Testosterone decreases to basal values within 24 hours following castration in alpacas

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The objective of this study was to compare serum testosterone concentrations ([T]) in adult male alpacas (*Vicugna pacos*) following administration of human chorionic gonadotropin (hCG) before and after castration. This information is of diagnostic significance for the determination of retained testicular tissue following castration or in the case of cryptorchidism. Jugular blood samples were collected from nine adult alpacas prior to intravenous administration of hCG (2500 IU; Chorulon®, Intervet, Millsboro, DE, USA) as well as 2, 4 and 6 post-hCG. Alpacas were castrated using routine surgical techniques 24 h post-hCG. Testes were removed from the vaginal tunica, the epididimydes were removed, and the testes were weighed. A post-castration hCG response test was performed 24 h after castration (48 h from the previous hCG response test). Serum [T] was measured using a double antibody radioimmunoassay (Diagnostic Products Corporation, Los Angeles, CA, USA). The assay sensitivity was 0.04 ng/ml and the intra-assay and inter assay CVs were <10%. All of the samples were tested within one assay. The mean [T] at each treatment time were compared using an analysis of variance. In addition, [T] were compared to testicular weight using linear regression. Significance was defined as $p<0.05$. The results for individual animals are summarized in the table below. The [T] was significantly increased from pre-hCG values by 2 h post-hCG. The highest mean [T] occurred 6 h post hCG, however [T] did not differ significantly between 2, 4 and 6 h post hCG. At 24 h post-castration (48 h post-hCG), the [T] was below the limits of detection. There was no significant correlation between [T] at any time point and testicular weight. In summary, serum [T] is not correlated with testicular weight and falls to undetectable values within 24 h following castration in alpacas.

		Serum Testosterone Concentrations (ng/mL)				
ID	**Testicular Weight (g)**	**Pre-hCG**	**2 h Post-hCG**	**4 h Post-hCG**	**6 h Post-hCG**	**48 h Post-hCG (24 h Post-castration)**
1	23.49	3.23	10.32	15.53	20.37	<0.04
2	22.62	7.72	14.30	14.21	18.58	<0.04
3	21.99	3.62	5.98	10.43	8.53	<0.04
4	28.80	4.22	9.89	9.74	13.25	<0.04
5	28.09	4.44	7.15	6.33	6.96	<0.04
6	17.94	7.14	10.65	16.21	19.23	<0.04
7	14.69	0.67	3.81	6.26	4.71	<0.04
8	28.91	9.12	17.66	20.89	24.91	<0.04
9	36.16	5.60	18.48	19.83	24.94	<0.04
$\bar{X}$	**24.74**	**5.08**	**10.92**	**13.27**	**15.72**	
SD	**6.48**	**2.60**	**5.06**	**5.40**	**7.64**	

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