Intake**

High amounts of protein and sodium stimulate water intake, help to increase urine volume and micturition frequency.

> **Low Struvite RSS (<1)**



The formulation induces urine under-saturated for struvites, with struvite RSS* < 1, to promote rapid* dissolution of struvite stones^{(1) (2)}.

*RSS: *Relative Super Saturation index, in comparison to Veterinary HPM U2 cat.*

> **High EPA+DHA (omega-3)**

Addition of fish oil allows to achieve high amount of omega-3, especially EPA+DHA, and helps limit low urinary tract (LUT) inflammation.

> **Urine Acidification (pH: 6.0-6.5)***



Urinary pH between 6.0 - 6.5 allows dissolution of struvites without increasing the risk of oxalate formation⁽²⁾.

> **Phosphorus Binding**



Added chitosan, as phosphorus binder, helps reduce bioavailability of phosphorus and thus decrease its urinary excretion.⁽³⁾

ADDITIONAL BENEFITS & CHARACTERISTICS

> **Low Mineral Concentration***

Low contents of Calcium, Phosphorus and Magnesium help limit their urinary excretion and the risk of struvite and oxalate formation.

> **Addition of Oxalate Inhibitor**

Added Potassium citrate, as specific inhibitor, helps limit the formation of Calcium oxalate crystals.

> **Oxalate RSS <12**



The formulation induces urine metastable for calcium oxalates, with Oxalate RSS < 12⁽²⁾.

> **High Palatability**

Richness in animal protein and fat guarantees high palatability and ensures maximum compliance.



14
 DAYS
 MEAN TIME OF
 STRUVITE
 DISSOLUTION⁽¹⁾



Refer to article p.208



14%
 REDUCTION OF THE
 PHOSPHORUS APPARENT
 DIGESTIBILITY BY ADDING
 CHITOSAN⁽³⁾



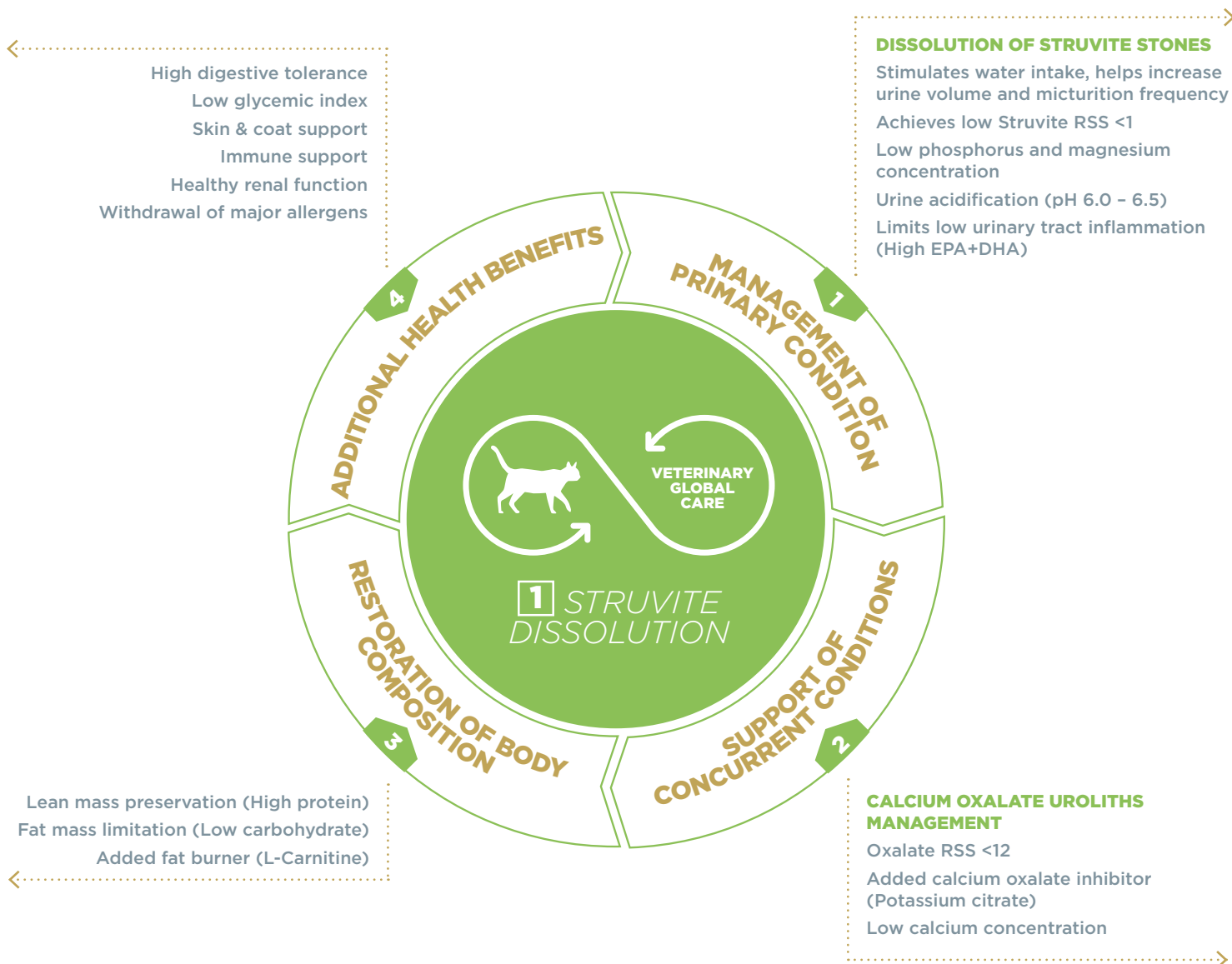
Refer to article p.204

* Commission regulation (EU) 2020/354

1) G. Chaix et al. Efficacy and safety of a new high protein - low carbohydrate dry diet in sterile feline struvite urolithiasis. ECVIM Congress 2017.

2) D. Formankova et al. Effect of a new high protein - low carbohydrate diets on urinary parameters in cats in vitro struvite dissolution. ESVCN Congress 2015.

3) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress 2015.





AVAILABLE FORMATS
1.5 kg, 3 kg, 7 kg

DIETETIC INDICATIONS*

- Dissolution of struvite stones.
- Reduction of struvite stone recurrence.
- Reduction of oxalate stones formation.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).
- Cardiac insufficiency.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	90/10
• Fat	13.5
• Minerals	7.5
• Crude Fibre	6.5
• NFE*	23
• Starch	15
• Calcium	0.7
• Phosphorus	0.7
• Sodium	1.1
• Potassium	0.7
• Magnesium	0.08
• Chloride	1.4
• Sulphur	0.7
• Methionine + Cystine	1.5
• Omega-6 fatty acids	2.2
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	374
• ME** measured in vivo (kcal/100g)	364
• Protein digestibility (in vivo; %)	86
• Fat digestibility (in vivo; %)	91.5
• Energy from protein (%)	44
• Energy from fat (%)	33
• Energy from NFE (%)	23
• Protein to Calorie ratio (g/Mcal)	118

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 23%

HIGH PROTEIN 44%

of ANIMAL ORIGIN 90%

COMPOSITION

Dehydrated pork and poultry proteins, potato starch, hydrolysed pork and poultry proteins, animal fats, minerals, faba bean hulls, peas, lignocellulose, rice, beet pulp, linseed, brewers yeast, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg
• Potassium Citrate	0.3%

FEEDING GUIDELINES



Body Weight (kg)	Daily ration (g/day)		
	Overweight Soft weight loss	Normal*	Underweight
2	20	25	25
3	30	35	40
4	40	45	50
5	50	60	65
6	60	70	75
7	70	80	90
8	80	90	105
9	90	105	115
10	105	115	130

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every month.

* adult neutered indoor cat with optimal body weight




KEY BENEFITS & CHARACTERISTICS

> Increases Water Intake


High amounts of protein and sodium stimulate water intake, increase urine volume and micturition frequency.

> Low Struvite RSS (<1)


 The formulation induces urine under-saturated for struvites, with struvite RSS** <1, to promote dissolution of existing struvite crystals and prevent formation of new ones⁽¹⁾.

**RSS: *Relative Super Saturation index.*

> Optimizes Urinary pH*

 Urinary pH between 6.0 – 6.5 allows to prevent both struvite and oxalate crystals formation⁽¹⁾.

> Phosphorus Binding

 Added chitosan, as phosphorus binder, helps reduce bioavailability of phosphorus and decrease its urinary excretion⁽²⁾.

> Body Weight Control

The moderate energy density of the diet and the adapted feeding rations help maintain optimal body weight.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Low Mineral Concentration*

Low contents of Calcium, Phosphorus and Magnesium help limit their urinary excretion and the risk of struvite and oxalate formation.

> Addition of Oxalate Inhibitor

Added Potassium citrate, as specific inhibitor, helps limit the formation of Calcium oxalate crystals.

> Oxalate RSS <12*

 The formulation induces urine metastable for calcium oxalates, with Oxalate RSS < 12⁽¹⁾.

> High Palatability

Richness in animal protein and fat guarantees high palatability and ensures maximum compliance in the long term.



* Commission regulation (EU) 2020/354

1) D. Formankova et al. Iben C. Effect of new high protein - low carbohydrate diets on urinary parameters in cats and in vitro struvite dissolution. ESVCN Congress, Toulouse, France, 17-19 Sept 2015.

2) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress, Barcelona, Spain, 15-17 Oct 2015.

3) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress 2015.

High digestive tolerance
 Low glycemic index
 Skin & Coat support
 Immune support
 Healthy renal function
 Withdrawal of major allergens

**DISSOLUTION OF STRUVITE STONES /
 REDUCTION OF STRUVITE & OXALATE
 FORMATION**

Stimulates water intake, helps increase
 urine volume and micturition frequency
 Achieves low struvite RSS <1 and
 Oxalate RSS <12
 Low calcium, phosphorus, magnesium
 concentration
 Urine acidification (pH 6.0 - 6.5)
 Addition of calcium oxalate inhibitor



Lean mass preservation (High protein)
 Fat mass limitation (Low carbohydrate)
 Added fat burner (L-Carnitine)

OVERWEIGHT MANAGEMENT

Moderate energy density
 Adapted feeding rations (Soft weight
 loss program)





AVAILABLE FORMATS
1.5 kg, 3 kg

DIETETIC INDICATIONS*

- Reduction of struvite stone recurrence.
- Reduction of oxalate stones formation.

OTHER USE

- Feline Idiopathic Cystitis (FIC).

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).
- Cardiac insufficiency.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	90/10
• Fat	13.5
• Minerals	7.5
• Crude Fibre	6.5
• NFE*	23
• Starch	15
• Calcium	0.7
• Phosphorus	0.7
• Sodium	1.1
• Potassium	0.7
• Magnesium	0.08
• Chloride	1.4
• Sulphur	0.7
• Methionine + Cystine	1.5
• Omega-6 fatty acids	2.2
• Omega-3 fatty acids	1.1
• EPA+DHA	0.4

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	374
• ME** measured in vivo (kcal/100g)	364
• Protein digestibility (in vivo; %)	86
• Fat digestibility (in vivo; %)	91.5
• Energy from protein (%)	44
• Energy from fat (%)	33
• Energy from NFE (%)	23
• Protein to Calorie ratio (g/Mcal)	118

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 23%

HIGH PROTEIN 44%

of ANIMAL ORIGIN 90%

COMPOSITION

Dehydrated pork and poultry proteins, potato starch, hydrolysed pork and poultry proteins, minerals, faba bean hulls, peas, animal fats, lignocellulose, rice, beet pulp, linseed, brewers yeast, fish oil, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, dried green tea concentrate, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

SPECIFIC INGREDIENTS/ADDITIVES

• Green tea concentrate	0.26%
• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg
• Potassium Citrate	0.3%

FEEDING GUIDELINES



Body Weight (kg)	Daily ration (g/day)		
	Overweight Soft weight loss	Normal*	Underweight
2	20	25	25
3	30	35	40
4	40	45	50
5	50	60	65
6	60	70	75
7	70	80	90
8	80	90	105
9	90	105	115
10	105	115	130

The daily ration is based on the cat's CURRENT body weight, and must be adjusted every month, or every week in the case of a soft weight loss.

*adult neutered indoor cat with optimal body weight



KEY BENEFITS & CHARACTERISTICS

> Increases Water Intake



High amounts of protein and sodium stimulate water intake, increase urine volume⁽¹⁾ and micturition frequency.

> Behaviour Plus Complex



The diet includes a green tea concentrate, which is known to help cats to cope with stressful situations⁽³⁾.

> Low Struvite RSS (<2.5)

The formulation induces urine under-saturated for struvites, with struvite RSS* < 2.5.

*RSS: *Relative Super Saturation index*.

> High EPA+DHA (omega-3)

Addition of fish oil allows to achieve high amount of omega-3, especially EPA+DHA, and helps limit lower urinary tract (LUT) inflammation.

> Body Weight Control

Moderate energy density and adapted feeding rations help maintain ideal body weight.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Low Mineral Concentration*

Low contents of Calcium, Phosphorus and Magnesium help limit their urinary excretion and the risk of struvite and oxalate crystals formation.

> Phosphorus Binding



Added chitosan, as phosphorus binder, helps reduce bioavailability of phosphorus and decrease its excretion into the urine⁽²⁾.

> Addition of Oxalate Inhibitor

Added Potassium citrate, as specific inhibitor, helps limit the formation of Calcium oxalate crystals.

> Oxalate RSS < 12*

The formulation induces urine metastable for calcium oxalates, with Oxalate RSS < 12.

> Optimizes Urinary pH*

Urinary pH between 6.0 - 6.5 allows to prevent struvite and oxalate crystals formation.



25%

WATER INTAKE (in ml/kg BW/day) SIGNIFICANTLY INCREASED VS A REFERENCE DRY DIET FOR STRUVITE PREVENTION.⁽¹⁾

30%

URINARY VOLUME (IN ML/KG BW/DAY) SIGNIFICANTLY INCREASED VS A REFERENCE DRY DIET FOR STRUVITE PREVENTION.⁽¹⁾



Refer to article p.210



14%

REDUCTION OF THE PHOSPHORUS APPARENT DIGESTIBILITY BY ADDING CHITOSAN⁽²⁾



Refer to article p.204

* Commission regulation (EU) 2020/354

1) G. Chaix et al Assessment of water intake and urine volume in cats fed a new high-protein high-sodium dry diet. ISFM Congress 2017.

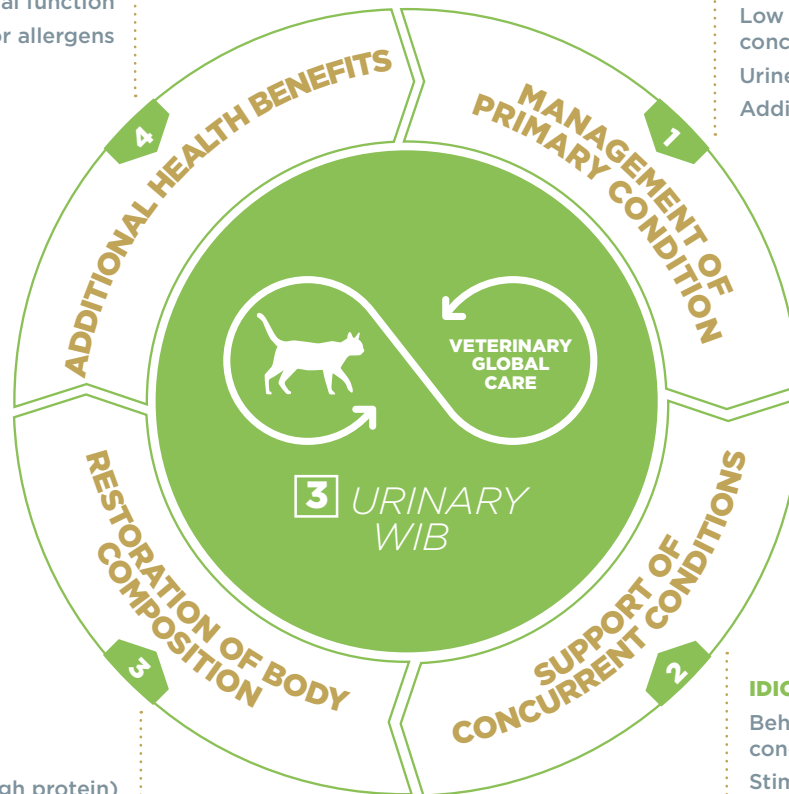
2) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress 2015.

3) V. Dramard et al. Clinical efficacy of L-theanine tablets to reduce anxiety-related emotional disorders in cats: a pilot open-label clinical trial. 6th IVBM, Italy 2007.

High digestive tolerance
 Low glycaemic index
 Skin & Coat support
 Immune support
 Healthy renal function
 Withdrawal of major allergens

REDUCTION OF STRUVITE & OXALATE FORMATION

Stimulates water intake, help increase urine volume and micturition frequency
 Achieves low Struvite RSS <2.5 and Oxalate RSS <12
 Low Calcium, phosphorus, magnesium concentration
 Urine acidification (pH 6.0 - 6.5)
 Addition of calcium oxalate inhibitor



Lean mass preservation (High protein)
 Fat mass limitation (low carbohydrate)
 Added fat burner (L-Carnitine)

IDIOPATHIC CYSTITIS MANAGEMENT

Behaviour plus complex (Green tea concentrate to manage stress)
 Stimulates water intake, help increase urine volume and micturition frequency
 Limits lower urinary tract inflammation (High EPA+DHA)

OVERWEIGHT MANAGEMENT

Moderate energy density
 Adapted feeding rations (Soft weight loss program)





AVAILABLE FORMATS
12x85g Box

DIETETIC INDICATIONS*

- Dissolution of struvite stones.
- Reduction of struvite stone recurrence.
- Reduction of oxalate stones formation.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).
- Cardiac insufficiency.

* Commission regulation (eu) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	79.5
• Protein	11
• Animal to vegetal protein ratio	89/11
• Fat	4.5
• Minerals	2.1
• Crude Cellulose	0.8
• NFE*	2.1
• Calcium	0.22
• Phosphorus	0.15
• Sodium	0.30
• Potassium	0.23
• Magnesium	0.014
• Chloride	0.40
• Sulphur	0.40
• Omega-6 fatty acids	0.85
• Omega-3 fatty acids	0.28

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	93
• ME** measured in vivo (kcal/100g)	81
• Protein digestibility (in vivo; %)	89
• Fat digestibility (in vivo; %)	93
• Energy from protein (%)	47
• Energy from fat (%)	44
• NFE (%)	9
• Urinary pH	6.0-6.5
• Struvite RSS	<1
• Oxalate RSS	<12

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 2.1%

HIGH PROTEIN 11%
of ANIMAL ORIGIN 89%

COMPOSITION

Chunks (50%): pork kidney, chicken liver, pork lung lobe, chicken skin, chicken gizzard, pork plasma, minerals and vitamins, chicken neck, pea protein extract, digest, lignocellulose, fish oil, cellulose, potato starch, sunflower oil, caramel.
Gravy (50%): water, tapioca starch, caramel.

SPECIFIC INGREDIENTS/ADDITIVES

- Bentonite **900 mg/kg**

FEEDING GUIDELINES

If exclusive feeding with WET

Body Weight (kg)	Daily ration (pouch/day)		
	Overweight	Normal*	Underweight
2	1	1	1
3	1.5	1.5	2
4	2	2	2.5
5	2.5	2.5	3
6	3	3	3.5
7	3.5	4	4
8	4	4.5	5
9	4.5	5	5.5
10	5	5.5	6

Mixed feeding is also possible, combining VETERINARY HPM® Wet and Dry Urology diets. We propose to provide around 50% of the energy needed with wet and 50% with dry, but all combinations are possible depending on the individual case.

If feeding ration composed with both WET & DRY VET HPM U1

Body Weight (kg)	Overweight		Normal*		Underweight	
	Wet (pouch/day)	Dry (g/day)	Wet (pouch/day)	Dry (g/day)	Wet (pouch/day)	Dry (g/day)
2	0.5	10	0.5	10	0.5	15
3	0.5	20	0.5	25	1	15
4	1	20	1	25	1	30
5	1	30	1	35	1	45
6	1	40	1	45	1	55
7	1	50	2	35	2	45
8	2	35	2	45	2	55
9	2	45	2	60	2	70
10	2	55	2	70	2	80

If feeding ration composed with both WET & DRY VET HPM U2 or U3

Body Weight (kg)	Overweight		Normal*		Underweight	
	Wet (pouch/day)	Dry (g/day)	Wet (pouch/day)	Dry (g/day)	Wet (pouch/day)	Dry (g/day)
2	0.5	10	0.5	10	0.5	15
3	0.5	20	0.5	25	1	15
4	1	20	1	25	1	30
5	1	30	1	35	1	45
6	1	40	1	45	1	55
7	1	50	2	40	2	45
8	2	40	2	50	2	60
9	2	50	2	60	2	75
10	2	60	2	75	2	85

*adult neutered/indoor cat with optimal body weight



KEY BENEFITS & CHARACTERISTICS

> Supports hydration

The high water content of the diet naturally increases total water intake (food water + drinking water) for optimal water turnover in the body

> Low Struvite RSS (<1)

The formulation induces urine under-saturated for struvites, with struvite relative supersaturation (RSS) index < 1, to promote the dissolution of existing struvite crystals and prevent the formation of new ones.

> Optimizes Urinary pH*

Urinary pH between 6.0 and 6.5 allows to prevent the formation of both struvite and calcium oxalate crystals.

> Optimal Body Weight

The low energy content, the energy balance (Protein: Fat:Carbohydrate), and the adapted feeding rations limit the calorie intake. The high water content helps in satiety feeling.

> High Palatability

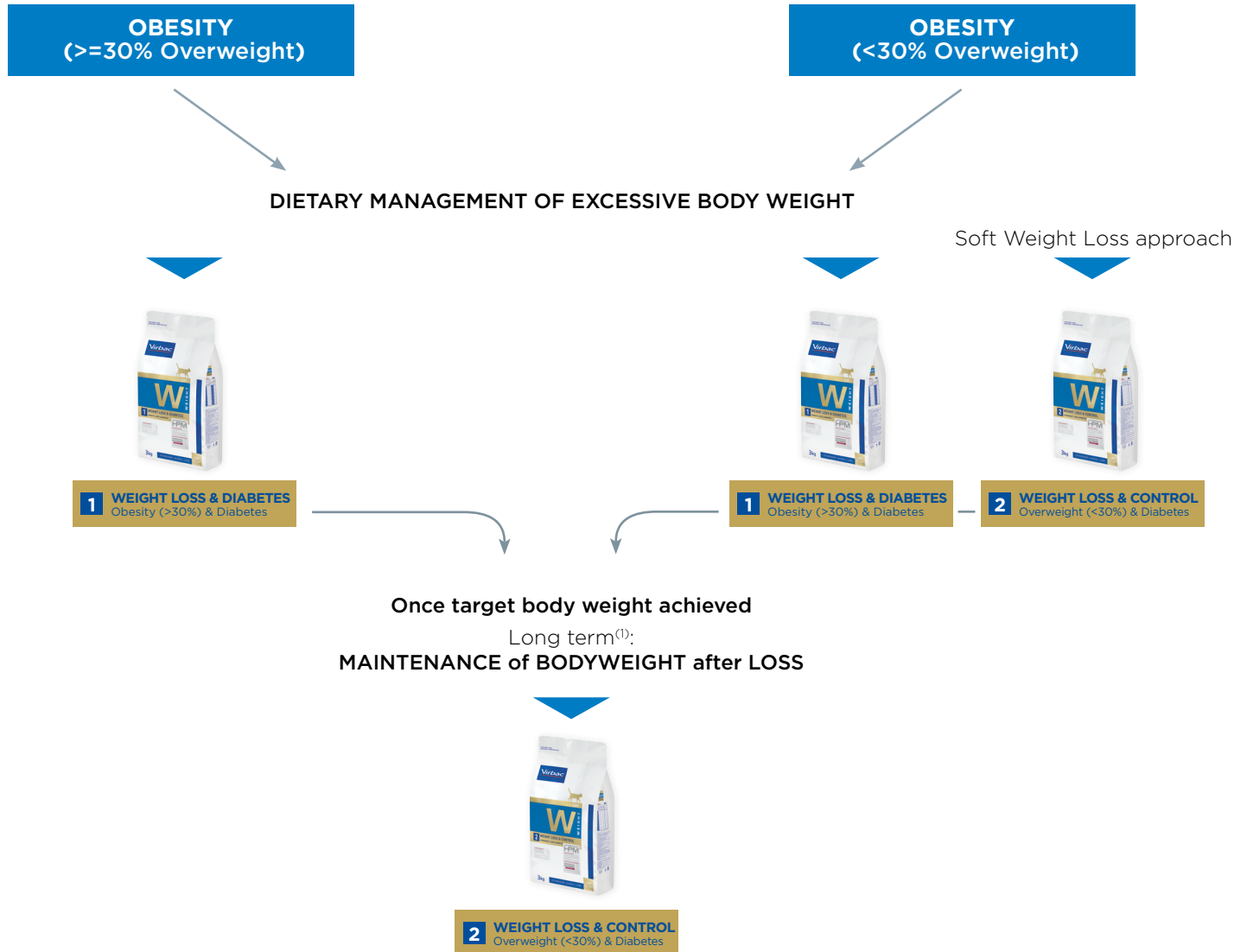
The richness in animal ingredients (87%) and the macronutrient share (high protein / very low carbohydrate) respect the natural preference of cats.



* Commission regulation (eu) 2020/354



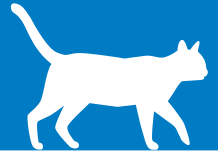
FELINE OBESITY



1) A veterinarian's opinion should be sought before use.

WEIGHT

Decision tree for right diet choice



DIABETES MELLITUS

EXCESSIVE BODY WEIGHT

OPTIMAL BODY WEIGHT

DIETARY MANAGEMENT OF DIABETES
AND EXCESSIVE BODY WEIGHT

DIETARY MANAGEMENT OF DIABETES
AND WEIGHT CONTROL



1 WEIGHT LOSS & DIABETES
Overweight (<30%) & Diabetes



2 WEIGHT LOSS & CONTROL
Overweight (<30%) & Diabetes



AVAILABLE FORMATS

1.5 kg, 3 kg, 7 kg.

DIETETIC INDICATIONS*

- Reduction of excessive body weight.
- Regulation of glucose supply (diabetes mellitus); only in case of associated obesity.

OTHER USE

- Responsive-fibre colitis, constipation.
- Lipid metabolism disorders (hyperlipidemia).

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	94/06
• Fat	11
• Minerals	8.5
• Crude Fibre	13
• NFE*	18
• Starch	12.5
• Calcium	1.3
• Phosphorus	0.9
• Sodium	0.9
• Total sugars	1
• Omega-6 fatty acids	2
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)**	331
• ME** measured in vivo (kcal/100g)	306
• Protein digestibility (in vivo; %)	84
• Fat digestibility (in vivo; %)	94
• Energy from protein (%)	50
• Energy from fat (%)	30
• Energy from NFE (%)	20
• Protein to Calorie ratio (g/Mcal)	133

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 18%

HIGH PROTEIN 44%

of ANIMAL ORIGIN 94%

COMPOSITION

dehydrated pork and poultry proteins, lignocellulose, potato starch⁽¹⁾, hydrolysed pork and poultry proteins, minerals, animal fats, linseed, beet pulp, brewers yeast, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

(1) Carbohydrate sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg
• Chondroitin sulfate	440 mg/kg

FEEDING GUIDELINES



IN THE CASE OF OBESITY WITHOUT CONCURRENT DIABETES

Target Body Weight (kg)	Daily ration (g/day)	
	High restriction	Moderate restriction
2	15	25
3	25	35
4	35	45
5	45	60
6	50	70
7	60	80
8	70	95
9	80	105
10	85	115

The daily ration is based on the cat's TARGET bodyweight.

IN THE CASE OF OBESITY ASSOCIATED WITH DIABETES

Current Body Weight (kg)	Daily ration (g/day)
	2
3	35
4	45
5	60
6	70
7	80
8	95
9	105
10	115

The daily ration is based on the cat's CURRENT body-weight, and must be adjusted every week. Always provide a generous supply of fresh drinking water. It is normal to notice an important increase in water intake and urine volume.



KEY BENEFITS & CHARACTERISTICS

> Low Energy Density*



Low energy density of the diet helps achieve rapid weight loss⁽¹⁾.

> Joint Support

Addition of chondroitin sulfate and chitosan can help joint support and thus improve interactions and life quality.

> Improves Lean mass / Fat Mass Ratio



High Protein- Low Carbohydrate (HP-LC) formulation helps maintain lean mass and decrease fat mass during weight loss⁽¹⁾.

> High Crude Fibre Improves Satiety

High crude fibre content, especially insoluble fibres, in association with high level of protein, helps promote satiety.

> Low Glycemic Index & Total Sugar



HP-LC formulation with low amounts of starch and total sugars helps reduce the impact of the meal on glycaemia and insulinemia and helps manage patients with diabetes mellitus or insulin resistance⁽¹⁾.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Fat Burning

Added L-carnitine as fat burner helps lean mass preservation during weight loss.

> Increased levels of vitamins and trace elements (by 15% compared to Veterinary HPM Adult Cat Neutered)

Formula enriched with vitamins and trace elements guarantees adequate contributions despite of feeding restriction and small rations.

> Controlled palatability

Richness in animal protein and fat respects natural preferences of carnivores to help achieve compliance.

> Limits the risk of Feline Lower Urinary Tract Disease (FLUTD)

High protein and sodium contents stimulate water intake, increase urine volume and micturition frequency.

> Suitable for Adult and Senior cats

The amounts of all essential nutrients fit the daily requirement of adult and senior cats.

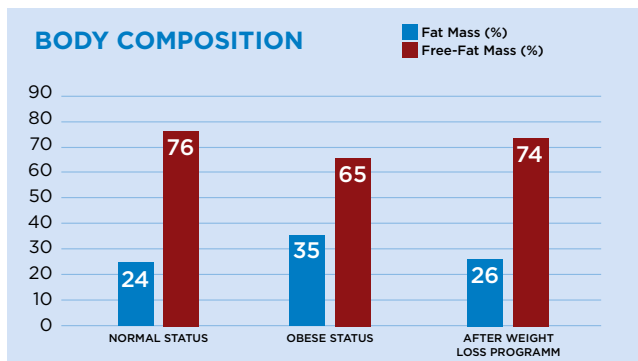


100% OF CATS HAVE REACHED THEIR TARGET BODY WEIGHT⁽¹⁾

1.7% OF MEAN WEIGHT LOSS/PER WEEK⁽¹⁾



Refer to article p.212



* Commission regulation (EU) 2020/354

1) A. André et al. Weight loss with a high protein diet allows the recovery of optimal body composition and improves insulin sensitivity in obese cats. ESVCN Congress, 2016.

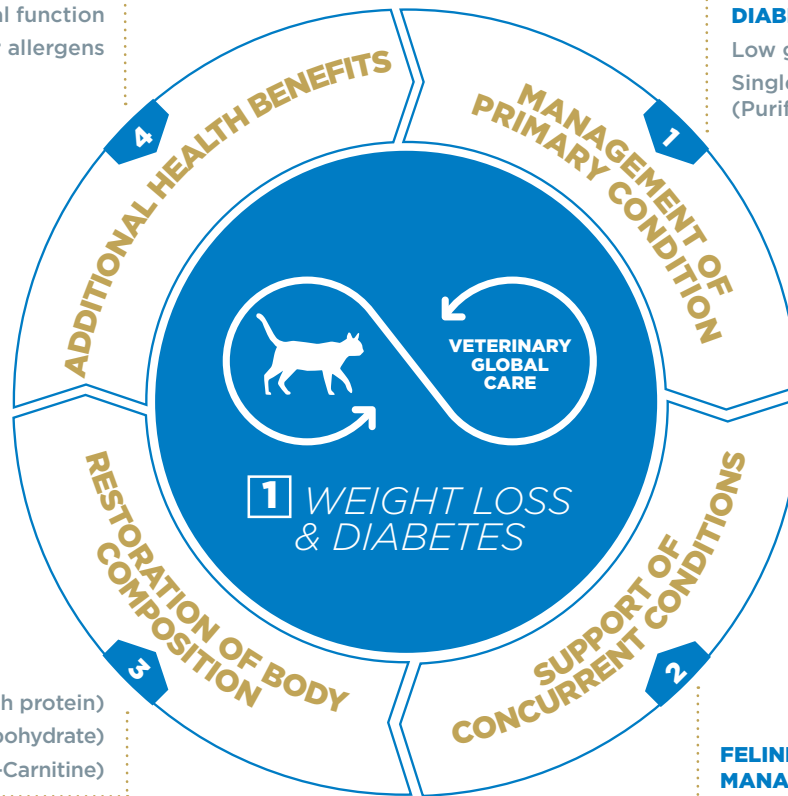
REDUCTION OF EXCESSIVE BODY WEIGHT

- Low energy density (Reduced fat content)
- Helps increase satiety (High fibre, high protein)
- Increased volumetric ration (Low kibble density)
- Adapted feeding rations

DIABETES MELLITUS MANAGEMENT

- Low glycemic index
- Single source of carbohydrate (Purified potato starch)

- Immune support
- High digestive tolerance
- Healthy renal function
- Withdrawal of major allergens



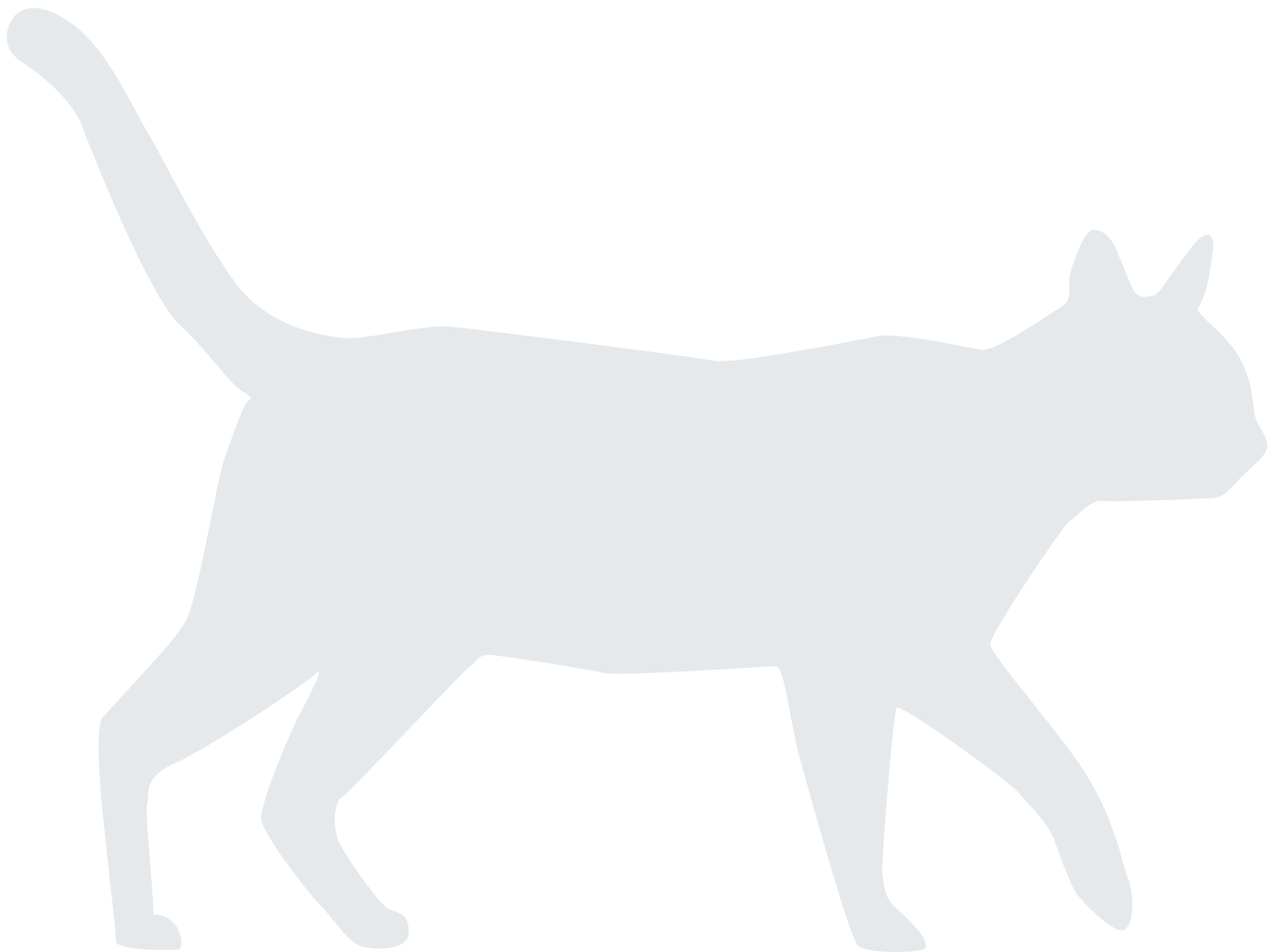
- Lean mass preservation (High protein)
- Fat mass loss (Low carbohydrate)
- Added fat burner (L-Carnitine)

FELINE LOWER URINARY TRACT DISEASE MANAGEMENT

- Stimulates water intake, helps increase urine volume and micturition frequency
- Optimises urine acidification (pH 6.0 - 6.5)

JOINT SUPPORT

- Muscle Mass preservation (High protein)
- Chondroprotective agents (Chondroitin Sulfate + Chitosan, Vitamin E)





AVAILABLE FORMATS

1.5 kg, 3 kg, 7 kg.

DIETETIC INDICATIONS*

- Reduction of excessive body weight.
- Regulation of glucose supply (diabetes mellitus); only in case of normal body weight.

OTHER USE

- Fibre-responsive colitis, constipation.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	90/10
• Fat	12
• Minerals	8.5
• Crude Fibre	11.5
• NFE*	18.5
• Starch	12
• Total sugars	1.4
• Calcium	1.3
• Phosphorus	1.1
• Sodium	0.7
• Omega-6 fatty acids	2.1
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	342
• ME** measured in vivo (kcal/100g)	325
• Protein digestibility (in vivo; %)	82.5
• Fat digestibility (in vivo; %)	94.5
• Energy from protein (%)	48
• Energy from fat (%)	32
• Energy from NFE (%)	20
• Protein to Calorie ratio (g/Mcal)	129

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 18.5%

HIGH PROTEIN 44%

of ANIMAL ORIGIN 90%

COMPOSITION

Dehydrated pork and poultry proteins, lignocellulose, potato starch⁽¹⁾, hydrolysed pork and poultry proteins, animal fats, rice⁽¹⁾, peas⁽¹⁾, minerals, faba bean hulls, linseed, beet pulp, brewers yeast, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

(1) Carbohydrate sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg
• Chondroitin sulfate	215 mg/kg

FEEDING GUIDELINES



Body Weight (kg)	Daily ration (g/day)		
	Weight loss	Weight control	Diabetes (without obesity)
2	20	25	25
3	35	40	40
4	45	50	50
5	55	65	65
6	65	75	75
7	80	90	90
8	90	100	100
9	100	115	115
10	110	125	125

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every week in case of weight loss and every month in case of maintenance.



KEY BENEFITS & CHARACTERISTICS

> Low Energy Density*



Low energy density of the diet helps achieve soft weight loss⁽¹⁾.

> Moderate Restriction of Daily Ration



A soft weight loss programme is proposed, with the advantage of moderate feeding rations, to help achieve better compliance⁽¹⁾.

> Improves Lean Mass / Fat Mass Ratio

High Protein- Low Carbohydrate (HP-LC) formulation helps preserve lean mass during weight loss and maintain ideal body composition after weight loss.

> High palatability



Richness in animal protein and fat guarantess high palatability for a better compliance⁽¹⁾.

> Low Glycemic Index & Total Sugar

High Protein- Low Carbohydrate (HP-LC) formulation with low amounts of starch and total sugars helps reduce the impact of the meal on glycaemia and insulinemia and helps manage patients with diabetes mellitus or insulin resistance.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Fat burning

Added L-carnitine as fat burner helps lean mass preservation during weight loss.

> Increases Water Intake

High dietary protein amount stimulates water intake, increases urine volume and micturition frequency, and helps limit the risk of lower urinary tract diseases.

> Joint Support

Addition of chondroitin sulfate and chitosan helps joint support and thus improve interactions and life quality.

> Increased Fibres

Fibres help promote satiety and regulate starch digestion and glucose absorption.

> Coat Condition

Level and balance in omega-6 and omega-3 help for a shiny coat.



67% HAVE SIGNIFICANTLY LOST BODY WEIGHT⁽¹⁾

1.2% OF MEAN WEIGHT LOSS/PER WEEK⁽¹⁾



Refer to article p.214

* Commission regulation (EU) 2020/354

1) I. Leriche et al. Weight management in client-owned cats fed a high protein – low carbohydrate maintenance diet. SEVC Congress 2014.

