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Action of androgen on fibroblast collagen synthesis: a receptor-dependent response.

Several groups are still investigating an "in vitro" biological response of androgen action. The purpose of this study was to determine whether dihydrotestosterone (DHT) influences the secretion of collagen by cultured foreskin fibroblasts raised from patients with normal or undetectable DHT-binding activity (complete androgen resistance). Collagen synthesis and secretion were evaluated by ^{3}H-proline incorporation in newly synthetized collagen by confluent fibroblasts alone, or in the presence of DHT (10^{-5} to -10^{-10}M). Production of collagen is expressed as a ratio between tritiated OH-proline and OH-proline plus proline,within the cells or in the culture medium.

	CONTROLS		COMPLETE ANDROGEN RESISTANCE	
	Basal (n=6)	+ DHT (n=12)	Basal (n=3)	+ DHT (n=8)
Culture medium	22 ± 2 %	44 ± 3 %	34 ± 5 %	21 ± 7 %
Confluent cells	31 ± 4 %	22 ± 7 %	6 ± 2 %	5 ± 3 %

These data show that : -in control cells,DHT significantly increases production of collagen released in the culture medium ($p < 0.001$), -In complete androgen resistance with no detectable androgen binding activity, DHT does not modify basal collagen synthesis. These results strongly suggest that this hormonal response is mediated via a DHT-receptor or is receptor-dependent. This could be used as a biological response of androgen action in patients with androgen resistance associated with a "post-receptor" defect.

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Salivary and Plasma Progesterone in Female Adolescents

The distribution of plasma values of sexual steroids is log normal during the menstrual cycle (Kletzky et al. 1975). After log transformation of simultaneously determined salivary (SP) and plasma progesterone (PP) values, we found a significant correlation between SP and PP in 69 healthy adolescents ($r=0.562, p<0.001$). Chronologic age (CA) was 10.6.-21.4, bone age (BA) 10.5-18years. This series comprises girls with ovulatory (follicular-FP-and luteal phase-LP) and anovulatory cycles, premenarchal girls and patients with familial tall stature before and after hormonal treatment. For the whole group, the relation between the transformed data was $y=0.03459\pm1.43085x$ (y=PP,x=SP). With respect to the FP period, the coefficient of correlation between SP and PP was $r=0.432$ (n=58, $p<0.001$). The equation was $y=4.05524\pm0.51879x$. Considering the progesterone levels in the LP only, the correlation between SP and PP was $r=0.783$ (n=11, $p<0.01$) The regression equation was $y=3.49863\pm1.14611x$. Provisional normal ranges for SP and PP during the ovulatory cycles were provided by data from 6 regularly menstruating girls (CA 13-21.4, BA 13-18, gynecologic age 0.3-7 yrs; cycle length 26-35 days). The Wilcoxon test for pair differences was significant between progesterone in FP and LP (SP $p<0.05$, PP $p<0.001$). Conclusion: Knowing the cycle length, longitudinal analyses of SP are suited to characterise phase and type of a cycle. Because of the high correlation it is possible to calculate PP during LP based on SP.

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Evidence for an androgen-receptor in prepubertal dog and child epiphyseal growth cartilage.

The mechanism of androgen's action on cartilage growth plate is unknown. The aim of this study was to determine if receptors for androgen exist in dog and child epiphyseal growth cartilage. Cartilages were removed by microsurgical technique, from male dog bones, and at autopsy of a male newborn. ^{3}H-DHT binding activity was evaluated in cytoplasmic and crude nuclear fractions of dog and child growth cartilage. Specifically bound ^{3}H-DHT was determined by incubations of cytoplasmic or nuclear extracts with ^{3}H-DHT (1-30 nM) alone or in the presence of an excess of unlabelled DHT to correct for non-specific binding.

	^{3}H-DHT specifically bound (dpm/mg protein)	
	Dog	Child
Cytosol	1900 - 5600	6500 - 18200
Nucleus	1500 - 8900	7600 - 29200

^{3}H-DHT specifically bound is 2 times higher in nuclear than in cytosolic fractions. Competition analysis revealed a high specificity of the binding component for DHT. Sucrose density gradient analysis of ^{3}H-DHT labelled cytosol or nucleus from dog or child cartilage yielded one peak of radioactivity in the 4-S region. The high affinity, apparent specificity for DHT, and sedimentation analysis fulfill several of the criteria ascribed to a "receptor". We thus suggest that the macromolecular protein binding we describe in dog and child growth plate cartilage is an androgen receptor.

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Testosterone (T), Dehydroepiandrosterone (DHEA), Androstenedione (A) and 17 OHProgesterone (17 OHP) after hCG and ACTH in male dog before and through puberty.

In order to determine the site of production of these steroids and a possible change in responsiveness of the testis and adrenal glands to ACTH and hCG during the 1st year of life, T, DHEA,A, 17 OHP were measured at 1,4,7,9,12 months 1) after a single hCG IM injection (35UI/kg) at 0,6,12,24,30,36 hours in 11 male dogs 2) after a Synacthen® IV bolus (12,5µg/kg at 0,30,60,90 min. in 5 intact and 9,2 weeks old,castrated dogs. First significant T, DHEA, A responses to hCG were observed by the 4th month and mean maximum values increase as the animals get older. These higher levels were reached at 12 hours for DHEA and 24 hours for T and A. The mean levels were almost back to pretest levels in 48 hours. By contrast no elevation of 17 OHP could be seen at all. No elevation of T, A and DHEA could be seen after Synacthen® bolus in all intact and castrated dogs at all ages.

As for 17 OHP the basal level is 0,2 ng/ml approximatively and increased up to 0,6-0,8 ng/ml in all animals except the younger castrated animals (1 and 4 months old) in which the mean peak values were included between 1.1 and 1.5 ng/ml. These data showed a distinct pattern for Leydig cell to hCG, this response occurs here 3 months before onset of puberty. There seems to be no "human" adrenarche in male dog.