

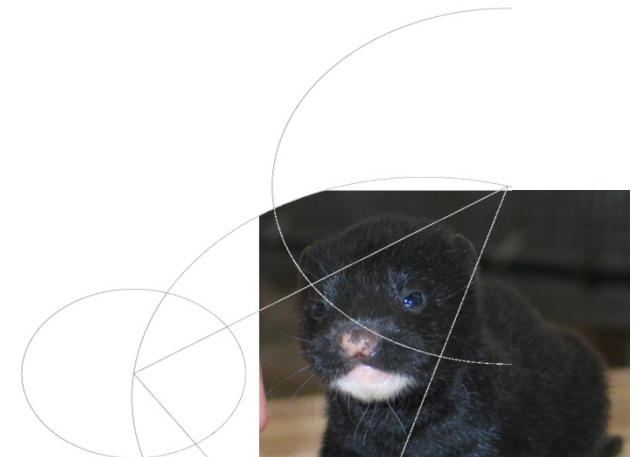


Low protein provision to mink during several generations

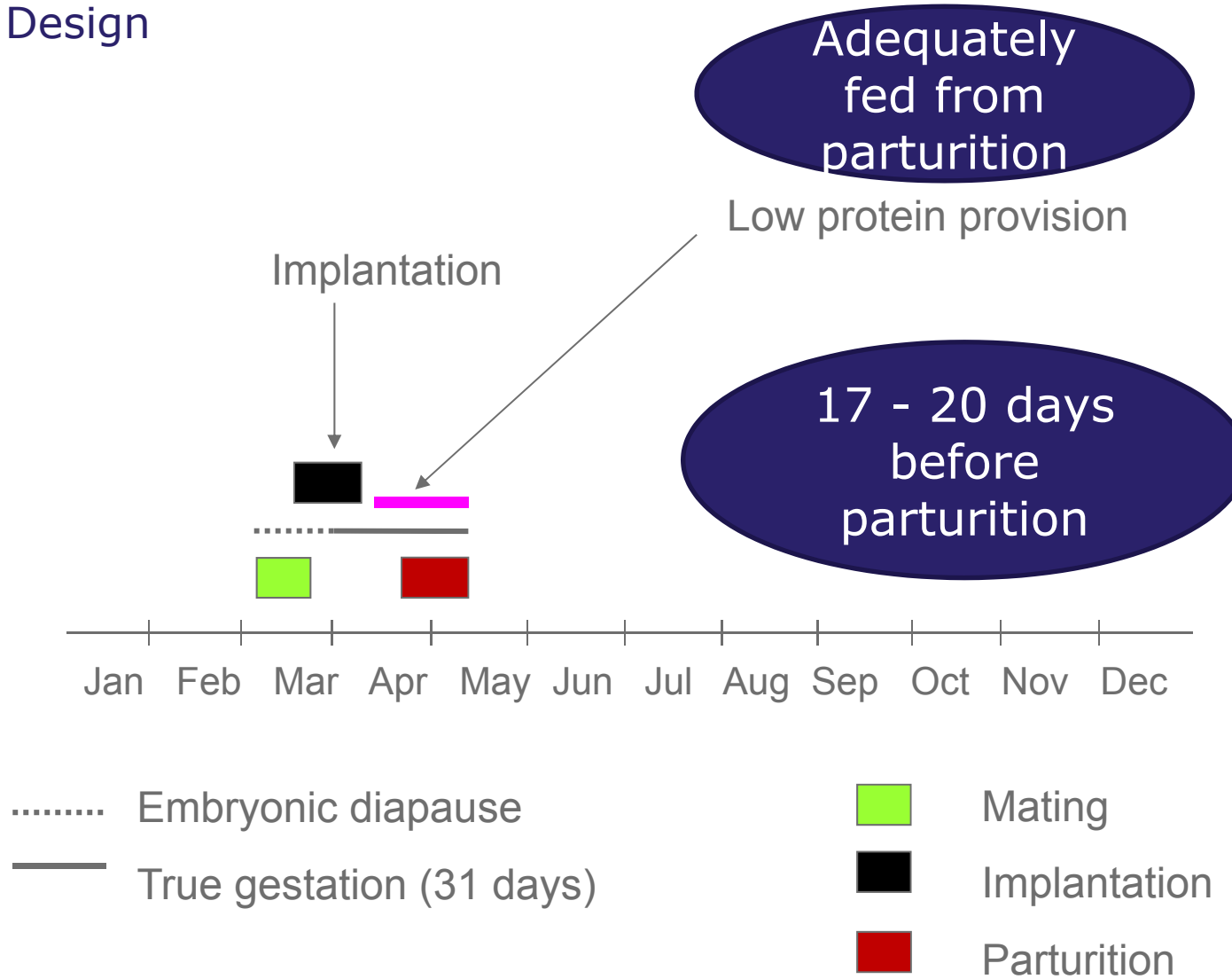
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(Presented by Jan Elnif)