Skin & Coat support
Immune support
High digestive tolerance
Healthy renal function
Withdrawal of major allergens

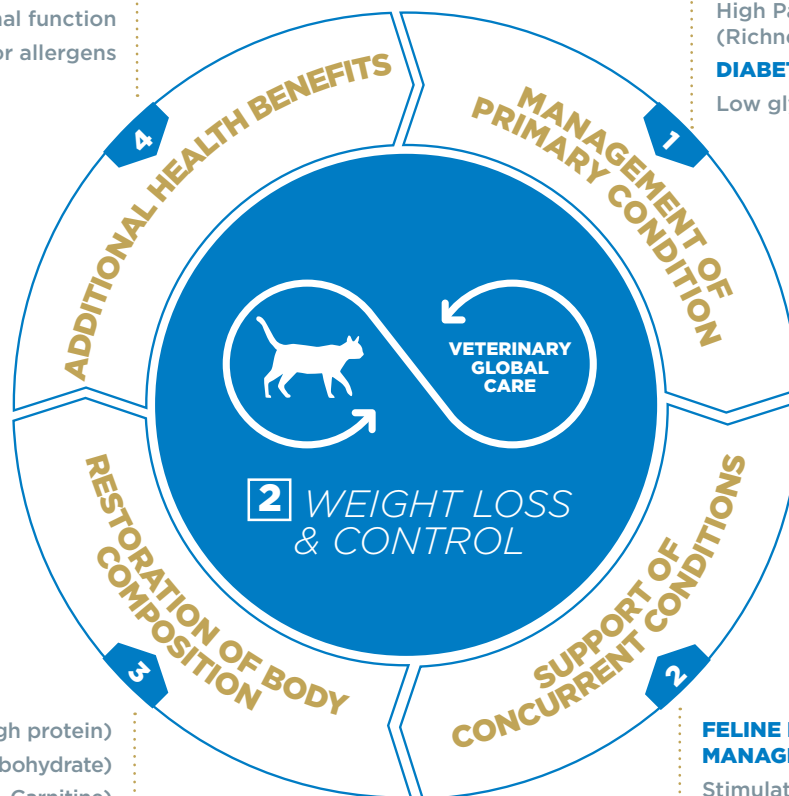
**REDUCTION OF EXCESSIVE BODY WEIGHT/
MAINTENANCE OF IDEAL BODY WEIGHT
AFTER WEIGHT LOSS PROGRAM**

Low energy density (Reduced fat content)
Helps increase satiety
(High fibre, High protein)
Adapted feeding rations
(Soft weight loss program)

High Palatability
(Richness in animal protein and fat)

DIABETES MELLITUS MANAGEMENT

Low glycemic index



Lean mass preservation (High protein)
Fat mass loss (Low carbohydrate)
Added fat burner (L-Carnitine)

**FELINE LOWER URINARY TRACT DISEASE
MANAGEMENT**

Stimulates water intake, helps increase urine
volume and micturition frequency
Optimises urine acidification (pH 6.0 - 6.5)

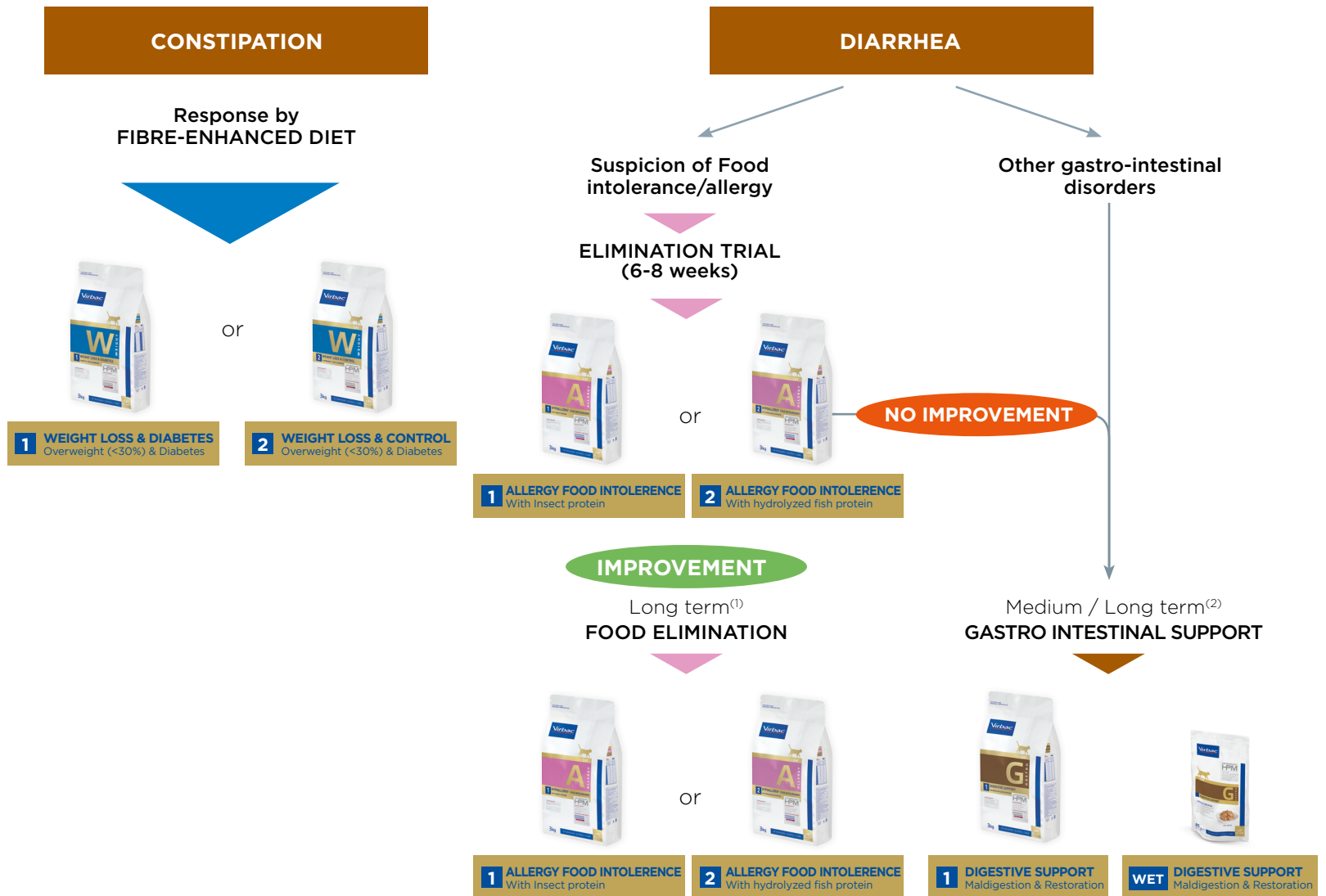
JOINT SUPPORT

Muscle mass preservation (high protein)
Chondroprotective agents (chondroitin
sulfate, chitosan, vitamin E)





CHRONIC FELINE DIGESTIVE DISEASES



1) If signs of intolerance disappear, this food can be used indefinitely (European Commission directive 2020/354)

2) Up to 12 weeks, it is recommended that a veterinarian's opinion be sought before use and continuation of diet feeding.



AVAILABLE FORMATS
1.5 kg, 3 kg

DIETETIC INDICATIONS*

LINKED TO GASTROINTESTINAL DISORDERS:

- Compensation for maldigestion
- Reduction of intestinal absorptive disorders.
- Chronic Exocrine Pancreatic Insufficiency.

LINKED TO RECOVERY

- Nutritional restoration, convalescence.

OTHER USE

- Gastritis / Enteritis / Colitis.
- Megacolon.
- Inflammatory Bowel Disease.
- Recovery after digestive surgery.
- Recovery after disease.
- Recovery after anorexia period.

CONTRAINDICATIONS

- Chronic kidney disease (CKD).
- Cardiac insufficiency.
- Chronic hepatic insufficiency

* Commission regulation (eu) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	92/08
• Fat	21
• Minerals	8.5
• Crude Fibre	3.5
• NFE*	17.5
• Starch	13
• Calcium	1.3
• Phosphorus	1.1
• Sodium	0.9
• Potassium	0.8
• Omega-6 fatty acids	3.5
• Omega-3 fatty acids	1
• EPA+DHA	0.3

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	418
• ME** measured in vivo (kcal/100g)	419
• Protein digestibility (in vivo; %)	91
• Fat digestibility (in vivo; %)	95
• Energy from protein (%)	39
• Energy from fat (%)	45
• Energy from NFE (%)	16
• Protein to Calorie ratio (g/Mcal)	105

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 17.5%

HIGH PROTEIN

44%

of ANIMAL ORIGIN 92%

COMPOSITION

Dehydrated pork and poultry proteins⁽¹⁾, rice⁽¹⁾, animal fats⁽¹⁾, minerals, hydrolysed pork and poultry proteins⁽¹⁾, beet pulp, lignocellulose, linseed, brewers yeast (source of betaglukan and nucleotide), fish oil⁽¹⁾, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), calcium butyrate, *Lactobacillus acidophilus*.

1) Highly digestible ingredients

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Butyrate	300 mg/kg
• Nucleotides	560 mg/kg
• Beta Glucan	500 mg/kg
• Chitosan	800 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Recovery Underweight
2	20	25	25
3	30	35	40
4	40	45	55
5	50	55	70
6	60	70	80
7	70	80	95
8	80	90	110
9	90	100	125
10	100	115	135

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every week during recovery and every month in the medium/long term.

KEY BENEFITS & CHARACTERISTICS

> **Promotes Nutritional Restoration***

High levels of essential nutrients and energy density helps compensate for losses and allow body composition restoration.

> **Low allergen formulation**

The diet is made without beef, gluten, maize, wheat, soya, egg, fish. The number of protein sources is limited (3: pork, poultry and rice) to minimise antigenic load and adverse digestive reactions.

> **High Energy & Concentration***

High energy density reduces the size of the daily ration and helps limit the workload of the digestive tract. High parts of energy from fat and from protein, the two sources easily used and beneficial during the acute phase of recovery. High concentration in all the essential nutrients allows to cover the high needs in small rations.

> **Low Starch (13% as fed)**

Low level of starch helps limit the workload of the digestive tract and increase digestibility and digestive tolerance.

> **Digest Plus Complex**

Addition of specific ingredients (clay, probiotics, prebiotics, selected fibres, butyrate, nucleotides) helps to quickly secure the digestive function, improve the digestive tolerance and produce normal faeces.

ADDITIONAL BENEFITS & CHARACTERISTICS

> **Increases Water Intake**

High amounts of protein and sodium stimulate water intake to help compensate for hydroelectrolytic losses.

> **Supports Digestive Barrier Effect**



Addition of selected ingredients (beta glucan, butyrate, nucleotides) contribute to restore an efficient body's defense at the digestive level and limit the risk of recurrences in the long term⁽¹⁾.

> **Enhances Immunity**

High protein content, with balanced amino acid profile, beta glucan and vitamin E help reinforce the immune system and helps the recovery.

> **High Palatability**



Richness in animal protein and fat guarantees high palatability for optimal compliance⁽¹⁾.

> **Suitable for all life stages**

The amounts of all essential nutrients fit the daily requirements of all cats at all stages or physiological status (kittens, adult cats, gestating or lactating queens, and senior cats).

VISIBLE RESULTS WITHIN 1 MONTH⁽¹⁾

91% SHOW NORMAL FAECES CONSISTENCY

85% OF CATS SHOW NORMAL STOOL ODOUR

98% OF CATS IMPROVED AFTER 1 MONTH

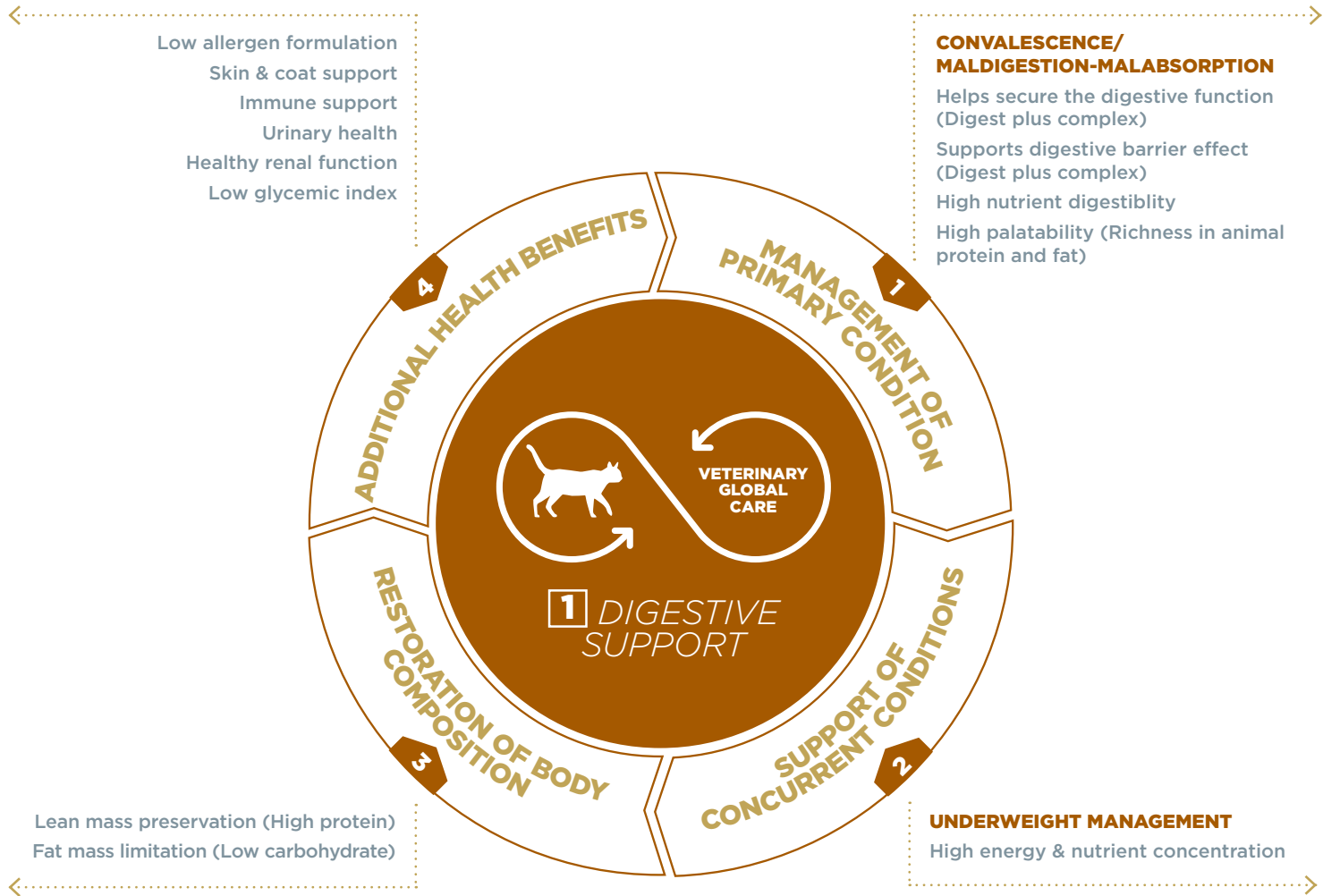


Refer to article p.216



* Commission regulation (EU) 2020/354

1) I. Leriche et al. Assessment of a new high protein - low carbohydrate diet in cats with chronic gastrointestinal disease. J Fel Med Surg 2017; 1(4): 1-6.





AVAILABLE FORMATS
12 X 85 g

DIETETIC INDICATIONS*

- Compensation for maldigestion
- Reduction of intestinal absorptive disorders
- Chronic Exocrine Pancreatic Insufficiency.

LINKED TO RECOVERY

- Nutritional restoration, convalescence.

OTHER USE

- Gastritis / Enteritis / Colitis.
- Megacolon.
- Inflammatory Bowel Disease.
- Recovery after digestive surgery.
- Recovery after disease.
- Recovery after anorexia period.

CONTRAINDICATIONS

- Chronic Kidney Disease

* Commission regulation (eu) 2020/354

ANALYTICAL CONSTITUENTS

% of crude matter

• Moisture	72
• Protein	14
• Animal to vegetal protein ratio	84/16
• Fat	8.5
• Minerals	2.3
• Crude Cellulose	0.9
• Nitrogen Free Extract	2.3
• Starch	0.4
• Calcium	0.25
• Phosphorus	0.2
• Sodium	0.3
• Potassium	0.3
• Omega-6	2.2
• Omega-3	0.7
• EPA + DHA	0.45

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	136
• ME** measured in vivo (kcal/100g)	137
• Protein digestibility (in vivo; %)	86.5
• Fat digestibility (in vivo; %)	97
• Energy from protein (%)	40
• Energy from fat (%)	54
• Energy from NFE (%)	6
• Protein to Calorie ratio (g/Mcal)	103

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

COMPOSITION

Loaf: chicken liver⁽¹⁾, pork kidney⁽¹⁾, chicken neck, chicken tripes⁽¹⁾, mechanically deboned chicken meat⁽¹⁾, pea protein extract⁽¹⁾, pork plasma*, chicken skin⁽¹⁾, egg white⁽¹⁾, fish oil⁽¹⁾, minerals and vitamins, sunflower oil⁽¹⁾, digest⁽¹⁾, cellulose, lignocellulose, potato starch, caramel.

(1) Highly digestible ingredients

SPECIFIC INGREDIENTS/ADDITIVES

- Bentonite **900 mg/kg**

LOW CARBOHYDRATE (NFE) 2.3%

HIGH PROTEIN 14%

of ANIMAL ORIGIN 84%



FEEDING GUIDELINES



IF EXCLUSIVE FEEDING WITH WET

Body Weight (kg)	Pouch/day		
	Overweight	Normal	Recovery Underweight
2	1	1	1
3	1	1	1.5
4	1.5	1.5	2
5	2	2	2.5
6	2	2.5	2.5
7	2.5	3	3
8	3	3.5	3.5
9	3.5	3.5	4
10	4	4	4.5

Mixed feeding is also possible, combining Veterinary HPM Wet and Dry Digestive diets. We propose to provide around 50% of the energy need with wet and 50% with dry, but all combinations are possible depending on the individual case.

IF FEEDING RATION COMPOSED WITH BOTH WET AND DRY VET HPM DIGESTIVE SUPPORT CAT

Body Weight (kg)	Overweight		Normal		Recovery Underweight	
	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)
2	0.5	5	0.5	10	0.5	15
3	0.5	15	0.5	20	0.5	25
4	0.5	25	0.5	30	1	25
5	1	25	1	30	1	40
6	1	35	1	40	1	55
7	1	45	1.5	40	1.5	55
8	1.5	40	1.5	50	1.5	70
9	1.5	50	1.5	60	2	65
10	2	45	2	60	2	80

KEY BENEFITS & CHARACTERISTICS

> High Energy

The high energy density of the diet helps compensate for losses and cover the high needs in small rations.

> High protein Low carbohydrate

The energy balance (Protein:Fat:Carbohydrate) of the diet favors the quick restoration of optimal body condition.

> High Digestive Tolerance

The rigorous selection of high quality raw materials helps to quickly secure the digestive function and produce normal faeces.

> Supports hydration

The high moisture content of the wet diet naturally increases total water intake and helps prevent dehydration that may result from digestive troubles.

> High Palatability

The richness in animal ingredients (85%) guarantees high palatability for optimal compliance.



FELINE SKIN & COAT DISEASE

RED SKIN / ITCHING

OILY / SCALY SKIN

Suspicion of
Food intolerance

Non-Food induced
atopy/flea bite
allergy/other allergy

1st ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

2nd ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

IMPROVEMENT

Food Intolerance/Allergy confirmed

Long term⁽¹⁾
FOOD ELIMINATION



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

Medium / Long term⁽²⁾
SKIN & COAT SUPPORT



1 DERMATOLOGY SUPPORT
Dermatitis & Hair loss

1) If signs of intolerance disappear, this food can be used indefinitely (European Commission directive 2020/354)

2) Up to 2 months. It is recommended that a veterinarian's opinion be sought before use. (European Commission directive 2020/354)



AVAILABLE FORMATS

3 kg

DIETETIC INDICATIONS*

- Support of the skin function in the case of dermatosis and excessive loss of hair.

OTHER USE

- Dermatitis.
- Pruritus.

CONTRAINDICATIONS

- Chronic kidney disease (CKD).
- Chronic hepatic insufficiency.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	44
• Animal to vegetal protein ratio	91/09
• Fat	17.5
• Minerals	8.5
• Crude Fibre	5
• NFE*	19.5
• Starch	14
• Calcium	1.3
• Phosphorus	1.1
• Sodium	0.7
• Methionine + Cystine	1.5
• Phenylalanine + Tyrosine	2.6
• Omega-6 fatty acids	3.5
• LA	3.4
• Omega-3 fatty acids	1.1
• EPA+DHA	0.8

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	395
• ME** measured in vivo (kcal/100g)	437
• Protein digestibility (in vivo; %)	89
• Fat digestibility (in vivo; %)	97
• Energy from protein (%)	42
• Energy from fat (%)	40
• Energy from NFE (%)	18
• Protein to Calorie ratio (g/Mcal)	111

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 19.5%

HIGH PROTEIN 44%

of ANIMAL ORIGIN 91%

COMPOSITION

Dehydrated pork and poultry proteins, potato starch, peas, hydrolysed pork and poultry proteins, minerals, lignocellulose, animal fats, fish oil, beet pulp, sunflower oil, brewers yeast, borage seed, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
2	20	20	25
3	30	35	35
4	40	45	50
5	50	55	60
6	60	65	75
7	70	75	85
8	80	85	95
9	85	100	110
10	95	110	120

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every month. Always provide a generous supply of fresh drinking water.

LONG TERM USE: due to its high energy density, it is necessary to respect daily recommendations to avoid excessive weight gain.

*adult neutered indoor cat with optimal body weight

KEY BENEFITS & CHARACTERISTICS

> Improves Coat condition



High linoleic acid (LA) content helps reduce scales production and regulate sebaceous secretion for a shiny coat⁽¹⁾.

> High Protein & Sulphur Amino Acids

Richness in animal protein answers the high requirements to restore skin integrity with proper skin healing and hair regrowth.

> DERMA Plus Complex



Concentration and balance in omega-6 and omega-3 (by fish and sunflower oils, borage seeds), plus synergistic co-factors vitamins A and E, help improve clinical signs of dermatosis and dermatitis⁽¹⁾.

> High Level of Essential Fatty Acids*

High supplementation with both omega-6 and omega-3 helps decrease inflammatory processes, and repair skin and coat.

> Supports Skin Barrier Effect

Richness in animal protein and essential fatty acids help reinforce natural skin defences, key factor in management

of dermatosis and dermatitis in the long term.

> Modulates Inflammation

Balanced 6:3 ratio helps reduce clinical signs related to inflammation (redness, itching).

> High Digestibility and Digestive Tolerance

Addition of clay, prebiotics, probiotics, fibres helps maintain a healthy digestive tract to optimise the absorption of all the essential nutrients for skin and coat.

> Withdrawal of major allergens

The diet is made without beef, gluten, maize, wheat, rice, soya, egg, fish.

> Immune Support

High protein content and added vitamin E help maintain a healthy immune system.

> Suitable for all Life Stages

The amounts of all essential nutrients fit the daily requirement of cats at all ages or physiological status (kittens, gestating or lactating queens, adult cats and senior cats).

VISIBLE RESULTS WITHIN 2 WEEKS⁽¹⁾



8/9 ASSESSED PARAMETERS
IMPROVED SIGNIFICANTLY

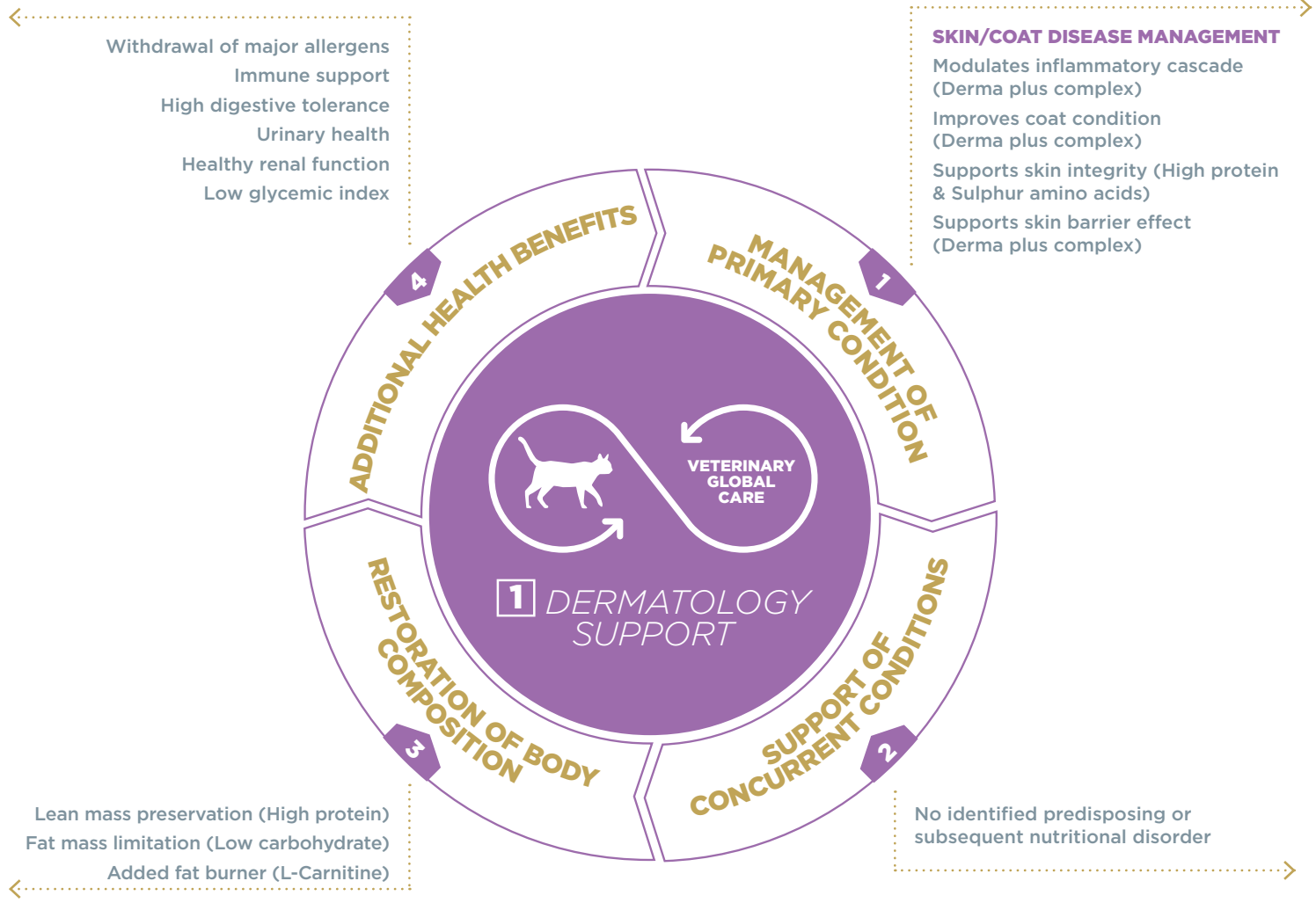
95% OF CATS HAVE IMPROVED
THEIR SKIN AND COAT
CONDITION AT THE END
OF THE STUDY.

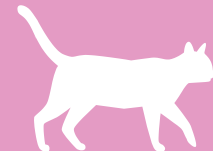


Refer to article p.218

* Commission regulation (EU) 2020/354

1) I. Leriche et al., Assessment of a new high protein - high fatty acid diet in cats with chronic skin and coat disorders. SEVC Congress 2016.





FELINE SKIN & COAT DISEASE

RED SKIN / ITCHING

OILY / SCALY SKIN

Suspicion of Food intolerance

Non-Food induced atopy/flea bite allergy/other allergy

1st ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

2nd ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

IMPROVEMENT

Food Intolerance/Allergy confirmed

Long term⁽¹⁾
FOOD ELIMINATION



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

Medium / Long term⁽²⁾
SKIN & COAT SUPPORT



1 DERMATOLOGY SUPPORT
Dermatitis & Hair loss

1) If signs of intolerance disappear, this food can be used indefinitely (European Commission directive 2020/354)

2) Up to 2 months. It is recommended that a veterinarian's opinion be sought before use. (European Commission directive 2020/354)

1

HYPOALLERGY FOOD INTOLERANCE

With Insect protein



AVAILABLE FORMATS
3 kg

DIETETIC INDICATIONS*

- Reduction of ingredient and nutrient intolerance.

OTHER USE

- Food intolerance with concurrent digestive disorders (maldigestion/malabsorption, diarrhea...).
- Food intolerance with concurrent skin/coat disorders (redness/itching).

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.
- Chronic Kidney disease.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	31
• Animal to vegetal protein ratio	96/04
• Fat	16
• Minerals	7.5
• Crude Fibre	6
• NFE*	34
• Starch	27
• Calcium	0.8
• Phosphorus	0.7
• Sodium	0.7
• Methionine + Cystine	1.3
• Omega-6 fatty acids	3.3
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	380
• ME** measured in vivo (kcal/100g)	379
• Protein digestibility (in vivo; %)	81
• Fat digestibility (in vivo; %)	92
• Energy from protein (%)	30
• Energy from fat (%)	37
• Energy from NFE (%)	33
• Protein to Calorie ratio (g/Mcal)	82

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

CARBOHYDRATE (NFE) **34%**

PROTEIN **31%**

of ANIMAL ORIGIN **96%**

COMPOSITION

Dehydrated insect protein⁽¹⁾ (*Tenebrio m.*) (36%), potato starch⁽²⁾, animal fats, minerals, hydrolysed pork liver protein⁽¹⁾, beet pulp, linseed, lignocellulose, brewers yeast, fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), chondroitin sulfate, *Lactobacillus acidophilus*.

1) Protein sources

2) Carbohydrate sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
2	20	25	25
3	30	35	40
4	40	45	50
5	50	55	65
6	60	70	75
7	70	80	90
8	80	90	100
9	90	100	115
10	100	115	125

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every month.

*adult neutered indoor cat with optimal body weight

KEY BENEFITS & CHARACTERISTICS

> **Elimination Diet***

Formula based on insect protein and potato starch allows management of most common food allergies.

> **Purified Source of Carbohydrate (single source)***

The use of purified potato starch excludes the protein part of potato.

> **With Insect Protein***

Insect is a totally innovative animal protein source in petfood. Its high digestibility and biological value (amino acid profile) perfectly fits the daily requirements of cats.

> **High Digestive Tolerance**

Includes a specific association of ingredients (clay, probiotics, prebiotics) to secure the digestive function, which can be compromised in allergic cats⁽¹⁾.

> **High Palatability**

Richness in animal protein and fat guarantess high palatability for optimal compliance during the elimination food trial or in the long term.



ADDITIONAL BENEFITS & CHARACTERISTICS

> **Skin Integrity**

High and balanced omega-6 and omega-3 help maintain skin barrier effect and reduce the risk of other allergies.

> **Coat Support**

Adapted content in protein and essential fatty acids helps to maintain a healthy coat.

> **High Digestibility**

High digestibility helps support cats with concurrent compromised gastrointestinal function.

> **Urinary Health**

Mineral balance and adapted urinary pH and RSS limit the risk of feline lower urinary tract disease in the long term.

> **Suitable for Adult and Senior cats**

The amounts of all essential nutrients fit the daily requirement of adult and senior cats.



91%

EXCELLENT DIGESTIVE TOLERANCE IN 91% OF CATS FED WITH VETERINARY HPM HYPOALLERGY DIET.⁽¹⁾



Refer to article p.220



92%

OF PETOWNERS HAD A SPONTANEOUS POSITIVE REACTION TO THE USE OF INSECT PROTEIN WITHIN A FELINE DIET.⁽²⁾

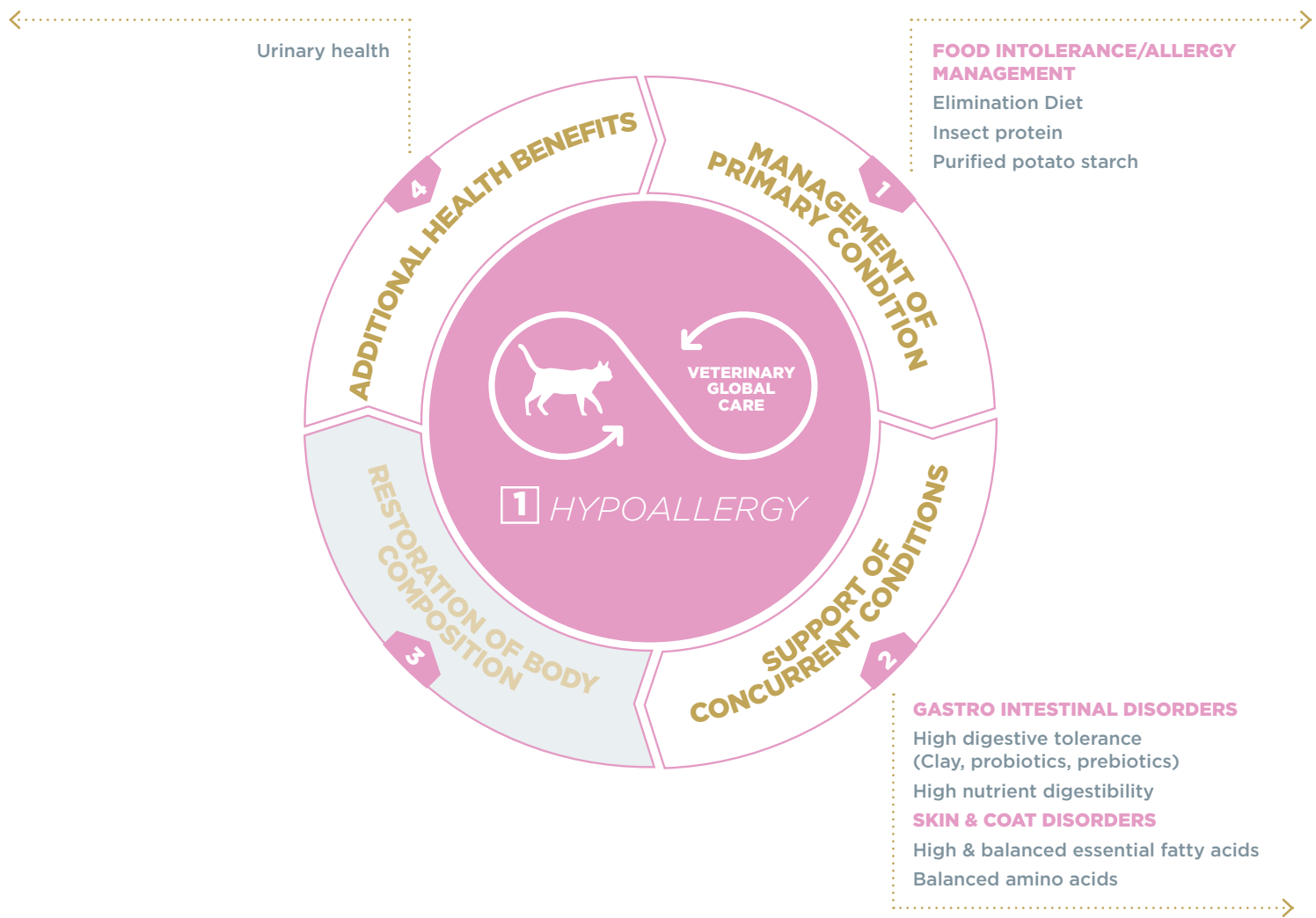


Refer to article p.252

* Commission regulation (EU) 2020/354

1) I. Leriche et al. Assessment of the digestive tolerance in cats of a new diet based on insects as the protein source. ISFM Congress 2017.

2) I. Leriche et al. Pet owners' perception of insects as a protein source for cats and dogs. SEVC Congress 2017.





AVAILABLE FORMATS
3 kg

DIETETIC INDICATIONS*

- Reduction of ingredient and nutrient intolerance.

OTHER USE

- Food intolerance with concurrent digestive disorders (maldigestion/malabsorption, diarrhea...).
- Food intolerance with concurrent skin/coat disorders (redness/itching).

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.
- Chronic Kidney disease.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	31
• Animal to vegetal protein ratio	100/00
• Fat	16
• Minerals	7.5
• Crude Fibre	4
• NFE*	36
• Starch	32
• Calcium	0.8
• Phosphorus	0.7
• Sodium	0.7
• Methionine + Cystine	1.5
• Omega-6 fatty acids	3
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	389
• ME** measured in vivo (kcal/100g)	383
• Protein digestibility (in vivo; %)	89
• Fat digestibility (in vivo; %)	93
• Energy from protein (%)	29
• Energy from fat (%)	37
• Energy from NFE (%)	34
• Protein to Calorie ratio (g/Mcal)	80

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

CARBOHYDRATE (NFE) 36%

PROTEIN 31%

of ANIMAL ORIGIN 100%

COMPOSITION

Potato starch⁽¹⁾, hydrolysed fish protein⁽²⁾ (30%), poultry fats, minerals, lignocellulose, hydrolysed pork proteins⁽²⁾, beet pulp, mono di and tri glycerides of fatty acids, brewers yeast, fish oil, fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), Lactobacillus acidophilus.

1) Carbohydrate source

2) Protein sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Lactobacillus	7 mg/kg
• Chitosan	800 mg/kg
• L-carnitine	540 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
2	20	20	25
3	30	35	35
4	40	45	50
5	50	55	60
6	60	65	75
7	70	80	85
8	80	90	100
9	90	100	110
10	100	110	125

The daily ration is based on the cat's CURRENT bodyweight, and must be adjusted every month.

*adult neutered indoor cat with optimal body weight



KEY BENEFITS & CHARACTERISTICS

> Elimination Diet

Formula based on hydrolysed fish protein and potato starch allows management of most common food allergies.


> Purified Source of Carbohydrate (single source)

Potato starch is a purified source of starch, excluding the presence of protein.


> With hydrolysed fish protein*

Fish protein is extensively hydrolysed to achieve low molecular weight (mean MW of 1.85 kDa, 98% peptides below 10 kDa) ensuring food allergy management. Its high digestibility and biological value (amino acid profile) perfectly fit the daily requirements of cats.

> High Digestive Tolerance

 Includes a specific association of ingredients (clay, probiotics, prebiotics, selected fibres) to secure the digestive function, which can be compromised in allergic cats⁽¹⁾.

> High Palatability

 Richness in animal protein and fat guarantees high palatability for optimal compliance during the elimination food trial or in the long term⁽¹⁾.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Skin Integrity

Balanced omega-6 and omega-3 help reinforce natural skin defences and reduce the risk of other allergies.

> Coat Support

Adapted content in protein and essential fatty acids helps to maintain a healthy coat.

> High Digestibility

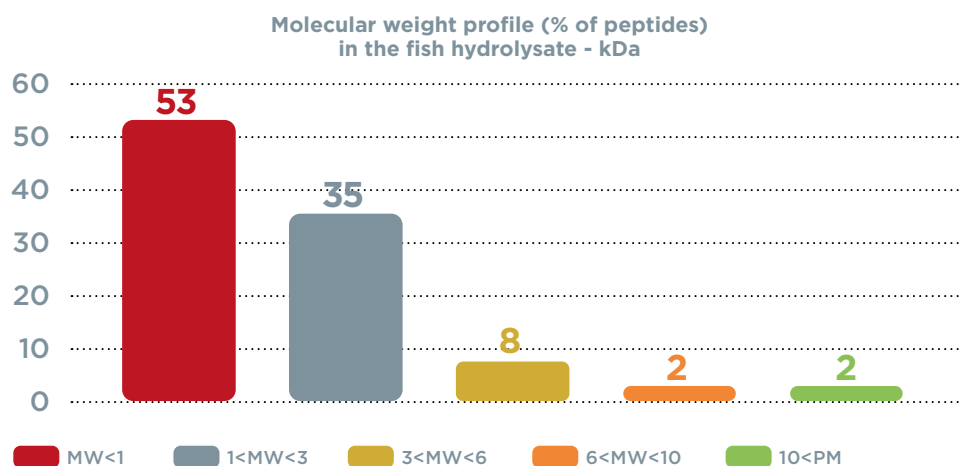
High digestibility helps support cats with concurrent compromised gastrointestinal function.

> Urinary Health

Mineral balance and adapted urinary pH and RSS limit the risk of feline lower urinary tract disease in the long term.

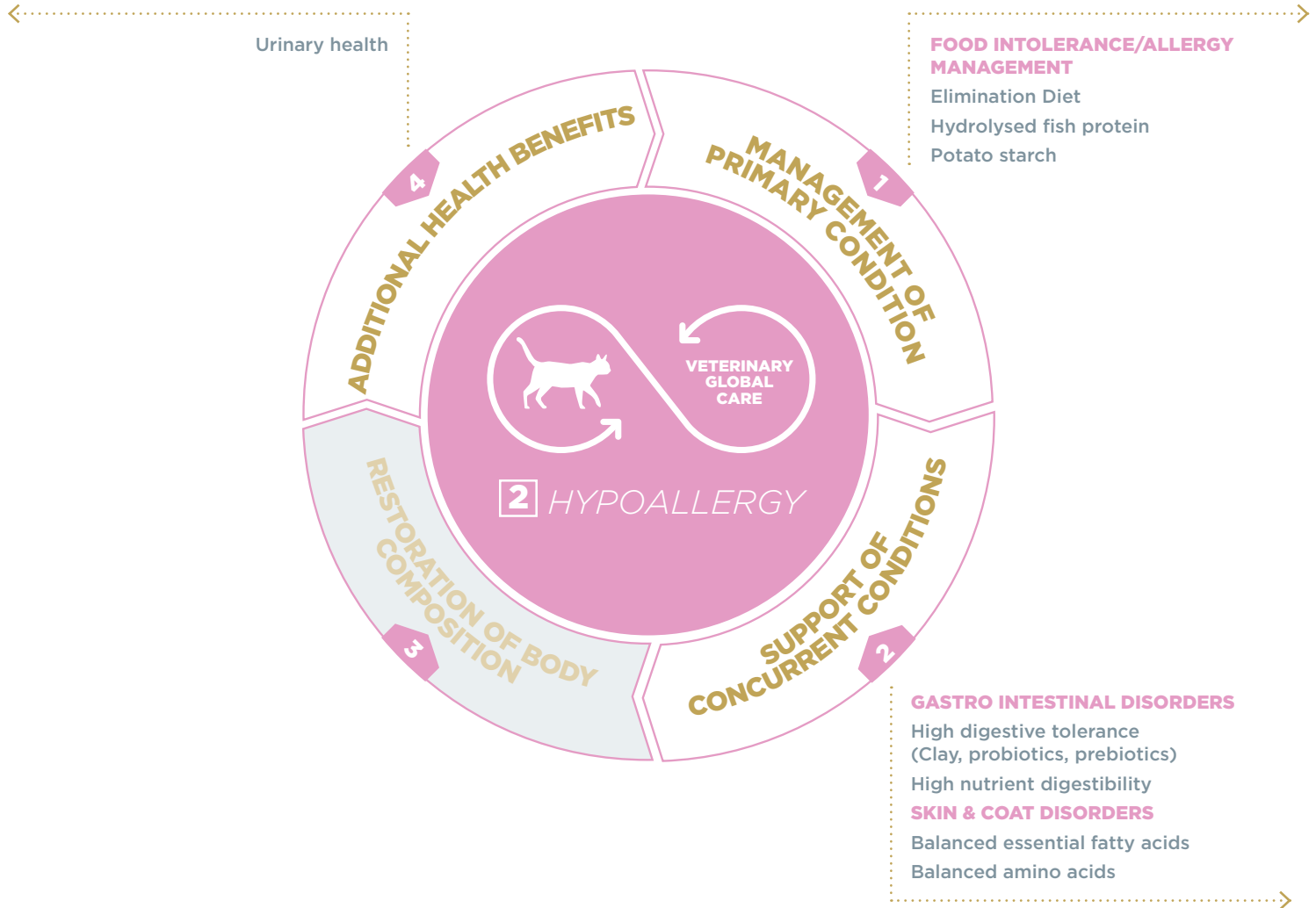
> Suitable for Adult and Senior cats

The amounts of all essential nutrients fit the daily requirement of adult and senior cats.



* Commission regulation (EU) 2020/354

1) I. Leriche et al. Assessment of the palatability and digestive tolerance in cats of a new diet based on hydrolysed salmon as the protein source. Internal data 2018.







CAT WITH JOINT ISSUES

ADULT

SENIOR

Check the body weight

Check the renal function

Overweight

Optimal body condition

Normal

IRIS Stage I

IRIS Stage II

IRIS Stage III

IRIS Stage IV



Body condition
optimal & stable



1 WEIGHT LOSS & DIABETES
Overweight (<30%) & Diabetes

2 WEIGHT LOSS & CONTROL
Overweight (<30%) & Diabetes

1 EARLY KIDNEY & JOINT

2 KIDNEY & JOINT

3 ADVANCED KIDNEY & JOINT

and/or



WET EARLY KIDNEY & JOINT

and/or



WET KIDNEY & JOINT

NB: All these diets are contra-indicated during growth.
In case of joint issues in kittens, keep the baby diet + medical/nutraceutical management

KIDNEY & JOINT

Decision tree for right diet choice



CAT WITH KIDNEY DYSFUNCTION

ADULT/SENIOR

Check the renal function

IRIS Stage I

IRIS Stage II

IRIS Stage III

IRIS Stage IV



1 EARLY KIDNEY & JOINT



2 KIDNEY & JOINT



3 ADVANCED KIDNEY & JOINT

and/or



WET EARLY KIDNEY & JOINT

and/or



WET KIDNEY & JOINT

NB: All these diets are contra-indicated during growth.
In case of kidney dysfunction, keep the baby diet + medical/nutraceutical management



AVAILABLE FORMATS

1.5 kg, 3 kg

DIETETIC INDICATIONS*

- Support of the metabolism of joints in case of osteoarthritis.

OTHER USE

- Support of the renal function in case of dysfunction at stage I (IRIS classification).

