Table S1. Demographic characteristics and general management of the cat

DEMOGRAPHIC CHARACTERISTIC		NUMBER	PERCENTAGE	$\chi^{2\#}$	P value[#]
Age	1-7 years	111*	56.3%	48.0	<0.001
	>7-10 years	49	24.9%		
	>10 years	37	18.8%		
Sex	Male	91	46.2%	1.1	0.285
	Female	106	53.8%		
Neutering	No	17	8.6%	134.9	<0.001
	Yes	180*	91.4%		
Breed	Mixed	155*	78.7%	64.8	<0.001
	Purebred	42	21.3%		
Source	Shop	12	6.1%	138.8	<0.001
	Breeding	3	1.5%		
	Home	48*	24.4%		
	Street	85*	43.1%		
	Cattery	16	8.1%		
	Born in home	33	16.8%		
Presence of other animals at home	No	41	20.8%	67.1	<0.001
	Yes	156*	79.2%		
Where the cat lives	Outdoors	31	15.8%	77.3	<0.001
	Indoors	42	21.3%		
	Outdoors and indoors	124*	62.9%		
Where the cat sleeps	Indoors	148*	75.1%	49.8	<0.001
	Outdoors	49	24.9%		

[#] results of Chi-square goodness of fit test
* higher observed number compared with expected (all categories equal)

Table S2. Association between overweight and factors related to demographic characteristics and general management of the cat. Results of the univariate logistic regression analysis.

PARAMETER	Unadjusted OR	95% CI LOWER	UPPER	P value
Age				
>7 years vs 1-7 years	2.738	1.528	4.906	**0.001**
Sex				
Female vs Male	0.760	0.434	1.334	0.339
Neutering				
Yes vs No	9.167	2.036	41.261	**0.004**
Months at neutering	0.999	0.975	1.024	0.966
Change of behaviour after neutering				0.140*
Yes vs No	1.867	0.949	3.672	0.070
I do not know vs No	0.884	0.365	2.141	0.784
Purebred				
Yes vs No	1.529	0.765	3.054	0.229
Source				0.088*
Breeding vs Shop	-[1]	-[1]	-[1]	-[1]
Home vs Shop	3.333	0.877	12.666	0.077
Street vs Shop	2.722	0.761	9.742	0.124
Cattery vs Shop	1.556	0.329	7.361	0.577
Born at home vs Shop	1.000	0.246	4.062	1.000
Age at acquisition				0.343*
3 months-1 year vs < 3 months	1.368	0.688	2.720	0.371
>1 year vs < 3 months	0.556	0.176	1.750	0.315
Number of family members	0.820	0.664	1.012	0.065
Presence of children				
Yes vs No	0.671	0.348	1.291	0.232
Presence of other animals				
Yes vs No	0.408	0.197	0.847	**0.016**
Presence of other cats				
Yes vs No	0.244	0.131	0.454	**<0.001**
Presence of dogs				
Yes vs No	0.551	0.313	0.970	**0.039**
Number of other animals	0.583	0.445	0.764	**<0.001**
Relationship with cohabiting cats				0.259*
Fear vs main friendly	-[1]	-[1]	-[1]	-[1]
Indifference vs mainly friendly	0.172	0.021	1.430	0.103
Mainly hostile vs mainly friendly	0.458	0.138	1.526	0.204
Relationship with cohabiting dogs				0.407*
Fear vs mainly friendly	0.927	0.295	2.915	0.897
Indifference vs mainly friendly	1.405	0.511	3.859	0.510
Mainly hostile vs mainly friendly	6.182	0.648	59.003	0.114
Diseases				**0.060**
Urinary vs one	5.556	1.182	26.111	**0.030**
Respiratory vs none	1.667	0.272	10.227	0.581