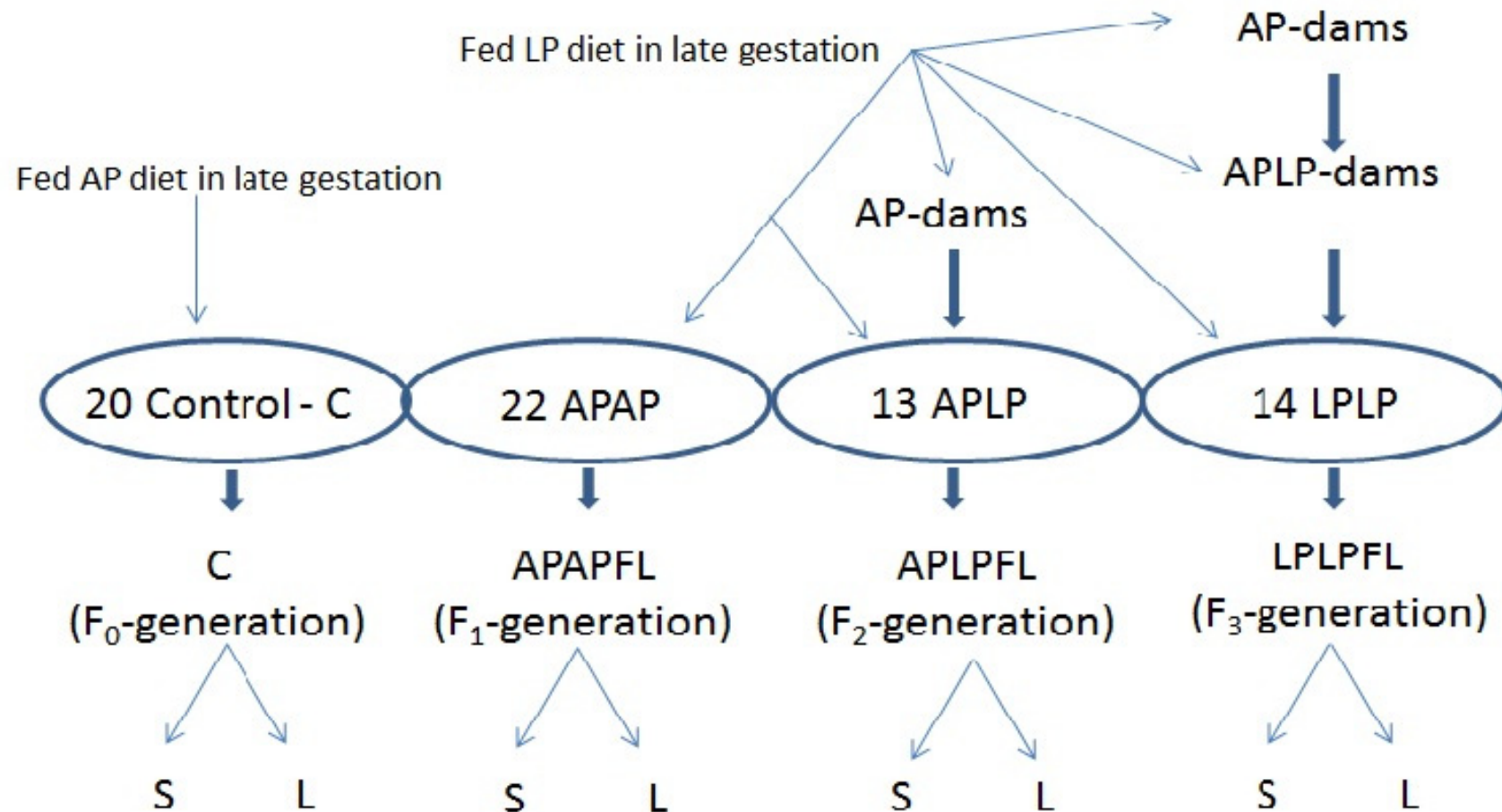
Department of Veterinary Clinical and Animal Sciences