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	38
• Animal to vegetal protein ratio	92/08
• Fat	16.5
• Minerals	7.5
• Crude Fibre	6.5
• NFE*	26
• Starch	21
• Calcium	0.9
• Phosphorus	0.6
• Sodium	0.4
• Potassium	0.8
• Omega-6 fatty acids	2.5
• Omega-3 fatty acids	1.5
• DHA	0.4
• EPA	0.55

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	384
• ME** measured in vivo (kcal/100g)	385
• Protein digestibility (in vivo; %)	86
• Fat digestibility (in vivo; %)	94.5
• Energy from protein (%)	37
• Energy from fat (%)	39
• Energy from Carbohydrate (%)	24

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

CARBOHYDRATE (NFE) 26%

PROTEIN 38%

of ANIMAL ORIGIN 92%

COMPOSITION

Dehydrated pork protein, potato starch, hydrolysed pork and poultry protein, animal fat, pea, minerals, lignocellulose, faba bean hulls, rice, fish oil, beet pulp, brewers yeast, hydrolysed fish protein, fructo-oligosaccharides, psyllium fibre, egg shell membrane, hydrolysed crustacean (source of chitosan), chondroitine sulfate, Lactobacillus acidophilus.

SPECIFIC INGREDIENTS/ADDITIVES

• Chondroitine Sulfate	1200 mg/kg
• Chitosan	1200 mg/kg
• Egg Shell Membrane	1200 mg/kg
• Calcium Carbonate	0.7%
• Vitamin E	610 mg/kg
• Killed Lactobacilli	7 mg/kg
• Bentonite	5 g/kg

FEEDING GUIDELINES



Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
2	20	25	30
3	35	35	40
4	45	50	55
5	55	60	70
6	65	75	85
7	75	85	95
8	90	100	110
9	100	110	125
10	110	125	140

*normal: senior neutered indoor cat with optimal body weight

The daily ration is based on the cat's current body weight, and should be adjusted every month.

Always provide a generous supply of fresh drinking water.



KEY BENEFITS & CHARACTERISTICS

> High Protein

The high level of proteins helps maintain muscle mass.

> Low Phosphorus

The phosphorus content is 25% lower in comparison with Veterinary HPM Senior cat diet. The low phosphorus content helps protect the renal function.

> Muscle Mass Maintenance

The richness in proteins helps promote strong muscles to support joints and mobility.

> Body Condition Maintenance

The High Protein - Low Carbohydrate formulation helps maintain optimal body condition to limit mechanical constraints on joints.

> High Omega-3 & DHA

Specific fat sources provide high levels of omega-3 fatty acids, especially DHA, that helps limit inflammatory and painful processes in joints.

> Mobility Plus Complex

The association of Chondroitin Sulfate, Chitosan and Egg Shell Membrane helps maintain the cartilage integrity.

> Palatability Plus Complex

The richness in animal ingredients (52%) and the use of new specific ingredients guarantee high palatability for optimal compliance.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Phosphorus Binding ⁽¹⁾



The addition of Chitosan and Calcium Carbonate helps reduce the dietary phosphorus bioavailability.

> Suitable for Adult and Senior cats

The amounts of all essential nutrients fit the daily requirements of adult and senior cats.

> Increased Antioxidant Activity

The high level of vitamin E helps limit oxidative processes that could impair both joint metabolism and renal function.

> Protection of the Digestive Mucosa

Added Bentonite helps protect the digestive mucosa in case of concurrent anti-inflammatory therapy.

> Urinary Safety

Adjusted RSS (Relative SuperSaturation) indexes for struvites and oxalates help maintain urinary health.



14%

REDUCTION OF THE
PHOSPHORUS APPARENT
DIGESTIBILITY BY ADDING
CHITOSAN ⁽¹⁾



Refer to article p.204

* Commission regulation (eu) 2020/354

(1) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress 2015.

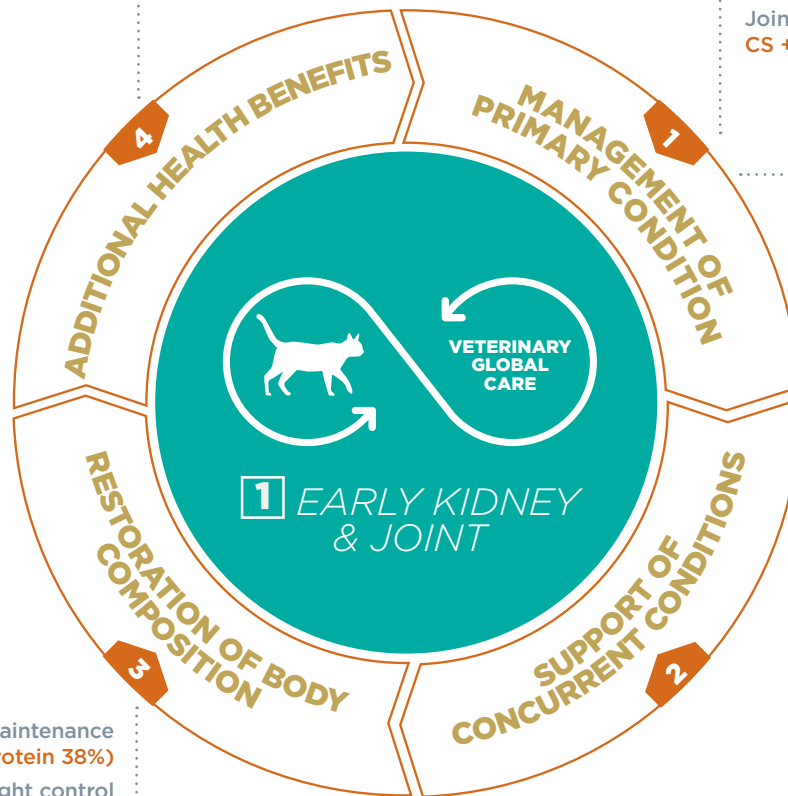
High digestive safety
Digestive mucosa protection (Bentonite)
 Skin & Coat
 Immunity
 Urinary safety

OSTEOARTHRITIS

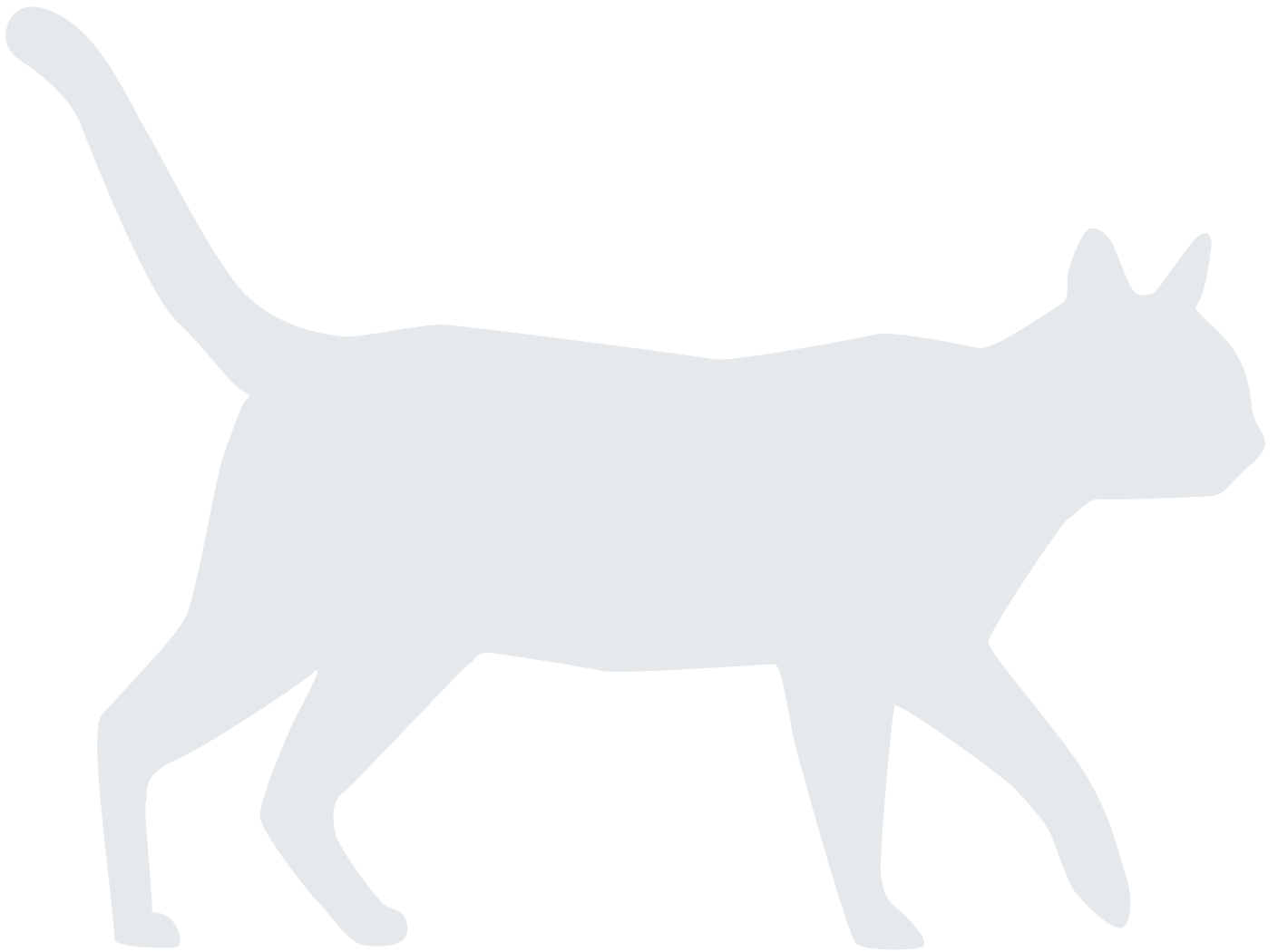
Modulate inflammatory and painful process
High omega-3 & DHA
Aox VitE
 Muscle support
High protein (38%)
 Joint support
CS + Chitosan + ESM

EARLY KIDNEY CARE

Low phosphorus (0.6%)
 Added Phosphorus binders (chitosan, Ca carbonate)



Lean mass maintenance
 (High protein 38%)
 Body weight control
 Adapted calorie content





AVAILABLE FORMATS
1.5 kg, 3 kg

DIETETIC INDICATIONS*

- Support of the metabolism of joints in case of osteoarthritis.
- Support of the renal function in case of chronic renal insufficiency.

OTHER USE

- Chronic hepatic disorders.

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	35
• Animal to vegetal protein ratio	89/11
• Fat	20
• Minerals	7.5
• Crude Fibre	3.5
• NFE*	28.5
• Starch	24
• Calcium	1
• Phosphorus	0.55
• Sodium	0.4
• Potassium	0.8
• Omega-6 fatty acids	3
• Omega-3 fatty acids	1.5
• DHA	0.4
• EPA	0.55

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	412
• ME** measured in vivo (kcal/100g)	410
• Protein digestibility (in vivo; %)	84
• Fat digestibility (in vivo; %)	92.5
• Energy from protein (%)	31
• Energy from fat (%)	44
• Energy from Carbohydrate (%)	25

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

CARBOHYDRATE (NFE) 28.5%

PROTEIN 35%

of ANIMAL ORIGIN 89%

COMPOSITION

Dehydrated pork protein, rice, animal fat, pea, hydrolysed pork and poultry protein, potato starch, minerals, fish oil, beet pulp, lignocellulose, brewers yeast, hydrolysed fish protein, psyllium fibre, fructo-oligosaccharides, egg shell membrane, hydrolysed crustacean (source of chitosan), chondroitine sulfate, Lactobacillus acidophilus.

SPECIFIC INGREDIENTS/ADDITIVES

• Chondroitine Sulfate	1200 mg/kg
• Chitosan	1200 mg/kg
• Egg Shell Membrane	1200 mg/kg
• Calcium Carbonate	1%
• Vitamin E	610 mg/kg
• Killed Lactobacilli	7 mg/kg
• Bentonite	5 g/kg

FEEDING GUIDELINES



Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
2	20	20	25
3	30	30	35
4	35	40	50
5	45	50	60
6	55	60	75
7	65	70	85
8	75	80	100
9	85	90	110
10	90	105	125

*normal: senior neutered indoor cat with optimal body weight

The daily ration is based on the cat's current body weight, and should be adjusted every month.

Always provide a generous supply of fresh drinking water.



KEY BENEFITS & CHARACTERISTICS

> Moderate Protein

The protein content is reduced by 15% in comparison with Veterinary HPM Early kidney & Joint cat diet. This content and the high quality of proteins allow both muscle mass preservation and uremic toxin reduction.

> Low Phosphorus

The phosphorus content is reduced by 15% in comparison with Veterinary HPM Early kidney & Joint cat diet. The low phosphorus content helps protect the renal function.

> Muscle Mass Preservation

The dietary protein intake helps promote strong muscles to support joints and mobility.

> High Energy & Concentration

The High energy density of the diet ensures small and concentrated daily rations to compensate for reduced appetite and support patients against undernutrition.

> High Omega-3 & DHA

Specific fat sources provide high levels of omega-3 fatty acids, especially DHA, that helps limit inflammatory and painful processes in joints.

> Mobility Plus Complex

The association of Chondroitin Sulfate, Chitosan and Egg Shell Membrane helps maintain the cartilage integrity.

> Palatability Plus Complex

The richness in animal ingredients (52%) and the use of new specific ingredients guarantee high palatability for optimal compliance.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Phosphorus Binding ⁽¹⁾



The addition of Chitosan and Calcium Carbonate helps reduce the dietary phosphorus bioavailability.

> Suitable for Adult and Senior cats

The amounts of all essential nutrients fit the daily requirements of adult and senior cats.

> Increased Antioxidant Activity

The high level of vitamin E helps limit oxidative processes that could impair both joint metabolism and renal function.

> Urinary Safety

Adjusted RSS (Relative SuperSaturation) indexes for struvites and oxalates help maintain urinary health.



14%

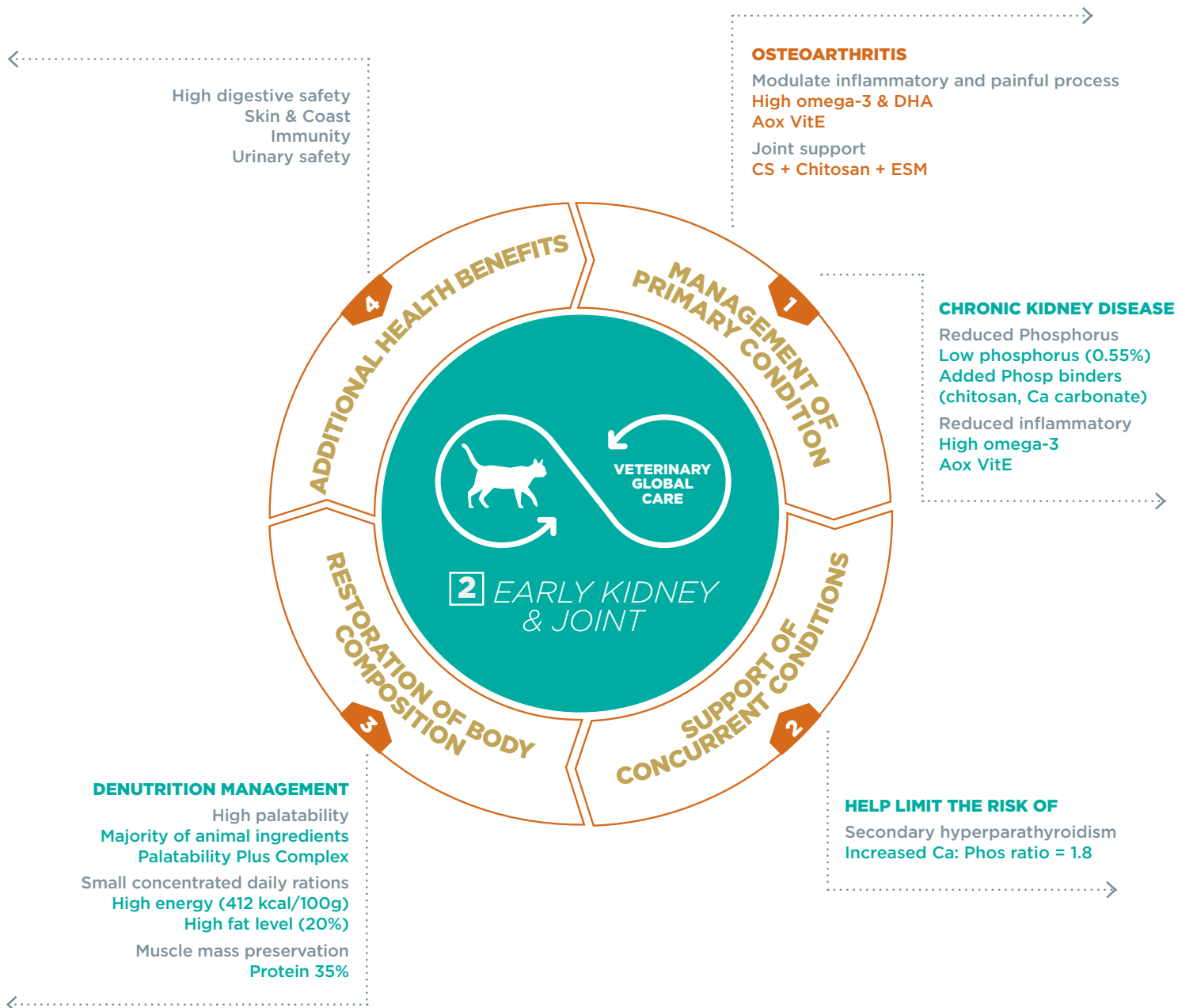
REDUCTION OF THE
PHOSPHORUS APPARENT
DIGESTIBILITY BY ADDING
CHITOSAN ⁽¹⁾



Refer to article p.204

* Commission regulation (eu) 2020/354

(1) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress 2015.







AVAILABLE FORMATS
400 g, 1.5 kg, 3 kg

DIETETIC INDICATIONS*

- Support of the metabolism of joints in case of osteoarthritis.
- Support of the renal function in case of chronic renal insufficiency.

OTHER USE

- Chronic hepatic disorders

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	5.5
• Protein	30
• Animal to vegetal protein ratio	86/14
• Fat	21
• Minerals	7
• Crude Fibre	3.5
• NFE*	33
• Starch	28
• Calcium	1
• Phosphorus	0.5
• Sodium	0.4
• Potassium	0.8
• Omega-6 fatty acids	3.2
• Omega-3 fatty acids	1.5
• DHA	0.4
• EPA	0.55

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	415
• ME** measured in vivo (kcal/100g)	410
• Protein digestibility (in vivo; %)	84
• Fat digestibility (in vivo; %)	92.5
• Energy from protein (%)	26
• Energy from fat (%)	45
• Energy from Carbohydrate (%)	29

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

CARBOHYDRATE (NFE) 33%

PROTEIN 30%

of ANIMAL ORIGIN 86%

COMPOSITION

Dehydrated pork protein, rice, animal fat, potato starch, pea, hydrolysed pork and poultry protein, minerals, fish oil, beet pulp, lignocellulose, brewers yeast, hydrolysed fish protein, psyllium fibre, fructo-oligosaccharides, egg shell membrane, hydrolysed crustacean (source of chitosan), chondroitine sulfate, Lactobacillus acidophilus.

SPECIFIC INGREDIENTS/ADDITIVES

• Chondroitine Sulfate	1200 mg/kg
• Chitosan	1200 mg/kg
• Egg Shell Membrane	1200 mg/kg
• Calcium Carbonate	1%
• Vitamin E	610 mg/kg
• Killed Lactobacilli	7 mg/kg
• Bentonite	5 g/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)	
	Normal*	Underweight
2	20	25
3	30	35
4	40	50
5	50	60
6	60	70
7	70	85
8	80	100
9	90	110
10	100	120

*normal; senior neutered indoor cat with optimal body weight

The daily ration is based on the cat's current body weight, and should be adjusted every month.

Always provide a generous supply of fresh drinking water.



KEY BENEFITS & CHARACTERISTICS

> Limited Protein

The protein content is reduced by 15% in comparison with Veterinary HPM Kidney & Joint cat diet. This content, combined with the high quality of proteins, helps limit the production of uremic toxins and maintain quality of life.

> Very Low Phosphorus

The phosphorus content is reduced by 10% in comparison with Veterinary HPM Kidney & Joint cat diet. This restricted level helps slow down the evolution of the renal disease and minimizes the risk of secondary hyperparathyroidism.

> High Energy & Concentration

The High energy density of the diet allows small and concentrated daily rations to compensate for reduced appetite and support patients against undernutrition.

> Phosphorus Binding⁽¹⁾



The addition of Chitosan and Calcium Carbonate helps reduce the dietary phosphorus bioavailability.

> High Omega-3 & DHA

Specific fat sources provide high levels of omega-3 fatty acids, especially DHA, that helps limit inflammatory processes in joints and kidneys.

> Mobility Plus Complex

The association of Chondroitin Sulfate, Chitosan and Egg Shell Membrane helps maintain the cartilage integrity

> Palatability Plus Complex

The richness in animal ingredients (46%) and the use of new specific ingredients guarantee high palatability for optimal compliance.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Increased Antioxidant Activity

The high level of vitamin E helps limit oxidative processes that could impair both renal function and joint metabolism.

> Suitable for Adult and Senior cats

The amounts of all essential nutrients fit the daily requirements of adult and senior cats.

> Protection of the Digestive Mucosa

Added bentonite helps protect the digestive mucosa against damages linked to uremia.

> Urinary Safety

Adjusted RSS (Relative SuperSaturation) indexes for struvites and oxalates help maintain urinary health.

> Limits the risk of metabolic acidosis

The addition of an alkalisng agent (calcium carbonate) helps limit the risk of metabolic acidosis.

> Limits the risk of hyperparathyroidism

The adapted calcium content of the diet, with increased Calcium: Phosphorus ratio = 2, helps limit the side effects of high phosphatemia and the risk of secondary hyperparathyroidism.



14%

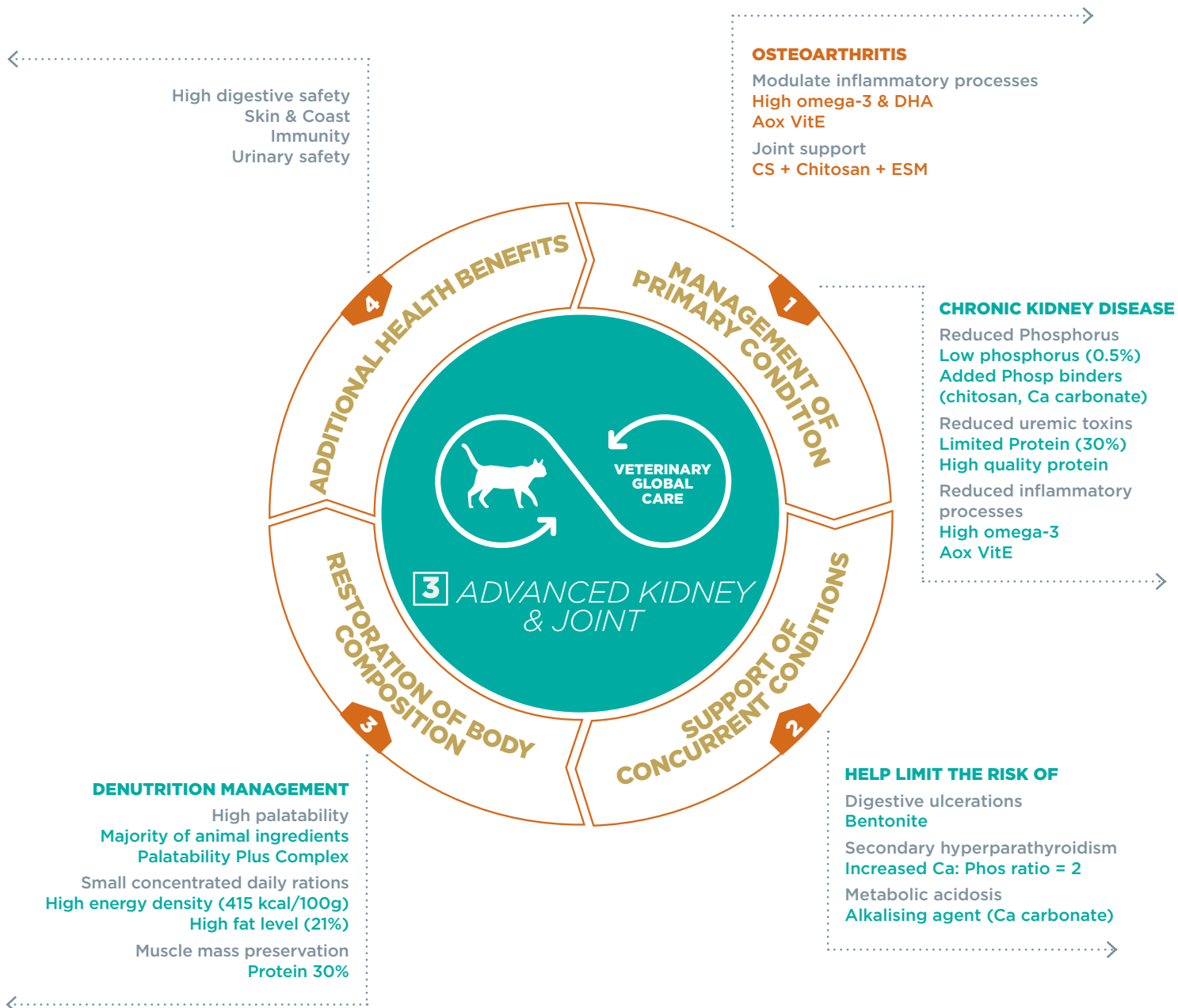
REDUCTION OF THE
PHOSPHORUS APPARENT
DIGESTIBILITY BY ADDING
CHITOSAN ⁽¹⁾



Refer to article p.204

* Commission regulation (eu) 2020/354

(1) I. Leriche et al. Effect of chitosan supplementation in a dry maintenance diet on phosphorus apparent digestibility in cats. SEVC Congress 2015.







AVAILABLE FORMATS
12 x 85g pouch

DIETETIC INDICATIONS*

- Support of the metabolism of joints in case of osteoarthritis.

OTHER USE

- Support of the renal function in case of dysfunction at stage I (IRIS classification).

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	78.5
• Protein	12
• Animal to vegetal protein ratio	100/00
• Fat	5.5
• Minerals	2
• Crude Fibre	0.8
• NFE*	1.2
• Starch	0.8
• Calcium	0.25
• Phosphorus	0.17
• Sodium	0.2
• Potassium	0.22
• Omega-6 fatty acids	1.5
• Omega-3 fatty acids	0.5
• DHA	0.15
• EPA	0.2

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	99
• ME** measured in vivo (kcal/100g)	97
• Protein digestibility (in vivo; %)	88.5
• Fat digestibility (in vivo; %)	96
• Energy from protein (%)	47
• Energy from fat (%)	48
• Energy from Carbohydrate (%)	5

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

COMPOSITION

Chunks (50%): pork kidney, chicken gizzard, pork lung lobe, chicken liver, chicken skin, chicken neck, egg white, pork plasma, minerals and vitamins, fish oil, sunflower oil, lignocellulose, digest, cellulose, potato starch, caramel, hydrolysed crustacean (source of chitosan), egg shell membrane.

Gravy (50%): water, tapioca starch, caramel.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	1000 mg/kg
• Chondroïtine Sulfate	300 mg/kg
• Chitosan	300 mg/kg
• Egg Shell Membrane	300 mg/kg

CARBOHYDRATE (NFE) 1.2%

PROTEIN 12%

of ANIMAL ORIGIN 100%



FEEDING GUIDELINES



If exclusive feeding with WET

Body Weight (kg)	Overweight	Normal*	Underweight
	pouch/day	pouch/day	pouch/day
2	1.0	1	1.5
3	1.5	1.5	2
4	2.0	2.5	2.5
5	2.5	3	3
6	3.0	3.5	4
7	3.5	4	4.5
8	4.0	4.5	5
9	4.5	5	5.5
10	5.0	5.5	6.5

*normal: senior neutered cat with optimal body weight.

Mixed feeding is possible, combining Veterinary HPM Wet and Dry Early Kidney Joint diets. We propose to provide around 50% of the energy need with wet and 50% with dry, but all combinations are possible depending on the individual case.

If feeding ration composed with both WET and DRY Vet HPM Early Kidney Joint cat

Body Weight (kg)	Overweight		Normal*		Underweight	
	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)
2	0.5	10	0.5	15	0.5	15
3	0.5	20	0.5	25	1	20
4	1	20	1	30	1	35
5	1	35	1	40	1	45
6	1	45	1	50	2	40
7	1	55	2	45	2	55
8	2	45	2	55	2	65
9	2	55	2	70	2	80
10	2	65	2	80	2	95

*normal: senior neutered indoor cat with optimal body weight.

KEY BENEFITS & CHARACTERISTICS

> High Protein

The high level of proteins helps maintain muscle mass.

> Low Phosphorus

The low phosphorus content helps maintain the renal function.

> Muscle Mass Maintenance

The richness in proteins helps promote strong muscles to support joints and mobility.

> High Omega-3 & DHA

A specific fat source provides high levels of omega-3 fatty acids, especially DHA, that helps limit inflammatory and painful processes in joints.

> Mobility Plus Complex

The association of Chondroitin Sulfate, Chitosan and Egg Shell Membrane helps maintain the cartilage integrity.

> Supports Hydration

The high moisture content of the wet diet naturally increases total water intake.

> High Palatability

The richness in animal ingredients (88%) and the macronutrient share (high protein / very low carbohydrate) respect the natural preferences of cats to guarantee high palatability and optimal compliance.



AVAILABLE FORMATS
14 x 85g box (tray)

DIETETIC INDICATIONS*

- Support of the metabolism of joints in case of osteoarthritis.
- Support of renal function in case of chronic renal insufficiency.

OTHER USE

- Chronic hepatic disorders.

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	76
• Protein	11
• Animal to vegetal protein ratio	100/00
• Fat	9
• Minerals	2
• Crude Fibre	0.8
• NFE*	1.2
• Starch	0.4
• Calcium	0.28
• Phosphorus	0.15
• Sodium	0.2
• Potassium	0.28
• Omega-6 fatty acids	2.5
• Omega-3 fatty acids	1.1
• DHA	0.3
• EPA	0.5

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	124
• ME** measured in vivo (kcal/100g)	124
• Protein digestibility (in vivo; %)	87
• Fat digestibility (in vivo; %)	95
• Energy from protein (%)	34
• Energy from fat (%)	62
• Energy from Carbohydrate (%)	4

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

COMPOSITION

Mousse: chicken liver, pork kidney, pork heart, pork lung lobe, fish oil, sunflower oil, chicken neck, egg white, minerals and vitamins, pork plasma, lignocellulose, digest, cellulose, caramel, hydrolysed crustacean (source of chitosan), egg shell membrane.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	1000 mg/kg
• Chitosan	300 mg/kg
• Egg Shell Membrane	300 mg/kg
• Chondroitine Sulfate	200 mg/kg

CARBOHYDRATE (NFE) 1.2%

PROTEIN 11%

of ANIMAL ORIGIN 100%



FEEDING GUIDELINES



If exclusive feeding with WET

Body Weight (kg)	Normal*		Underweight
	pouch/day		pouch/day
2	1		1
3	1		1.5
4	1.5		2
5	2		2.5
6	2.5		3
7	3		3.5
8	3		4
9	3.5		4.5
10	4		5

*normal: senior neutered cat with optimal body weight.

Mixed feeding is possible, combining Veterinary HPM Wet and Dry Kidney Joint or Dry Advanced Kidney Joint diets. We propose to provide around 50% of the energy need with wet and 50% with dry, but all combinations are possible depending on the individual case.

If feeding ration composed with both WET and DRY Vet HPM Kidney Joint or Dry Advanced Kidney Joint diets

Body Weight (kg)	Normal*		Underweight	
	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)
2	0.5	5	0.5	10
3	0.5	20	0.5	25
4	0.5	30	1	25
5	1	25	1	35
6	1	35	1	50
7	1	45	1	60
8	1	55	2	45
9	1	65	2	60
10	2	50	2	70

*normal: senior neutered indoor cat with optimal body weight.

KEY BENEFITS & CHARACTERISTICS

> Limited Protein

The protein content is reduced by 28% in comparison with Veterinary HPM WET EARLY Kidney & Joint. This content helps limit the production of uremic toxins and maintain quality of life.

> Very Low Phosphorus

The phosphorus content is reduced by 30% in comparison with Veterinary HPM WET EARLY Kidney & Joint. This restricted level helps slow down the evolution of the renal disease and minimizes the risk of secondary hyperparathyroidism.

> Reduces dehydration

The high moisture content of the wet diet naturally increases total water intake and helps compensate for dehydration.

> Body Condition Preservation

The increased energy density (+25% in comparison with Veterinary HPM WET EARLY Kidney & Joint) and the adapted protein intake help compensate for poor appetite and support patients against undernutrition and loss of lean mass.

> High Omega-3 & DHA

A specific fat source provides high levels of omega-3 fatty acids, especially DHA, that helps limit inflammatory and painful processes in joints.

> Mobility Plus Complex

The association of Chondroitin Sulfate, Chitosan and Egg Shell Membrane helps maintain the cartilage integrity.

> High Palatability

The richness in animal ingredients (93%) guarantees high palatability for optimal compliance and poor appetite compensation.

VETERINARY[®]
HPM








DIETETIC
RANGE



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CANINE RANGE

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AVAILABLE FORMATS CANINE RANGE



	WEIGHT		JOINT	GASTRO		DERMATO	ALLERGY		KIDNEY	UROLOGY
	1 WEIGHT LOSS & DIABETES	2 WEIGHT LOSS & CONTROL	1 JOINT & MOBILITY	1 DIGESTIVE SUPPORT	WET DIGESTIVE SUPPORT	1 DERMATOLOGY SUPPORT	1 HYPOALLERGY INSECT	2 HYPOALLERGY HYDROLYSED FISH	1 KIDNEY SUPPORT	1 DISSOLUTION & PREVENTION
1.5kg				X						
3kg	X	X	X	X		X	X	X	X	X
7kg	X			X		X		X		
12kg	X	X	X	X		X	X	X	X	X
9x300g					loaf					

HEALTH CONDITION

DIETETIC CANINE RANGE CORRESPONDENCE



	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	JOINT & MOBILITY	DIGESTIVE SUPPORT	WET DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	KIDNEY SUPPORT	UROLOGY DISSOLUTION & PREVENTION
Atopy										
Chylothorax										
Chronic exocrine pancreatic insufficiency										
Chronic hepatic insufficiency										
Chronic renal insufficiency										
Colitis answering a fibre-enhanced diet										
Constipation										
Convalescence										
Dermatitis										
Dermatosis										
Diabetes mellitus with associated obesity										
Diabetes mellitus without associated obesity										
Diarrhoea										
Digestive surgery										
Food allergy/intolerance										
Gastric dilatation-torsion syndrome										
Hairloss										
Hyperlipaemia										
Hypothyroidism associated with obesity										
Hypothyroidism without associated obesity										
Inflammatory bowel disease										
Maldigestion malabsorption										
Obesity (>30%)										
Orthopaedic surgery of the pelvis										
Osteoarthritis										
Overweight (<30%)										
Oxalate urolith prevention										
Small intestinal bacteria overgrowth										
Struvite urolith dissolution										
Struvite urolith prevention										
Weight stabilisation/control after loss										

ANALYTICAL CONSTITUENTS CANINE RANGE

AS FED (%)	UROLOGY DISSOL & PREV	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	JOINT & MOBILITY	DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	KIDNEY SUPPORT
Moisture	9	9	9	9	9	9	9	9	9
Protein	34	34	34	34	34	34	24	24	20.5
Animal to vegetal protein ratio	85/15	94/06	88/12	85/15	92/08	92/08	96/04	100/00	70/30
Fat	17.5	11.5	13	15	22	18	18	18	22
Minerals	7	7.5	7.5	6.5	7.5	7.5	7	7	5.5
Crude cellulose	5	15	11	9	6	5	5.5	4.5	5.5
Total dietary fibre	10	23	17	15	10.5	8	8.5	7.5	10.5
Starch	22	14	18	18	17	20	30	36	30
Calcium	0.8	1.3	1.3	0.9	1.3	1.3	0.9	0.9	0.8
Phosphorus	0.6	0.9	1.1	0.7	0.9	0.9	0.7	0.7	0.4
Ca/P ratio	1.3	1.4	1.2	1.3	1.4	1.4	1.3	1.3	2.0
Sodium	0.9	0.4	0.4	0.4	0.6	0.4	0.4	0.4	0.3
Potassium	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.8
Magnesium	0.08	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Omega-6	2.2	2.2	2.2	2	2.5	3	3.3	3	2.7
Omega-3	1	0.7	0.9	3	0.9	1.1	0.7	0.5	1.0
Nitrogen Free Extract (NFE)	27.5	23	25.5	26.5	21.5	26.5	36.5	37.5	37.5
Metabolisable Energy (ME) (NRC 2006) (kcal/100g)	374	274	309	335	384	375	370	377	391
In vivo measured ME (kcal/100g) (NRC 2006)	377	285	302	353	411	386	392	384	395
Protein to calorie ratio (g/Mcal)	91	124	110	102	89	91	65	64	52
Calorie from protein (%)	33	40	37	35	31	33	23	23	18
Calorie from fat (%)	41	33	35	38	49	42	42	42	48
Calorie from NFE (%)	26	27	28	27	20	25	35	35	34
Urinary pH	6.0 - 6.5	6.3 - 6.7	6.3 - 6.7	6.3 - 6.7	6.3 - 6.7	6.3 - 6.7	6.3 - 6.7	6.3 - 6.7	6.5 - 7.0
Struvite RSS	<1	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Oxalate RSS	<12	<12	<12	<12	<12	<12	<12	<12	<12

Added vitamins & trace elements:

Vitamin A (IU/kg)	11000	12600	11000	11000	12600	11000	11000	11000	11000
Vitamin D3 (IU/kg)	1100	1260	1100	1100	1100	1100	1100	1100	1100
Vitamin E (mg/kg)	570	650	570	570	570	570	570	570	570
Vitamin B1 thiamine (mg/kg)	3.8	4.4	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Vitamin B2 (riboflavine) (mg/kg)	11	12.6	11	11	11	11	11	11	11
Vitamin B3 (PP, niacine, nicotinic ac) (mg/kg)	30	34	30	30	30	30	30	30	30
Vitamin B5 (pantothenic ac) (mg/kg)	26	30	26	26	26	26	26	26	26
Vitamin B6 (pyridoxine) (mg/kg)	3	3.2	3	3	3	3	3	3	3
Vitamin B9 (folic ac) (mg/kg)	0.48	0.55	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Vitamin B12 (cobalamine) (mg/kg)	0.062	0.071	0.062	0.062	0.071	0.062	0.062	0.062	0.062
Choline (mg/kg)	740	850	740	740	740	740	740	740	740
Taurine (mg/kg)	1500	1725	1500	1500	1500	1500	1500	1500	1500
Copper (mg/kg)	15	17	15	15	15	15	15	15	15
Iron (mg/kg)	25	29	25	25	25	25	25	25	25
Iodine (mg/kg)	1.1	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Zinc (mg/kg)	120	140	120	120	140	120	120	120	120

Specific functional ingredients/additives:

Bentonite (g/kg)	5	5	5	5	5	5	5	5	5
<i>Lactobacillus acidophilus</i> (mg/kg)	7	7	7	7	7	7	7	7	7
Beta-glucan (mg/kg):	0	0	0	0	500	0	0	0	0
L-carnitine (mg/kg)	330	330	330	330	0	330	330	330	330
Chitosan (mg/kg)	0	440	215	1240	0	0	0	0	800
Chondroitine sulfate (mg/kg)	0	440	215	1240	0	0	0	0	0
Egg shell membran (mg/kg)	0	0	0	300	0	0	0	0	0
Nucleotides (mg/kg)	0	0	0	0	560	0	0	0	0
Butyrate (mg/kg)	0	0	0	0	430	0	0	0	0
K citrate (%)	0.3	0	0	0	0	0	0	0	0
Ca carbonate (%)	0	0	0	0	0	0	0	0	1

ANALYTICAL CONSTITUENTS CANINE RANGE



ON DRY MATTER (%)	UROLOGY DISSOL & PREV	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	JOINT & MOBILITY	DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	KIDNEY SUPPORT
Protein	37.4	37.4	37.4	37.4	37.4	37.4	26.4	26.4	22.5
Fat	19.2	12.6	14.3	16.5	24.2	19.8	19.8	19.8	24.2
Minerals	7.7	8.2	8.2	7.1	8.2	8.2	7.7	7.7	6.0
Crude cellulose	5.5	16.5	12.1	9.9	6.6	5.5	6.0	4.9	6.0
Total dietary fibre	11.0	25.3	18.7	16.5	11.5	8.8	9.3	8.2	11.5
Starch	24.2	15.4	19.8	19.8	18.7	22.0	33.0	39.6	33.0
Calcium	0.9	1.4	1.4	1.0	1.4	1.4	1.0	1.0	0.9
Phosphorus	0.7	1.0	1.2	0.8	1.0	1.0	0.8	0.8	0.4
Ca/P ratio	1.3	1.4	1.2	1.3	1.4	1.4	1.3	1.3	2.0
Sodium	1.0	0.4	0.4	0.4	0.7	0.4	0.4	0.4	0.3
Potassium	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.9
Magnesium	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Omega-6	2.4	2.4	2.4	2.2	2.7	3.3	3.6	3.3	3.0
Omega-3	1.1	0.8	1.0	3.3	1.0	1.2	0.8	0.5	1.1
Nitrogen Free Extract (NFE)	30.2	25.3	28.0	29.1	23.6	29.1	40.1	41.2	41.2
Metabolisable Energy (ME) (NRC 2006) (kcal/100g)	411	301	340	368	422	412	407	414	430

ON 1000 KCAL (G)	UROLOGY DISSOL & PREV	WEIGHT LOSS & DIABETES	WEIGHT LOSS & CONTROL	JOINT & MOBILITY	DIGESTIVE SUPPORT	DERMATOLOGY SUPPORT	HYPOALLERGY INSECT	HYPOALLERGY FISH	KIDNEY SUPPORT
Protein	90.9	124.1	104.9	101.5	88.5	90.7	64.9	63.7	52.4
Fat	46.8	42.0	40.1	44.8	57.3	48.0	48.6	47.7	56.3
Minerals	18.7	27.4	23.1	19.4	19.5	20.0	18.9	18.6	14.1
Crude fibre (crude cellulose)	13.4	54.7	35.6	26.9	15.6	13.3	14.9	11.9	14.1
Total dietary fibre	26.7	83.9	55.0	44.8	27.3	21.3	23.0	19.9	26.9
Starch	58.8	51.1	55.6	53.7	44.3	53.3	81.1	95.5	76.7
Calcium	2.1	4.7	4.0	2.7	3.4	3.5	2.4	2.4	2.0
Phosphorus	1.6	3.3	3.4	2.1	2.3	2.4	1.9	1.9	1.0
Ca/P ratio	1.3	1.4	1.2	1.3	1.4	1.4	1.3	1.3	2.0
Sodium	2.4	1.5	1.2	1.2	1.6	1.1	1.1	1.1	0.8
Potassium	1.9	2.6	2.2	2.1	2.1	1.9	1.9	1.9	2.0
Magnesium	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Omega-6	5.9	8.0	6.8	6.0	6.5	8.0	8.9	8.0	6.9
Omega-3	2.7	2.6	2.8	9.0	2.3	2.9	1.9	1.3	2.6
Nitrogen Free Extract (NFE)	73.5	83.9	82.5	79.1	56.0	70.7	98.6	99.5	95.9