Others (gastrointestinal, FIV[2], neoplasia, allergy, otitis) vs none	3.889	0.785	19.259	0.096
Surgery				
Yes vs No	2.000	0.658	6.082	0.222
Where the cat lives				**<0.001***
Indoors vs Outdoors	40.500	10.395	157.795	**<0.001**
Outdoors and indoors vs Outdoors	6.641	2.193	20.110	**0.001**
Where the cat sleeps				
Indoors vs Outdoors	10.444	4.387	24.863	**<0.001**
Forbidden spaces				
Yes vs No	1.218	0.673	2.205	0.514
Reserved space				
Yes vs No	0.413	0.233	0.732	**0.002**
Reserved space and use				**0.022**
The cat has a reserved space, but he does not use it vs the cat does not have a reserved space	0.440	0.185	1.045	0.063
The cat has a reserved space and uses it as a refuge vs he does not have a reserved space	0.452	0.243	0.843	**0.012**
Where the cat eliminates				**<0.001***
Garden vs litter	0.064	0.028	0.146	**<0.001**
Garden and litter vs litter	0.222	0.098	0.503	**<0.001**
Inappropriate elimination				
Yes vs No	0.833	0.426	1.630	0.594
The cat licks insistently				0.128*
Yes vs No	2.630	0.899	7.691	0.077
Sometimes vs No	0.337	.034	3.305	0.351
Where the cat gets his nails				**<0.001***
Outdoors vs only indoors	0.217	0.112	0.422	**<0.001**
Outdoors and indoors vs only indoors	0.272	0.065	1.131	0.073
How many scratchings				
>1 vs 1	0.320	0.086	1.193	0.090
How long the cat remains at home alone				**0.046***
Half day vs All day	0.306	0.132	0.709	**0.006**
Few hours vs All day	0.470	0.197	1.124	**0.090**
Never vs All day	0.572	0.193	1.697	0.314
Where the cat lives when he is alone				**<0.001***
Free indoors vs Free outdoors	1.401	0.711	2.762	0.330
Closed indoors vs Free outdoors	5.405	2.322	12.585	**<0.001**
Moving home in the last six months				
Yes vs No	1.244	0.444	3.483	0.678

*overall P value
[1] not calculated because level with a few subjects
[2]Feline Immunodeficiency Virus

Table S3. Results of the bi-variable logistic regression analysis. Association between overweight and factors related to food management.

PARAMETER	Unadjusted OR	95% CI Lower	Upper	P value
The cat eats only food proposed by the owner				0.651*
No, even from others vs Yes	1.339	0.722	2.486	0.354
No, he gets it on his own vs Yes	-[1]	-[1]	-[1]	-[1]
Food type				0.487*
Dry and wet cat food vs dry cat food	1.429	0.798	2.558	0.230
Homemade food vs dry cat food	-[1]	-[1]	-[1]	-[1]
Food quality				0.538*
Medium vs Low	0.856	0.439	1.670	0.649
High vs Low	1.286	0.570	2.903	0.545
Quantity of food compared with that recommended on package				**<0.001**
No vs Yes/yes about	2.961	1.378	6.362	**0.005**
I do not know vs Yes/yes about	7.917	3.835	16.342	**<0.001**
Use of hypocaloric food				0.279
Yes vs No	1.255	0.615	2.561	0.532
Sometimes vs No	2.152	0.818	5.660	0.121
Ad libitum				
Yes vs No	0.707	0.397	1.258	0.238
If ad libitum, how many times does the cat eat?				0.099*
3-4 times vs 1-2 times	0.758	0.279	2.063	0.588
>4 times vs 1-2 times	2.247	0.681	7.409	0.184
How many times does the cat eat?				
>4 times vs ≤4 times	2.328	1.070	5.063	**0.033**
Did you change the cat food type?				
Yes vs No	0.879	0.488	1.581	0.666
The cat asks for food				
Yes vs No	0.967	0.418	2.239	0.938
How the cat asks for food				0.548*
Rubs vs vocalizations	1.448	0.678	3.092	0.339
Paws vs vocalizations	1.086	0.148	7.963	0.935
Towards the food place vs vocalizations	2.172	0.621	7.598	0.225
The cat asks for food and then ignores it				
Yes vs No	3.604	1.963	6.618	**<0.001**
The cat extracts food from the bowl				
Yes vs No	0.776	0.438	1.374	0.384
The food bowl is near the water				
Yes vs No	2.004	0.896	4.478	0.090