Design



Design



	Diets	
	AP	LP
Dietary composition (g/kg)		
Fresh chicken*	600	338
Potato mash powder	40	34
Steam rolled oats	40	88
Fishmeal	150	42
Sugar beet pulp	30	17
Corn starch, gelatinized	40	80
Corn oil	60	50
Vitamin and mineral mixture[†]	3	3
Water	37	348
Chemical composition		
Dry matter (DM), g/kg	446	399
Ash, g/kg DM	85	54
Crude protein, g/kg DM	423	273
Fat, g/kg DM	291	253
Carbohydrate, g/kg DM	200	420
Gross energy, MJ/kg DM	25.12	23.3
Metabolisable energy (ME), MJ/kg DM:	19.04	19.90
Protein:fat:carbohydrate ratio (% of ME)	30:56:14	19:49:32

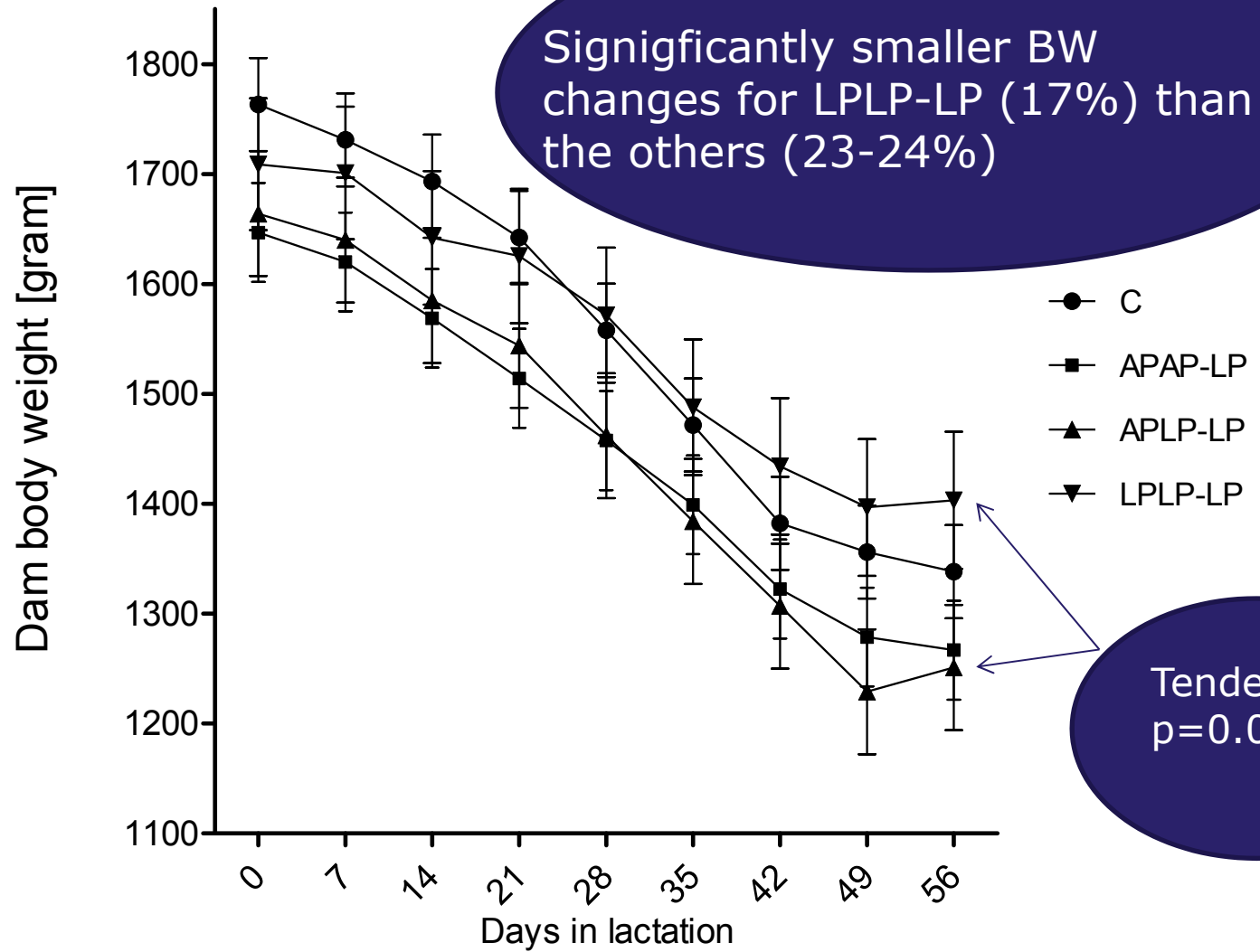


The Reproductive Performance

	Treatment			
	APAP-FA	APAP-FL	APLP-FL	LPLP-FL
	Control	(F1)	(F2)	(F3)
n	20	22	13	14
Barren females [%]	5	18	8	14
Kits, litter	7.9±0.7	6.8±0.7	7.7±0.9	7.4±0.9
Live born kits, Litter	7.2±0.6	5.6±0.6	6.8±0.8	6.7±0.8



Body weight of the dams



Kit birth weight

n=456	Treatment - offspring			
	Control	APAPFL F1	APLPFL F2	LPLPFL F3
Kit body weight [g]				
All kits	10.4 ^a	9.3 ^b	9.4 ^b	9.5 ^{ab}
Live born kits	12.0 ^a	10.7 ^b	10.4 ^b	10.3 ^b
Stillborn kits	8.8	8.0	8.4	8.7

Body weight - Males

	APAPFA Control		APAPFL F1		APLPFL F2		LPLPFL F3	
[g]	Small	Large	Small	Large	Small	Large	Small	Large
7 days	40.8	37.8	42.2	40.8	35.1	31.1	41.2	31.4
14 days	95.4	85.0	94.9	97.0	84.1	89.5	87.1	74.1
21 days	161.8	135.5	158.3	143.8	150.3	135.4	151.6	116.7
28 days	234.2	183.1	233.7	189.0	216.2	170.7	227.8	167.6
35 days	313.9	236.0	303.0	241.9	301.0	230.7	302.7	255.8