ANALYTICAL CONSTITUENTS WET CANINE RANGE

AS FED (%)	WET DIGESTIVE SUPPORT
Moisture	72
Protein	13
Animal/vegetal protein ratio	87/13
Fat	9,5
Minerals	2,4
Crude cellulose	1,1
Starch	0,4
Calcium	0,26
Phosphorus	0,18
Ca/P ratio	1,4
Sodium	0,25
Potassium	0,33
Magnesium	0,03
Omega-6	2,5
Omega-3	0,75
Nitrogen Free Extract (NFE)	2
Metabolisable Energy (ME) (NRC 2006) (kcal/100g)	144
In vivo measured ME (kcal/100g)	151
Protein to calorie ratio (NRC 2006) (g/Mcal)	90
Calorie from protein (%)	36
Calorie from fat (%)	59
Calorie from NFE (%)	5
URINARY PH	6.3 - 6.7
STRUVITE RSS	< 2.5
Ca oxalate RSS	< 12

Total vitamins and trace elements

VITAMIN A (IU/KG)	22000
VITAMIN D3 (IU/KG)	240
VITAMIN E (MG/KG)	200
VITAMIN B1 THIAMINE) (MG/KG)	1,8
VITAMIN B2 (RIBOFLAVINE) (MG/KG)	5
VITAMIN B3 (PP. NIACINE. NICOTINIC AC) (MG/KG)	40
VITAMIN B5 (PANTOTHENIC AC) (MG/KG)	9
VITAMIN B6 (PYRIDOXINE) (MG/KG)	1,5
VITAMIN B8 (BIOTINE. VITAMIN H) (MG/KG)	0,08
VITAMIN B9 (FOLIC AC) (MG/KG)	0,2
VITAMIN B12 (COBALAMINE) (MG/KG)	0,03
CHOLINE (MG/KG)	1000
TAURINE (MG/KG)	1000
COPPER (MG/KG)	5
IRON (MG/KG)	40
IODINE (MG/KG)	0,8
MANGANESE (MG/KG)	8
SELENIUM (MG/KG)	0,4
ZINC (MG/KG)	40

Specific functional ingredients / additives	WET DIGESTIVE SUPPORT
Bentonite (mg/kg)	900

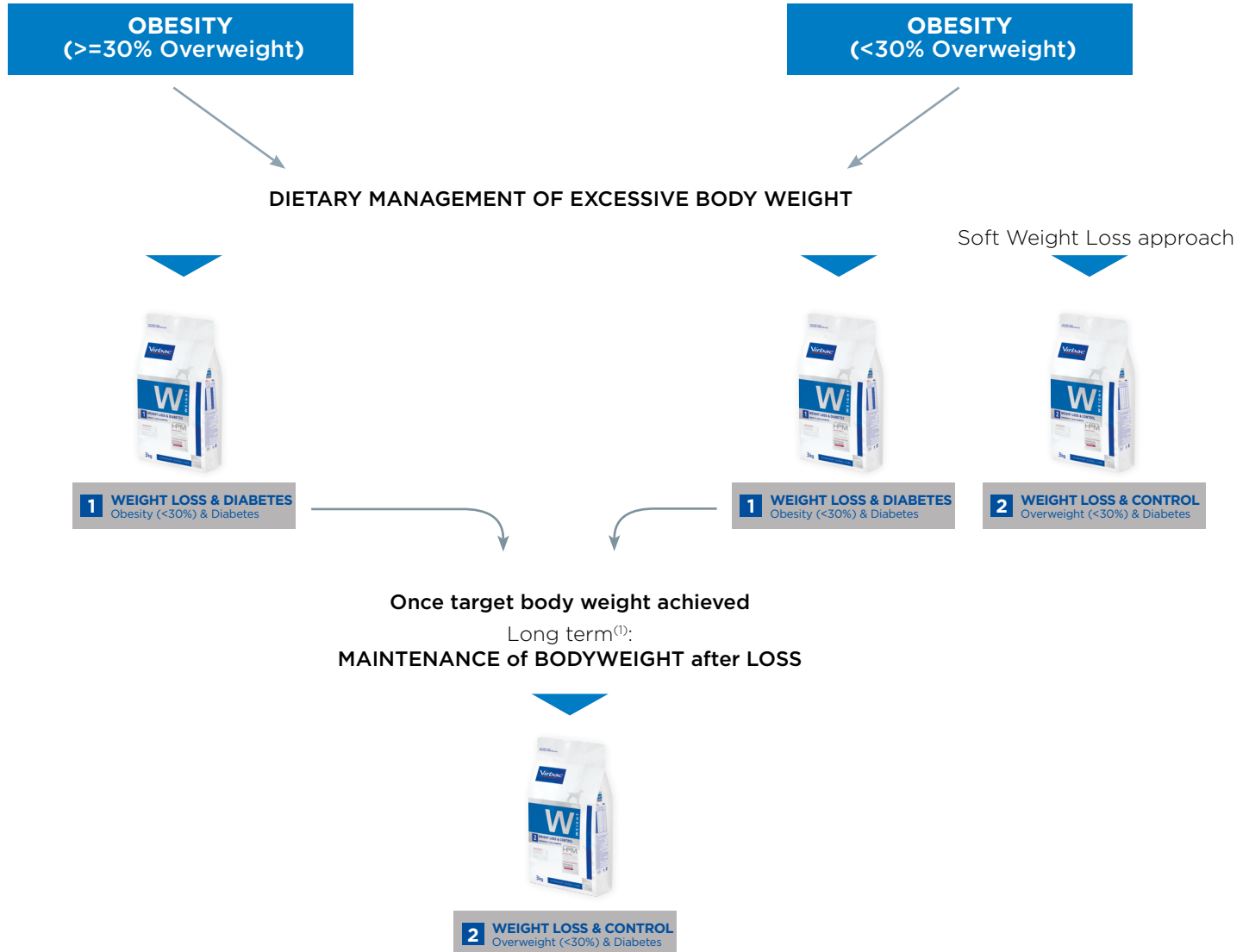
ON 1000 kcal (g)

Protein	90,3
Fat	66
Minerals	16,7
Crude cellulose	7,6
Starch	2,8
Calcium	1,8
Phosphorus	1,3
Sodium	1,7
Potassium	2,3
Magnesium	0,2
Omega-6	17,4
Omega-3	5,2
Nitrogen Free Extract (NFE)	13,9
Vitamin A (IU/kg)	15278
Vitamin D3 (IU/kg)	167
Vitamin E (mg/kg)	139
Vitamin B1 (thiamine) (mg/kg)	1,3
Vitamin B2 (riboflavine) (mg/kg)	3,5
Vitamin B3 (PP, niacine, nicotinic ac) (mg/kg)	27,8
Vitamin B5 (pantothenic ac) (mg/kg)	6,3
Vitamin B6 (pyridoxine) (mg/kg)	1
Vitamin B8 (biotine, vitamin H) (mg/kg)	0,06
Vitamin B9 (folic ac) (mg/kg)	0,14
Vitamin B12 (cobalamine) (mg/kg)	0,02
Choline (mg/kg)	694
Taurine (mg/kg)	694
Copper (mg/kg)	3,5
Iron (mg/kg)	27,8
Iodine (mg/kg)	0,6
Manganese (mg/kg)	5,6
Selenium (mg/kg)	0,3
Zinc (mg/kg)	27,8





CANINE OBESITY



¹⁾ A veterinarian's opinion should be sought before use.

WEIGHT

Decision tree for right diet choice



DIABETES MELLITUS

EXCESSIVE BODY WEIGHT

OPTIMAL BODY WEIGHT

DIETARY MANAGEMENT OF DIABETES
AND EXCESSIVE BODY WEIGHT

DIETARY MANAGEMENT OF DIABETES
AND WEIGHT CONTROL



1 **WEIGHT LOSS & DIABETES**
Obesity (<30%) & Diabetes

2 **WEIGHT LOSS & CONTROL**
Overweight (<30%) & Diabetes



AVAILABLE FORMATS

3 kg, 7 kg, 12 kg

DIETETIC INDICATIONS*

- Reduction of excessive body weight.
- Regulation of glucose supply (diabetes mellitus); only in case of associated obesity.

OTHER USE

- Responsive-fibre colitis, constipation.
- Lipid metabolism disorders (hyperlipidemia).

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	34
• Animal to vegetal protein ratio	94/06
• Fat	11.5
• Minerals	7.5
• Crude Fibre	15
• NFE*	23
• Starch	14
• Total sugars	1
• Calcium	1.3
• Phosphorus	0.9
• Sodium	0.4
• Omega-6 fatty acids	2.2
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	274
• ME** measured in vivo (kcal/100g)	285
• Protein digestibility (in vivo; %)	82
• Fat digestibility (in vivo; %)	92
• Energy from protein (%)	40
• Energy from fat (%)	33
• Energy from NFE (%)	27
• Protein to Calorie ratio (g/Mcal)	124

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 23%

HIGH PROTEIN 34%

of ANIMAL ORIGIN 94%

COMPOSITION

Dehydrated pork and poultry proteins, potato starch⁽¹⁾, lignocellulose, hydrolysed pork and poultry proteins, faba bean hulls, animal fats, minerals, linseed, beet pulp, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, brewers yeast, hydrolysed crustacean (source of chitosan), *Lactobacillus acidophilus*, chondroitin sulfate.

1) Carbohydrate sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chondroitin Sulfate	440 mg/kg
• Chitosan	440 mg/kg
• L-carnitine	330 mg/kg

FEEDING GUIDELINES

IN THE CASE OF OBESITY WITHOUT CONCURRENT DIABETES

IN THE CASE OF OBESITY ASSOCIATED WITH DIABETES

Target Body Weight (kg)	Daily ration (g/day)		Current Body Weight (kg)	Daily ration (g/day)
	High restriction	Moderate restriction		
3	55	75	3	75
5	80	105	5	105
8	110	145	8	145
10	125	170	10	170
15	165	220	15	220
20	200	270	20	270
25	235	310	25	310
30	265	350	30	350
40	320	425	40	425
60	420	560	60	560

The daily ration is based on the dog's TARGET bodyweight.

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every week.



KEY BENEFITS & CHARACTERISTICS

> Low Energy Density*



Low energy density of the diet helps achieve rapid weight loss⁽¹⁾.

> Improves Lean mass / Fat Mass Ratio



High Protein- Low Carbohydrate (HP-LC) formulation helps preserve lean mass and decrease fat mass during weight loss⁽¹⁾.

> Joint Support

Addition of chondroitin sulfate and chitosan helps support joints and thus improve interactions and life quality.

> High Crude Fibre Improves Satiety

High crude fibre content, especially insoluble fibres, in association with high level of protein, helps promote satiety.

> Low Glycemic Index & Total Sugar



HP-LC formulation with low amounts of starch and total sugars helps reduce the impact of the meal on glycaemia and insulinemia^{(1) (2)} and helps manage patients with diabetes or insulin resistance.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Fat Burning

Added L-carnitine as fat burner helps lean mass preservation during weight loss.

> Increased levels of vitamins and trace elements (by 15% compared to Veterinary HPM Adult Dog)

Formula enriched with vitamins and trace elements guarantees adequate contributions despite of feeding restriction and small rations.

> Controlled palatability

Richness in animal protein and fat respects natural preferences of carnivores to help achieve compliance.

> Suitable for Adult and Senior dogs

The amounts of all essential nutrients fit the daily requirement of adult and senior dogs.

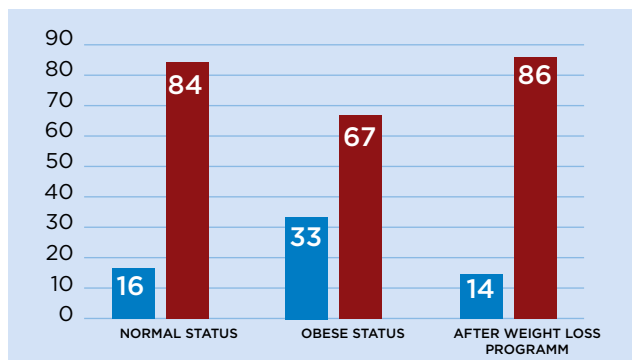


100% OF DOGS HAVE REACHED THEIR TARGET BODY WEIGHT⁽¹⁾

2.2% OF MEAN WEIGHT LOSS/PER WEEK⁽¹⁾



Refer to article p.234



Fat Mass (%) Free-Fat Mass (%)

PROVEN FASTER WEIGHT LOSS



OPTIMAL BODY WEIGHT REACHED AFTER 27 WEEKS COMPARED TO 34 FOR COMPETITORS⁽²⁾

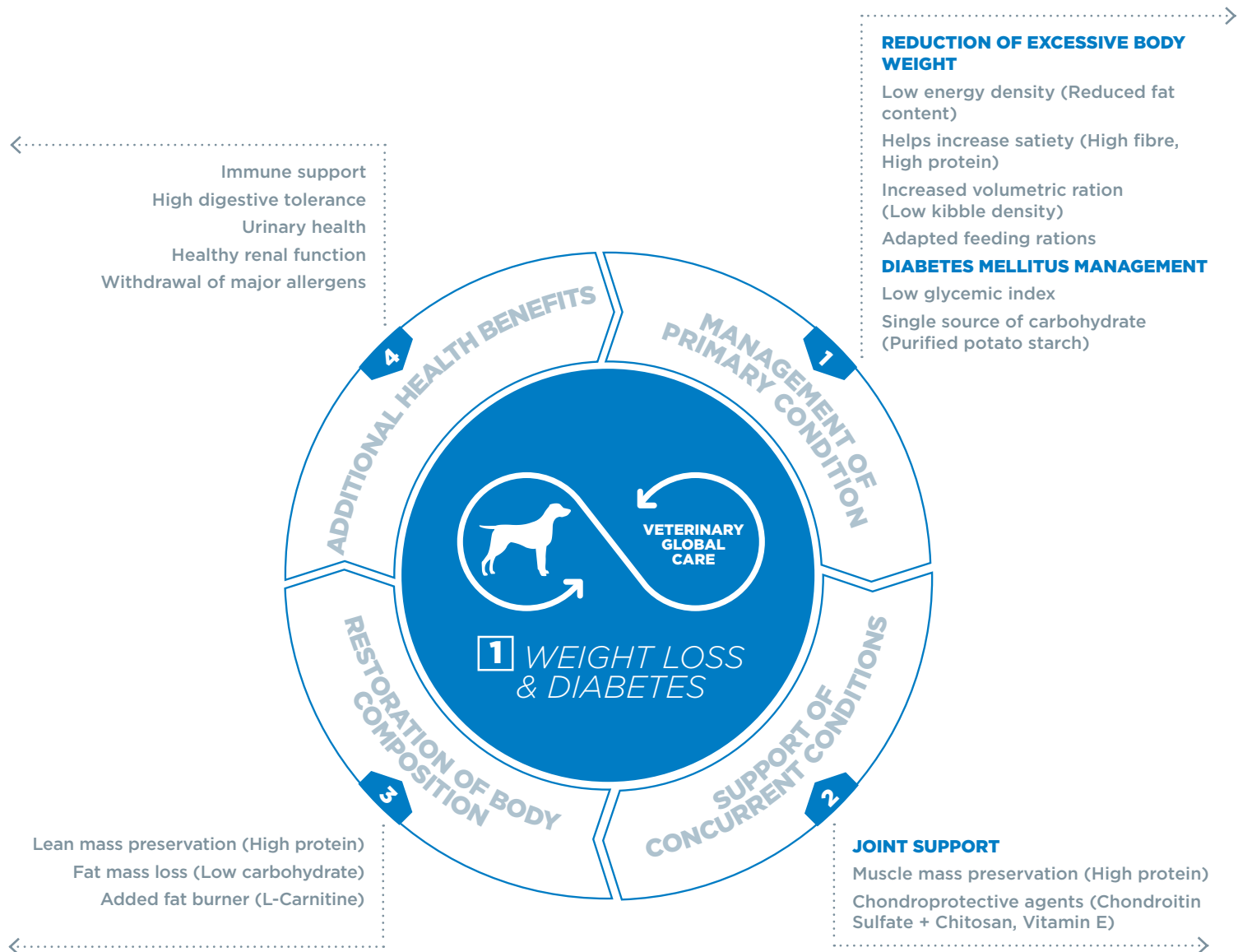


Refer to article p.234

* Commission regulation (EU) 2020/354

(1) A. André et al. Recovery of insulin sensitivity and optimal body composition after rapid weight loss in obese dogs fed a high-protein medium-carbohydrate diet. J Anim Physiol Anim Nutr 2017 ; 101 (Suppl): 21-30.

(2) I. Leriche et al. Efficacy and tolerance of a high-protein high-fibre low-starch diet for weight loss in client-owned obese dogs: a randomized double-blind controlled evaluation. SEVC Congress 2020.







AVAILABLE FORMATS

3 kg, 12 kg

DIETETIC INDICATIONS*

- Reduction of excessive body weight.
- Regulation of glucose supply (diabetes mellitus); only in case of normal body weight.

OTHER USE

- Weight control after weight loss.
- Fibre-responsive colitis, constipation.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	34
• Animal to vegetal protein ratio	88/12
• Fat	13
• Minerals	7.5
• Crude Fibre	11
• NFE*	25.5
• Total Dietary Fibre	17
• Starch	18
• Total sugars	1
• Calcium	1.3
• Phosphorus	1.1
• Sodium	0.4
• Omega-6 fatty acids	2.2
• Omega-3 fatty acids	0.9

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	309
• ME** measured in vivo (kcal/100g)	302
• Protein digestibility (in vivo; %)	80
• Fat digestibility (in vivo; %)	95
• Energy from protein (%)	37
• Energy from fat (%)	35
• Energy from NFE (%)	28
• Protein to Calorie ratio (g/Mcal)	110

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 25.5%

HIGH PROTEIN 34%

of ANIMAL ORIGIN 88%

COMPOSITION

Dehydrated pork and poultry proteins, rice⁽¹⁾, lignocellulose, hydrolysed pork and poultry proteins, animal fats, faba bean hulls, potato starch⁽¹⁾, peas⁽¹⁾, linseed, minerals, beet pulp, brewers yeast, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, hydrolysed crustacean (source of chitosan), *Lactobacillus acidophilus*, chondroitin sulfate.

(1) Carbohydrate sources.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Chondroitin sulfate	215 mg/kg
• Chitosan	215 mg/kg
• L-carnitine	330 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	weight loss	weight control	diabetes (without obesity)
3	65	75	105
5	95	105	150
8	130	145	200
10	150	170	235
15	195	220	305
20	240	270	370
25	275	310	430
30	310	350	490
40	380	425	590
60	495	560	775

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every week in case of weight loss and every month in case of maintenance.



KEY BENEFITS & CHARACTERISTICS

> Low Energy Density*



Low energy density of the diet helps achieve soft weight loss⁽¹⁾.

> Moderate Restriction of Daily Ration



A soft weight loss programme is proposed, with the advantage of moderate restriction of feeding rations, to help achieve optimal compliance⁽¹⁾.

> Improves Lean Mass / Fat Mass Ratio



High Protein- Low Carbohydrate (HP-LC) formulation helps preserve lean mass during weight loss and maintain ideal body composition after weight loss⁽²⁾.

> High Palatability



Richness in animal protein and fat guarantees high palatability for optimal compliance⁽¹⁾.

> Low Glycemic Index & Total Sugar



HP-LC formulation with low amounts of starch and total sugars helps reduce the impact of the meal on glycaemia and insulinemia and manage patients with diabetes mellitus or insulin resistance⁽²⁾.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Fat burning

Added L-carnitine as fat burner helps lean mass preservation during weight loss.

> Joint support

Addition of chondroitin sulfate and chitosan helps joint support and thus improve interactions and life quality.

> Increased Fibres

Fibres help promote satiety and regulate starch digestion and absorption.

> Coat Condition

High and balanced amount of omega-6 and omega-3 contributes to normal coat condition.

> Suitable for Adult and Senior dogs

The amounts of all essential nutrients fit the daily requirement of adult and senior dogs.

80% OF DOGS HAVE SIGNIFICANTLY LOST BODY WEIGHT⁽¹⁾

0,8% OF MEAN WEIGHT LOSS/PER WEEK⁽¹⁾

90% OF DOGS HAVE APPRECIATED THE DIET ACCORDING TO THEIR PETOWNER⁽¹⁾

84% OF DOGS SHOWED A SATISFIED APPETITE⁽¹⁾

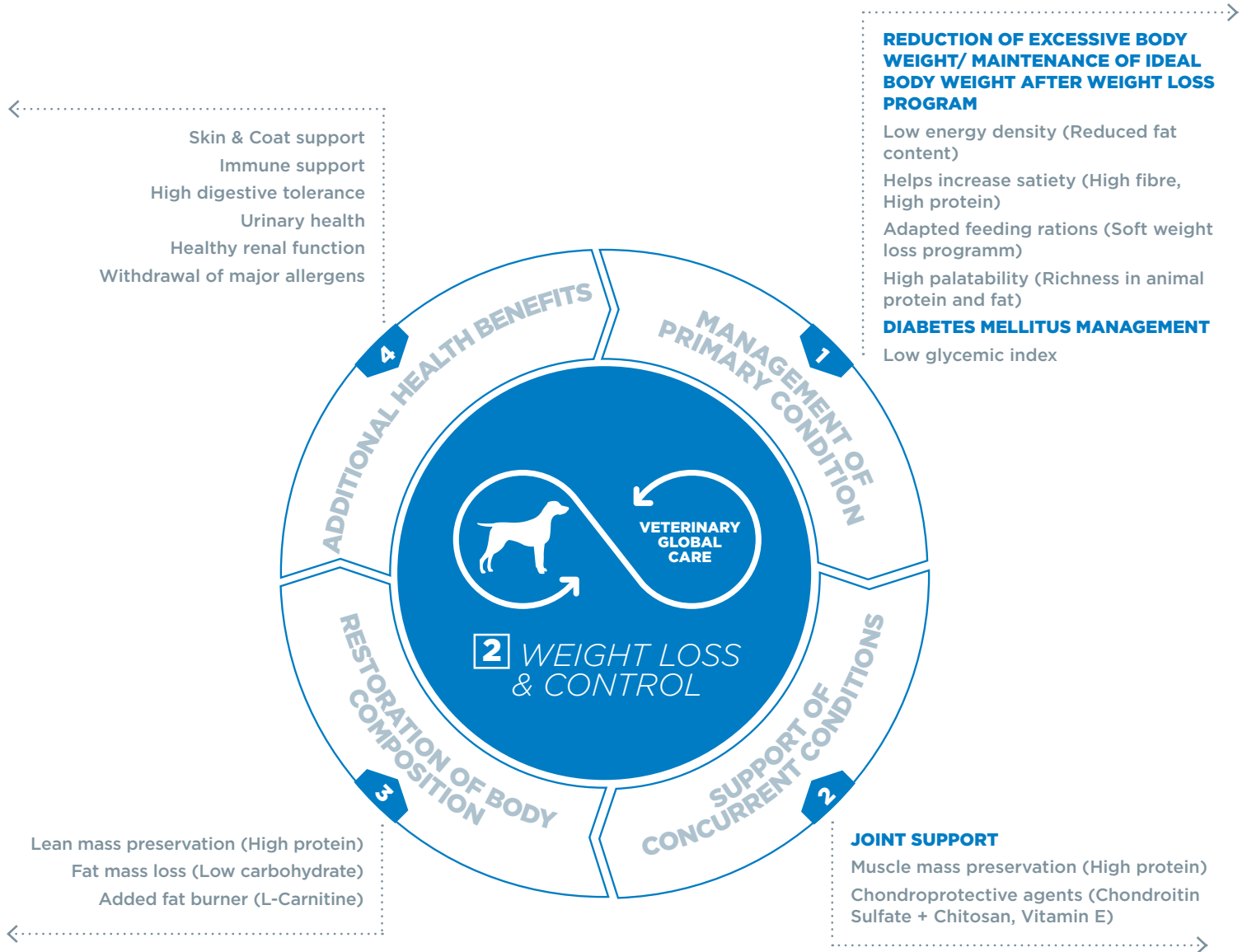


Refer to article p.236

* Commission regulation (EU) 2020/354

1) G. Chaix et al. Weight management in client-owned dogs fed a high protein - low carbohydrate maintenance diet. ESVCN Congress 2014.

2) Maintenance of body composition and insulin sensitivity in dogs fed a high protein low carbohydrate diet after weight loss. Internal data 2016.







CANINE OSTEOARTHRITIC DISEASES

(NB: medical management of pain must be considered)

NORMAL BODY WEIGHT

OVERWEIGHT < 30%

OVERWEIGHT >=30%

Medium / long term¹⁾



DIETARY JOINT & MOBILITY SUPPORT & WEIGHT CONTROL



with specific feeding rations
 for soft weight loss

1 WEIGHT LOSS & DIABETES
 Obesity (<30%) & Diabetes

As soon as target body weight achieved:



Medium / Long term¹⁾:
**DIETARY JOINT & MOBILITY
 SUPPORT & WEIGHT CONTROL**



¹⁾ A veterinarian's opinion should be sought before use.

1

JOINT & MOBILITY

Weight Management



Improved formula with innovative Eggshell membrane*



AVAILABLE FORMATS

3 kg, 12 kg

DIETETIC INDICATIONS*

- Support of the metabolism of joints in the case of osteoarthritis.

OTHER USE

- Joint disorders.
- Mobility improvement.
- Body weight management.

CONTRAINDICATIONS

- Use for baby, before growth peak.
- Gestation and lactation.
- Chronic kidney disease (CKD).

* Commission regulation (EU) 2020/354

*Film lining internally the chicken egg shell. Mechanically separated from shell 100% natural, 95% purity

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	34
• Animal to vegetal protein ratio	85/15
• Fat	15
• Minerals	6.5
• Crude Fibre	9
• NFE*	26.5
• Starch	18
• Calcium	0.9
• Phosphorus	0.7
• Sodium	0.4
• Omega-6 fatty acids	2
• Omega-3 fatty acids	3
• EPA	0.6

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	335
• ME** measured in vivo (kcal/100g)	353
• Protein digestibility (in vivo; %)	82
• Fat digestibility (in vivo; %)	94.5
• Energy from protein (%)	35
• Energy from fat (%)	38
• Energy from NFE (%)	27
• Protein to Calorie ratio (g/Mcal)	102

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) **26.5%**

HIGH PROTEIN

34%

of ANIMAL ORIGIN **85%**

COMPOSITION

Dehydrated pork and poultry proteins, rice, faba bean hulls, hydrolysed pork and poultry proteins, lignocellulose, peas, linseed, fish oil, potato starch, animal fats, minerals, fructo-oligosaccharides, psyllium fibre (*Plantago (L.) spp.*), brewers yeast, beet pulp, hydrolysed crustacean (source of chitosan), egg membrane, *Lactobacillus acidophilus*, chondroitin sulfate.

SPECIFIC INGREDIENTS/ADDITIVES

• Chitosan	1240 mg/kg
• Chondroitine sulfate	1240 mg/kg
• Vitamin E	570 mg/kg
• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• L-carnitine	330 mg/kg
• Egg shell membrane	300 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight soft weight loss	Normal*	Underweight
3	60	80	85
5	85	110	125
8	120	150	170
10	140	175	195
15	180	225	255
20	220	275	310
25	255	320	360
30	290	360	405
40	350	435	490
60	455	570	645

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every month, or every week in the case of weight loss.

*adult dog with optimal body weight and low physical activity

KEY BENEFITS & CHARACTERISTICS

> **Muscle Mass Preservation**

The richness in protein helps promote strong muscles to support joints and mobility.

> **High Omega-3 and High EPA***

Specific fat sources provide high level of omega-3, especially EPA, and help limit the inflammatory and painful processes in joints.

> **Body Weight Control**

Low energy density and adapted feeding rations (soft weight loss approach) help achieve and maintain ideal body weight to limit mechanical constraints on joints.

> **MOBILITY Plus Complex**

The association of Chondroitin sulfate and Chitosan help to maintain the cartilage integrity (developed by Virbac).

ADDITIONAL BENEFITS & CHARACTERISTICS

> **Addition of Antioxidant**

Richness in vitamin E (570 mg/kg) helps limit oxidative processes.

> **Addition of Eggshell membrane⁽¹⁾**

Contains Eggshell membrane known for its proven efficacy to help cartilage recovery, reducing pain, and lameness whilst increasing joint flexibility and mobility in dogs in general.

> **Protection of Digestive Mucosa**

Added Bentonite helps protect the mucosa in case of concurrent anti-inflammatory therapy.

> **High Digestive Tolerance**

Addition of specific ingredients (clay, probiotics, prebiotics and selected fibres) helps maintain healthy digestive tract.

> **High Palatability**

Richness in animal protein and fat guarantees high palatability for optimal compliance⁽²⁾.

> **Suitable for junior, adult and senior dogs**

The amounts of all essential nutrients and the energy density of the product fit the daily requirements of dogs from junior to senior ages.



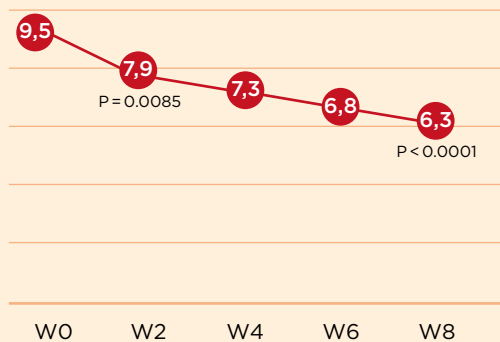
78%

OF OWNERS SATISFIED BY THE EFFECTS OF VETERINARY HPM JOINT & MOBILITY IN DOGS AFTER 8 WEEKS⁽²⁾.



Refer to article p.232

MEAN SEVERITY SCORE
Visible results within 2 weeks⁽²⁾



* Commission regulation (EU) 2020/354

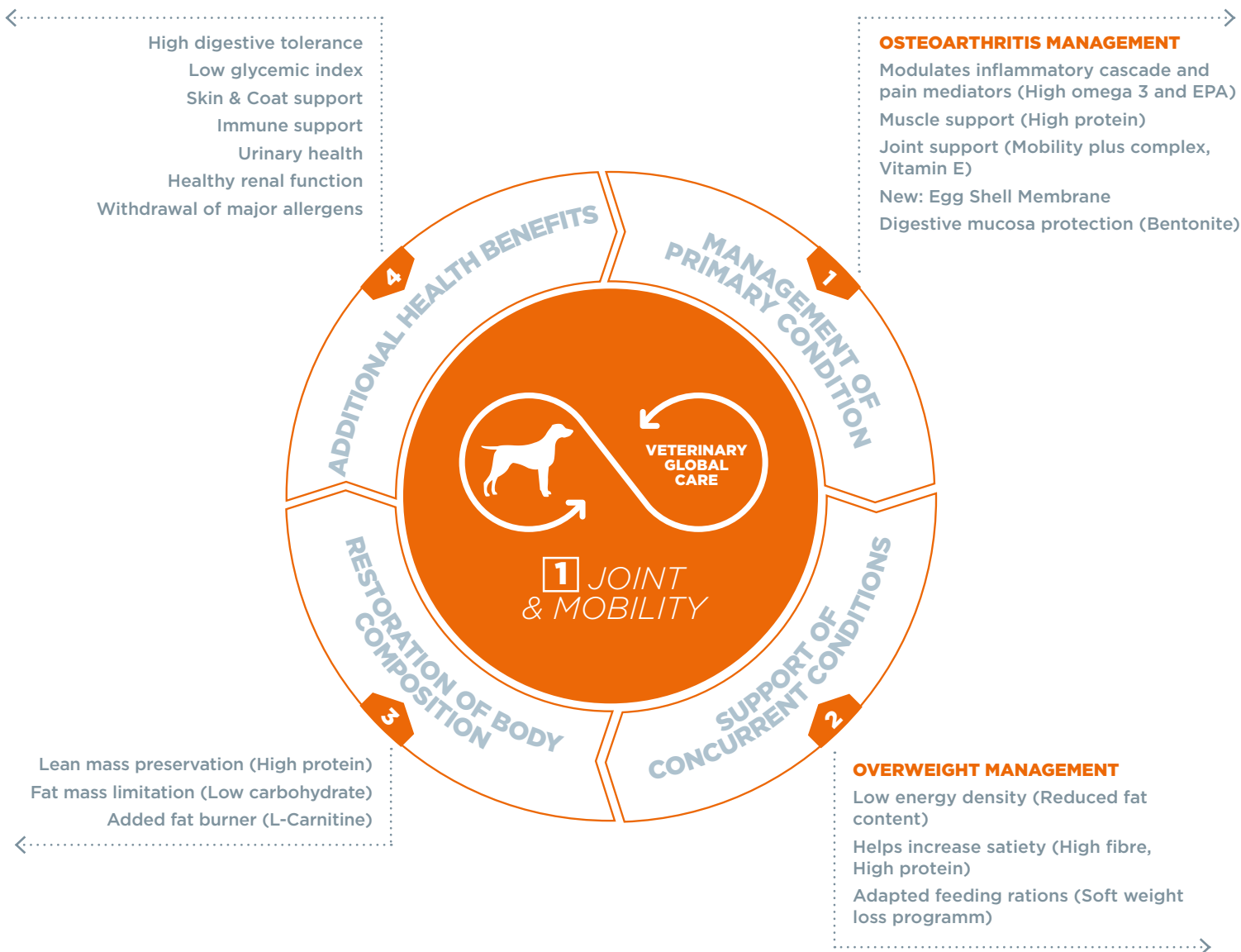
(1) Aguirre A et al. The efficacy of Ovopet in the treatment of hip dysplasia in dogs. J Vet Med Anim Health 2018; 10(8): 198-207.

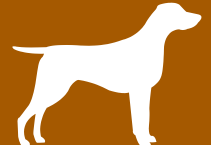
Benson KF et al. Effects of natural eggshell membrane (NEM) on cytokine production in cultures of peripheral blood mononuclear cells: increased suppression of tumor necrosis factor-alpha levels after in vitro digestion. J Med Food 2012; 15(4): 360-368.

Dockery N and Cousin C. NEM brand eggshell membrane: clinically proven benefits for joint health in dogs. Pet Food Suppl 2017: 18-19.

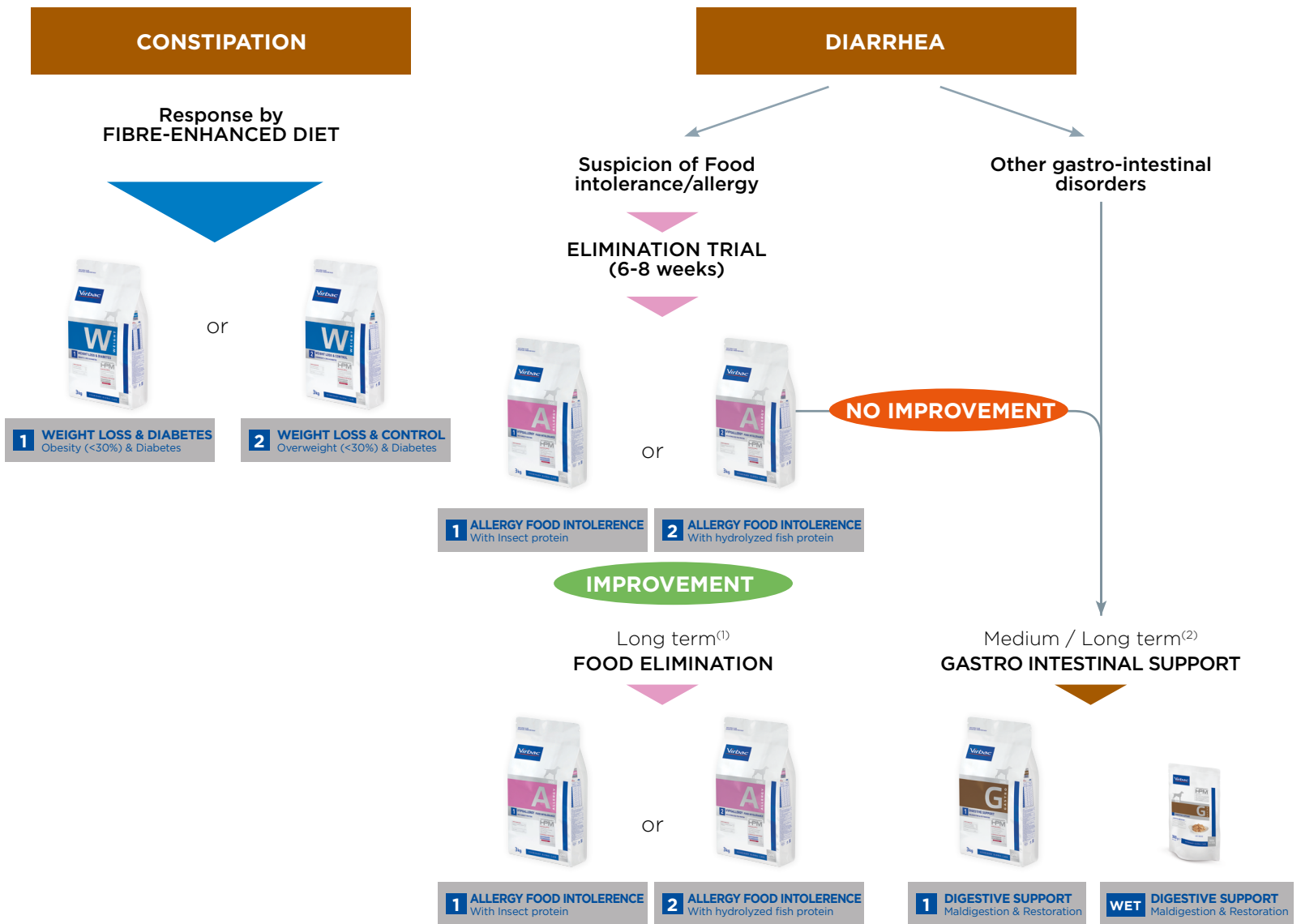
Ruff KJ et al. Effectiveness of NEM brand eggshell membrane in the treatment of suboptimal joint function in dogs: a multicenter, randomized, double-blind, placebo-controlled study. Vet Med Res Rep 2016; 7: 113-121.

(2) C. Nicolas et al. Assessment of a new high protein - high essential fatty acid diet in dogs with chronic joint disorders. AHVM Congress 2016.





CHRONIC CANINE DIGESTIVE DISEASES



1) If signs of intolerance disappear, this food can be used indefinitely (European Commission directive 2020/354)

2) Up to 12 weeks, it is recommended that a veterinarian's opinion be sought before use and continuation of diet feeding.

1

DIGESTIVE SUPPORT

Maldigestion & Restoration



AVAILABLE FORMATS
1.5 kg, 3 kg, 7 kg, 12 kg

DIETETIC INDICATIONS*

LINKED TO GASTROINTESTINAL DISORDERS:

- Compensation for maldigestion.
- Reduction of acute intestinal absorptive disorders.
- Chronic Exocrine Pancreatic Insufficiency.

LINKED TO RECOVERY

- Nutritional restoration, convalescence.

OTHER USE

- Gastritis/Enteritis/Colitis.
- Megacolon.
- Inflammatory Bowel Disease.
- Recovery after digestive surgery.
- Recovery after disease.
- Recovery after anorexia period.

CONTRAINDICATIONS

- Chronic kidney disease (CKD).
- Cardiac insufficiency.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	34
• Animal to vegetal protein ratio	92/08
• Fat	22
• Minerals	7.5
• Crude Fibre	6
• NFE*	21.5
• Starch	17
• Calcium	1.3
• Phosphorus	0.9
• Sodium	0.6
• Potassium	0.8
• Omega-6 fatty acids	2.5
• Omega-3 fatty acids	0.9
• EPA+DHA	0.3

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	384
• ME** measured in vivo (kcal/100g)	411
• Protein digestibility (in vivo; %)	85
• Fat digestibility (in vivo; %)	97
• Energy from protein (%)	31
• Energy from fat (%)	49
• Energy from NFE (%)	20
• Protein to Calorie ratio (g/Mcal)	89

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) 21.5%

HIGH PROTEIN 34%

of ANIMAL ORIGIN 92%

COMPOSITION

Dehydrated pork and poultry proteins⁽¹⁾, rice⁽¹⁾, animal fats⁽¹⁾, lignocellulose, hydrolysed pork and poultry proteins⁽¹⁾, beet pulp, minerals, fish oil⁽¹⁾, linseed, brewers yeast (source of betaglucan and nucleotide), psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, calcium butyrate, *Lactobacillus acidophilus*.

1) Highly digestible ingredients

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• Butyrate	430 mg/kg
• Nucleotides	560 mg/kg
• Beta Glucan	500 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Recovery Underweight
3	65	85	100
5	95	120	140
8	130	160	195
10	150	185	225
15	195	245	295
20	235	295	355
25	275	345	415
30	310	390	465
40	375	470	565
60	495	615	740

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every week during recovery and every month in the medium/long term.

*adult dog with optimal body weight and normal physical activity

KEY BENEFITS & CHARACTERISTICS

> **Promotes Nutritional Restoration***

High levels of essential nutrients and energy density help compensate for losses and allow body composition restoration.

> **Low allergen formulation**

The diet is made without beef, gluten, maize, wheat, soya, egg, fish.

The number of different protein sources is limited (3: pork, poultry and rice) to minimise antigenic load and adverse digestive reactions.

> **High Energy & Concentration¹**

High energy density reduces the size of the daily ration and limits the workload of the digestive tract. This formula is made with high parts of energy from fat and protein, two sources that can be easily metabolised and known to be beneficial during the acute phase of recovery. High concentration in all the essential nutrients allows to cover the high needs in small rations.

> **Low Starch (17% as fed)**

The unique source (rice) and the low level of starch helps limit the workload of the digestive tract and increase digestibility and digestive tolerance.

> **DIGEST Plus Complex**

Addition of specific ingredients (clay, probiotics, prebiotics, selected fibres, butyrate, nucleotides) helps to quickly secure the digestive function, improve the digestive tolerance and produce normal faeces.

ADDITIONAL BENEFITS & CHARACTERISTICS

> **Increases Water Intake**

High amounts of protein and sodium stimulate water intake to help compensate for hydroelectrolytic losses.

> **Supports Digestive Barrier Effect**



Addition of selected ingredients (beta glucan, butyrate, nucleotides) contribute to restore an efficient body's defense at the digestive level and limit the risk of recurrences in the long term⁽¹⁾.

> **Enhances Immunity**

High protein content with balanced amino acid profile, beta glucan and vitamin E help reinforce the immune system and helps the recovery.

> **High Palatability**



Richness in animal protein and fat guarantees high palatability for optimal compliance⁽¹⁾.

> **Suitable for all life stages**

The amounts of all essential nutrients fit the daily requirements of all dogs at all stages or physiological status (puppies, adult dogs, gestating or lactating bitches, and senior dogs).