Where is the bowl?				**<0.001***
Outdoors vs Indoors	0.134	0.046	0.394	**<0.001**
Both outdoors and indoors vs Indoors	0.787	0.312	1.983	0.612
The cat asks for food when the owner is eating				**0.012***
Yes vs No	3.257	1.439	7.372	**0.005**
Sometimes vs No	0.963	0.497	1.866	0.910
The owner grants extra food while sitting at the table				
Yes vs No	3.559	1.827	6.934	**<0.001**
If and how much extra food the cat gets during meals				**0.019***
Always vs No	3.147	1.149	8.618	**0.026**
Sometimes vs No	2.073	1.035	4.151	**0.040**
What kind of extra food				
Various vs Meat/ chicken / fish	0.387	0.106	1.410	0.150
The cat has ever changed diet?				
Yes/sometimes vs no	0.875	0.414	1.849	0.726
Fresh grass available				
Yes vs no	0.226	0.097	0.524	**0.001**

*overall P value

[1] not calculated because level with a few subjects

Table S4. Results of the bi-variable logistic regression analysis. Association between overweight and factors related to playful and aggressive behaviour.

PARAMETER	Unadjusted OR	95% CI LOWER	UPPER	P value
Play				
Yes vs No	0.389	0.153	0.984	**0.046**
Where the cat plays?				
Outdoors vs Indoors	0.269	0.143	0.504	**<0.001**
How much the cat plays with people[2]?	1.265	0.997	1.604	0.053
How much the cat plays with other cats[2]?	0.893	0.742	1.074	0.230
How much the cat plays with other animals[2]?	0.534	0.421	0.679	**<0.001**
How much the cat plays alone[2]?	0.955	0.772	1.180	0.669
How long each session of the game lasts?				**0.047***
2-3 min vs few seconds	0.349	0.104	1.169	0.088
Several minutes vs few seconds	0.227	0.067	0.772	**0.018**
Aggressive				
Yes vs No	1.116	0.637	1.956	0.701
If the cat is aggressive, towards whom				0.798
Often towards people vs sometimes towards people	0.810	0.331	1.983	0.645
Towards cats vs sometimes towards people	0.622	0.140	2.757	0.532
When the cat is aggressive?				0.531*
Manipulation vs Strangers	5.000	0.511	48.909	0.167
Animals vs Strangers	1.042	0.402	2.697	0.933
Unknown vs Strangers	0.800	0.174	3.669	0.774
Sometimes the cat seems stressed				0.077*
Yes vs No	1.806	0.948	3.442	0.072
I do not know vs no	0.671	0.280	1.607	0.371

*overall P value
[1] not calculated because level with a few subjects
[2] associated with a score (1= never, 5= a lot) and included as a continuous variable

Table S5. Independent predictors of overweight. Results of the multivariable model

PARAMETER	Adjusted OR	95% C.I. for OR		P value
		Lower	Upper	
Age: >7 years vs 1-7 years	4.164	1.249	13.882	**0.020**
Neutering: Yes vs No	7.761	1.206	49.947	**0.031**
Diseases				0.981
Urinary vs none	0.803	0.085	7.580	0.848
Respiratory vs none	1.249	0.046	33.834	0.895
Others (g/e, FIV, neoplasia, allergy, otitis) vs none	1.478	0.147	14.825	0.740
Where the cat lives				0.668
Indoor vs outdoor	2.788	0.139	55.805	0.502
Outdoor and indoor vs outdoor	0.991	0.099	9.893	0.994
Reserved space: Yes vs no	0.286	0.081	1.009	0.052
Number of other cohabiting animals	0.578	0.351	0.952	**0.031**
How long the cat remains at home alone?				0.072
Half day vs All day	0.108	0.020	0.582	**0.010**
Few hours vs All day	0.173	0.031	0.955	**0.044**
Never vs All day	0.107	0.010	1.117	0.062
Quantity of food compared with that recommended on package				0.158
No vs Yes/yes about	2.263	0.462	11.091	0.314
I do not know vs Yes/yes about	4.465	0.971	20.532	0.055
How many times does the cat eat?				
> 4 times vs ≤4 times	1.343	0.303	5.942	0.698
Where is the bowl?				0.295
Outdoor vs Indoor	0.248	0.027	2.278	0.218
Outdoor and Indoor vs Indoor	0.724	0.101	5.193	0.748
Fresh grass available: Yes vs no	1.257	0.128	12.366	0.845
Sometimes the cat seems stressed				0.056
Yes vs No	5.117	1.204	21.750	**0.027**
I do not know vs No	0.540	0.049	5.956	0.615
How much the cat plays with other cohabiting animals[1]	1.076	.654	1.772	0.953

[1] associated with a score (1= never, 5= a lot) and included as a continuous variable
Bold values indicate significance at the p < 0.05 threshold.