42 days	404.8	292.7	412.8	341.4	421.9	402.0	379.2	290.8
49 days	612.6	477.0	611.0	525.7	601.8	560.5	596.1	505.7
56 days	805.9ac	677.2b	785.5c	719.1d	830.9a	826.5a	790.8a	663.1b



Body weight - Females

	APAPFA Control		APAPFL F1		APLPFL F2		LPLPFL F3	
[g]	Small	Large	Small	Large	Small	Large	Small	Large
7 days	39.9	36.1	36.2	34.2	31.3	26.6	40.5	30.8
14 days	88.4	78.0	82.3	81.1	77.2	74.6	84.2	70.0
21 days	146.3	120.2	139.0	124.6	135.7	127.6	142.3	110.4
28 days	213.7	160.9	211.1	166.3	196.0	161.0	211.7	155.2
35 days	282.5	210.8	264.6	218.7	267.9	227.7	280.0	238.3
42 days	345.1	248.2	350.1	292.8	359.3	350.3	330.5	268.6
49 days	514.5	412.5	518.2	438.8	515.7	533.8	505.9	435.9
56 days	659.4a	560.5b	659.9a	607.9c	664.1a	707.2d	636.5a	577.6b

Body weight for male kits [g] male kits in balance expts. and reared in small (S -normal) and large (L) litters

	APAPFA		APAPFL		APLPFL		LPLPFL	
Generation	F0 - control		F1		F2		F3	
Litter size	S	L	S	L	S	L	S	L
<i>Balance period August / September</i>								
	2632	2562	2576	2688	2786	2879	2366	2326
<i>Balance period October / November</i>								
	3260	3136	3091	3334	3246	3631	2941	3032
<i>P- value; effect of</i>								
Treatment	<0.01							
Litter size	NS							
Period	<0.001							



Body weight - Males

	APAPFA Control	APAPFL F₁	APLPFL F₂	LPLPFL F₃
September	2900 ^a	2937 ^a	3040 ^a	2567 ^b
Early October	3162 ^a	3240 ^a	3146 ^a	2868 ^b
Late October	3317 ^a	3313 ^a	3430 ^a	3045 ^b
November	3388 ^a	3386 ^a	3536 ^a	3123 ^b