VISIBLE RESULTS WITHIN 1 MONTH⁽¹⁾

96% SHOW A NORMAL
FAECES CONSISTENCY

77% OF DOGS SHOW IMPROVED
STOOL ODOUR

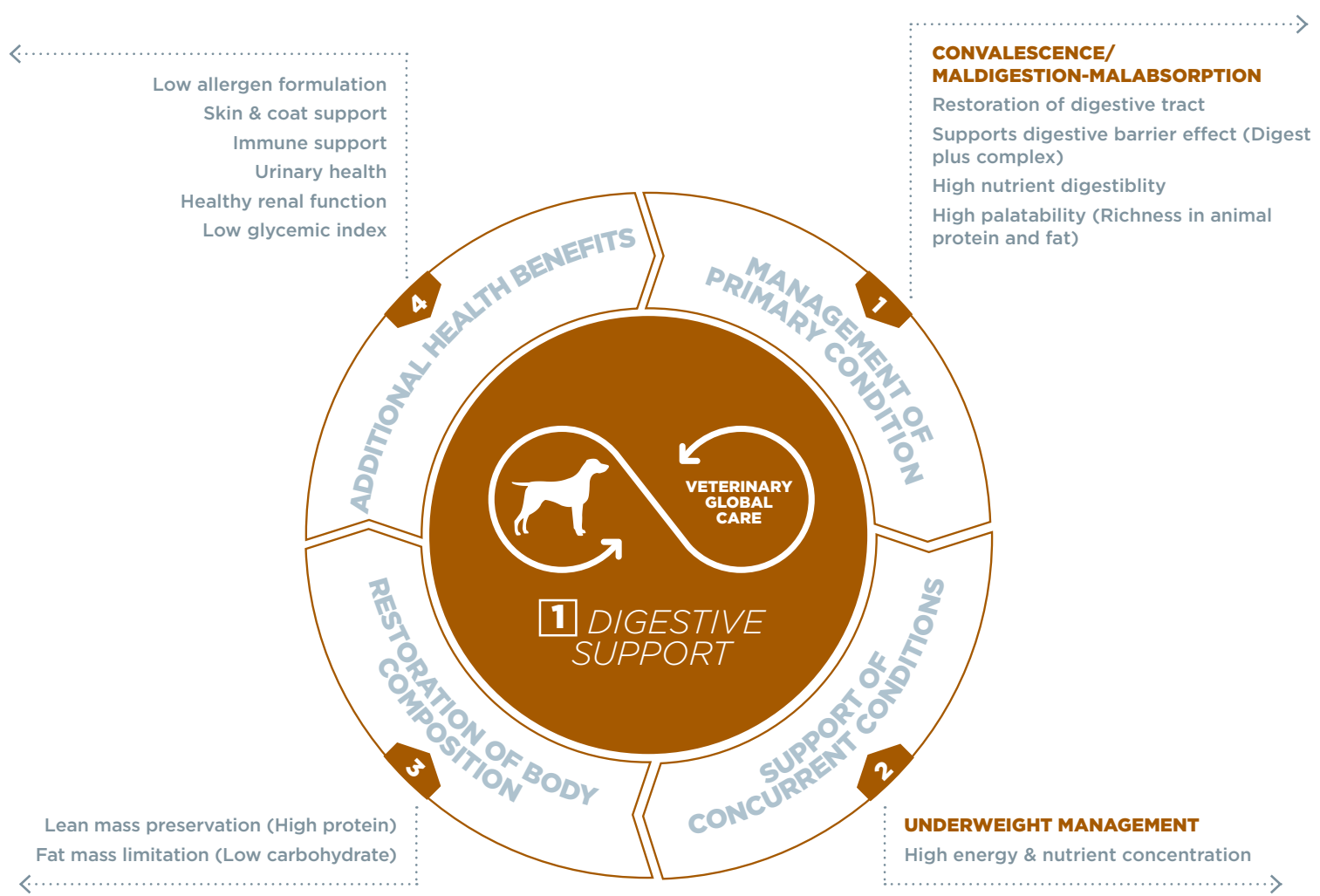
86% OF DOGS
IMPROVED
AFTER 1 MONTH



Refer to article p.240

* Commission regulation (EU) 2020/354

1) I. Leriche et al. Assessment of a new high protein - low carbohydrate diet in dogs with chronic gastrointestinal disorders. ESVCN Congress 2016.





AVAILABLE FORMATS
9 X 300 g

► **DIETETIC INDICATIONS***

- Compensation for maldigestion
- Reduction of intestinal absorptive disorders
- Chronic Exocrine Pancreatic Insufficiency.

LINKED TO RECOVERY

- Nutritional restoration, convalescence.

► **OTHER USE**

- Gastritis / Enteritis / Colitis.
- Megacolon.
- Inflammatory Bowel Disease.
- Recovery after digestive surgery.
- Recovery after disease.
- Recovery after anorexia period.

► **CONTRAINDICATIONS**

- Chronic Kidney Disease

* Commission regulation (eu) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	72
• Protein	13
• Animal to vegetal protein ratio	87/13
• Fat	9.5
• Minerals	2.4
• Crude Cellulose	1.1
• NFE*	2.0
• Starch	0.4
• Calcium	0.26
• Phosphorus	0.18
• Sodium	0.25
• Potassium	0.33
• Omega-6 fatty acids	2.5
• Omega-3 fatty acids	0.75
• EPA+DHA	0.55

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	144
• ME** measured in vivo (kcal/100g)	151
• Protein digestibility (in vivo; %)	87.5
• Fat digestibility (in vivo; %)	97
• Energy from protein (%)	36
• Energy from fat (%)	59
• Energy from NFE (%)	5
• Protein to Calorie ratio (g/Mcal)	90

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

COMPOSITION

Loaf: chicken neck, chicken liver⁽¹⁾, pork kidney⁽¹⁾, chicken tripes⁽¹⁾, mechanically deboned chicken meat⁽¹⁾, pea protein extract⁽¹⁾, fish oil⁽¹⁾, sunflower oil⁽¹⁾, pork plasma⁽¹⁾, egg white⁽¹⁾, minerals and vitamins, cellulose, lignocellulose, potato starch, caramel.

(1) Highly digestible ingredients

SPECIFIC INGREDIENTS/ADDITIVES

- Bentonite **900 mg/kg**

LOW CARBOHYDRATE (NFE) 2%

HIGH PROTEIN 13%

of ANIMAL ORIGIN 87%



FEEDING GUIDELINES



IF EXCLUSIVE FEEDING WITH WET

Body Weight (kg)	Pouch/day		
	Overweight	Normal	Recovery Underweight
3	0.5	0.5	1
5	1	1	1.5
8	1.5	1.5	1.5
10	1.5	1.5	2
15	2	2	2.5
20	2.5	2.5	3
25	3	3	3.5
30	3	3.5	4
40	4	4	5
60	5	5.5	6.5

Mixed feeding is also possible, combining Veterinary HPM Wet and Dry Digestive diets. We propose to provide around 50% of the energy need with wet and 50% with dry, but all combinations are possible depending on the individual case.

IF FEEDING RATION COMPOSED WITH BOTH WET AND DRY VET HPM DIGESTIVE SUPPORT DOG

Body Weight (kg)	Overweight		Normal		Recovery Underweight	
	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)	Wet (pouch)	Dry (g/day)
3	0.25	45	0.25	55	0.5	45
5	0.5	50	0.5	60	0.5	85
8	0.5	90	0.5	105	0.5	135
10	0.5	110	0.5	130	1	110
15	1	110	1	130	1	180
20	1	155	1	185	1.5	185
25	1.5	140	1.5	175	1.5	245
30	1.5	180	1.5	220	2	240
40	2	200	2	245	2.5	285
60	2.5	275	2.5	335	3	405

BENEFITS & CHARACTERISTICS

> High Energy

The high energy density of the diet helps compensate for losses and cover the high needs in small rations.

> High protein Low carbohydrate

The energy balance (Protein:Fat:Carbohydrate) of the diet favors the quick restoration of optimal body condition.

> High Digestive Tolerance

The rigorous selection of high quality raw materials helps to quickly secure the digestive function and produce normal faeces.

> Supports hydration

The high moisture content of the wet diet naturally increases total water intake and helps prevent dehydration that could result from digestive troubles.

> High Palatability

The richness in animal ingredients (86%) guarantees high palatability for optimal compliance.

VISIBLE RESULTS WITHIN 1 WEEK⁽¹⁾

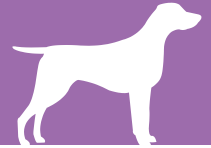
100% SHOW A NORMAL FAECES CONSISTENCY



97% OF DOGS SHOW IMPROVED STOOL ODOUR

86% OF DOGS IMPROVED AFTER 1 WEEK

(1) Internal study on 42 dogs with at least 3 abnormal digestive parameters, fed exclusively with Veterinary HPM G1 Dry and Veterinary HPM G Wet, 2024



CANINE SKIN & COAT DISEASE

RED SKIN / ITCHING

OILY / SCALY SKIN

Suspicion of Food intolerance

Non-Food induced atopy/flea bite allergy/other allergy

1st ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

2nd ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

IMPROVEMENT

Food Intolerance/Allergy confirmed

Long term⁽¹⁾
FOOD ELIMINATION



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

Medium / Long term⁽²⁾
SKIN & COAT SUPPORT



1) If signs of intolerance disappear, this food can be used indefinitely (European Commission directive 2020/354)

2) Up to 2 months. It is recommended that a veterinarian's opinion be sought before use. (European Commission directive 2020/354)



AVAILABLE FORMATS

3 kg, 7 kg, 12 kg

DIETETIC INDICATIONS*

- Support of the skin function in the case of dermatosis and excessive loss of hair.

OTHER USE

- Inflammatory skin conditions, dermatitis, atopic dermatitis.
- Pruritus.

CONTRAINDICATIONS

- Chronic kidney disease (CKD).

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	34
• Animal to vegetal protein ratio	92/08
• Fat	18
• Minerals	7.5
• Crude Fibre	5
• NFE*	26.5
• Starch	20
• Calcium	1.3
• Phosphorus	0.9
• Sodium	0.4
• Methionine + Cystine	1.3
• Phenylalanine + Tyrosine	2.1
• Omega-6 fatty acids	3
• LA	2.7
• Omega-3 fatty acids	1.1
• EPA+DHA	0.5

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	375
• ME** measured in vivo (kcal/100g)	386
• Protein digestibility (in vivo; %)	87
• Fat digestibility (in vivo; %)	96
• Energy from protein (%)	33
• Energy from fat (%)	42
• Energy from NFE (%)	25
• Protein to Calorie ratio (g/Mcal)	91

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) **26.5%**

HIGH PROTEIN **34%**

of ANIMAL ORIGIN **92%**

COMPOSITION

Dehydrated pork and poultry proteins, potato starch, animal fats, hydrolysed pork and poultry proteins, faba bean hulls, peas, minerals, beet pulp, linseed, lignocellulose, fish oil, sunflower oil, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, brewers yeast, borage seed, *Lactobacillus acidophilus*, chondroitin sulfate.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• L-carnitine	330 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
3	70	85	95
5	95	120	135
8	135	165	185
10	155	195	215
15	205	255	280
20	245	305	335
25	285	355	390
30	320	400	440
40	390	485	535
60	510	640	700

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every month.

*adult dog with optimal body weight and normal physical activity

KEY BENEFITS & CHARACTERISTICS

> Improves Coat Condition



High linoleic acid (LA) content helps reduce scales production and regulate sebaceous secretion for a shiny coat⁽¹⁾.

> High Protein & Sulphur Amino Acids

Richness in animal protein answers the high requirements to restore skin integrity with proper skin healing and hair regrowth.

> DERMA Plus Complex



Concentration and balance of omega-6 and omega-3 (by fish and sunflower oils, linseed, borage seeds), plus synergistic co-factors vitamins A and E, help improve clinical signs of dermatosis and dermatitis⁽¹⁾.

> High Level of Essential Fatty Acids*

High supplementation with both omega-6 and omega-3 helps decrease inflammatory processes⁽²⁾ and repair skin and coat.

> Support Skin Barrier Effect

Richness in animal protein and essential fatty acids help reinforce natural skin defences, key factor in management of dermatosis and dermatitis in the long term.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Modulates Inflammation

Balanced 6:3 ratio helps reduce clinical signs related to inflammation (redness, itching).

> High Digestibility and Digestive Tolerance

Addition of clay, prebiotics, probiotics and fibres helps maintain a healthy digestive tract to optimise the absorption of all the essential nutrients for skin and coat.

> Withdrawal of major allergens

The diet is made without beef, gluten, maize, wheat, soya, egg, fish.

> Immune Support

High protein content and added vitamin E help maintain a healthy immune system.

> Suitable for all life stages

The amounts of all essential nutrients fit the daily requirements of all dogs at all stages or physiological status (puppies, adult dogs, gestating or lactating bitches, and senior dogs).

VISIBLE RESULTS WITHIN 2 WEEKS⁽¹⁾



9/9

ASSESSED PARAMETERS
 IMPROVED SIGNIFICANTLY
 WITHIN 2 WEEKS

93%

OF DOGS HAVE
 IMPROVED THEIR SKIN
 AND COAT CONDITION AT
 THE END OF THE STUDY

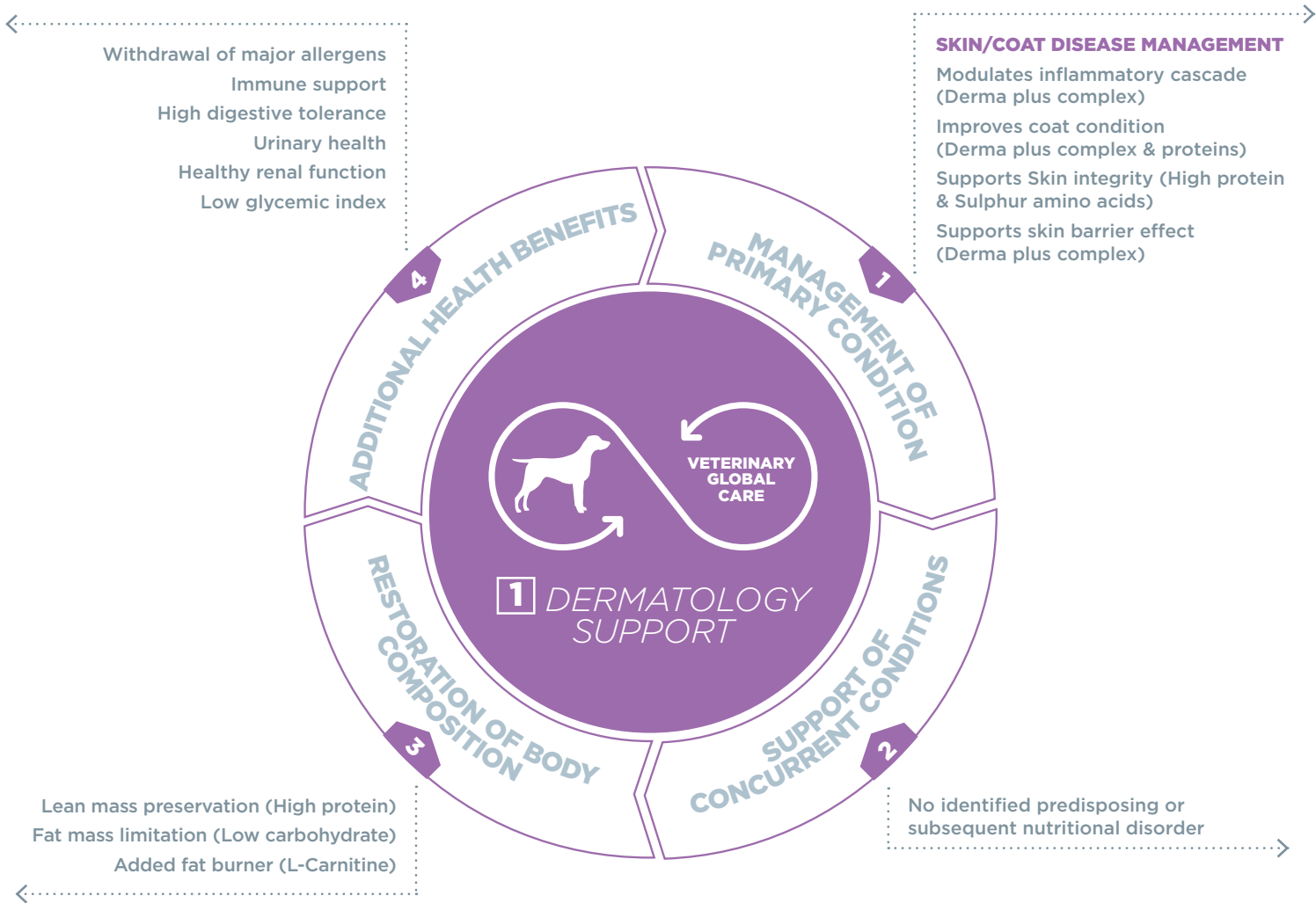


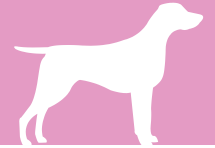
Refer to article p.242

* Commission regulation (EU) 2020/354

1) I. Leriche et al. Assessment of a new high protein - high fatty acid diet in dogs with chronic skin and coat disorders. SEVC Congress 2016.

2) Reme CA., Loyd DH., Burrows A. et al. Anti-allergic shampoo and oral essential fatty acid combination therapy to relieve signs of atopic dermatitis in dogs: a blinded, prednisolone-controlled trial. Vet Derm 2005; 16: 352-361.





CANINE SKIN & COAT DISEASE

RED SKIN / ITCHING

OILY / SCALY SKIN

Suspicion of Food intolerance

Non-Food induced atopy/flea bite allergy/other allergy

1st ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

2nd ELIMINATION TRIAL
6-8 weeks



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

IMPROVEMENT

Food Intolerance/Allergy confirmed

Long term⁽¹⁾
FOOD ELIMINATION



or

1 ALLERGY FOOD INTOLERANCE
With Insect protein

2 ALLERGY FOOD INTOLERANCE
With hydrolyzed fish protein

NO IMPROVEMENT

Medium / Long term⁽²⁾
SKIN & COAT SUPPORT



1 DERMATOLOGY SUPPORT
Dermatitis & Hair loss

1) If signs of intolerance disappear, this food can be used indefinitely (European Commission directive 2020/354)

2) Up to 2 months. It is recommended that a veterinarian's opinion be sought before use. (European Commission directive 2020/354)

1 HYPOALLERGY FOOD INTOLERANCE

With Insect protein



AVAILABLE FORMATS
3 kg, 12 kg

DIETETIC INDICATIONS*

- Reduction of ingredient and nutrient intolerance (with associated skin and/or digestive disorders).

OTHER USE

- Food intolerance with concurrent digestive disorders (maldigestion/malabsorption, diarrhea...).
- Food intolerance with concurrent skin/coat disorders (redness/itching).

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.
- Chronic Kidney disease.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	24
• Animal to vegetal protein ratio	96/04
• Fat	18
• Minerals	7
• Crude Fibre	5.5
• NFE*	36.5
• Starch	30
• Calcium	0.9
• Phosphorus	0.7
• Sodium	0.4
• Methionine + Cystine	1
• Omega-6 fatty acids	3.3
• Omega-3 fatty acids	0.7

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	370
• ME** measured in vivo (kcal/100g)	392
• Protein digestibility (in vivo; %)	82
• Fat digestibility (in vivo; %)	94.5
• Energy from protein (%)	23
• Energy from fat (%)	42
• Energy from NFE (%)	35
• Protein to Calorie ratio (g/Mcal)	65

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

CARBOHYDRATE (NFE) 36.5%

PROTEIN 24%

of ANIMAL ORIGIN 96%

COMPOSITION

Potato starch⁽¹⁾, dehydrated insect protein⁽²⁾ (*Tenebrio m.*) (29.5%) animal fats, minerals, hydrolysed pork and poultry proteins⁽²⁾, linseed, beet pulp, lignocellulose, fructo-oligosaccharides, brewers yeast, *Lactobacillus*.

1) Carbohydrate sources

2) Protein sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• L-carnitine	330 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
3	70	90	95
5	100	125	135
8	135	170	185
10	155	195	215
15	205	255	280
20	250	310	340
25	290	360	395
30	325	410	450
40	395	495	545
60	520	645	710

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every month.

*adult dog with optimal body weight and normal physical activity

KEY BENEFITS & CHARACTERISTICS

> **Elimination Diet***

Formula based on insect protein and potato starch allows management of most common food allergies.

> **Purified Source of Carbohydrate (single source)***

The use of purified potato starch excludes the protein part of potato.

> **With Insect Protein***

Insect is a totally innovative animal protein source in petfood. Its high digestibility and biological value (amino acid profile) fit the daily requirements of dogs.

> **High Digestive Tolerance**



Include a specific association of ingredients (clay, probiotics, prebiotics) to secure the digestive function, which can be compromised in allergic dogs⁽¹⁾.

> **High Palatability**



Richness in animal protein and fat guarantess high palatability for optimal compliance during the elimination food trial or in the long term⁽¹⁾.

ADDITIONAL BENEFITS & CHARACTERISTICS

> **Skin Integrity**

High and balanced omega-6 and omega-3 help maintain skin barrier effect and reduce the risk of other allergies.

> **Coat Support**

Adapted content in protein and essential fatty acids helps to maintain a healthy coat.

> **High Digestibility**

High digestibility helps support dogs with concurrent compromised gastrointestinal function.

> **Suitable for Adult and Senior dogs**

The amounts of all essential nutrients fit the daily requirement of adult and senior dogs.

VISIBLE RESULTS WITHIN 2 WEEKS⁽¹⁾



85%

OF DOG OWNERS DECLARED TO BE SATISFIED BY VET HPM HYPOALLERGY DIET AND THE EFFECTS ON THEIR DOGS' HEALTH STATUS.⁽¹⁾



Refer to article p.244



92%

OF PETOWNERS HAD A SPONTANEOUS POSITIVE REACTION TO THE USE OF INSECT PROTEIN WITHIN A CANINE DIET.⁽²⁾



Refer to article p.252

SITUATION AFTER 2 MONTHS⁽³⁾



100%

OF DOGS SCRATCHED LESS

75%

OF DOGS LICKED AND NIPPED LESS



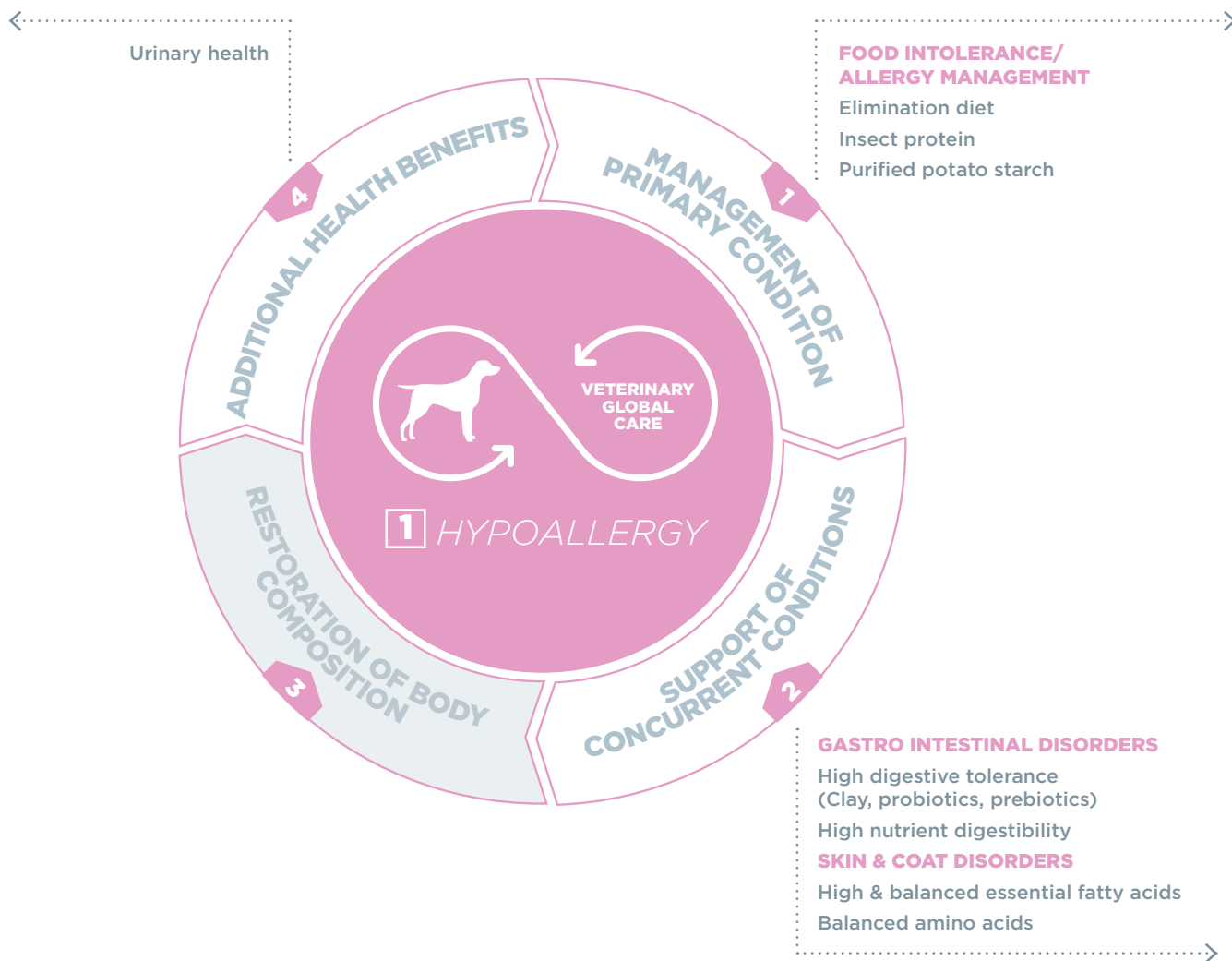
Refer to article p.246

* Commission regulation (EU) 2020/354

1) I. Leriche et al. Assessment of the digestive tolerance in dogs of a new diet based on insects as the protein source. ESVCN Congress 2017.

2) I. Leriche I et al. Pet owners' perception of insects as a protein source for cats and dogs. SEVC Congress 2017.

3) V.Chala et al. Tolerance of a new insect protein-based diet designed for food allergies in flea bite-allergic dogs: a case series. ESVD-ECVD Congress 2018.





AVAILABLE FORMATS
3 kg, 7 kg, 12 kg

DIETETIC INDICATIONS*

- Reduction of ingredient and nutrient intolerance (with associated skin and/or digestive disorders).

OTHER USE

- Food intolerance with concurrent digestive disorders (maldigestion/malabsorption, diarrhea...).
- Food intolerance with concurrent skin/coat disorders (redness/itching).

CONTRAINDICATIONS

- Growth.
- Gestation & Lactation.
- Chronic Kidney disease.

* Commission regulation (EU) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	24
• Animal to vegetal protein ratio	100/00
• Fat	18
• Minerals	7
• Crude Fibre	4.5
• NFE*	37.5
• Starch	36
• Calcium	0.9
• Phosphorus	0.7
• Sodium	0.4
• Methionine + Cystine	1.2
• Omega-6 fatty acids	3
• Omega-3 fatty acids	0.5

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	377
• ME** measured in vivo (kcal/100g)	384
• Protein digestibility (in vivo; %)	91
• Fat digestibility (in vivo; %)	97.5
• Energy from protein (%)	23
• Energy from fat (%)	42
• Energy from NFE (%)	35
• Protein to Calorie ratio (g/Mcal)	64

* Nitrogen Free Extract
** Metabolisable energy
*** Calculated with NRC 2006

CARBOHYDRATE (NFE) 37.5%

PROTEIN 24%

of ANIMAL ORIGIN 100%

COMPOSITION

Potato starch⁽¹⁾, hydrolysed fish protein⁽²⁾ (24%), poultry fats, lignocellulose, minerals, hydrolysed pork and poultry proteins⁽²⁾, beet pulp, mono di and tri glycerides of fatty acids, fructo-oligosaccharides, brewers yeast, Lactobacillus acidophilus.

1) Carbohydrate source.

2) Protein sources.

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• L-carnitine	330 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
3	70	85	95
5	95	120	135
8	135	165	180
10	155	190	210
15	200	250	275
20	245	305	335
25	285	355	390
30	320	400	440
40	390	485	535
60	510	635	700

*adult dog with optimal body weight and normal, physical activity

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every month.

Always provide fresh drinking water.



KEY BENEFITS & CHARACTERISTICS

> Elimination Diet

Formula based on hydrolysed fish protein and potato starch allows management of most common food allergies.

> Purified Source of Carbohydrate (single source)

Potato starch is a purified source of starch, excluding the presence of protein.

> With Hydrolysed fish Protein

Fish protein is extensively hydrolysed to achieve low molecular weight (mean MW of 1.85 kDa, 98% peptides below 10 kDa) ensuring food allergy management. Its high digestibility and biological value (amino acid profile) perfectly fit the daily requirements of dogs.

> High Digestive Tolerance

Includes a specific association of ingredients (clay, probiotics, prebiotics, selected fibres) to secure the digestive function, which can be compromised in allergic dogs.

> High Palatability

Richness in animal protein (fish) and animal fat guarantees high palatability for optimal compliance during the elimination food trial or in the long term.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Skin Integrity

Balanced omega-6 and omega-3 help reinforce natural skin defences and reduce the risk of other allergies.

> Coat Support

Adapted content in protein and essential fatty acids helps maintain a healthy coat.

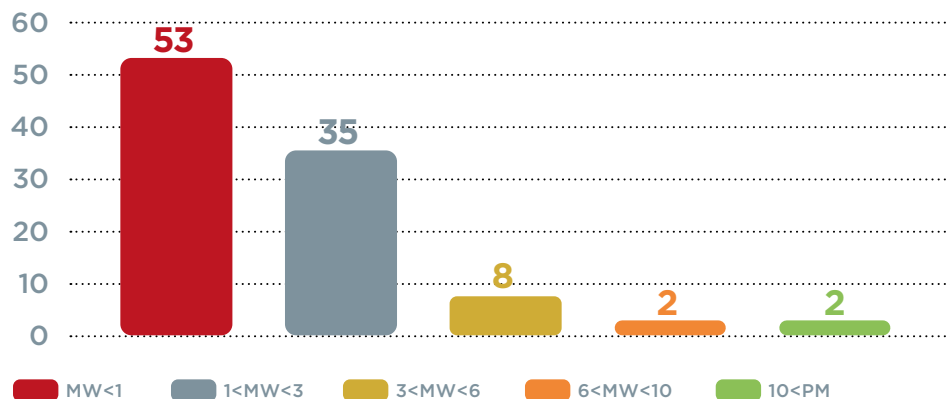
> High Digestibility

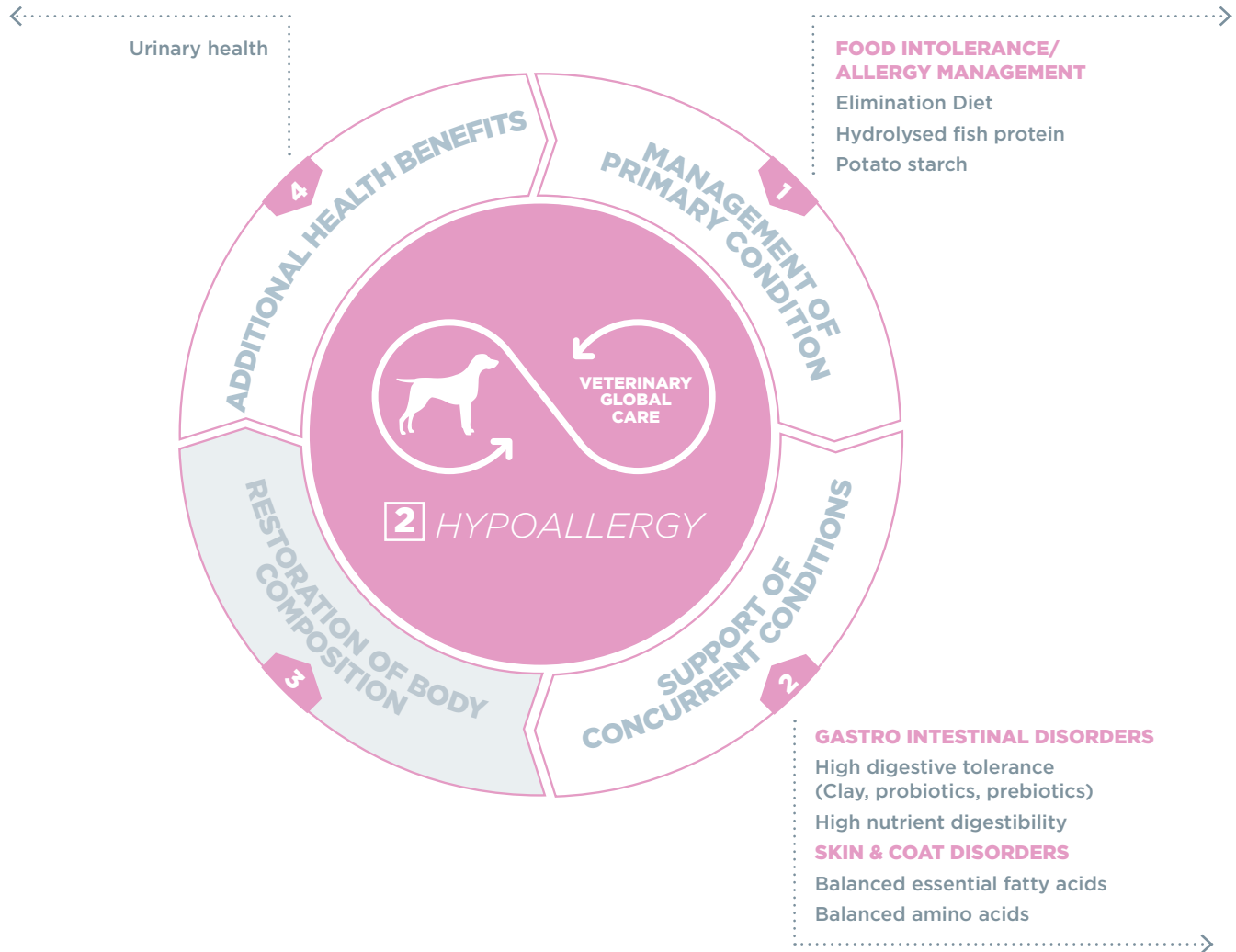
High digestibility helps support dogs with concurrent compromised gastrointestinal function.

> Suitable for Adult and Senior dogs

The amounts of all essential nutrients fit the daily requirement of adult and senior dogs.

Molecular weight profile (% of peptides)
in the fish hydrolysate - kDa









AVAILABLE FORMATS

3 kg, 12 kg

DIETETIC INDICATIONS*

- Support of renal function in case of chronic renal insufficiency (or temporary).

OTHER USE

- Chronic hepatic disorders.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.

* Commission regulation (eu) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	20.5
• Animal to vegetal protein ratio	70/30
• Fat	22
• Minerals	5.5
• Crude Fibre	5.5
• NFE*	37.5
• Starch	30
• Calcium	0.8
• Phosphorus	0.4
• Sodium	0.3
• Potassium	0.8
• Omega-6 fatty acids	2.7
• Omega-3 fatty acids	1
• EPA+DHA	0.4

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	391
• ME** measured in vivo (kcal/100g)	395
• Protein digestibility (in vivo; %)	84
• Fat digestibility (in vivo; %)	95.5
• Energy from protein (%)	18
• Energy from fat (%)	48
• Energy from NFE (%)	34
• Protein to Calorie ratio (g/Mcal)	52

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW PHOSPHORUS 0.4%

RESTRICTED PROTEIN 20.5%

of ANIMAL ORIGIN 70%

COMPOSITION

Rice, dehydrated pork and poultry proteins⁽¹⁾, animal fats, peas, potato starch, faba bean hulls, minerals, hydrolysed pork and poultry proteins⁽¹⁾, lignocellulose, linseed, beet pulp, fish oil, fructo-oligosaccharides, brewers yeast, hydrolysed crustacean (source of chitosan), Lactobacillus acidophilus, chondroitin sulfate.

1) Protein sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• L-carnitine	330 mg/kg
• Chitosan	800 mg/kg
• Calcium carbonate	1%
• Vitamin E	570 mg/kg

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
5	75	85	100
8	100	115	140
10	120	135	160
15	155	175	210
20	190	210	255
25	220	245	295
30	245	280	335
40	300	335	405
60	390	440	530

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every month. Always provide a generous supply of fresh drinking water.

*senior dog with optimal body weight and normal physical activity



KEY BENEFITS & CHARACTERISTICS

> Low Phosphorus*

Low dietary phosphorus helps slow down the development of renal disease and minimize the risk of secondary hyperparathyroidism.


> Restricted Protein Level*

Restricted level and the high quality of protein help reduce the production of uremic toxins while maintaining sufficient kidney fluid turn over and body condition.

> Phosphorus Binding

Addition of Phosphorus binders (chitosan and calcium carbonate) helps reduce the phosphorus bioavailability.

> High Energy Density & Palatability

 High energy density helps deliver small and concentrated daily rations, and palatability helps maintain sufficient daily food intake, to support patients against undernutrition⁽¹⁾.

> High EPA+DHA (omega-3)

High level of omega-3, especially EPA + DHA, helps modulate inflammatory processes in the kidney.

ADDITIONAL BENEFITS & CHARACTERISTICS

> Increases Antioxidant Activity

High level of vitamin E helps promote antioxidant activity.

> Limits the risk of Digestive Ulcerations

Addition of Bentonite helps protect the digestive mucosa against damage linked to uremia.

> Limits the risk of Metabolic Acidosis

Addition of alkalising agents (calcium carbonate) helps limit the risk of metabolic acidosis.

> Limits the risk of Hyperparathyroidism

Increased calcium, with Ca:P ratio = 2, helps limit the side effect of high phosphataemia and limit the risk of secondary hyperparathyroidism.

> Limits the risk of Hypokalaemia

Increased dietary potassium content helps compensate for urinary losses and limit the risk of hypokalemia.

> Limits the risk of Lower Urinary Tract Disease

Adjusted RSS** for struvite and oxalate help maintain urinary health.

**RSS: *Relative Super Saturation index*

> Suitable for Adult and Senior dogs

The amounts of all essential nutrients fit the daily requirement of adult and senior dogs.

THE MOST SATISFACTORY DIET



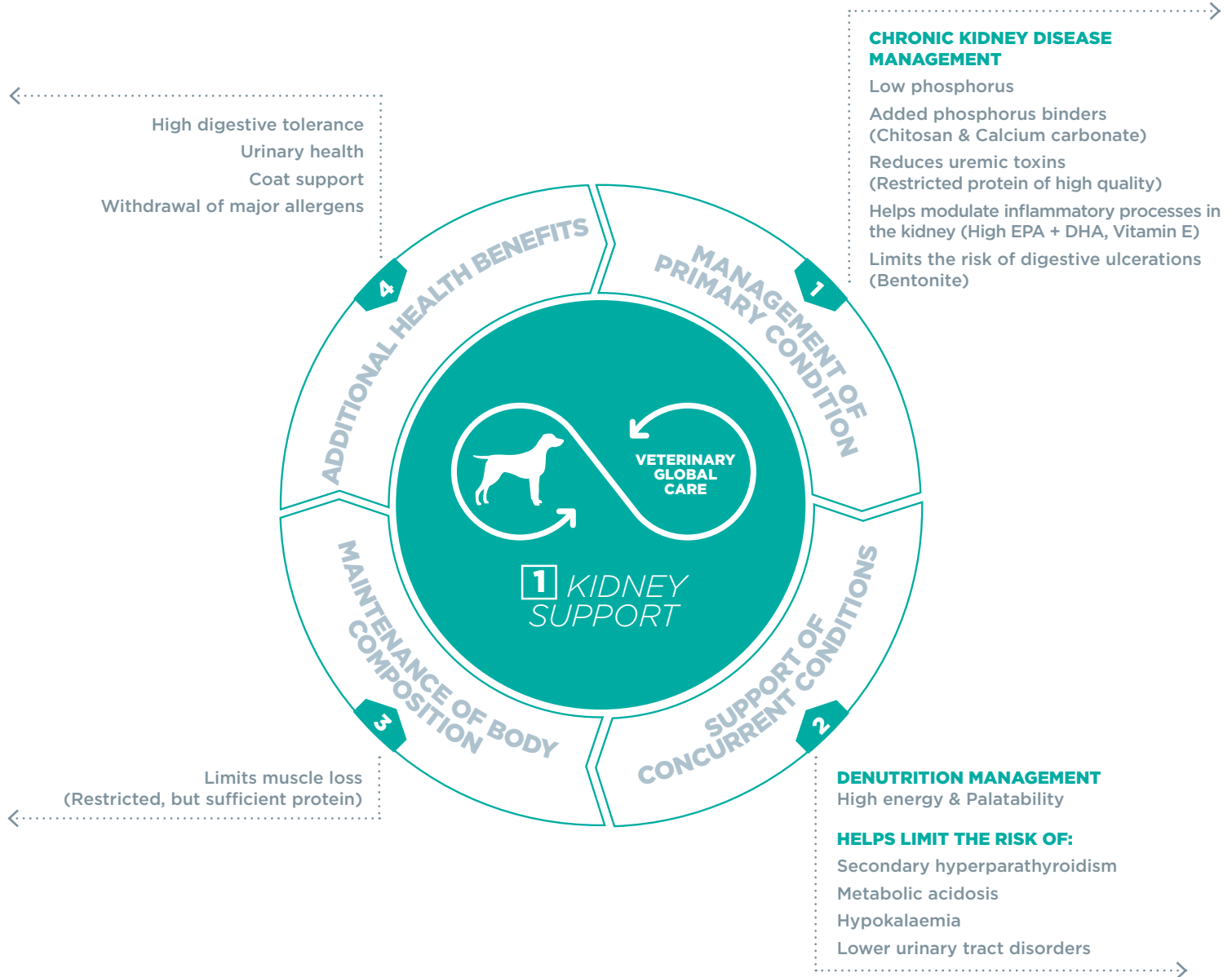
**PROVEN HIGHER PALATABILITY
AT D14 COMPARED TO MAIN
COMPETITORS ⁽¹⁾**



Refer to article p.248

* Commission regulation (eu) 2020/354

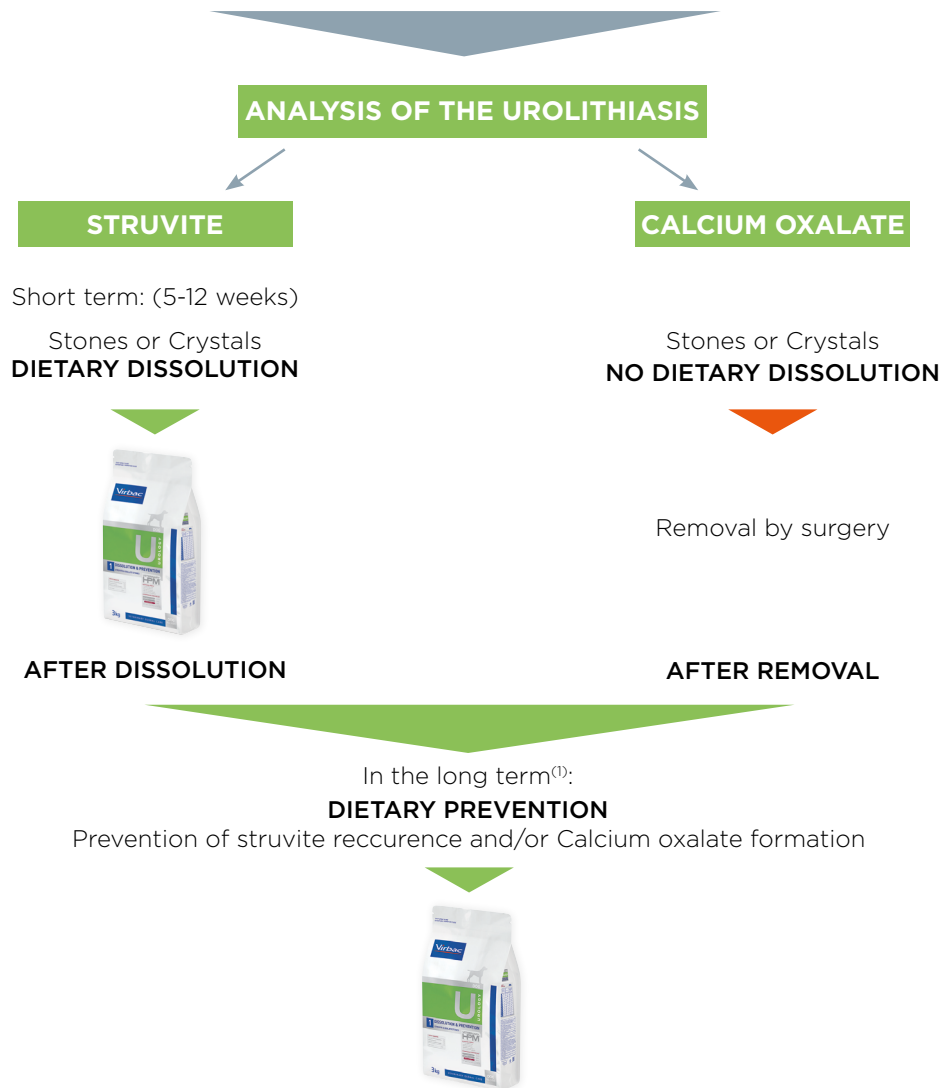
(1) A. Brugué et al. Comparative assessment of the palatability of a new renal diet in fussy canine eaters. Voorjaarsdagen, 2017







DOGS SUFFERING FROM STRUVITE OR CALCIUM OXALATE UROLITHIASIS



1) A veterinarian's opinion should be sought before use.

1

DISSOLUTION & PREVENTION

Struvite & Oxalate Stones



AVAILABLE FORMATS

3 kg, 12 kg

DIETETIC INDICATIONS*

- Dissolution of struvite stones.
- Reduction of struvite stone recurrence.
- Reduction of oxalate stones formation.

CONTRAINDICATIONS

- Growth.
- Gestation and lactation.
- Chronic kidney disease (CKD).
- Cardiac insufficiency.

* Commission regulation (eu) 2020/354

ANALYTICAL CONSTITUENTS

% as fed

• Moisture	9
• Protein	34
• Animal to vegetal protein ratio	85/15
• Fat	17.5
• Minerals	7
• Crude Fibre	5
• NFE*	27.5
• Starch	22
• Calcium	0.8
• Phosphorus	0.6
• Sodium	0.9
• Potassium	0.7
• Magnesium	0.08
• Chloride	1.4
• Sulphur	0.7
• Methionine + Cystine	1.4
• Omega-6 fatty acids	2.2
• Omega-3 fatty acids	1
• EPA+DHA	0.4

KEY NUTRIENT VALUES

• ME** calculated (kcal/100g)***	374
• ME** measured in vivo (kcal/100g)	377
• Protein digestibility (in vivo; %)	88
• Fat digestibility (in vivo; %)	97
• Energy from protein (%)	33
• Energy from fat (%)	41
• Energy from NFE (%)	26
• Protein to Calorie ratio (g/Mcal)	91

* Nitrogen Free Extract

** Metabolisable energy

*** Calculated with NRC 2006

LOW CARBOHYDRATE (NFE) **27.5%**

HIGH PROTEIN

34%

of ANIMAL ORIGIN

85%

COMPOSITION

Dehydrated pork and poultry proteins⁽¹⁾, rice, animal fats, peas, hydrolysed pork and poultry proteins⁽¹⁾, minerals, potato starch, lignocellulose, faba bean hulls, beet pulp, linseed, fish oil, psyllium fibre (*Plantago (L.) spp.*), fructo-oligosaccharides, brewers yeast, *Lactobacillus acidophilus*, chondroitin sulfate.

1) Protein sources

SPECIFIC INGREDIENTS/ADDITIVES

• Bentonite	5 g/kg
• Killed Lactobacilli	7 mg/kg
• L-carnitine	330 mg/kg
• Potassium Citrate	0.3%

FEEDING GUIDELINES

Body Weight (kg)	Daily ration (g/day)		
	Overweight	Normal*	Underweight
5	90	110	120
8	120	150	165
10	140	175	190
15	185	230	250
20	220	275	305
25	255	320	355
30	290	365	400
40	350	440	485
60	460	575	635

The daily ration is based on the dog's CURRENT bodyweight, and must be adjusted every month. It is normal to notice an important increase in water intake and urine volume.

*adult dog with optimal body weight and normal physical activity

KEY BENEFITS & CHARACTERISTICS

> **Increases Water Intake**

High amounts of protein and sodium stimulate water intake, increase urine volume and micturition frequency.

> **Low Struvite RSS (<1)***



The formulation induces urine under-saturated for struvites, with struvite RSS** < 1, to promote dissolution of existing struvite stones/crystals and prevent recurrence⁽¹⁾.

**RSS: *Relative Super Saturation index*

> **Optimizes Urinary pH***

Urinary pH between 6.0 - 6.5 allows to prevent both struvite and oxalate crystals formation.

> **High EPA+DHA (omega-3)**

Addition of fish oil allows to achieve high amount of omega-3, especially EPA+DHA, and helps limit low urinary tract inflammation.

> **Low Calcium & Phosphorus***

Low contents of Calcium and Phosphorus limit their urinary excretion and the risk of struvite and oxalate formation.

ADDITIONAL BENEFITS & CHARACTERISTICS

> **Addition of Oxalate Inhibitor**

Added Potassium citrate, as specific inhibitor, helps limit the formation of Calcium oxalate crystals.

> **Oxalate RSS <12***



The formulation induces urine metastable for Calcium oxalates, with Oxalate RSS < 12⁽¹⁾.

> **High Palatability**

Richness in animal protein and fat guarantees high palatability and ensures maximum compliance in the long term.

> **Suitable for Adult and Senior dogs**

The amounts of all essential nutrients fit the daily requirement of adult and senior dogs.



41%

OF STRUVITE STONE
 DISSOLVED WITHIN 5
 DAYS IN AN *IN VITRO*
 TRIAL⁽¹⁾



Refer to article p.250

* Commission Directive 2020/354

1) I. Leriche et al. Comparison of the effects of four diets on urinary parameters in dogs and in vitro struvite dissolution. SEVC Congress 2018.



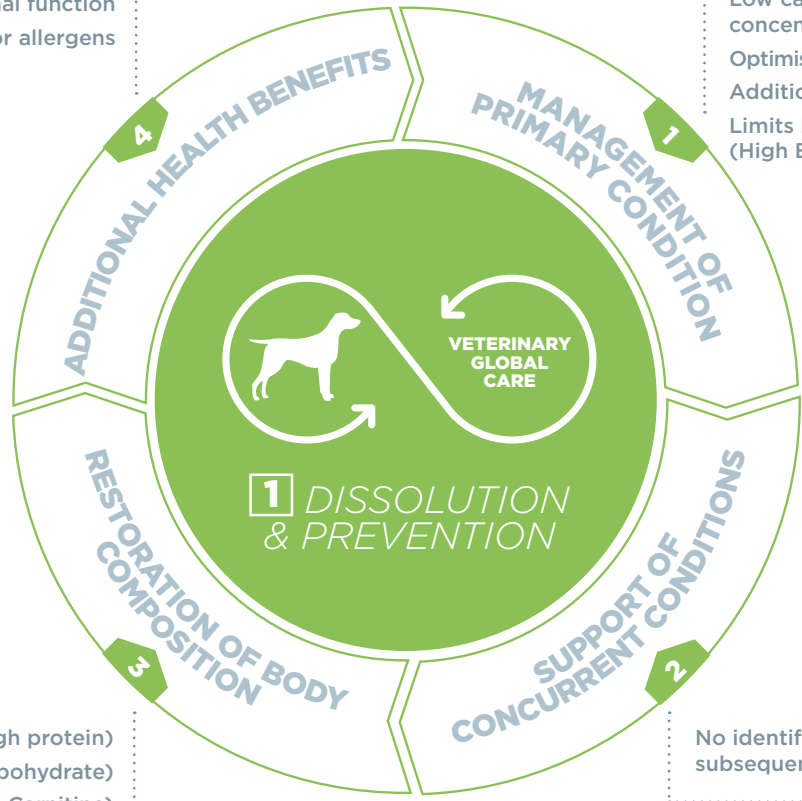
←>

- High digestive tolerance
- Low glycemic index
- Skin & Coat support
- Immune support
- Healthy renal function
- Withdrawal of major allergens

.....>

**DISSOLUTION OF STRUVITE STONES /
REDUCTION OF STRUVITE & OXALATE
FORMATION**

- Stimulates water intake and increases urine volume
- Achieves low Struvite RSS <1 and Oxalate RSS <12
- Low calcium, phosphorus, magnesium concentration
- Optimises urine acidification (pH 6.0 - 6.5)
- Addition of Calcium Oxalate inhibitor
- Limits lower urinary tract inflammation (High EPA+DHA)



.....>

- Lean mass preservation (High protein)
- Fat mass limitation (Low carbohydrate)
- Added fat burner (L-Carnitine)

←>

.....>

- No identified predisposing or subsequent nutritional disorder

.....>





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EFFECT OF A DRY DIET COMPOSITION ON WATER INTAKE IN CATS

INTRODUCTION

Cats tend to produce small amounts of concentrated urine, and this may be particularly marked when they are fed dry diets.¹ Inflammation and crystallization are thus favoured. Urine volume is determined to a large extent by water intake, and so increasing water intake should result in an increased volume of more dilute urine, and increased frequency of urination. High dietary sodium contents are useful to increase water intake.²⁻⁴

The aim of this study was to assess the impact of a high-protein maintenance diet on water intake in cats.

ANIMALS, MATERIALS AND METHODS

8 healthy adult cats tested, according to a cross over design, 3 dry diets for 2 weeks per diet. The test diet (A) was compared to commercial dry diets for adult cats (B & C). The study focused on the two main nutrients known to impact water intake in cats: protein and sodium (Table 1). Individual daily rations were iso-caloric, calculated to maintain cats' bodyweight. During the 2nd week of each test period, daily diet and water intakes were measured for each cat. Adjusted pair-wise comparisons were used to compare water intake between groups. Pearson coefficients of correlation were computed and tested. Significance threshold was set at 5%.

Protein and sodium contents (%CM) in the 3 diets

Diet	Protein	Sodium
A: High Prot / Moderate Na	44.4	0.60
B: Low Prot / Low Na	30.5	0.43
C: Moderate Prot / High Na	36.0	0.85

TABLE 1



RESULTS

The mean dietary protein and sodium intakes are summarized in Table 2. Mean water intakes are shown in Figure 1, with a significant difference between A and B ($p=0.0004$), but no significant difference between A and C. A significant positive correlation was shown between the daily dietary sodium intake and water intake, and a significant ($p=0.0104$) positive correlation was also established between daily dietary protein intake and water intake (Figure 2).

Dietary protein and sodium intakes (g/kgBW/d) in the 3 groups		
Diet	Protein	Sodium
A: High Prot / Moderate Na	7.9	0.12
B: Low Prot / Low Na	4.9	0.07
C: Moderate Prot / High Na	6.4	0.15

TABLE 2

Fig. 1: Water intake in the 3 groups

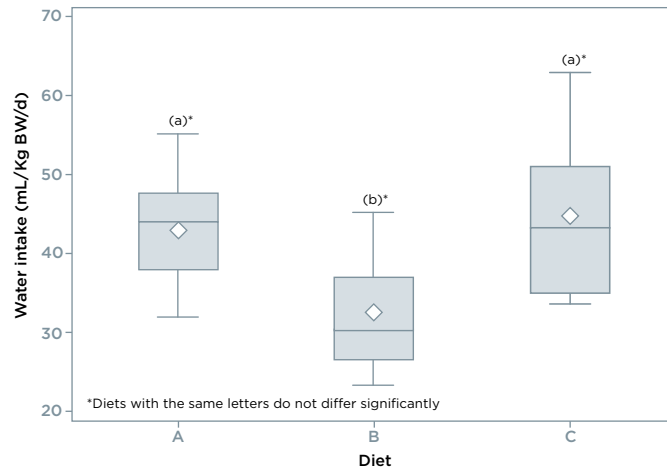
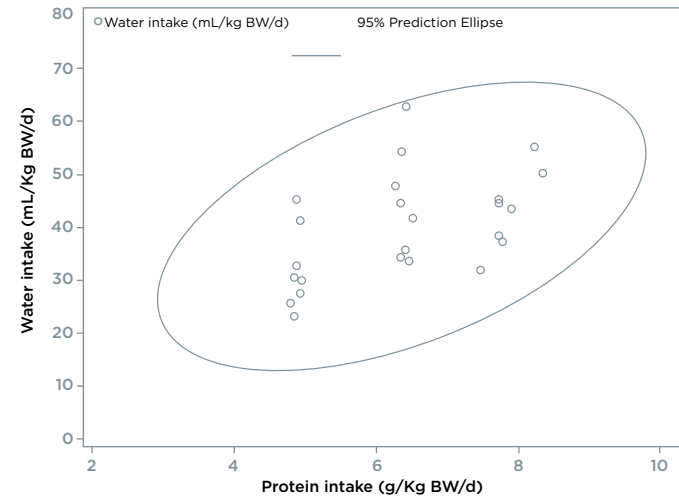


Fig. 2: Correlation between water and protein intakes



CONCLUSION

This preliminary study showed the stimulating effect of dietary protein on water intake. Thus, increase dietary protein level in cats' diets could provide a way of preventing feline lower urinary tract disease. This could be more adapted for cats as carnivores than the use of increased dietary sodium contents.



A HIGH PROTEIN INTAKE ALLOWS THE PRESERVATION OF LEAN MASS AND PREVENTS THE INCREASE OF FAT MASS, COMPARED TO A MODERATE PROTEIN INTAKE, IN NEUTERED CATS.

INTRODUCTION

Cats are strict carnivores and have a high dietary protein requirement. Rich-protein diets are often intended to prevent obesity or manage weight loss, as they help preserve the lean body mass.

The aim of this study was to assess the effect of an experimental high-protein low carbohydrate maintenance dry diet (HP), compared to a commercial moderate-protein high-carbohydrate dry diet (MP), on body composition in neutered cats.

ANIMALS, MATERIALS AND METHODS

Twelve young adult neutered cats (19.6±0.4 months old; 3.56±0.2 kg BW) were randomized into 2 groups. They were fed exclusively, for 5 months, either the HP or the MP diet.

The daily rations were calculated to maintain the cats' body weight. Body composition (BC) was determined using deuterium oxide dilution at the beginning then at the end of the study.

Ingredient lists of the tested diets

HP diet	Dehydrated poultry proteins, bean pods, pea, potato starch, animal fat, potato pulp, minerals, linseed, fructo oligosaccharides.
MP diet	Maize, dehydrated poultry proteins, maize gluten, animal fat, minerals, fish oil, hydrolyzed proteins, rice.

TABLE 1

Nutritional characteristics of the tested diets

	HP diet	MP diet
Protein (% DM)	50.2	33.7
Fat (% DM)	14.3	10.6
NFE (% DM)	18.7	48.4
<i>In vivo</i> ME (kcal/kg DM)	3,320	3,590

TABLE 2



RESULTS

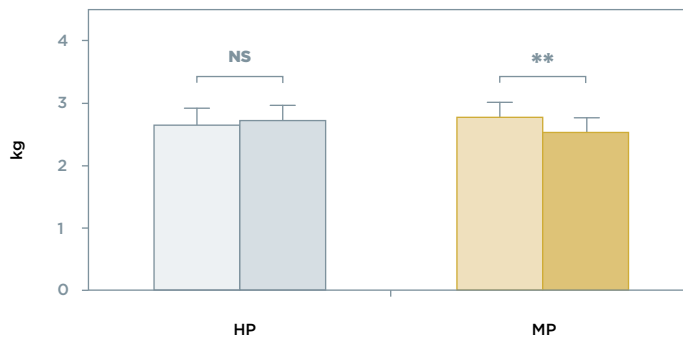
On day 1, the 2 groups were similar regarding their BW and BC. In both groups no change in BW was observed. BC was unchanged in the HP group whereas significant changes were noticed in the MP group. As a consequence, the lean mass/fat mass ratio did not change in the HP group (74/26 and 75/25 at the beginning and the end of the study respectively), and showed a significant change in the MP group: from 77/23 to 69/31.

Mean protein and NFE intake in each group

	HP diet	MP diet
Protein intake (g/kg BW/day)	7.2±0.6	4.6±0.3
NFE intake (g/kg BW/day)	2.6±0.3	6.7±0.5

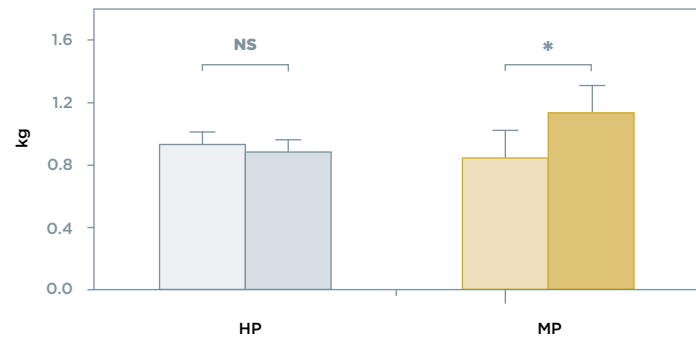
TABLE 3

Fig. 1: Evolution of the lean mass in each group



** : p<0.01, NS: no significant difference

Fig. 2: Evolution of the fat mass in each group



* : p<0.05

CONCLUSION

Although the protein content of the MP diet was higher than the recommended allowance^a, it appeared not high enough to maintain lean body mass in these cats. Our results are in accordance with another study showing that adult cats would require at least 5.2 g protein/kg BW/day to maintain their lean body mass^b.



FORTY MONTH-FOLLOW UP OF RENAL FUNCTION IN CATS FED A HIGH-PROTEIN DIET

INTRODUCTION

Chronic kidney disease (CKD) is common in cats, with prevalence increasing with age^{1,2}. Etiology of CKD remains unclear. Among nutritional factors, intake of highly available phosphorus excesses has been demonstrated causing kidney damage or dysfunction in cats³. Despite the absence of evidence of any deleterious effect of high-protein diets on the renal function^{4,5}, there are still concerns regarding the safety of such diets in healthy adult cats. Besides blood analyses commonly performed in vet practices for renal function assessment, symmetric dimethylarginine (SDMA) has been shown to be an accurate kidney biomarker, not affected by protein intake or lean body mass.⁶⁻⁸

The objective of this study was to follow up selected parameters of the renal function in adult cats fed a dry high-protein diet for 40 months.

ANIMALS, MATERIALS AND METHODS

Ten healthy adult European cats (31±6 month old) previously fed a standard maintenance diet^a, were fed exclusively a new high-protein diet^b (Tables 1 and 2). The daily rations were calculated to maintain cats' body weight. Fasting blood samples were collected at the start of the study (M0) and then every 2-3 months for 40 months, meaning 19 time points.

Six serum parameters were measured to assess the renal function. Statistical comparisons were performed between each time and M0 for each renal parameter, by ANOVA with repeated measures and Friedman tests, with a 5% significance level.

^a Virbac Vet Complex™ adult neutered cat with duck

^b Virbac Veterinary™ HPM adult neutered cat

Composition of the previous and test diets

Previous: Dehydrated animal protein, maize, animal fat, maize protein, wheat, bean hulls, beet pulp, linseed, egg, defatted soybean, FOS, borage seed, wheat bran, artichoke leave, minerals.

Test: Dehydrated pork and poultry protein, potato starch, hydrolysed animal protein, bean hulls, pea, animal fat, lignocellulose, minerals, linseed, beet pulp, rice, FOS, psyllium fibre, chitosan, artichoke leave, pasteurised Lactobacilli.

TABLE 1

Characteristics of the previous and test diets

Nutritional characteristics	Previous	Test
Metabolisable Energy (ME) (kcal/100g as fed)	381	363
Protein (% ME)	32	46
Fat (% ME)	38	34
Carbohydrate (% ME)	30	20
Calcium (g/Mcal)	2.62	3.58
Phosphorus (g/Mcal)	2.10	2.75
Sodium (g/Mcal)	1.05	1.93

TABLE 2



RESULTS

Palatability of the new diet was high, food consumption was correct and the digestive tolerance was good in all cats. Cats remained healthy throughout the study, no side effect in relation with the food has been reported.

First, regarding the 5 usual kidney parameters, individual values remained within the reference ranges over the study, except for urea in 1 sample (0.21g/L at M17), albumin in 23 samples of the 10 cats (41 to 45g/L, all before M20), and phosphates in 1 sample (77.6mg/L at M13). These exceptions, very close to the reference values and without any correlation between them, were considered incidental and due to biological variability of the markers. The mean values showed some significant changes at some time points vs MO: decrease for urea, creatinine and albumin, increase for total proteins, and both decrease and increase for phosphates (Table 3 and Figures 1 and 2).

Secondly, regarding SDMA individual results, 7 cats presented minor increases (15-18µg/dL) at 1 to 5 time points during the study, meaning a total of 19 high values out of 190 samples or 10%. Four of these cats had already high baseline SDMA concentrations (15-17µg/dL at M0). High SDMA values were never successive in time nor correlated with other abnormal parameters or clinical signs. These 7 cats could be considered as patients with a sub-clinic decline in their renal function, without any degradation throughout the study despite the change in their diet.

Mean values and standard deviations after 11,23, 31 and 40 months feeding the test diet (*: significant difference compared to M0)

Serum renal parameters	M0	M11	M23	M31	M40	Laboratory ref ranges
Urea (g/L)	0.53±0.04	0.50±0.04*	0.51±0.05*	0.50±0.06	0.57±0.06	0.34-0.76
Creatinine (mg/L)	19.4±1.3	17.3±1.7*	16.5±1.1*	16.9±2.6*	17.7±1.5*	8.0-24.0
Total proteins (g/L)	68.1±5.8	72.0±3.8	67.0±5.4	70.7±4.4	67.9±4.8	57-89
Albumin (g/L)	43.2±5.6	38.1±1.8*	33.9±2.4*	33.2±2.1*	32.1±2.3*	22-40
Phosphates (mg/L)	49.2±10.0	44.1±7.4*	46.0±4.8	44.6±5.5	58.1±8.4*	31-75
SDMA (µg/dL)	13.2±2.4	11.2±1.4*	11.7±2.1	11.9±2.7	12.3±2.3	0-14

TABLE 3

Fig. 1: Mean urea (g/L)

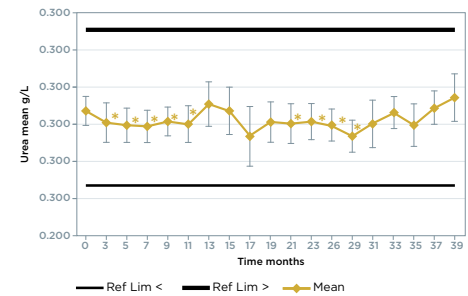


Fig. 2: Mean creatinine (mg/L)

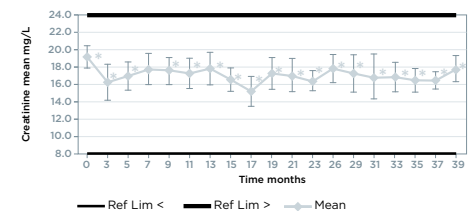
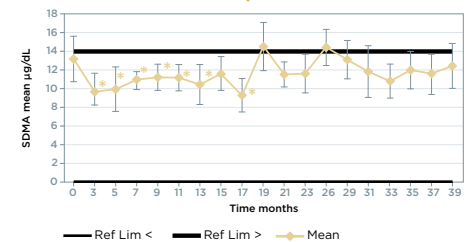


Fig. 3: Mean SDMA (µg/dL)



CONCLUSION

Our results confirmed that a high-protein content in a balanced diet had no negative impact on the renal biomarkers in the long term in healthy adult cats.



EFFECT OF CHITOSAN SUPPLEMENTATION IN A DRY MAINTENANCE DIET ON PHOSPHORUS APPARENT DIGESTIBILITY IN CATS.

INTRODUCTION

Dietary phosphorus restriction has been shown to slow down kidney dysfunction and is one of the cornerstones of CKD management^{1,2}. Intestinal phosphate binders are additional tools useful in helping to control dietary phosphorus bioavailability and absorption^{3,4}. Chitosan is a natural polysaccharide obtained from crustacean shells chitin. Thanks to its cationic amino groups, chitosan can adsorb different acidic metabolites in the digestive lumen. This functional ingredient has been successfully used in humans and animals with reduced renal function, to decrease dietary phosphorus absorption and lower serum phosphate level⁵⁻¹⁰. Incorporation of chitosan into the daily diet could make easier its spontaneous intake, especially in intractable or fussy pets.

The aim of this study was to assess the effect of chitosan included in a dry maintenance diet on phosphorus apparent digestibility in cats.

ANIMALS, MATERIALS AND METHODS

Two groups of 7 healthy adult cats were used in digestibility trials to compare 2 dry diets, "Control" and "Chitosan", in a cross over design (the duration of each trial was 3 weeks). The Control diet was a commercial dry diet intended for senior cats. The only difference between the 2 diets was chitosan added in the Chitosan diet (dose: 865 mg/kg DM) and included in the kibbles (Table 1). Faecal parameters (quantity, consistency, composition) were assessed and apparent digestibility coefficients of nutrients were determined.

Nutritional characteristics of the tested diets (% DM)

Crude protein	36.0
Crude fat	19.8
Crude fibre	2.8
Crude ash	5.8
Phosphorus	0.6
Calcium to phosphorus ratio	1.5

TABLE 1



RESULTS

All cats consumed normally their daily ration and their body weight remained constant throughout the study. The mean apparent digestibility coefficients of nutrients are shown in Table 2. The mean phosphorus apparent digestibility coefficient was significantly reduced with the Chitosan diet compared to the Control diet. The mean protein apparent digestibility coefficient was also significantly lower with the Chitosan diet, however it remained in the reference range for a premium petfood¹¹. The other digestibility coefficients did not differ between the 2 diets. The faeces characteristics were not significantly impacted by chitosan supplementation: the mean faeces quantity was 48.3±7.9 and 51.6±9.1 g faeces/100 g of ingested DM and the mean DM content of the faeces was 36.0±3.4 % and 35.7±4.1 %, with the Control and Chitosan diets respectively.

Mean apparent digestibility coefficients of nutrients of the diets

Apparent digestibility coefficient (%)	Control diet	Chitosan diet	p
Phosphorus	41.5±2.0	35.8±8.5	0.023
Protein	88.3±1.9	86.9±2.0	0.019
Dry matter	86.0±2.0	84.9±1.8	0.058
Organic matter	88.2±1.8	87.2±1.7	0.057
Energy	88.9±1.7	88.7±2.8	0.79

TABLE 2

CONCLUSION

This preliminary study shows that addition of chitosan (865 mg/kg DM) in a dry cat food reduces efficiently the phosphorus apparent digestibility, with no impact on the overall digestibility of the diet and the faeces characteristics of cats fed this diet. Chitosan could therefore be advantageous as an intestinal phosphate binder included in a veterinary “renal” diet, by helping control of phosphorus absorption and helping phosphatemia management in the long term.



EFFECT OF NEW HIGH-PROTEIN DRY DIETS ON URINARY PARAMETERS IN CATS AND IN VITRO STRUVITE DISSOLUTION

INTRODUCTION

Beside urine pH, the relative supersaturation (RSS) plays an important role in dissolution of struvite uroliths and prevention of the formation of calcium oxalate uroliths in cats¹. In an in vitro dissolution trial, Van Hoek et al. showed that RSS was a better predictor for struvite dissolution than the urinary pH².

The aim of this study was to assess the urinary parameters and struvite crystal solubility in cats fed 3 new high-protein dry diets, in comparison to that of 2 commercial dry diets.

ANIMALS, MATERIALS AND METHODS

Each of 10 healthy adult cats was fed each diet (D1-D5) for a period of 7 days (dietary adaptation) prior to a 7 to 9 days collection period, in a cross-over design. D1, D2 and D3 were 3 test diets for cats, with a high protein and low carbohydrate content. D1 was intended for maintenance of adult cats. D2 was intended for “reduction of struvite stone recurrence” and D3 for “dissolution of struvite stones”. D4* and D5** were commercial diets for cats, intended for “dissolution of struvite stones”, used as references in this study. Daily rations were calculated to maintain the cats’ body weight. Cats were housed in single cages which allowed to collect the urine. Food intake, water intake, urine volume and specific gravity were documented. Urine analyses and RSS calculations were done at the Institute of Animal Nutrition, Veterinary Faculty, Berlin.

For the in vitro dissolution trial, 1 g of struvite crystal (ammonium magnesium phosphate hexahydrate 98 %; VWR, Vienna, Austria) was mixed with 20 ml of the filtered (589² White Ribbon S&S) urine, 6 of these samples were prepared for each diet. Samples were stored in a 38 °C water bath and shaken (80/min). After 2 days, 3 respective samples were filtered, dried and weighed. The same procedure followed after 5 days for the remaining 3 samples of each diet.

Nutritional characteristics of the 3 test diets

	Diet 1	Diet 2	Diet 3
Crude protein (% ME)	46	46	44
Crude fat (% ME)	36	34	38
Nitrogen Free Extract (% ME)	18	20	18
In vivo ME (kcal/100g)	407	413	420
Sodium (% DM)	0.80	1.14	1.36

TABLE 1



RESULTS

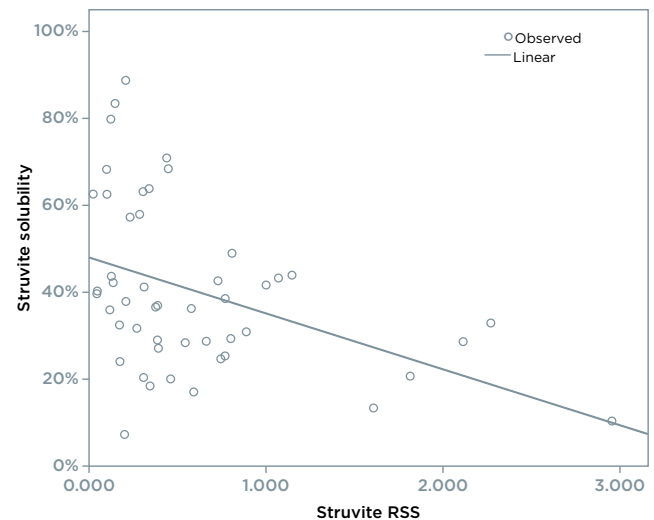
There was no significant difference in mean water intake, urinary volume and specific gravity between the 5 groups. The mean urinary pH varied from 6.0 to 6.5, it was significantly lower with D5 (Table 2). The Ca oxalate RSS varied from 4.29 to 6.58, with no significant difference between groups, and was within the range of metastable supersaturation ($1 < \text{oxRSS} < 12$) with all the diets. The struvite RSS with D1 was in the range of metastable supersaturation ($1 < \text{stRSS} < 2.5$), the other diets generated undersaturated urines with $\text{stRSS} < 1$. The struvite solubility after 5 days was statistically similar with D1, D2 and D4, and was significantly higher with D3 and D5. There was a significant correlation (-0.401) between the struvite RSS and the struvite solubility after 5 days (Fig. 1).

Urinary parameters with the different diets

	Diet 1	Diet 2	Diet 3	Diet 4	Diet 5
Urinary pH	6.5±0.2	6.5±0.2	6.4±0.2	6.5±0.2	6.0±0.1
Struvite RSS	1.11±0.82	0.64±0.34	0.45±0.66	0.60±0.58	0.23±0.23
Ca oxalate RSS	4.35±2.41	4.68±2.68	5.89±4.02	4.29±2.54	6.58±5.17

TABLE 2

Fig. 1: Correlation between struvite RSS and struvite solubility after 5 days



CONCLUSION

The results of this study show that the test high-protein diets D2 and D3 are as efficient as the reference diets D4 and D5 for struvite dissolution. They could be recommended for both dissolution and prevention of struvite stones, and reduction of calcium oxalate stones formation in cats.



EFFICACY AND SAFETY OF TWO NEW HIGH PROTEIN - LOW CARBOHYDRATE DRY DIETS IN STERILE, FELINE STRUVITE UROLITHIASIS

INTRODUCTION

Urolithiasis is a common cause of Feline Lower Urinary Tract Disease (FLUTD). The most common feline uroliths are calcium oxalate and struvite. Dietary dissolution is safe and effective for eradication of sterile struvite uroliths in cats. Richness in moisture and/or sodium and/or Protein in order to increase water intake and thus to increase diuresis, urinary flow and the frequency of micturition may vary between commercially diets.

MATERIALS AND METHODS

This prospective, multicenter, randomized, double blinded clinical trial evaluated the efficacy and safety of **two new high protein-low carbohydrate dry diets** (table 1) **in sterile, struvite urolithiasis** in cats with signs of non-obstructive FLUTD.

Cats enrolled in the study were **randomly** assigned either to diet A,*formulated to achieve dissolution and prevention of struvite uroliths, ortodiet B, **formulated to dissolve struvite uroliths.

Cats were followed up to 14 days after the uroliths had been dissolved, latest to D56±2.

Physical examination,urinalysis,and abdominal ultrasound were performed weekly (figure1).

Analyses were performed using the software SAS® version 9.4. The significance threshold was set to $\alpha=0.05$ two-sided.

RESULTS

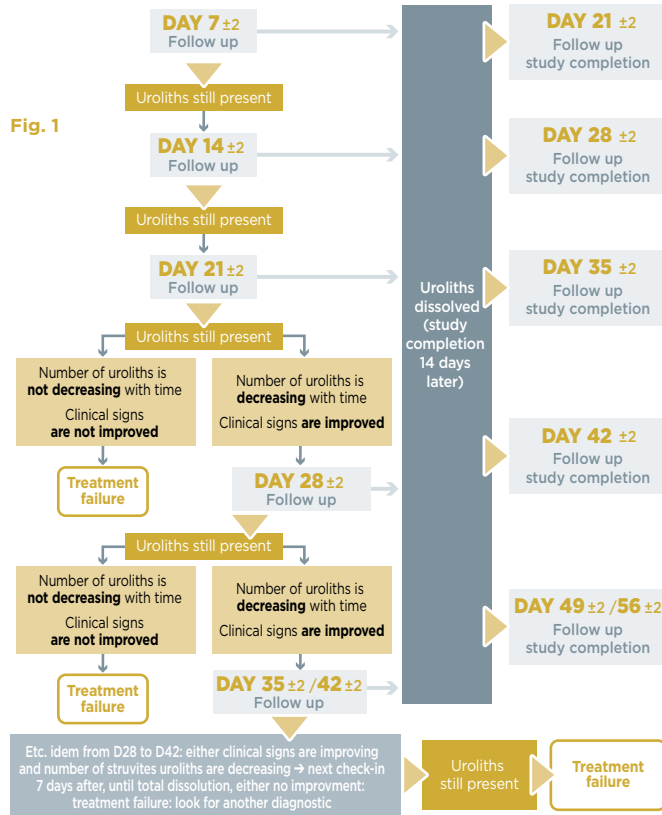
Thirty three cases were recruited and supplied with DietA(n=17) or DietB(N=16) according to the randomization procedure. Groups were comparable (table2).

The meantime of struvite dissolution **was 13.1 days and 14 days** respectively for diet A and Diet B (n.s). The meantime to disappearance of at least one urinary sign was **7 days** for diet A and **11.4 days** for diet B($p=0.03$). On D7,70.6% of cat from group A and 68.8% of cat from group B had no more urinary signs (n.s)(table3).

Mean urinary pH was decreased in groups A and B at the end of the study (6.1 ± 0.5 and 6 ± 0.6 , respectively) compared to D0(7.2 ± 0.8 and 7.2 ± 0.7 , respectively).

In group B, **urine specific gravity** significantly decreased ($p=0.01$) from D0 (1.046 ± 9.8) to the end of the study(1.036 ± 12.5). In group A, urine specific gravity decrease was not significant.

According to owners' assessment, palatability was considered as good to very good in 88.2% and 93.6% of cats with Diet A and B respectively.Two and 4 cats of groups A and B respectively exhibited transitory adverse events, possibly related to the diet (mild diarrhea or mild vomiting).These events resolved spontaneously and did not lead to the exclusion of any cat.



CONCLUSION

The new high protein-low carbohydrate tested diets were effective for dissolution of feline struvite urolithiasis.

Comparison of the test diets (DM: dry matter)

Analytical constituents (% DM)	Diet A ¹	Diet B ²
Protein	46.5	46.5
Fat	14.3	16.9
Crude Fibre	6.9	4.2
Calcium	0.74	0.69
Phosphorus	0.74	0.69
Magnesium	0.09	0.09
Sodium	1.16	1.38

TABLE 1

Comparability of baseline data

Baseline Characteristics	A n = 17	B n = 17	p-Value
Breed: n (%)			
European Shorthair	14 (82.4%)	13 (81.3%)	
European	1 (5.9%)	1 (6.3%)	
Main Coon	1 (5.9%)	1 (6.3%)	>0.99
Persian	1 (5.9%)	0 (0.0%)	
Sphynx	0 (0.0%)	1 (6.3%)	
Sex			
Female neutered	5 (29.4%)	5 (31.3%)	>0.99
Male (intact and neutered)	12 (70.6%)	11 (68.8%)	
Age (y)			
Mean (SD)	4.86 (3.29)	4.46 (3.68)	0.49
Min	1.75	1	
Max	13	14	
Body Weight (kg)			
Mean (SD)	5.6 (1.7)	4.9 (1.6)	0.21
Min	3.4	3.2	
Max	8.7	8.5	

TABLE 2

Disappearance of at least one urinary sign

	A n = 17	B n = 16	p-Value
Time of disappearance of at least one urinary sign (days) Mean (SD)	7 (0.0)	11.4 (9.5)	>0.03 ²
Disappearance of at least one urinary sign on Day 7 n (%)	17 (100%)	12 (75%)	>0.04 ¹

TABLE 3

*VirbacVETERINARY HPM UrologyDissolution & Preventioncat
**VirbacVETERINARY HPM UrologyStruviteDissolution cat



ASSESSMENT OF WATER INTAKE AND URINE VOLUME IN CATS FED A NEW HIGH-PROTEIN HIGH-SODIUM DRY DIET

INTRODUCTION

Environmental enrichment and stress reduction are common recommendations to help manage clinical cases of feline idiopathic cystitis (FIC). Dietary manipulation is also commonly recommended, typically aiming to increase water intake, resulting in production of an increased volume of more diluted urine.

The objective of this study was to evaluate water intake and urine volume in cats fed a new dry diet designed to help management of FIC, in comparison with a control dry diet.

ANIMALS, MATERIALS AND METHODS

Eight healthy European adult neutered cats (4 males and 4 females, mean age 4.4 ± 0.3 years, mean body weight 4.8 ± 1.2 kg) normally fed dry diets were included in the study. The study used a cross-over design with a test diet and a control (commercial urinary) diet, each being fed for 3 weeks. The 2 diets had different formulas in terms of ingredients and analytical constituents.

The study focused on 2 main nutrients known to increase water intake in cats: protein and sodium, with the test diet having higher protein and sodium contents compared with the control diet (Table 1). Daily rations were calculated to maintain the cats' body weights. After a 1-week diet transition, the cats were housed in single metabolism cages, and daily food consumption, water intake and urine volume were measured for each cat. Wilcoxon signed rank tests were performed to compare the different parameters between the 2 groups, with a 5 % significance level.

Protein and sodium contents in the 2 diets

Nutrient	Control diet	Test diet
Protein (g/Mcal)	84	117
Sodium (g/Mcal)	0.92	2.88

TABLE 1



RESULTS

Palatability and digestive tolerance were good with both diets and the cats' body weights remained stable. The test diet resulted in significantly higher values for all the assessed parameters, in comparison with the control diet (Table 2, Figure 1 and Figure 2).

Fig. 1: Water intake (mL/kg BW/day)

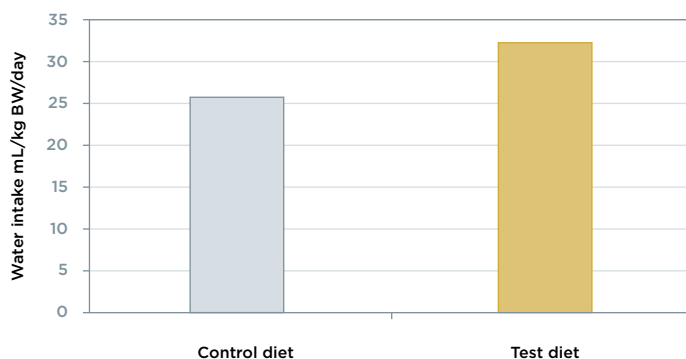
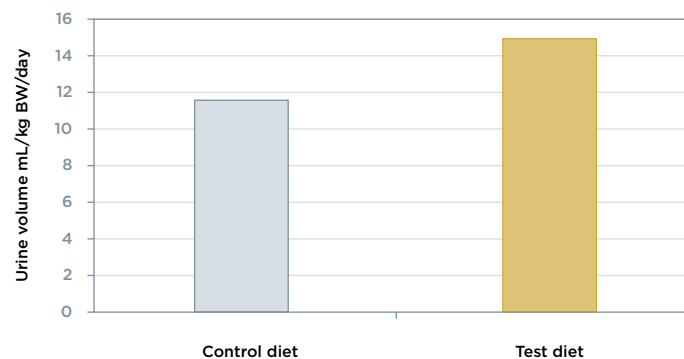


Fig. 2: Urine volume (mL/kg BW/day)



Mean ± SD of each parameter in the 2 groups and p-values

Parameter	Control diet	Test diet	P
Protein intake (g/kg BW/day)	4.07±0.05	5.22±0.49	0.0078
Sodium intake (g/kg BW/day)	0.045±0.001	0.128±0.012	0.0078
Water intake (mL/kg BW/day)	25.80±7.89	32.34±11.04	0.0325
Urine volume (mL/kg BW/day)	11.59±3.84	15.01±4.51	0.0144

TABLE 2

CONCLUSION

These preliminary results showed that this new diet, with high protein and high sodium contents, was effective in stimulating water intake and increasing urine volume in healthy cats. The next step will consist in testing the diet in cats with idiopathic cystitis.



WEIGHT LOSS WITH A HIGH-PROTEIN DIET ALLOWS THE RECOVERY OF OPTIMAL BODY COMPOSITION AND IMPROVES INSULIN SENSITIVITY IN OBESE CATS

INTRODUCTION

Management of feline obesity is of the utmost importance because of its high prevalence and association with numerous diseases, such as diabetes mellitus. High-protein diets are preferable for cats, as obligatory carnivores; such diets are also often proposed in weight and diabetes management.

The aim of this study was to assess effects of energy restriction on body weight, body composition and some hormonal parameters in obese cats fed a new high-protein low-carbohydrate diet.

ANIMALS, MATERIALS AND METHODS

Nine obese neutered adult cats (2.9±0.1 year old, mean BW 5.1±0.4 kg, BCS 8/9 (3 cats) or 9/9 (6 cats), mean overweight 46.0±4.0%) were included. They were fed the test diet (ME: 3190 kcal/kg DM, protein: 48% ME, fat: 29% ME, carbohydrate: 23% ME). The food allowance was adjusted every week for each cat to achieve weight loss between 1.5-2% per week. Euglycemic hyperinsulinemic clamps (assessment of insulin sensitivity) were performed, hormones were assayed, and body composition (BC) was determined using deuterium oxide dilution, when cats were obese and then when optimal BW was recovered. For statistical analysis, linear mixed effects models were used with a significance level of 5%.



RESULTS

During the weight loss period, the mean energy allowance was 28 kcal/kg optimal BW. The mean duration to achieve the cats' optimal BW (BW: 3.5 ± 0.3 kg, BCS: 5/9) was 22 weeks, with a mean weight loss rate of 1.7% per week. Weight loss resulted in significant decrease of fat mass (FM: 0.9 ± 0.1 kg vs 1.8 ± 0.2 kg, $p < 0.001$), and the final BC became optimal (%FFM/%FM: 74/26 vs 65/35) (Fig 1). The insulin sensitivity index was significantly higher after weight loss (0.07 ± 0.01 vs 0.04 ± 0.01 , $p < 0.01$) (Fig 2), and plasma leptin level was significantly lower ($p < 0.01$).