Body weight - Females

	APAPFA Control	APAPFL F₁	APLPFL F₂	LPLPFL F₃
September	1712	1636	1754	1614
Early October	1839 ^a	1745 ^a	2010 ^b	1803 ^a
Late October	1890	1823	1895	1834
November	1912	1769	1918	1860



Conclusion

- No significant effect on the reproductive performance (% barren females)
- Effect of protein provision on birth weight
- Litter size during lactation effected the growth rate (7-56 days of age)
- Mink kits exposed to LP diets during fetal life cope better with being raised in large litters than controls raised in large litters (body weight)
- Significant effect of fetal life protein provision on the BW (Males)



Thank you for your attention

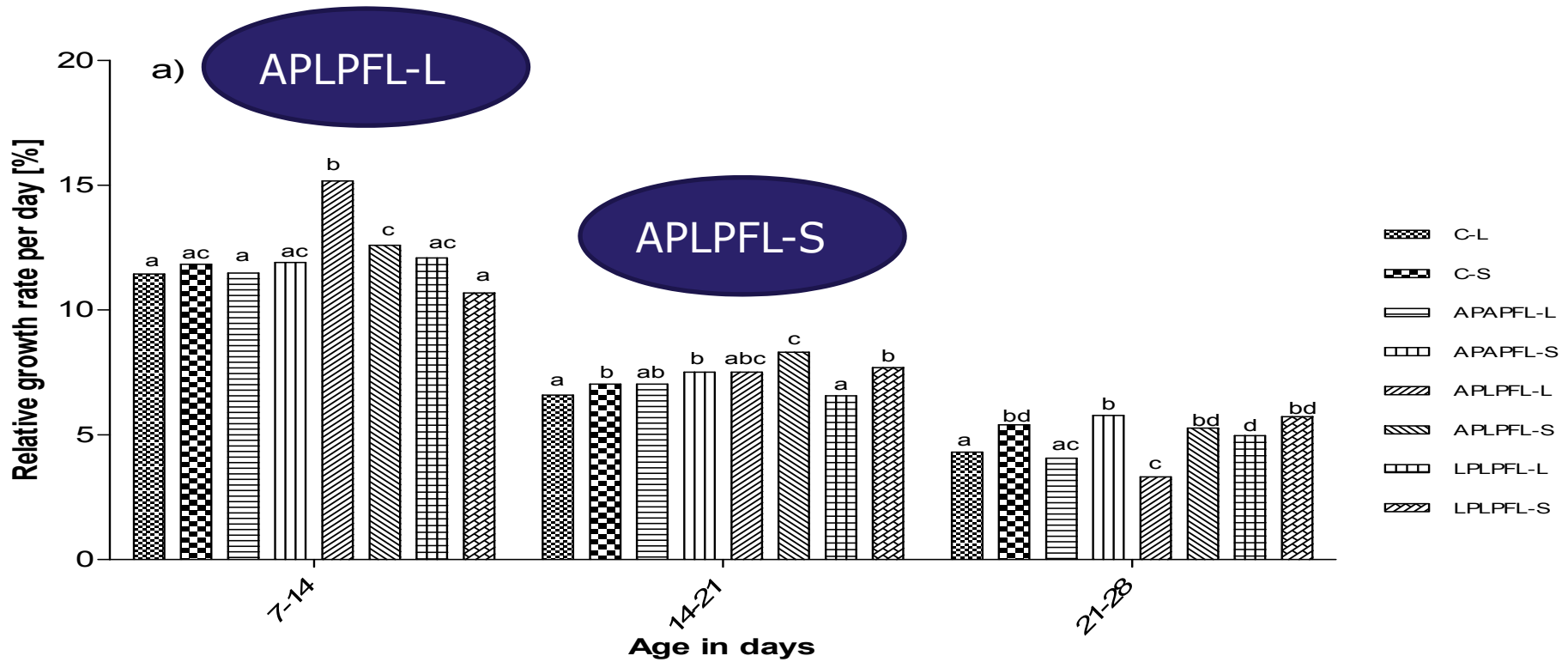




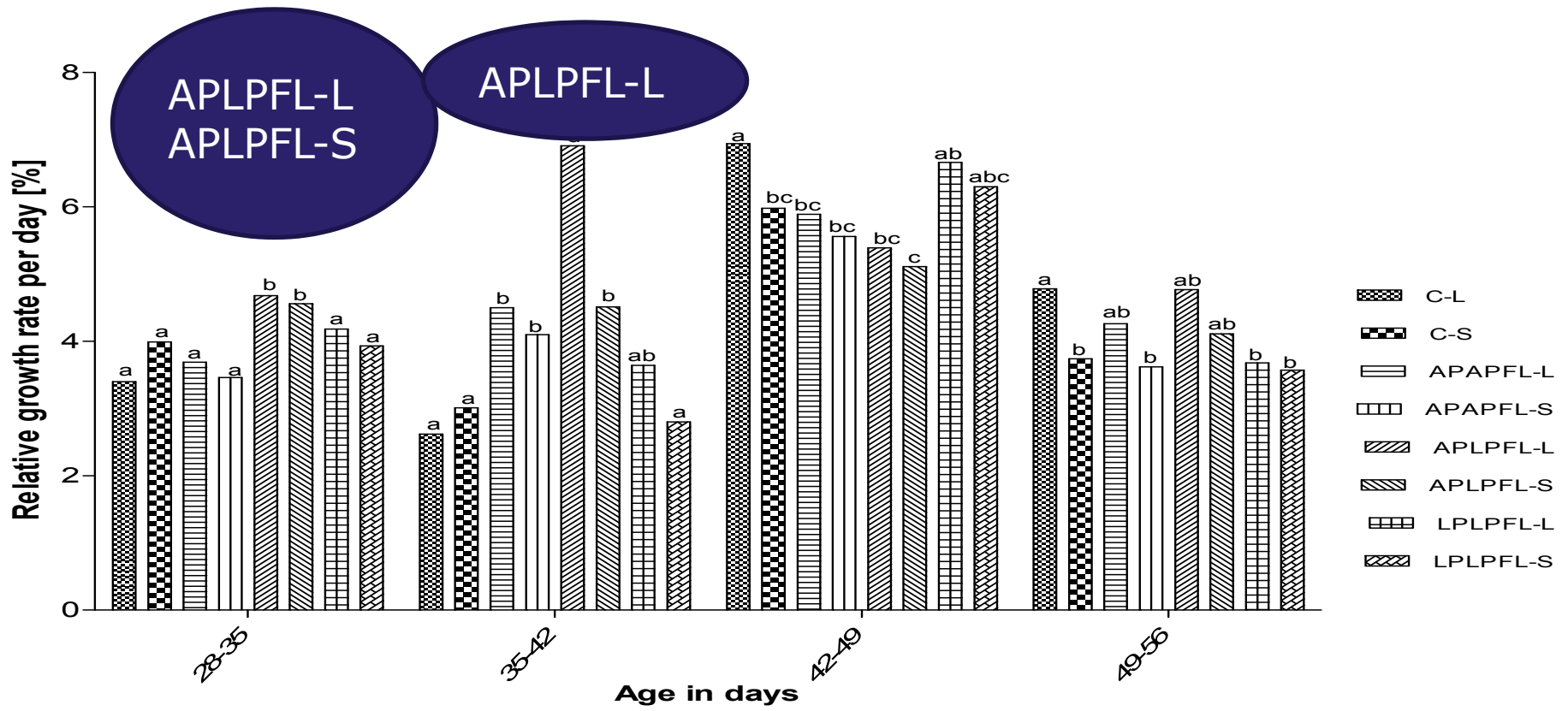
Faculty of Health and Medical Sciences



Growth rate per day

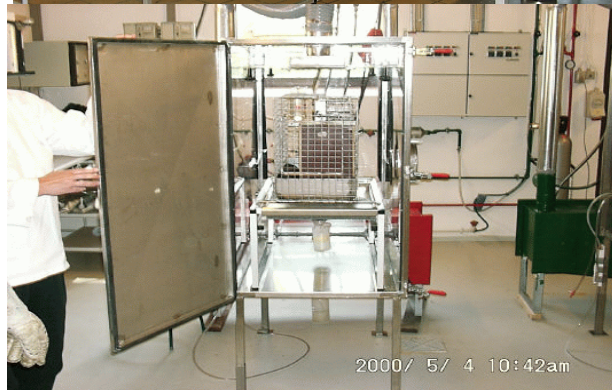


Growth rate per day



Male offspring

Balance and Respiration experiments



August/September
October /November

Collection of blood every third week
from August to November

Tissue collection
Dexa scan – body composition