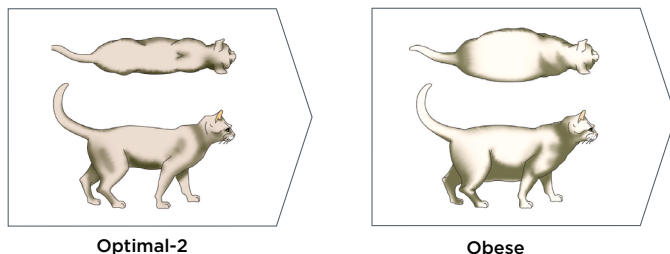


Fig. 1: Body Composition (%)

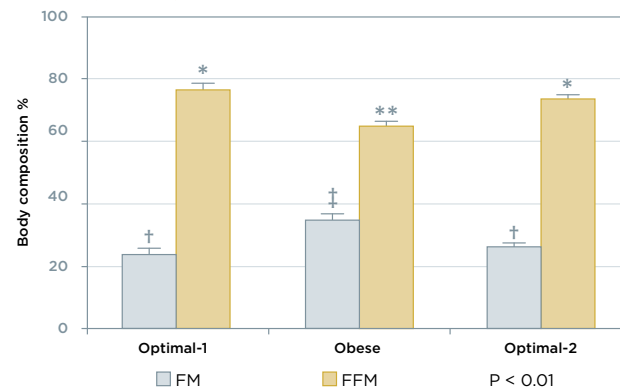
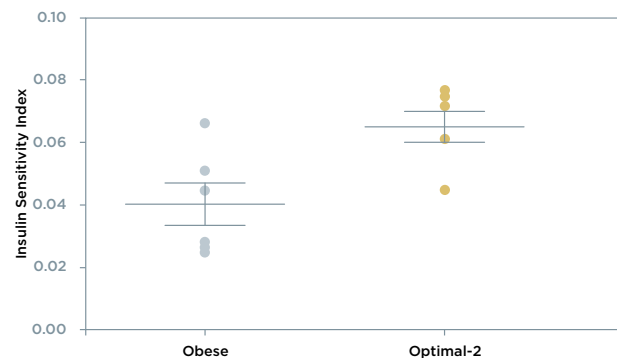


Fig. 2: Insulin Sensitivity Index



CONCLUSION

Results indicate that cats effectively lost BW, mainly from the fat mass, and insulin sensitivity was improved. The BC improvement despite a rapid weight loss can be related to the high protein intake. Because low insulin sensitivity is a risk factor for diabetes in cats, its improvement is considered desirable. The observed improvement in insulin sensitivity could have resulted from weight loss itself as well as from the high-protein and low-carbohydrate contents of the test diet, as it has been shown in other species.

Our results confirm that such a diet may be beneficial for the management of both obesity and diabetes mellitus in cats.



WEIGHT MANAGEMENT IN CLIENT-OWNED CATS FED A HIGH PROTEIN - LOW CARBOHYDRATE MAINTENANCE DIET

INTRODUCTION

According to several studies worldwide, around 1 out of 2 cats are overweight or obese¹⁻². Specific weight loss diets, formulated on a low energy - high fibre concept, are frequently poorly palatable and often perceived as too burdensome and too restrictive by pet owners, who thus simply give up on these diets³. There is therefore a need for non-restrictive palatable diets which could help cats lose weight in a “softer way”.

The aim of this study was to assess the weight loss achieved with a high protein - low carbohydrate maintenance diet by overweight cats, which had previously failed with a weight loss programme.

ANIMALS, MATERIALS AND METHODS

During 8 weeks, 20 overweight adult neutered cats were given a new dry maintenance diet with a high protein and low carbohydrate content (Table 1). 0.5 to 1% weight loss per week was targeted. Individual daily rations were calculated each week, based on the energy requirement estimated at $0.8 \times 0.8 \times 60 \times BW$ (BW: body weight being recorded weekly)⁴. A General Linear Mixed Model (factors: fixed (time), random (cat) was used to test weight loss between weeks, with a 5% significance level.

Nutritional characteristics of the tested diet

Crude protein	44.5%
Animal/vegetable protein ratio	92/08
Crude fat	13%
Crude fiber	7.5%
Nitrogen free extract	24%
Metabolisable energy	338kcal/100g

TABLE 1



RESULTS

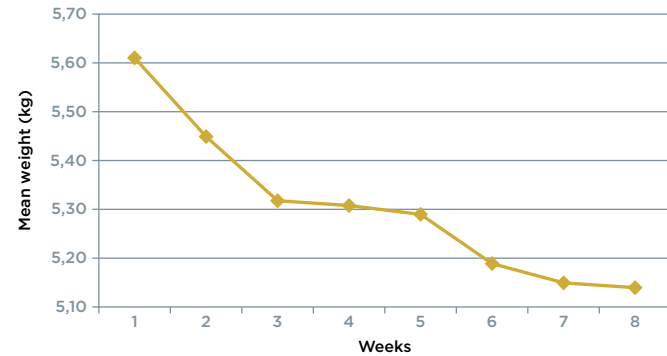
15 out of 20 cats completed the study. Despite the absence of rationing and the distribution of treats by most of the owners, 67% of these cats lost weight and 50% had a visibly slimmer silhouette. The effect of the diet was fast with a significant weight loss as soon as week 1, and a mean weight loss of 1.2% per week (Fig. 1 & Table 2). 80% of cats appreciated the tested diet according to their owners, and 73% of pet owners were ready to buy this diet or would recommend it to friends.

Weight loss for cats responding to the diet		
Visit	Weight loss (%)	p value
Week 1 - week 2	-2.95	0.0005*
Week 2 - week 3	-2.04	0.0124*
Week 3 - week 4	-0.20	0.7986
Week 4 - week 5	-0.60	0.4508
Week 5 - week 6	-1.95	0.0169*
Week 6 - week 7	-0.69	0.3870
Week 7 - week 8	-0.23	0.7764

TABLE 2

* Statistically significant weight loss

Fig. 1: Evolution of the bodyweight of cats responding to the diet



CONCLUSION

This new high protein - low carbohydrate maintenance diet resulted in a gradual weight loss.

This “soft” way to lose weight and the good palatability, which may be due to the high animal protein content^{4,5}, are probably the key points that can explain the good satisfaction rate among owners regarding the tested diet.



ASSESSMENT OF A NEW HIGH PROTEIN - LOW CARBOHYDRATE DIET IN CATS WITH CHRONIC GASTROINTESTINAL DISEASE

INTRODUCTION

Dietary therapy plays a major role in the management of most gastrointestinal (GI) disorders. The most commonly used strategy is to feed a highly digestible food.

The objective of this study was to evaluate the efficacy of a new dry high protein - low carbohydrate (HP-LC) diet intended for the management of chronic maldigestion-malabsorption in cats.

ANIMALS, MATERIALS AND METHODS

Forty six client-owned cats with chronic GI disease were followed up for 2 months. During the first month (M1), after a 4-day diet transition, they were fed exclusively the tested diet (Table 1). During the second month (M2), they were fed again their usual dry diet.

No medical management was allowed during the study. To describe the clinical improvement, 5 digestive parameters were assessed 6 times: at inclusion, then each week of M1, and finally at the end of M2 (Table 2). Wilcoxon sign rank tests were used for statistical analyses, with a significant threshold of 5%.

Characteristics of the tested diet

Metabolisable Energy (ME) (kcal/100g)	419
Protein (% ME)	40
Fat (% ME)	45
Carbohydrate (% ME)	15
Soluble fibre (% DM)	1.2
Insoluble fibre (% DM)	10.3
Apparent digestibility coeff of protein (%)	86
Apparent digestibility coeff of fat (%)	91

TABLE 1

List of the digestive parameters

Freq defecation	from <1 to >5 times a day
Faecal score	from 1=dry and firm to 5=watery
Faeces odour	from very slightly odorous (very acceptable) to very odorous (unbearable)
Faeces quantity	from very small to very large
Flatulence	from never to very often (several times a day)

TABLE 2



RESULTS

The tested diet resulted in significant improvements as attested by comparison of % cats with normal digestive parameters at the different times of the study (Table 3). The mean frequency of defecation and the mean faecal score significantly improved between inclusion and M1 ($p < 0.0001$), and then degraded between the end of M1 and M2 with the usual diet ($p < 0.0001$) (Figures 1 & 2). The improvement was significant within the first week for the 2 parameters ($p < 0.0001$). After 1 month fed the tested diet, 72% cats were completely cured (all parameters normal), 26% were partially improved, and only 2% were unchanged.

% cats with normal digestive parameters at different time points

Digestive parameter	Considered as normal when :	% normal cats		
		Inclusion	End M1	End M2
Freq of defecation	≤2 times/day	15	80	39
Faecal score	≤2.5	43	91	63
Faeces odour	≤slightly odorous	0	85	48
Faeces quantity	≤normal	65	100	74
Flatulence	never	41	98	87

TABLE 3

Fig. 1: Mean frequency of defecation

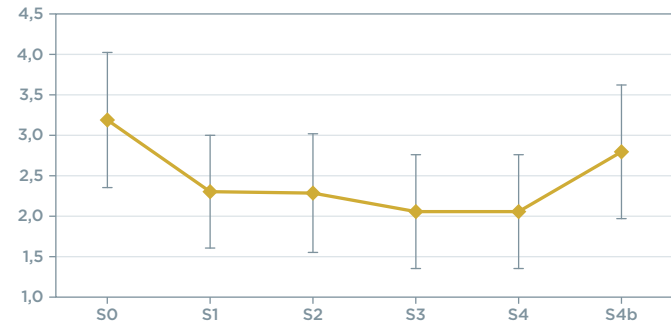
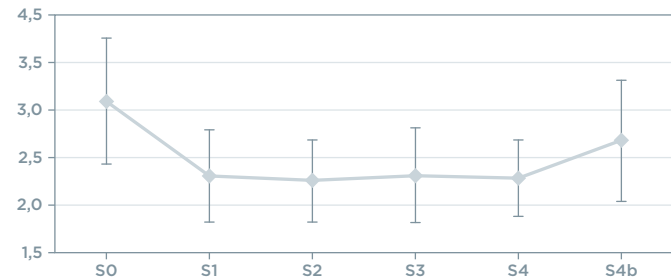


Fig. 2: Mean faecal score



CONCLUSION

These results confirm the clinical efficacy of the new highly digestible HP-LC diet for chronic gastrointestinal disorders management and recurrence prevention in cats.



ASSESSMENT OF A NEW HIGH PROTEIN - HIGH ESSENTIAL FATTY ACID DIET IN CATS WITH CHRONIC SKIN AND COAT DISORDERS

INTRODUCTION

In general practice, dermatological cases constitute around 15% of the caseload in cats and are the most common reasons for consultation¹.

It is well known that nutrition plays an important role in controlling skin and coat condition, especially some nutrients such as protein and essential fatty acids (EFAs)^{2,3}.

The objective of this open study was to assess the efficiency of a new dry dietetic pet food intended for the “support of skin function in the case of dermatosis or excessive loss of hair” in cats.

ANIMALS, MATERIALS AND METHODS

Animals:

- 44 client-owned adult cats with chronic skin disorders of nonspecific causes
- Average (SD) age: 4.5 (2.4) years old; body weight: 4.3 (1.3) kg; body condition score: 5.5 (1.1)
- Flea treatment before the start of the study
- No medical management allowed during the study

Diet:

- Metabolisable energy share: protein 41%, fat 38%, carbohydrate 21%
- Proteins (mainly from animal origin): 94%. Different fat sources: poultry fat, fish oil, linseed, sunflower oil, borage seed
- High and balanced level of EFAs: EPA+DHA=0.8% and LA+GLA=3.9% on a dry matter basis
- 8 weeks of feeding (test diet exclusively)

Assessments:

- 9 criteria evaluated:
 - 6 rated from 0 (severe alteration) to 4 (normal): coat shine, presence of dandruff, skin/coat odour, coat greasiness, coat softness and coat beauty
 - 3 rated from 0 (severe/frequent) to 3 (normal): licking frequency, itching frequency and hair loss
- Assessments on Day 0 (D0, baseline) and every 2 weeks (W2, W4, W6 and W8)
- Body weight (BW) and body condition score (BCS) recorded at D0 and W8
- Other assessments: kibbles quality, palatability, preference, digestive tolerance and owners' satisfaction

Statistics

Analysis were done using repeated measures ANOVA and the adjustment procedure of Dunnett for pairwise comparison in case of significance. The time effect was considered significant at a 0.05 level.



RESULTS

Evolution of the scores attributed to different skin and coat parameters.

Parameter	D0 (n = 44)	W2 (n = 44)	W4 (n = 44)	W6 (n = 42)	W8 (n = 42)
On a 4-point scale:					
Coat shine	1.09 ± 0.47	1.89 ± 0.65***	2.48 ± 0.73***	2.64 ± 0.82***	2.60 ± 0.80***
Dandruff	1.89 ± 1.04	2.59 ± 0.87***	2.89 ± 0.84***	3.02 ± 0.95***	2.98 ± 0.92***
Odour	2.20 ± 0.73	2.55 ± 0.82*	2.93 ± 0.82***	2.98 ± 0.87***	3.07 ± 0.71***
Greasiness	1.73 ± 0.85	2.43 ± 0.90***	2.75 ± 0.84***	3.02 ± 0.95***	3.02 ± 0.98***
Softness	1.91 ± 0.94	2.57 ± 0.73***	2.89 ± 0.92***	3.00 ± 0.91***	3.17 ± 0.82***
Coat beauty	1.75 ± 0.75	2.50 ± 0.66***	2.82 ± 0.84***	2.86 ± 0.84***	3.14 ± 0.78***
On a 3-point scale:					
Licking frequency	1.84 ± 0.89	2.27 ± 0.85**	2.39 ± 0.75***	2.43 ± 0.77***	2.55 ± 0.67***
Itching frequency	2.00 ± 0.81	2.20 ± 0.70	2.36 ± 0.78*	2.43 ± 0.80**	2.57 ± 0.67***
Hair loss	1.77 ± 0.94	2.14 ± 0.73*	2.30 ± 0.73***	2.29 ± 0.71***	2.45 ± 0.71***

TABLE : mean ± SD and statistics (ANOVA + adjustment procedure of Dunnett): *p<0.05; **p<0.01, ***p<0.001. Figure: mean scores/loss

• Most improved parameters at W8:

- coat softness: 94% cats recovered normal parameters
- coat beauty: 95% cats recovered normal parameters

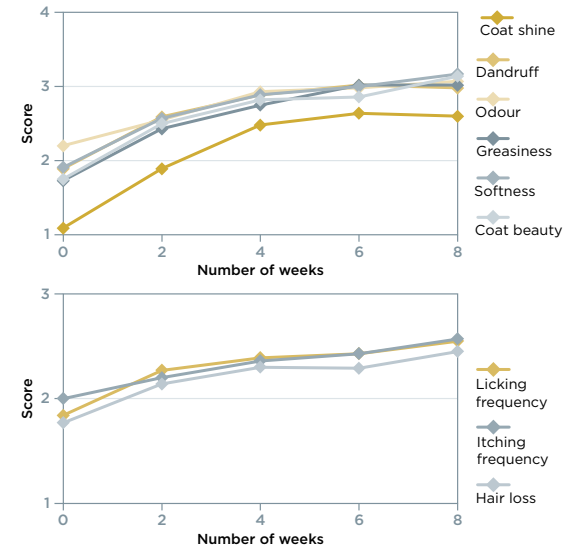
• Proportion of cats improved at W8:

- Full recovery (all parameters normal): 57 %
- General improvement (all parameters improved): 17%
- Partial improvement: 21%
- No improvement: 5%

• No change in BW and BCS throughout the study

• Palatability:

- Considered normal to very good by 88% owners.
- Test diet preferred by 57% cats compared to their usual diet



• Digestive tolerance:

- 93% cats had stools with normal consistency
- 93% cats had stools in normal or fewer quantity than usual
- 95% cats had no flatulence (5% had flatulence but less than usual)
- 97% owners reported stools odour unchanged or decreased compared with usual food

• Satisfaction:

- 91% owners satisfied at W8. Mean (SD) satisfaction score of 7.9 (2) on a 0-10 scale
- Main reasons for satisfaction: palatability, clinical efficiency

CONCLUSION

The test diet rapidly improved skin and coat condition of a great majority of cats. These improvements are likely linked to the composition of the diet: rich in animal protein as a source of sulphur-containing amino acids and balanced in omega-6 and omega-3 fatty acids.

Palatability, digestive tolerance and owners' satisfaction were good, which should allow a good compliance with the diet and maximize the chance of success for the management of chronic skin disorders.

Clinical controlled trials with validated scales could now be carried out to assess the benefits of this diet in the management of specific skin diseases.



ASSESSMENT OF THE DIGESTIVE TOLERANCE IN CATS OF A NEW DIET BASED ON INSECTS AS THE PROTEIN SOURCE

INTRODUCTION

Insects may be an alternative source of protein for animal nutrition and could represent a “novel” protein source for managing adverse food reactions. Publications describe the high-quality nutritional profile of selected insect species, but there is little data on the tolerance of insect-based diets.

This study was designed to evaluate the digestive tolerance of a new dry insect-based protein source diet in adult cats.

ANIMALS, MATERIALS AND METHODS

Twenty-three healthy adult client-owned cats were recruited and monitored for 28 days. After a 4-day diet transition, they were fed exclusively with the new diet (Table 1). This diet was formulated to meet FEDIAF requirements for adult cats and was characterized by mealworm (*Tenebrio molitor* larvae) as the protein source. Owners filled in online questionnaires on D0 (basal assessment with usual diets), D7, D14 and D28.

To evaluate tolerance of the diet, 4 parameters were assessed (Table 2). Owners also evaluated coat condition and palatability on D28. Wilcoxon signed rank and Mc Nemar’s tests were used to compare results, with a 5% significance level.

Characteristics of the test diet	
Metabolisable Energy (ME) (kcal/100g)	355
Protein (% ME)	31
Fat (% ME)	36
Carbohydrate (% ME)	33

TABLE 1

List of the digestive parameters	
Faecal score	from 1=very dry to 5=watery
Faecal odour	from very slightly odorous (very acceptable) to very odorous (unbearable)
Faecal quantity	from very small to very large
Flatulence	from never to several times a day

TABLE 2



RESULTS

The tolerance of the test diet was high, with no significant changes vs usual diets. Mean faecal scores varied from 2.3 ± 0.5 on D0 to 2.2 ± 0.4 on D28 and none of the cats developed diarrhoea (highest scores: 3.5 in 2 cats on D7). Table 3 shows percentages of normal cats on D0 and D28 for each digestive parameter. At the end of the trial, palatability was described as good or very good by 74% of owners. Coat condition was unchanged, improved or degraded in 70, 26 and 4% of cats respectively.

% cats with normal digestive parameters at different time points			
Digestive parameter	Considered as normal if:	% normal cats	
		D0	D28
Faecal score	≤ 2.5	87	91
Faecal odour	< mildly odorous / slightly acceptable	74	91
Faecal quantity	\leq medium	96	100
Flatulence	never	78	96

TABLE 3

CONCLUSION

These preliminary results showed the good tolerance of the test diet in healthy adult cats. The next step will consist in testing the diet in cats with adverse food reactions.



ASSESSMENT THROUGH A PET OWNER SURVEY OF THE GASTROINTESTINAL TOLERANCE OF A NEW HIGH PROTEIN-LOW CARBOHYDRATE DIET RANGE IN GROWING DOGS

INTRODUCTION

The Veterinary HPM range is formulated so that proteins and lipids represent the major sources of energy, with the proportion of carbohydrates kept as limited as possible, in order to match carnivorous needs more closely. This new nutritional approach may raise some questions about digestive tolerance and about the transition from the usual commercial diets to HP-LC diets.

The objective of this study was to assess the digestive tolerance of the new Veterinary HPM Baby and Junior Dog diets in client-owned puppies of various breeds, through a questionnaire survey administered to the owners over a 28-day testing period.

ANIMALS, MATERIALS AND METHODS

Multiple-choice questionnaires had to be filled out by pet owners at the beginning of the study, at the end of a 4-day diet transition, and after 7, 14, and 28 days. About 30% of the enrolled dogs had previously shown a digestive sensitivity with their usual food, mainly manifested as diarrhoea.

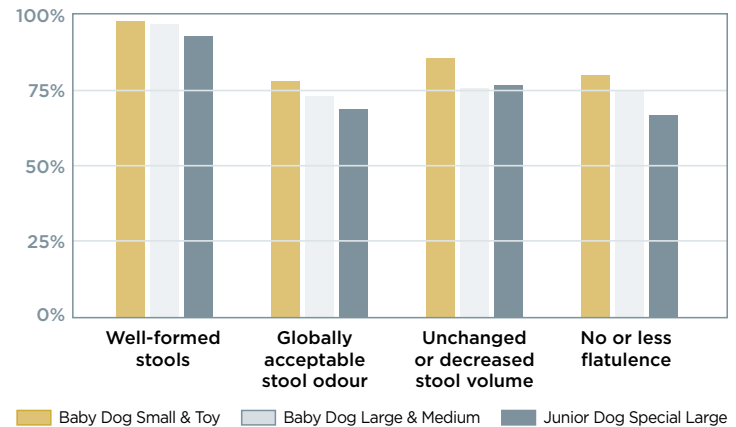


RESULTS

In the present study, more than 94% of the pet owners were satisfied with the way the transition to the tested diets had taken place. Volume, consistency, and odour of the stools showed little change when switching diets, and were not significantly different between the different time points for each tested diet.

After 1 month, the great majority of the dogs (93 to 98%) had well-formed stools. 69 to 78% of the owners considered that stool odour was globally acceptable. Between 76 and 86% of the owners found that the volume of faeces did not change or decreased compared to the usual diet. No or less flatulence was observed in 67 to 80% of the dogs depending on the diet.

Digestive tolerance after 1 month



CONCLUSION

The three tested Veterinary HPM diets enabled a safe diet transition from numerous kinds of canine foods. The tested diets have all shown a high digestive tolerance in various-sized puppies and growing dogs of different breeds.



IMMUNOSTIMULATORY EFFECT OF BETA-1,3/1,6-GLUCAN SUPPLEMENTATION IN A DRY DIET AFTER VACCINATION IN PUPPIES

INTRODUCTION

Several infectious diseases are still causes of high morbidity and mortality in puppies. It is a common practice to protect puppies thanks to vaccines, but many stress and immunosuppressive conditions may occur and impact the effect of vaccination. Some functional ingredients are used to stimulate the immune system and enhance the efficacy of vaccines.^{1,2} Beta-1,3/1,6-glucan is extracted from cell wall of baker yeast (*Saccharomyces cerevisiae*).

Its molecular configuration is crucial for its biological activity: recognition of beta-glucan by specific receptors is translated into activation of the innate immune cells, synthesis and release of cytokines, generation of enhanced cell-mediated responses and finally orchestration of the adaptive immune response.³ The immunostimulatory abilities of beta-glucan have already been demonstrated in young and adult dogs.⁴⁻⁷

The aim of this study was to assess the effect of beta-1,3/1,6-glucan included in a dry diet, on serum immunoglobulin G concentration following polyvalent vaccination in puppies.

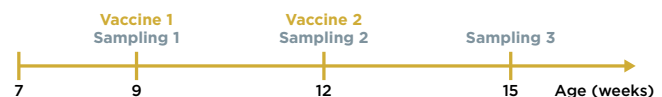
ANIMALS, MATERIALS AND METHODS

Twenty Beagle puppies (7 weeks of age at the initiation of the study) were allocated into 2 groups, with similar environment and breeding conditions. From weaning and for 2 months, they were fed either a control diet (Control) or a test diet (Beta-glucan). The Control diet was a commercial dry diet intended for growing dogs (Table 1). The only difference between the 2 diets was beta-glucan added in the Beta-glucan diet (dose: 565 mg/kg DM) and included in the fat coating of the kibbles. The program of vaccination (using a commercial modified live polyvalent vaccine) and blood sampling is represented in Fig. 1. For each blood sample, serum IgG concentrations were measured by radial immune-diffusion technique.

Nutritional characteristics of the tested diets (% DM)	
Crude protein	35.9
Crude fat	22.8
Crude fibre	2.2
Crude ash	7.6
Calcium	1.4
Phosphorus	1.1

TABLE 1

Fig. 1: Program of vaccination and blood sampling

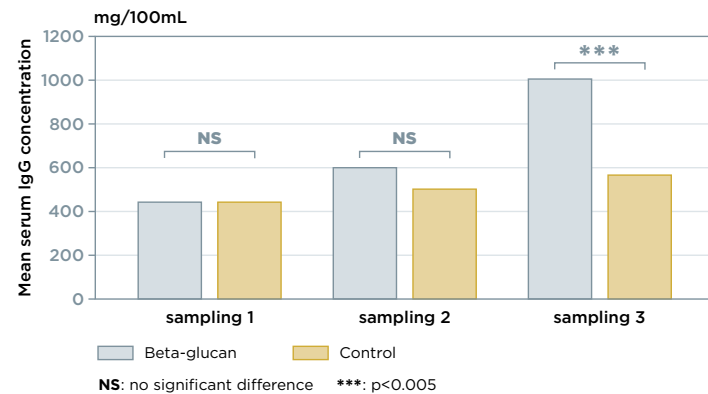




RESULTS

All puppies consumed normally their daily ration and remained healthy throughout the study. There was no difference in baseline serum IgG concentrations (sampling 1) between the groups (Fig. 2). As a reaction to the first vaccination, IgG level was increased in both groups at sampling 2: it was higher with Beta-glucan diet but without significant difference. At the end of the study, 3 weeks after the second vaccine, IgG concentration (sampling 3) was significantly higher in the Beta-glucan group compared to the Control group.

Fig. 2: Mean serum IgG concentrations in each group



CONCLUSION

This study shows that addition of beta-1,3/1,6-glucan (565 mg/kg DM) in a dry food increases efficiently the humoral response after vaccination in puppies, and thus may help to promote a better immune protection for a regular and harmonious growth.



QUESTIONNAIRE-BASED PET OWNER EVALUATION OF GASTROINTESTINAL TOLERANCE OF A NEW HIGH PROTEIN-LOW CARBOHYDRATE DIET RANGE IN ADULT DOGS

INTRODUCTION

Faecal characteristics are important parameters for dog owners to assess diet quality and digestibility. Various factors such as the source, amount, and quality of proteins, starches, fibres, and minerals can affect the digestibility of dry-expanded diets. Veterinary HPM diet range are HP-LC (high protein - low carbohydrate) diets.

The aim of the present study was to provide evidence of the gastrointestinal tolerance of 4 diets from the Veterinary HPM diet range in adult dogs in field conditions.

ANIMALS, MATERIALS AND METHODS

The four diets were tested in 284 adult dogs over a 28-day period and compared to their usual diets. Online evaluations were performed at the beginning of the study, at the end of the 4-day diet transition, and at 7, 14 and 28 days. Digestive sensitivity with the dog's usual food was reported in 28% of the enrolled dogs.

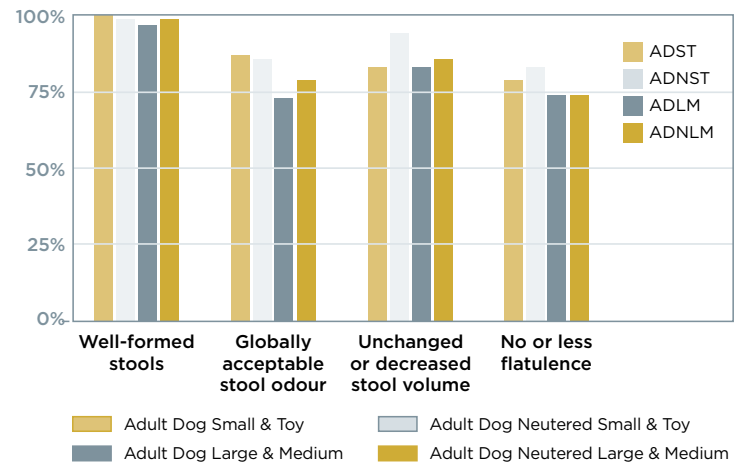


RESULTS

At least 94% of the pet owners declared they were satisfied with the transition to the tested diets. Average stool consistency scores with the tested diets remained steady at the optimal value of 2.2. Faecal consistency and stool volume were not significantly different between the different time points.

After 1 month, the great majority of the dogs (97 to 100%) had well-formed stools. 73 to 87% of the owners considered that stool odour was globally acceptable. Between 83 and 94% of the owners found that the volume of faeces did not change or decreased compared to the usual diet. No or less flatulence was observed in 74 to 83% of the dogs depending on the diet.

Digestive tolerance after 1 month



CONCLUSION

A safe diet transition and a high digestive tolerance was reported after feeding various-sized adult dogs of different breeds with the tested Veterinary HPM diets.



FORTY MONTH-FOLLOW UP OF RENAL FUNCTION IN DOGS FED A HIGH-PROTEIN DIET

INTRODUCTION

Despite the absence of evidence of any deleterious effect of high-protein diets on pets' renal function¹⁻⁴, there are still concerns regarding the safety of such diets in the long term. Besides blood analyses commonly performed in vet practices for the renal function assessment, symmetric dimethylarginine (SDMA) has been shown to be an accurate kidney biomarker, not affected by protein intake or lean body mass.⁵⁻⁷ Our hypothesis was that a high-protein content in a complete and balanced diet had no impact on the renal function of healthy dogs.

The objective of this study was to follow up selected parameters of the renal function in adult dogs fed a dry high-protein diet for 40 months.

ANIMALS, MATERIALS AND METHODS

Ten healthy entire adult Beagles (16±6 month old) previously fed a standard maintenance diet^a, were fed exclusively a new high-protein diet^b (Tables 1 and 2). The daily rations were calculated to maintain dogs' body weight. Fasting blood samples were collected at the start of the study (MO) and then every 2-3 months for 40 months, meaning 19 time points.

Six serum parameters were measured to assess the renal function. Statistical comparisons were performed between each time and MO for each renal parameter, by ANOVA with repeated measures and Friedman tests, with a 5% significance level.

^aVirbac Vet Complex™ adult dog

^bVirbac Veterinary™ HPM adult dog L&M

Composition of the previous and test diets

Previous: Dehydrated animal protein, maize, wheat, animal fat, soybean, beet pulp, maize protein, linseed, wheat bran, FOS, chondroitin sulfate, chitosan, minerals.

Test: Dehydrated pork and poultry protein, rice, pea, animal fat, hydrolysed animal protein, potato starch, lignocellulose, linseed, bean hulls, minerals, beet pulp, FOS, psyllium fibre, chitosan, pasteurised Lactobacilli, chondroitin sulfate.

TABLE 1

Characteristics of the previous and test diets

Nutritional characteristics	Previous	Test
Metabolisable Energy (ME) (kcal/100g as fed)	398	369
Protein (% ME)	25	34
Fat (% ME)	41	41
Carbohydrate (% ME)	34	25
Calcium (g/Mcal)	3.5	3.5
Phosphorus (g/Mcal)	2.5	2.7
Sodium (g/Mcal)	1.3	1.6

TABLE 2



RESULTS

Palatability of the new diet was high, food consumption was correct and the digestive tolerance was good in all dogs. Dogs remained healthy throughout the study, no side effect in relation with the food has been reported.

Individual values of kidney parameters remained within the reference ranges over the study, except for urea in 1 dog (0.14 g/L at M29), creatinine in 1 dog (4.9 mg/L at M26), total protein in 3 dogs (50-51 g/L at M3, M29 and M33), albumin in 2 dogs (42-46 g/L at M9 and M15), phosphates in 1 dog (76.6 mg/L at M35), and SDMA in 5 dogs (15 µg/dL at M15, M22, M29, M37 and M40). These exceptions, very close to the reference values and without any correlation between them, can be considered incidental and due to biological variability of the biomarkers. **Mean values** of some criteria showed significant changes at some time points vs MO (decrease for urea, creatinine, albumin and phosphates, increase for total proteins, and decrease or increase for SDMA), but always remaining in the safety ranges (Table 3 and Figures 1 to 3).

Mean values and standard deviations after 11,24 and 40 months feeding the test diet (*: significant difference compared to M0)

Serum renal parameters	M0	M11	M24	M40	Range in study	Laboratory ref ranges
Urea (g/L)	0.32±0.10	0.29±0.05	0.28±0.05	0.23±0.05*	0.21-0.32	0.15-0.57
Creatinine (mg/L)	7.5±1.0	7.6±0.6	7.4±1.0	6.4±0.7*	6.4-7.6	5.0-18.0
Total proteins (g/L)	52.7±1.5	60.1±3.1*	58.4±2.6*	57.9±2.9*	52.7-62.7	52-82
Albumin (g/L)	36.2±2.6	34.3±2.8*	31.5±2.8*	31.6±2.5*	30.9-36.7	23-40
Phosphates (mg/L)	46.7±7.5	39.9±5.0*	41.6±4.4	38.3±2.7*	34.6-46.7	25-68
SDMA (µg/dL)	10.9±1.1	11.6±1.4	9.4±1.8	11.6±1.9	8.6-13.1	0-14

TABLE 3

Fig. 1: Mean urea (g/L)

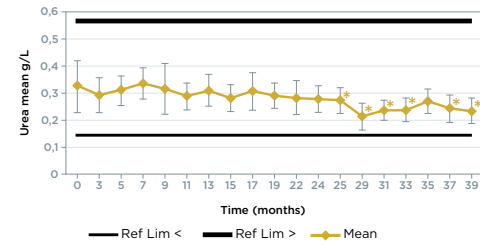


Fig. 2: Mean creatinine (mg/L)

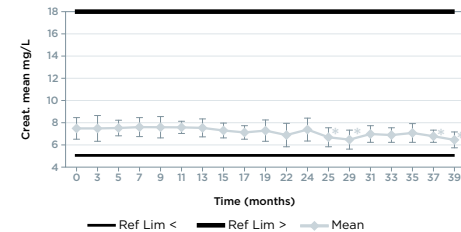
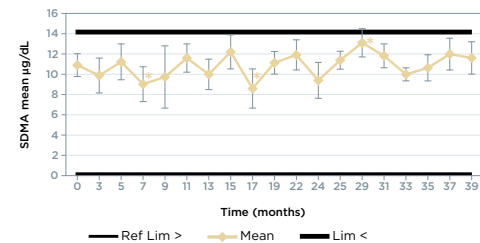


Fig. 3: Mean SDMA (µg/dL)



CONCLUSION

Our results showed that a high-protein content in a balanced diet had no negative impact on the renal biomarkers in healthy adult dogs during 40 months.



EFFICACY AND TOLERANCE OF TWO LOW-CARBOHYDRATE DIETS IN LARGE ADULT DOGS WITH DIGESTIVE SENSITIVITY: A RANDOMIZED, CROSS-OVER, BLINDED EVALUATION

INTRODUCTION

The objective of this study was to assess the efficacy and gastrointestinal tolerance of a new dry low carbohydrate diet, Sensitive Digest Adult Dog (SENSI) formulated for adult dogs with sensitive digestive systems in comparison with the Adult Dog Large and Medium (ADULT) diet from the same Veterinary HPM range.

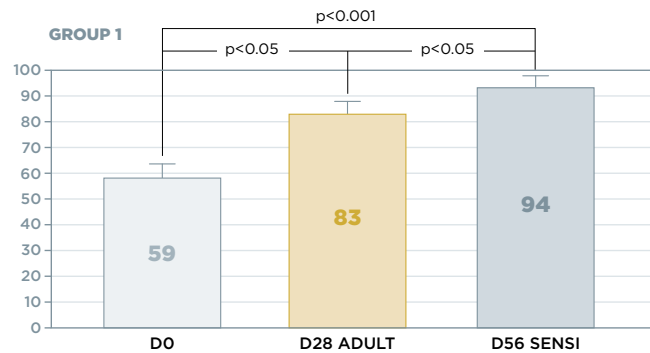
ANIMALS, MATERIALS AND METHODS

Dogs with digestive sensitivity were included in a two-period, two-sequence crossover study. 121 completed the study. They were randomly divided into two groups being fed, after a 4-day diet transition, exclusively and successively with each of the two tested diets over a 28-day period: Group 1 (63 dogs) was fed ADULT first and then SENSI ; Group 2 (58 dogs) was fed SENSI first. Digestive parameters were evaluated by owners, through online multiple-choice questionnaires, on D0, D7, D28 and D56.

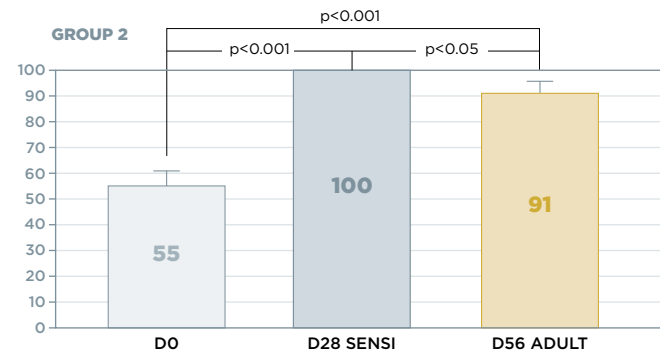


RESULTS

Percent dogs with “normal” faecal volume



Percent dogs with “normal” faecal volume



Both diets improved daily defecation frequency, faecal score, odour and volume, and flatulence frequency in comparison with the normal diet of the dog. Significant differences ($p < 0.01$) were observed as soon as 7 days after the change of diet.

In Group 1, SENSI continued to upgrade digestive parameters after a 28-day feeding period with ADULT with significant differences for faecal volume ($p < 0.05$). On the contrary, when ADULT was administered after SENSI (Group 2), the digestive parameters, except defecation frequency, were degraded, and this was significant for faecal consistency ($p < 0.001$). No side effect was reported by the owners. Both diets were rated as highly palatable by owners, and preferred to the usual diets by about 50% of the dogs.

CONCLUSION

ADULT and SENSI were both well tolerated and improved digestive parameters in dogs with digestive sensitivity. On few parameters, the improvement was significantly higher with SENSI compared to ADULT. It was concluded that SENSI represents a valuable alternative to ADULT in dogs with sensitive digestive systems.



A LOW-CARBOHYDRATE HIGH-PROTEIN DRY DIET LOWERS POSTPRANDIAL GLUCOSE AND INSULIN CONCENTRATIONS IN OBESE DOGS

INTRODUCTION

Recent evidence suggests that diets with high protein and low carbohydrate content may be beneficial in the prevention and management of diabetes mellitus by minimizing postprandial (PP) glucose and insulin concentrations. Increased body fat mass and body weight are associated with decreased insulin sensitivity and are known risk factors for diabetes mellitus in companion animals.

The aim of this study was to compare the impact of a test low-carbohydrate high-protein (LC-HP) dry diet to that of a commercial high-carbohydrate moderate-protein (HC-MP) dry diet on PP glucose and insulin responses in obese dogs.

ANIMALS, MATERIALS AND METHODS

Eight adult obese Beagle dogs (mean BW 18.0±0.4 kg; mean optimal BW (OptBW) 13.1±0.7 kg; mean body condition score 8/9) were fed 2 different diets, LC-HP or HC-MP (Tables 1 and 2). Dogs, because of their obese status, had a reduced insulin sensitivity index which could emphasize differences in the effects of the 2 diets.

In a cross-over design with at least 7 days between the test meals, plasma glucose and insulin concentrations were measured for 360 minutes following a single meal of 130 kcal/kg OptBW^{0.75}. Incremental areas under the curves for glucose (AUCG) and insulin (AUCI) were calculated over the 360-min period.

Composition of the tested diets

LC-HP diet	Dehydrated pork and poultry proteins, lignocellulose, potato starch, hydrolysed pork and poultry proteins, animal fat, bean hulls, minerals, beet pulp, psyllium fibre, fructo-oligosaccharides.
HC-MP diet	Maize, dehydrated poultry proteins, rice, cellulose, animal fat, digest, pea bran, egg, vegetable oil, flaxseed, minerals.

TABLE 1

Nutritional characteristics of the tested diets (% DM)

	LC-HP diet	HC-MP diet
Crude protein	40.3	24.2
Crude fat	12.3	14.6
NFE	24.8	44.9
Crude cellulose	14.8	11.7
Insoluble fibre	24.5	18.4
Soluble fibre	1.7	0.9
ME (kcal/100g DM)	333	366
In vitro glycaemic index (%)	20.1	43.9

TABLE 2



RESULTS

There was no significant difference in pre-meal baseline values for glucose and insulin between the diets. Whereas no difference was observed in mean glucose concentrations over the 360-min period between the groups, AUCG, AUCI, and the maximal glucose and insulin increments above baselines were significantly lower with the HP-LC diet compared to the MP-HC diet (Tables 3 & 4, Figures 1 to 4).

Areas under the curve for glycemia and insulinemia in each group

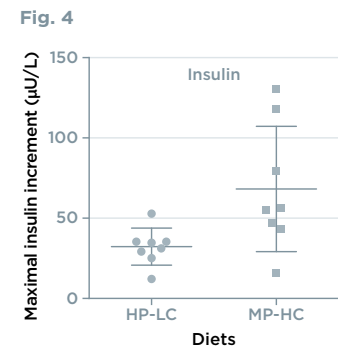
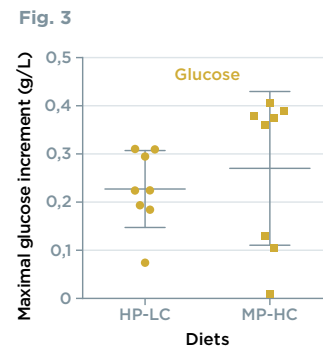
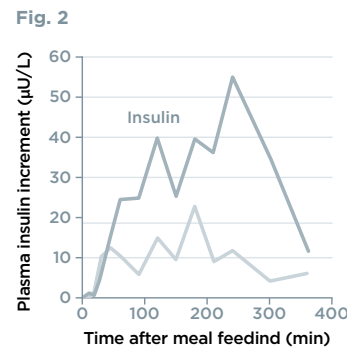
	LC-HP diet	HC-MP diet	p
AUCG (g·min)/L	21 ± 10	44 ± 35	< 0.001
AUCI (μU·min)/mL	3559 ± 2484	12391 ± 6382	< 0.001

TABLE 3

Maximal glucose and insulin increments above baselines in each group

	LC-HP diet	HC-MP diet	p
Glucose(g/L)	0.23 ± 0.08	0.27 ± 0.16	< 0.001
Insulin (μU/mL)	32 ± 11	68 ± 39	< 0.01

TABLE 4



CONCLUSION

We conclude that the LC-HP diet was associated with a lower impact on postprandial glucose and insulin responses compared to a HC-LP diet. Therefore, such a LC-HP diet may help in glycaemic control, which could be advantageous in the prevention or management of impaired glucose tolerance or diabetes mellitus in dogs.



EFFICACY AND TOLERANCE OF A HIGH-PROTEIN HIGH-FIBRE LOW-STARCH DIET FOR WEIGHT LOSS IN CLIENT-OWNED OBESE DOGS: A RANDOMIZED DOUBLE-BLIND CONTROLLED EVALUATION

INTRODUCTION

Obesity is the most common nutritional condition in dogs and its prevalence has been increasing for years.¹⁻³ The conventional strategy for obesity management implies dietary energy restriction combined with increased activity.⁴ Weight loss programs are successful in experimental conditions but not as well in practices.^{5,6} Besides involvement of both veterinary clinic team and pet family and a rigorous follow-up, palatability and satiety are nutritional key points to maintain compliance and increase success rate in weight loss programs.^{7,8}

The objective of this study was to assess the efficacy of a new dry high-protein high-fibre low-starch diet for obese dogs during a weight loss program, in comparison with a reference commercial dry diet.

ANIMALS, MATERIALS AND METHODS

Sixty client-owned overweight or obese dogs (BCS>7/9) were recruited. After a 6-day diet transition, dogs were fed exclusively 1 of the 2 commercially available dry dietetic foods, Test and Control (Table 1) during a weight loss program, in association with an individualized activity program. At the time of inclusion, the tgt BW was defined for each dog. The initial energy allowance for weight loss was 78 kcal / kg tgt BW^{0.67}. The maximum duration of the program was fixed at 9 months (M9), and the success rate was defined as the % of dogs achieving their tgt BW at M9 at the latest. Vet evaluations were scheduled once a month until tgt BW was achieved. At the end of each consultation, the clinician could adjust the daily feeding ration and the level of physical activity depending on the results in BW loss and dog's behavior. Blood sampling was performed when tgt BW was achieved or at M9, and a questionnaire was filled in by owners. The criteria to measure and compare the efficacy and tolerance of the diets were from the vets' assessments: change in BW, success rate, time to achieve tgt BW, speed of weight loss, change in blood parameters, and from the owners' questionnaires: palatability, satiety feeling, safety and general satisfaction. Sign and Mann-Whitney (Wilcoxon) tests were used to perform intra- and inter-group comparisons, with a 5% significance level.

Test diet: Virbac Veterinary HPM Weight Loss & Control Dog
Control diet: Hill's™ PRESCRIPTION DIET™ Canine Metabolic

Characteristics of the 2 diets

Nutritional characteristics	Test	Control
Metabolisable Energy (ME) (kcal/100g as fed)	274	291
Protein (% ME)	40	29
Fat (% ME)	33	31
Carbohydrate (% ME)	27	39
Starch (g/Mcal)	51.1	65.3
Crude cellulose (g/Mcal)	54.7	46.1
Total dietary fibre (g/Mcal)	83.9	92.8

TABLE 1



RESULTS

Fifty-five dogs completed the study (27 in the Test group and 28 in the Control group): mean age 6.6 ± 2.9 years, 65% females, 75% neutered, mean BW 28.2 ± 14 kg, mean BCS 7.9 ± 0.7 , and mean overweight $30.2 \pm 10.4\%$. All dogs lost weight during the study, mean weight loss was significant as early as M1 in the 2 groups (Fig.1). Sixteen dogs in each group succeeded in the achievement of their tgt BW. In Test group, 9 (56%) dogs achieved it before M9 vs 2 (13%) dogs in Control group (Fig.2). Thus, mean time to achieve tgt BW was significantly shorter in Test group than in Control group (27 vs 34 weeks, $p=0.015$) with a mean speed of weight loss of 0.90 ± 0.50 %/week in Test group vs 0.66 ± 0.25 in Control group. The shortest duration was found in Test group (9 vs 18 weeks in Control group), and so was the highest speed of weight loss (2.2 vs 1.2 %/week in Control group). In dogs classified as failure cases, the loss of their initial overweight was at least of 31.5% in Test group vs 6.5% in Control group, and in average $57.1 \pm 18.2\%$ in Test group vs $50.4 \pm 22.5\%$ in Control group.

Serum insulin and serotonin levels decreased in the 2 groups, significantly between M0 and M9 only in Test group ($p=0.02$ and 0.016 respectively). Regarding owners' questionnaires, no significant differences appeared between the 2 diets. Most of dogs appreciated the diets: "good or very good" for 96% and 88% dogs in Test and Control groups respectively. Palatability even increased throughout the study for 33% dogs in Test group vs 19% in Control group. Digestive safety was high in both groups: same mean fecal score (2.1 ± 0.5 on a scale from 1: too dry and hard to 5: liquid, optimal 2-3), light fecal odour for 59% and 52% dogs, no flatulence in 82% and 69% dogs in Test and Control groups respectively. Coat condition was improved in 40% dogs independently of the diets. Finally, the owners' satisfaction score was similar with the Test and Control diets: 8.9 ± 0.9 (from 8 to 10) and 8.9 ± 1.2 (from 5 to 10) respectively, on a scale from 0: not satisfied at all to 10: absolutely satisfied.

Fig. 1: Evolution of overweight (%)

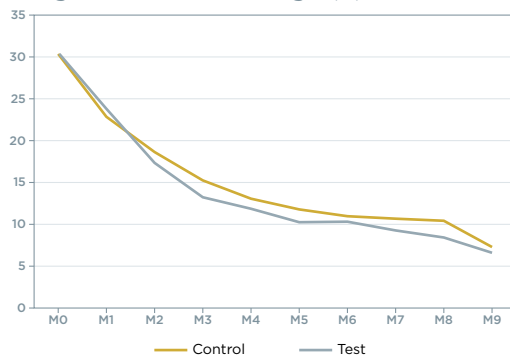
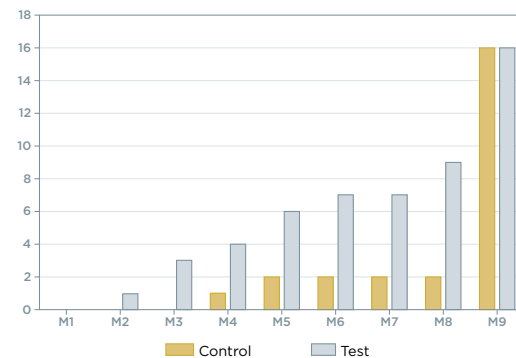


Fig. 2: Cumulative success cases (number of dogs)



CONCLUSION

The 2 diets were well tolerated and appreciated throughout the study and demonstrated their efficacy for weight loss. Based on some criteria, especially time to achieve target body weight, the new diet was even more efficient than the reference diet.



WEIGHT MANAGEMENT IN CLIENT-OWNED DOGS FED A HIGH PROTEIN - LOW CARBOHYDRATE MAINTENANCE DIET

INTRODUCTION

Excessive bodyweight (BW) is the most common nutritional condition in pets: 33.8 to 38.9% of dogs are overweight, and 5 to 20.4% are obese.¹⁻³ Specific weight loss diets, formulated on a low energy - high fibre concept, are frequently poorly palatable and often perceived as too burdensome by pet owners.⁴ So there is a need for non-restrictive palatable diets which could assist pets to gradually lose weight.

The aim of this study was to assess the weight loss achieved with a high protein - low carb maintenance diet by overweight dogs which had previously failed with a weight loss programme.

ANIMALS, MATERIALS AND METHODS

During 8 weeks, 40 overweight adult dogs were given a new dry maintenance diet (Table 1). 0.5 to 1% weight loss per week was targeted. Individual daily rations were calculated each week, based on the energy requirement, estimated at $0.8 \times 0.8 \times 156 \times BW^{0.667}$ (BW being recorded weekly).⁵ A General Linear Mixed Model (factors: fixed (time), random (dog)) was used to test weight loss between weeks, with a 5% significance level.

Nutritional characteristics of the tested diet	
Crude proteins	36%
Animal/vegetable protein ratio	87/13
Crude fat	12%
Crude fiber	9.5%
Nitrogen free extract	27.5%
Metabolisable energy	320kcal/100g

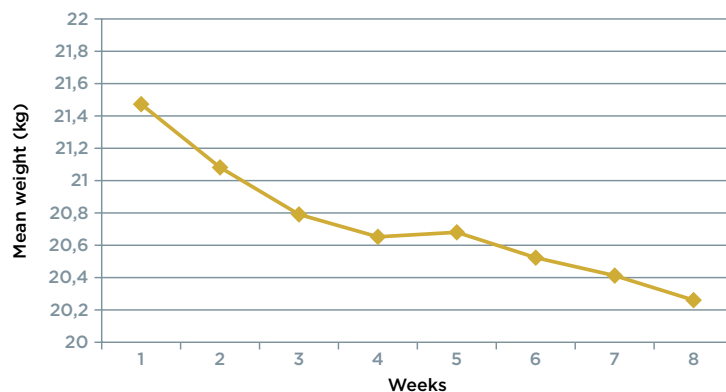
TABLE 1



RESULTS

80% of dogs lost weight and 65% had a visibly slimmed silhouette. The mean weight loss was 0.82% per week. Rationing was not too strict as 84% of owners estimated that their dog's appetite was correctly satisfied during weight loss: 90% of dogs appreciated the tested diet, according to their owners and 80% of pet owners were ready to buy this diet, and 82% would recommend it to friends.

Fig. 1: Evolution of the bodyweight of dogs responding to the diet



Weight loss for dogs responding to the diet		
Visit	Weight loss (kg)	p value
Week 1 - week 2	-2.0934	<.0001*
Week 2 - week 3	-1.2050	0.0028*
Week 3 - week 4	-0.7441	0.0630
Week 4 - week 5	0.04722	0.9057
Week 5 - week 6	-0.6927	0.0833
Week 6 - week 7	-0.3660	0.3588
Week 7 - week 8	-0.7975	0.0465*

TABLE 2

* Statistically significant weight loss

CONCLUSION

The high animal protein content of this food allowed to obtain a gradual loss of weight and a sufficient satiety while maintaining good palatability, the two last criteria being essential for pet owners' compliance and satisfaction^{6,7}.



ASSESSMENT OF A NEW HIGH PROTEIN – HIGH ESSENTIAL FATTY ACID DIET IN DOGS WITH CHRONIC JOINT DISORDERS

INTRODUCTION

Osteoarthritis is a common painful degenerative and inflammatory disorder affecting joint and underlying bones¹. It concerns 20 % of the canine population over 1 year-old and is essentially secondary to congenital or acquired musculoskeletal disorders². The multimodal management of the disease includes the use of NSAIDs, Disease Modifying OsteoArthritis drugs, Essential Fatty Acid enriched diets and physical therapy¹.

The aim of this open study was to evaluate the effectiveness of a new dry dietetic pet food (Veterinary HPM Joint & Mobility, Virbac, France) intended for the support of joint function in dogs.

MATERIALS AND METHODS

Animals:

- 48 client-owned adult and senior dogs with mobility disorders for at least 3 months recruited and analysed
- For inclusion, at least 3 of the 7 mobility parameters had to be impaired

Diet:

- Tested diet (Veterinary HPM Joint & Mobility, Virbac, France) for 2 months
- Metabolisable energy (ME) 373 kcal/100g dry matter (DM); protein 35% ME, fat 38% ME, carbohydrate 27% ME; omega-3 3.3% DM, EPA 0.7% DM
- no medical management allowed

Analysis and statistics:

- Seven mobility criteria: interaction with people, ability to rise to standing from lying down, ability to walk, lameness, ability to walk up and down stairs, ability to jump and ability to play, noted from 0 (normal) to 3 (serious alteration). Global severity score = sum of the scores of the 7 parameters
- Assessments (questionnaires filled in by owners) on Day 0 (baseline) and every 2 weeks (W2, W4, W6, W8)
- Other parameters evaluated: body weight (BW), body condition score (BCS), kibbles palatability, digestive tolerance and owners' satisfaction were also evaluated
- For each criteria, pairwise adjusted (Dunnett) comparisons of time points were performed in the repeated measures ANOVA. The significant threshold was set to 5%

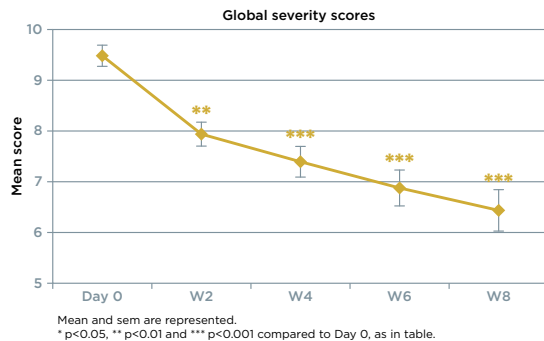


RESULTS

Mean scores (\pm SD) of the seven mobility parameters assessed and of the global severity score						
	Day 0	W2	W4	W6	W8	p (ANOVA)
Interaction with people	0,88 \pm 0,57	0,60 \pm 0,68*	0,54 \pm 0,77**	0,52 \pm 0,82**	0,40 \pm 0,79***	<.0001
Ability to rise	1,44 \pm 0,50	1,13 \pm 0,44**	1,08 \pm 0,58**	1,02 \pm 0,79***	0,94 \pm 0,89***	<.0001
Ability to walk	1,17 \pm 0,72	0,85 \pm 0,55**	0,77 \pm 0,66***	0,60 \pm 0,68***	0,54 \pm 0,82***	<.0001
Lameness	1,46 \pm 0,77	1,19 \pm 0,73*	1,13 \pm 0,79**	0,94 \pm 0,84***	0,88 \pm 0,87***	<.0001
Ability to walk up and down stairs	1,50 \pm 0,78	1,37 \pm 0,80	1,24 \pm 0,87*	1,20 \pm 0,93**	1,24 \pm 1,06*	0.0060
Ability to play	1,56 \pm 0,74	1,42 \pm 0,68	1,33 \pm 0,88*	1,27 \pm 0,98**	1,25 \pm 1,04***	0.0013
Ability to jump on couch, bed or car	1,68 \pm 0,64	1,57 \pm 0,66	1,48 \pm 0,82	1,50 \pm 0,93	1,36 \pm 1,04**	0.0131
Global severity score	9,48 \pm 3,34	7,94 \pm 2,87 **	7,40 \pm 3,87***	6,88 \pm 4,68***	6,44 \pm 5,32***	<.0001

* p<0.05, ** p<0.01 and *** p<0.001 compared to value at Day 0

Fig. 1: Evolution of global severity scores over time



Other results:

- 20% overweight dogs recovered an optimal weight
- 35% owners estimated the dog's silhouette was thinner or more muscular
- Palatability: considered as normal to very good by 86 % owners
- Tolerance:
 - 92% dogs had stools with normal or dry consistency
 - 86% dogs had stools in normal or fewer quantity than with the usual diet
 - 85% dogs had no flatulence or with similar frequency as usual
- Satisfaction: 78% owners were satisfied.

CONCLUSION

Significant improvements of mobility and quality of life were observed in dogs fed the tested diet. An improvement of the body condition score was also observed in some dogs despite no restriction diet.

These results may be attributed to the diet containing high levels of proteins for muscle maintenance and omega-3 fatty acids known to reduce inflammation and pain.

The good tolerance and palatability of this diet should allow an optimal compliance over a long time period.

A controlled study is now required to confirm these results and an evaluation over a longer period would also be interesting.



ASSESSMENT OF A NEW HIGH PROTEIN – LOW CARBOHYDRATE DIET IN DOGS WITH CHRONIC GASTROINTESTINAL DISEASE

INTRODUCTION

Dietary therapy plays a major role in the management of most gastrointestinal (GI) disorders. The common strategy is to feed a highly digestible food.

The objective of this study was to evaluate the efficacy of a new dry high protein - low carbohydrate (HP-LC) diet intended for the management of maldigestion-malabsorption in dogs.

ANIMALS, MATERIALS AND METHODS

Forty-seven client-owned adult dogs with chronic GI disorders were followed up for 2 months. During the first month (M1), after a 4-day diet transition, they were fed exclusively the test diet (Table 1). During the second month (M2), they were fed again their usual dry diet.

No medical management was allowed during the study. Five digestive parameters were assessed 6 times: at inclusion, then each week of M1, and finally at the end of M2 (Table 2). Wilcoxon signed rank and Mc Nemar's tests were used for statistical analyses, with a significant threshold of 5%.

Characteristics of the test diet

Metabolisable Energy (ME) (kcal/100g)	411
Protein (% ME)	33
Fat (% ME)	49
Carbohydrate (% ME)	18
Soluble fibre (% DM)	1.4
Insoluble fibre (% DM)	11.8
Apparent digestibility coeff of protein (%)	85
Apparent digestibility coeff of fat (%)	97

TABLE 1

List of the digestive parameters

Freq defecation	from <1 to >5 times a day
Faecal score	from 1=dry and firm to 5=watery
Faeces odour	from very slightly odorous (very acceptable) to very odorous (unbearable)
Faeces quantity	from very small to very large
Flatulence	from never to very often (several times a day)

TABLE 2



RESULTS

The mean frequency of defecation and the mean faecal score significantly improved between inclusion and M1 ($p < 0.0001$), and then degraded between the end of M1 and M2 with the usual diet ($p = 0.007$ and $p = 0.0005$ respectively) (Figures 1 & 2). Similar development was noticed for all parameters during the 2 months of the study; improvement was seen as soon as the first week of M1 for most dogs (64 to 100% dogs, depending on the parameter). The test diet resulted in clinical improvement, as attested by comparison of % dogs with normal digestive parameters at the different times of the study (Table 3). After 1 month fed the test diet, 86% dogs were improved.

Dogs (%) with normal parameters at different time points				
Digestive parameter	Considered as normal when:	Dogs (%) with normal parameter		
		Inclusion	End M1	End M2
Freq of defecation	≤ 2 times/day	68	93**	73*
Faecal score	≤ 3	75	95*	80
Faeces odour	\leq slightly odorous	2	77***	52**
Faeces quantity	\leq normal	59	91**	75
Flatulence	never	2	46***	41

TABLE 3

(* $P < 0.05$, ** $P < 0.01$, *** $P < 0.0001$)

Fig. 1: Mean frequency of defecation

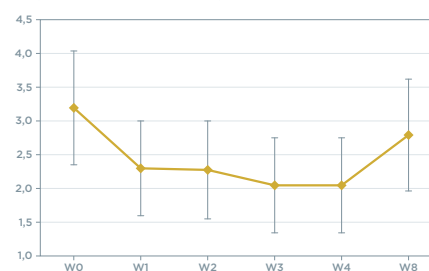
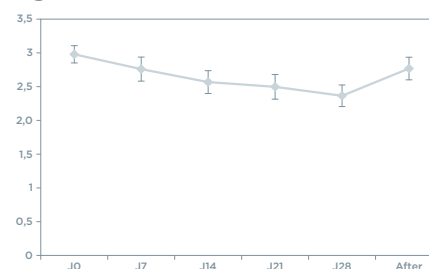


Fig. 2: Mean faecal score



CONCLUSION

This preliminary study shows the benefit of the new highly digestible HP-LC diet for chronic gastrointestinal disorders management and recurrence prevention in dogs.



ASSESSMENT OF A NEW HIGH PROTEIN - HIGH ESSENTIAL FATTY ACID DIET IN DOGS WITH CHRONIC SKIN AND COAT DISORDERS

INTRODUCTION

Management of dermatological conditions is the main primary reason for consultation after vaccination¹. It is well known that nutrition plays an important role in controlling skin and coat condition, especially some nutrients such as protein and essential fatty acids (EFA)^{2,3}. In its recent updated guidelines, the International Committee on Allergic Diseases of Animals (ICADA) advises an increase of EFA intake to help in the management of dermatological disorders⁴.

The aim of this open study was to evaluate the effectiveness of a new dry dietetic pet food intended for the “support of skin function in the case of dermatosis or excessive loss of hair” in dogs.

MATERIALS AND METHODS

Animals and treatments:

- 45 client-owned adult dogs with chronic skin and/or coat disorders of nonspecific cause (for at least 3 weeks)
- Average (SD) age: 5.5 (3) years old; body weight: 23 (16) kg; body condition score: 5.2 (0.7)
- Flea treatment before the start of the study
- No medical management allowed during the study

Diet:

- Metabolisable energy share: protein 35%, fat 41%, carbohydrate 24%.
- Proteins: 88% animal origin; fat sources: poultry fat, fish oil, linseed, sunflower oil, borage seed
- High and balanced level of EFAs: EPA+DHA = 0.4% and LA+GLA = 3.6% on a dry matter basis
- 8 weeks of feeding (test diet exclusively)

Assessments:

- 9 criteria evaluated:
 - 6 rated from 0 (severe alteration) to 4 (normal): coat shine, presence of dandruff, skin/coat odour, coat greasiness, coat softness and coat beauty
 - 3 rated from 0 (severe/frequent) to 3 (normal): licking frequency, itching frequency and hair loss
- Assessments on Day 0 (baseline) and every 2 weeks (W2, W4, W6 and W8)
- Body weight (BW) and body condition score (BCS) recorded at Day 0 and W8
- Other assessments: kibbles quality, palatability, preference, digestive tolerance and owners' satisfaction

Statistics

Analysis were done using repeated measures ANOVA and the adjustment procedure of Dunnett for pairwise comparison in case of significance. The time effect was considered significant at a 0.05 level.

1) Hill PB et al. Vet Rec 2006; 158(16): 533.

2) Roudebush P et al. In: Small Animal Clinical Nutrition 2010; Chapter 32: 637-643.

3) Rees CA et al. Vet Dermatol 2001; 12(2): 111-4. Olivry T et al. BMC Vet Res 2015; 11: 210

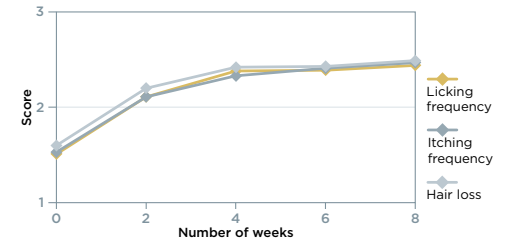
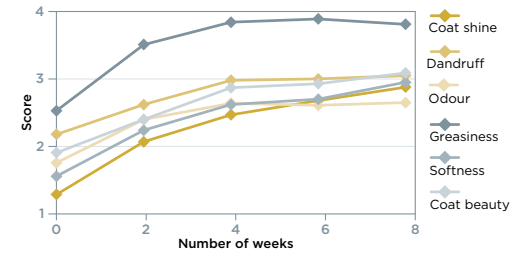


RESULTS

Evolution of the scores attributed to different skin and coat parameters.

Parameter	Day 0 (n = 45)	W2 (n = 45)	W4 (n = 45)	W6 (n = 44)	W8 (n = 43)
On a 4-point scale:					
Coat shine	1.29 ± 0.66	2.07 ± 0.86**	2.47 ± 0.76**	2.68 ± 0.74**	2.88 ± 0.59**
Dandruff	2.18 ± 1.05	2.62 ± 1.01*	2.98 ± 0.81**	3.00 ± 0.81**	3.05 ± 0.79**
Odour	1.76 ± 0.96	2.40 ± 0.91**	2.64 ± 0.83**	2.61 ± 0.92**	2.65 ± 0.78**
Greasiness	2.53 ± 1.41	3.51 ± 1.01**	3.84 ± 0.82**	3.89 ± 1.02**	3.81 ± 0.76**
Softness	1.56 ± 0.92	2.24 ± 0.77**	2.62 ± 0.72**	2.70 ± 0.82**	2.95 ± 0.75**
Coat beauty	1.91 ± 0.73	2.40 ± 0.96*	2.87 ± 0.69**	2.93 ± 0.73**	3.09 ± 0.65**
On a 3-point scale:					
Licking frequency	1.51 ± 0.97	2.11 ± 0.88*	2.38 ± 0.72**	2.39 ± 0.81**	2.44 ± 0.77**
Itching frequency	1.53 ± 0.92	2.11 ± 0.83**	2.33 ± 0.74**	2.41 ± 0.82**	2.47 ± 0.77**
Hair loss	1.60 ± 0.96	2.20 ± 0.89**	2.42 ± 0.81**	2.43 ± 0.73**	2.49 ± 0.74**

TABLE : mean ± SD and statistics (ANOVA + adjustment procedure of Dunnett): *p<0.01; **p<0.001. Figure: mean scores.



• Most improved parameters at W8:

- coat shine: 83% dogs recovered normal parameters
- coat beauty: 88% dogs recovered normal parameters

• Proportion of dogs improved at W8:

- Full recovery (all parameters normal): 21 %
- General improvement (all parameters improved): 51%
- Partial improvement: 21%
- No improvement: 7%

• No change in BCS and BW throughout the study

• Palatability:

- Considered normal to very good by 96% owners.
- Tested diet preferred by 61% dogs compared to usual diet

• Digestive tolerance:

- 98% dogs had stools with normal consistency
- 93% dogs had stools in normal or fewer quantity than usual
- 86% dogs had no flatulence or less than usual

• Satisfaction:

- 91% owners satisfied at W8. Mean (SD) satisfaction score of 8.1 (2) on a 0-10 scale
- Main reasons for satisfaction: clinical efficiency, palatability and kibbles characteristics

CONCLUSION

The test diet rapidly improved skin and coat condition of a great majority of dogs. These improvements are likely linked to the composition of the diet: rich in animal protein as a source of sulphur-containing amino acids and balanced in omega-6 and omega-3 fatty acids.

Palatability, digestive tolerance and owners' satisfaction were good, which should allow a good compliance with the diet and maximize the chance of success for the management of chronic skin disorders.

Clinical controlled trials with validated scales could now be carried out to assess the benefits of this diet in the management of specific skin diseases, like atopic dermatitis.



ASSESSMENT OF THE PALATABILITY AND DIGESTIVE TOLERANCE IN DOGS OF A NEW DIET BASED ON INSECTS AS THE PROTEIN SOURCE

INTRODUCTION

Recent research has shown that insects may be an alternative source of protein for animal nutrition¹⁻³. Insects could also represent a “novel” protein source for managing adverse food reactions in pets⁴. Publications describe the high-quality nutritional profile of selected insect species, but there is little data on the tolerance in dogs of insect-based diets^{5,6}.

The objective of this study was to evaluate the digestive safety of a new dry hypoallergenic diet in adult dogs.

ANIMALS, MATERIALS AND METHODS

Twenty-six healthy adult client-owned dogs were recruited and monitored for 28 days. After a 4-day diet transition, they were fed exclusively with the new diet (Table 1). This diet was formulated to meet FEDIAF requirements for adult dogs⁷, and was characterized by mealworm (*Tenebrio molitor* larvae) as the protein source. In this blind test, owners filled in online multiple-choice questionnaires on DO (basal assessment with usual diets), D7, D14 and D28.

To evaluate tolerance of the diet, 4 parameters were assessed (Table 2)⁸. Owners also evaluated palatability, coat condition and their general satisfaction. Wilcoxon signed rank and Mc Nemar’s tests were used to compare results, with a 5% significance level.

Characteristics of the test diet	
Metabolisable Energy (ME) (kcal/100g)	356
Protein (% ME)	26
Fat (% ME)	41
Carbohydrate (% ME)	33

TABLE 1

List of the digestive parameters	
Faecal score	from 1=very dry to 5=watery
Faecal odour	from very slightly odorous (very acceptable) to very odorous (unbearable)
Faecal quantity	from very small to very large
Flatulence	from never to several times a day

TABLE 2



RESULTS

The mean faecal score was similar (2.3 ± 0.6) on D0 and D28, none of the dogs presented diarrhoea during the study. Faecal odour did not change significantly when switching to the test diet. On D28, owners declared that faecal quantity was increased in 31% of dogs. On the contrary, they noticed that the frequency of flatulence was decreased in 47% of dogs. Table 3 compares the % of dogs with “normal” digestive parameters on D0 with their usual diets and D28 with the test diet. Palatability of the test diet was described as good or very good by 96% of pet owners, with no significant change throughout the study, and 50% of dogs showed a preference for the new diet vs their usual diet. Coat condition did not significantly change. Finally, 85% of owners declared to be satisfied by the test diet and its effects on their dogs' health status.

Comparison of dogs (%) with normal parameters on D0 and D28 (NS: non significant, *: $p < 0.001$, **: $p < 0.0001$)			
Digestive parameter	Considered as normal if:	Dogs (%) with « normal » parameter	
		D0	D28
Faecal score	≤ 3	96	96 ^{NS}
Faecal odour	\leq mildly odorous / slightly acceptable	100	92 ^{NS}
Faecal quantity	\leq medium	96	69*
Flatulence	never	38	83**

TABLE 3

CONCLUSION

These preliminary results showed the good palatability and tolerance of the test diet in healthy adult dogs. The next step will consist in testing the diet in dogs with diagnosed adverse food reaction.



TOLERANCE OF A NEW INSECT PROTEIN- BASED DIET DESIGNED FOR FOOD ALLERGIES IN FLEA BITE-ALLERGIC DOGS: A CASE SERIES

INTRODUCTION

In allergic dogs Cutaneous Adverse Food Reaction (CAFR) is a frequent condition (reported median of 20%)¹ and so should be assessed before others. Pruritus of the distal limbs, face, ear and ventrum are common clinical manifestations of CAFR and can be associated with gastro intestinal signs. Elimination diets are still considered as the gold standard to diagnose such affection and will be distributed exclusively for 8 to 12 weeks². They will be based either on commercial hydrolysed diets or on naïve sources of proteins and carbohydrates (based on diet history of the animal). Moreover we know that atopic dogs are also frequently flea-bite allergic³.

This study aimed to assess the absence of clinical cross-reactivity of a new mealworm protein-based diet (VETERINARY HPM Hypoallergy Insect, Virbac, Vauvert, France) in flea bite-allergic (FBA) dogs.

ANIMALS, MATERIALS AND METHODS

Animals:

We recruited seven asymptomatic dogs previously diagnosed with FBA. All of them had positive Intra Dermal Testing to flea saliva (immediate or delayed hypersensitivity reaction) and were only treated with parasiticides. After one week transition with their previous meal, all dogs were fed the mealworm diet for 2 months.

Analysis:

Skin lesions and pruritus manifestations were graded on Days 0 and 60 with the CADESI-04 and the PVAS10; these were compared by matched t-test and Wilcoxon test, respectively. Owners also rated the coat condition (scales and smell) and grooming habits (itching and licking/nipping) as “strongly deteriorated, deteriorated, unchanged, improved or strongly improved” at the same timepoints.



RESULTS

On D60, the mean CADESI-04 and PVAS10 scores were not worsened and had even decreased by 46% (12.9 ± 5.2 to 7.3 ± 4.5 , $P = 0.0006$) and 57% (1.8 ± 0.3 to 0.8 ± 0.4 ; $P = 0.0156$), respectively. Three of 7 (43%) and 4/7 dogs (57%) had a greater than 50% improvement in CADESI-04 and PVAS10 scores, respectively. Scales and coat smell were both strongly improved for 63% of owners and had not changed in the others. Scratching and licking/nipping were strongly improved for 100% and 75% of dogs, respectively.

Two dogs developed a pododermatitis or otitis that spontaneously resolved without treatment or diet change. Adverse effects were not observed.

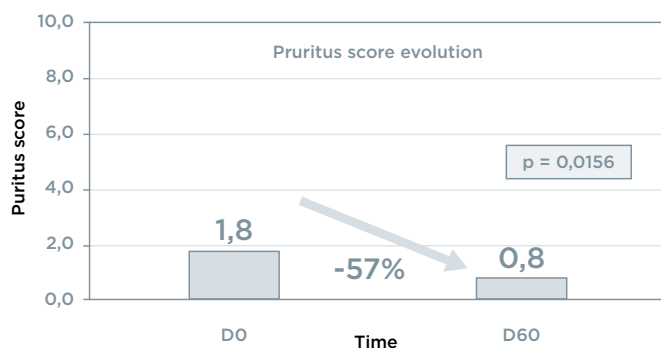


Figure 2: Evolution of pruritus score along time (VAS scale 0-10)

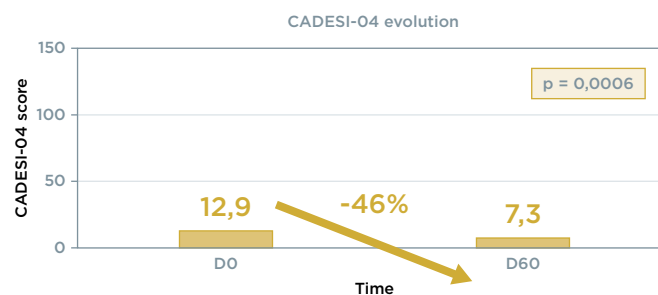


Figure 1: Evolution of CADESI-04 score along time [0-180]

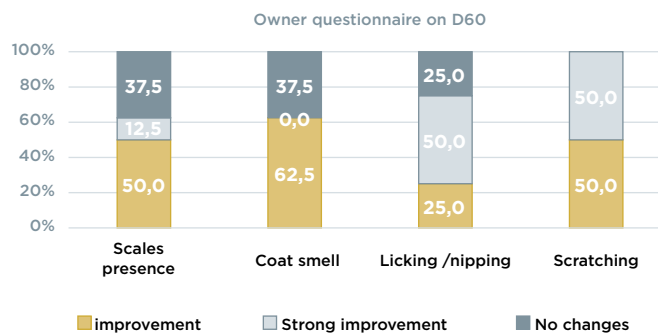


Figure 3: Pet owner evaluation of coat condition and pruritus manifestations after two months

CONCLUSION

These observations support the absence of clinical cross-reactivity of this insect diet in dogs with FBA

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COMPARATIVE ASSESSMENT OF THE PALATABILITY OF A NEW RENAL DIET IN FUSSY CANINE EATERS

INTRODUCTION

Feeding an appropriate diet is the cornerstone of the management of dogs suffering from chronic kidney disease (CKD). Dysorexia is frequent in these patients¹. That is why “renal diets” need to be highly palatable. Most palatability studies are conducted in research centres, in healthy animals trained for palatability testing².

DIET A	VETERINARY HPM [®] Kidney Support dog from VIRBAC
DIET B	Royal Canin [®] Veterinary Exclusive Canine Renal
DIET C	Hill's Prescription Diet [™] k/d [™] Canine Kidney Care

Fig. 1: Tested Diets

The aim of this study was to compare the palatability of a new dry renal diet (diet A, figure 1) to that of two commercial renal diets (diets B and C) in fussy client-owned dogs, to mimic the CKD patients' difficult appetite.

ANIMALS, MATERIALS AND METHODS

52 adult [5-14 years old] dogs described as “fussy eaters” by their owners were followed up for six weeks. During the first 4 weeks, after a 4-day diet transition, they were fed exclusively diet A, as described on figure 2. Then the dogs received either diet B (n=27) or diet C (n=25) for 14 other days, after a new 4-day diet transition. For each diet, palatability was evaluated by the owners at the end of each 4-day diet transition (D4) and at D7 and D14, and additionally at D28 for diet A. Fisher's exact test was performed for the statistical analysis.

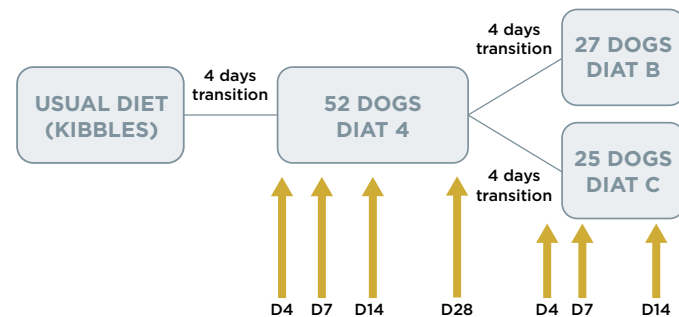


Fig. 2: Study design



RESULTS

At D4, no statistical differences were observed between the three diets. Compared to their usual diet, more dogs preferred the new diet when testing diet A as opposed to diet B at D7 and D14, and to diet C at D14 (see figure 3). According to the owners, diet A was the most satisfactory compared to diet B at D7 and D14 and also to diet C at D14.

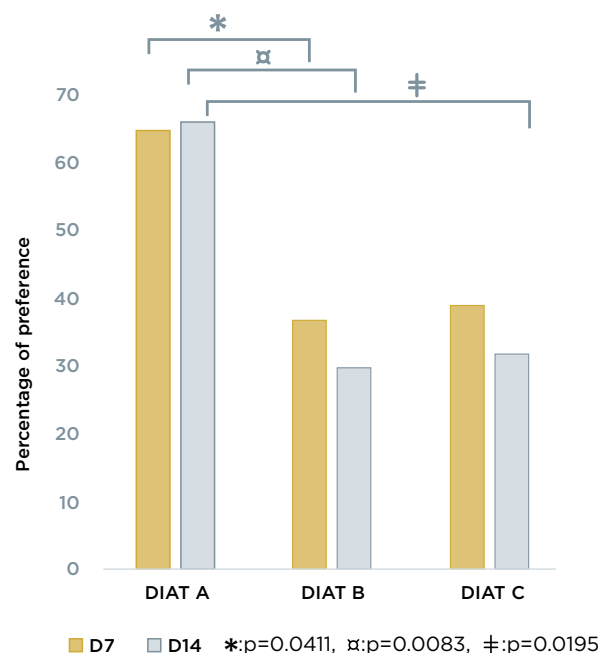


Fig. 3: Preference for the tested compared to the usual diet at D7 and D14

CONCLUSION

These results demonstrated the good palatability of this new diet, even in fussy dogs. This may explain the high owner satisfaction rate.



COMPARISON OF THE EFFECTS OF FOUR DIETS ON URINARY PARAMETERS IN DOGS AND IN VITRO STRUVITE DISSOLUTION

INTRODUCTION

Urolithiasis is a common disorder of the urinary tract in dogs¹. The predominant canine uroliths are calcium oxalate and magnesium ammonium phosphate (struvite). Dietary dissolution is safe and effective for eradication of sterile struvite uroliths in dogs. Richness in moisture and/or sodium and/or protein, in order to increase water intake and thus increase diuresis, urinary flow and frequency of micturition, may vary between commercial diets. Beyond urinary pH, recent findings showed that it is possible to formulate a diet to reduce either one or both struvite and Ca oxalate risk, taking into account the struvite and Ca oxalate relative supersaturation (RSS) in the urine^{2,3}.

The objective of this study was to assess the urinary parameters and struvite stone solubility in the urine of dogs fed 2 new dry high-protein diets, in comparison with 2 commercial dry diets.

ANIMALS, MATERIALS AND METHODS

Twelve healthy adult beagle dogs normally fed dry diets were included in this study using a cross-over design with 4 dry diets*, each being fed for 14 days. Diets A and B were 2 new high-protein diets: A was a maintenance diet for adult dogs, B was a dietetic food dedicated to dissolution and prevention of struvites (Table 1). Diets C and D were 2 commercial urology diets used as positive references. Dogs were fed to maintain their body weight. Each period was divided into an adaptation phase of 12 days, and a collection phase of 2 days were dogs were housed in individual metabolism cages.

Water intake, urine volume and urinary pH were documented. Eleven urine electrolytes were analyzed to calculate struvite RSS and oxalate RSS indexes. The in vitro dissolution trial was performed with collected urine: 0.5 g of struvite stone (magnesium ammonium phosphate hexahydrate 98%; VWR, Darmstadt, Germany) was mixed with 10 mL of the filtered urine. Per dog and diet, 2 of these samples were prepared and incubated in a 38°C warm and rotating (80/min) water bath for 120 hours. After the incubation, samples were filtered to calculate the residues of the struvite stone.

Nutritional characteristics of the 4 test diets*

	Diet A	Diet B	Diet C	Diet D
Metabolisable Energy (ME) (kcal/100g)	369	374	388	396
Protein (% ME)	33	32	16	18
Fat (% ME)	39	40	37	33
Carbohydrate (% ME)	28	28	47	49
Sodium (% Dry Matter (DM))	0.66	0.99	1.33	0.23
Crude Fiber (% DM)	5.5	5.5	2.4	2.2

TABLE 1

*A: Virbac VETERINARY HPM Adult dog L&M, B: Virbac VETERINARY HPM Urology dog, C: Royal Canin Veterinary Exclusive Canine Urinary S/O, D: Hill's Prescription Diet Canine c/d Multicare



RESULTS

There was no difference in mean water intake between the diets (Table 2). The mean urine volume of dogs fed diet C was higher compared to the 3 other diets. The urine production was also higher in dogs fed diet B compared to diet D. The mean urinary pH varied from 5.52±0.4 to 6.58±0.6, it was significantly lower with diet C. The struvite RSS index was <1 (undersaturation) with all diets. The oxalate RSS index was within the range of metastable supersaturation (1<RSS<12) with all diets. The lowest values were calculated for diet C and the highest values for diet D. During the in vitro dissolution trial, the solubility of struvite stone was higher in dogs fed diet C compared to the other diets.

Mean (±SD) water intake, urine volume, urinary pH, struvite RSS, oxalate RSS, and in vitro struvite solubility after 120 hours, of dogs fed the 4 test diets

	Diet A	Diet B	Diet C	Diet D
Water intake (mL/kg BW)	50.2±20	51.4±21	49.8±13	48.7±20
Urine volume (mL/kg BW)	21.7±8.9 ^{bc}	26.7±9.3 ^b	38.7±11 ^a	18.0±11 ^c
Urinary pH	6.58±0.6 ^a	6.36±0.5 ^a	5.52±0.4 ^b	6.44±0.8 ^a
Struvite RSS	0.82±0.8 ^a	0.16±0.1 ^b	0.01±0.01 ^c	0.81±1.0 ^{ab}
Oxalate RSS	5.70±2.7 ^b	6.41±2.9 ^{ab}	5.28±2.0 ^b	9.60±4.0 ^a
Struvite solubility (%)	40.4±1.9 ^b	41.3±1.2 ^b	43.9±0.8 ^a	40.7±2.0 ^b

TABLE 2 ^{abc} Different superscripts within a row indicate significant difference (p<0.05)

CONCLUSION

Considering the results of the in vivo and in vitro trials, the new dietetic high-protein diet (B) was as efficient as the commercial urology diets C and D, and therefore could be recommended for both dissolution of struvite uroliths and prevention of calcium oxalate uroliths formation in dogs. The study also showed that the maintenance high-protein diet (A) provided a high urinary safety. The next step will consist in testing diet B in dogs with naturally occurring struvite urolithiasis.

PET OWNERS' PERCEPTION OF INSECTS AS A PROTEIN SOURCE FOR CATS AND DOGS

INTRODUCTION

Recent research has shown that insects may be an alternative source of protein for animal nutrition¹⁻⁵. Insects could also represent a “novel” protein source for managing adverse food reactions in pets⁶. However, in most western countries, consumers are still reluctant about the idea of eating insects or feeding them to their pets.

The objective of this study was to evaluate the perception of owners about the use of insects as a novel ingredient in new dry hypoallergenic diets for cats and dogs.

MATERIALS AND METHODS

13 cat owners and 12 dog owners were asked to feed exclusively their pets with a new dry diet in a 28-day blind test (no information about the brand and the composition of the 2 test diets, Table 1 & 2). These diets were characterized by mealworm (*Tenebrio molitor* larvae) as the protein source.

Owners assessed the new diets through online multiple-choice questionnaires on D7, D14 and D28, covering palatability, digestive tolerance, unexpected events, and general satisfaction. On D28, they also participated in individual face to face interviews: the concept of elimination diet to manage adverse food reactions was explained, and the composition of the test diet was finally revealed. Owners were free to react and comment.

Ingredients used in the test diets

Insect protein
Potato starch
Animal fats
Mineral salts
Hydrolysed pork liver
Linseed
Beet pulp, Lignocellulose, Fructo-oligosaccharides

TABLE 1

Nutritional characteristics of the test diets

	Cat	Dog
Metabolisable Energy (ME) (kcal/100g)	355	356
Protein (% ME)	31	26
Fat (% ME)	36	41
Carbohydrate (% ME)	33	33

TABLE 2



RESULTS

During the 28-day trial, the palatability and digestive safety were good, no unexpected events were observed, and the general satisfaction was good to excellent, with a mean satisfaction score of 7.6 ± 1.9 (on a scale from 0 to 10).

During the face to face interviews, the majority (92%) of owners had positive spontaneous reactions. They cited as key benefits of such diets an alternative source of protein to lower meat consumption, and a better environmental footprint. This approach seemed especially relevant to therapeutic purpose to manage food allergy. Some questions arose and mitigated owners' enthusiasm, such as the species of insects or their geographic origin.

2 out of the 25 (8%) participants expressed high reluctance to giving insect- based diets to their pets, the main issues being their own phobia and the safety of such diets, despite the good results of the previous trial. Nevertheless, they admitted they could change their mind if their vets prescribed the diet.

Owners' perception



■ High reluctance ■ Positive reaction

CONCLUSION

These preliminary results showed that insect-based diets were well tolerated by pets and appreciated by the majority of owners. These diets appeared more appealing if prescribed by a veterinarian, with demonstrated effect on improvement of pet's health. As it was also observed in a survey among veterinarians⁶, detailed safety and nutritional information is required to improve owners' perception and get their confidence in such diets.

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