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Saliva Testing References

Aardal E, Holm AC. Cortisol in saliva-reference ranges and relation to cortisol in serum. *Eur J Clin Chem Clin Biochem* 1995;33:927-932.

Aardal-Eriksson E, Karlberg BE, Holm AC. Salivary cortisol and alternative to serum cortisol determinations in dynamic function tests. *Clin Chem Lab Med* 1998;36:215-222.

Allolio B, Hoffmann J, Linton EA, Winkelmann W, Kusche M, Schulte HM. Diurnal salivary cortisol patterns during pregnancy and after delivery: relationship to plasma corticotrophinreleasing hormone. *Clin Endocrinol* 1990;33:279-289.

Barrou Z, Guiban D, Maroufi A, Fournier C, Dugue MA, Luton JP, Thomopoulos P. Overnight dexamethasone suppression test: comparison of plasma and salivary cortisol measurement for the screening of Cushing's syndrome. *Eur J Endocrin* 1996;134:93-96.

Belkien LD, Bordt J, Moller P, Hano R, Nieschlag E. Estradiol in saliva for monitoring follicular stimulation in an in vitro fertilization program. *Fertil Steril* 1985;44:322.

Campbell BC, Ellison PT. Menstrual variation in salivary testosterone among regularly cycling women. *Horm Res* 1992; 37:132-136.

Chearskul S, Visutakul P. Non-invasive hormonal analysis for ovulation detection. *J Med Assoc Thai.* 1994 Apr; 77(4): 176-86.

Choe JK, Khan-Dawood FS, Dawood MY. Progesterone and estradiol in the saliva and plasma during the menstrual cycle. *Am J Obstet Gynecol* 1983;147:557-562.

Christiansen K, Knusmann R. Sex hormones and cognitive functioning in men. *Neuropsychobiol* 1987;18:27-36.

Clements AD, Parker CR. The relationship between salivary cortisol concentrations in frozen versus mailed samples. *Psychoneuroendocrinol* 1998;23:613-616.

Dabbs JM, Campbell BC, Gladue BA, Midgley AR, Navarro MA, Read GF, Susman EJ, Swinkels LM, Worthman CM. Reliability of salivary testosterone measurements: a multicenter evaluation. *Clin Chem* 1995; 41: 1581-1584.

De Cree C, Lewin R, Ostyn M. The monitoring of the menstrual status of female athletes by salivary steroid determination and ultrasonography. *Eur J Appl Physiol Occup Physiol.* 1990;60(6):472-7.

- Delfs TM, Klein S, Fottrell P, Naether OG, Leidenberger FA, Zimmermann RC. 24-Hour profiles of salivary progesterone. *Fertil Steril* 1994;62:960-966.
- Filaire E, Duche P, Lac G, Robert A. Saliva cortisol, physical exercise and training: influences of swimming and handball on cortisol concentrations in women. *Eur J Appl Physiol* 1996;74:274-278.
- Filaire E, Lac G. Dehydroepiandrosterone (DHEA) rather than testosterone shows saliva androgen responses to exercise in elite female handball players. *Int J Sports Med* 2000;21:17-20.
- Finn MM, Gosling JP, Tallon DF, Baynes S, Meehan FP, Fottrell PF. The frequency of salivary progesterone sampling and the diagnosis of luteal phase insufficiency. *Gynecol Endocrinol* 1992;6:127-134.
- Granger DA, Schwartz EB, Booth A, Arentz M. Salivary testosterone determination in studies of child health and development. *Horm Behav* 1999;35:18-27.
- Granger DA, Schwartz EB, Booth A, Curran M, Zakaria D. Assessing dehydroepiandrosterone in saliva: a simple radioimmunoassay for use in studies of children, adolescents and adults. *Psychoneuroendocrinology* 1999;24:567-579.
- Granger DA, Weisz JR, Kauneckis D. Neuroendocrine reactivity, internalizing behavior problems, and control-related cognitions in clinic-referred children and adolescents. *J Abn Psychology* 1994;103:267-276.
- Granger DA, Weisz JR, McCracken JT, Ikeda SC, Douglas P. Reciprocal influences among adrenocortical activation, psychosocial processes, and the behavioral adjustment of clinic-referred children. *Child Dev* 1996; 67: 3250-3262.
- Harris B, Lovett L, Newcombe RG, Read GF, Walker R, Riad-Fahmy D. Maternity blues and major endocrine changes: Cardiff puerperal mood and hormone study II. *BMJ* 1994 Apr;308:949-953.
- Heim C, Ehlert U, Hanker JP, Hellhammer DH. Abuse-related posttraumatic stress disorder and alterations of the hypothalamic-pituitary-adrenal axis in women with chronic pelvic pain. *Psychosom Med* 1998;60:309- 318.
- Heine RP, McGregor JA, Dullien VK. Accuracy of salivary estriol testing compared to traditional risk factor assessment in predicting preterm birth. *Am J Obstet Gynecol* 1999;180:S214-218.
- Herbert J, Goodyer IM, Altham PM, Pearson J, Secher SM, Shiers HM. Adrenal secretion during major depression in 8- to 16-year-olds, I. Altered diurnal rhythms in salivary cortisol and dehydroepiandrosterone (DHEA) at presentation. *Psychol Med* 1996;26: 245-256.
- Johansson A, Henriksson A, Olofsson BO, Olsson T. Adrenal steroid dysregulation in dystrophia myotonica. *J Int Med* 1999;245:345-351.
- Johnson SG, Joplin GF, Burrin JM. Direct assay for testosterone in saliva: relation 30;163(3):309-18.
- Khan-Dawood FS, Choe JK, Dawood MY. Salivary and plasma bound and "free" testosterone in men and women. *Am J Obstet Gynecol* 1984;148:441-445.
- Kudielka BM, Schmidt-Reinwald AK, Hellhammer DH, Kirschbaum C. Psychological and endocrine responses to psychosocial stress and dexamethasone/corticotropin-

releasing hormone in healthy postmenopausal women and young controls: the impact of age and a two-week estradiol treatment. *Neuroendocrinol* 1999;70:422-430.

Lac G, Lac N, Robert A. Steroid assays in saliva: a method to detect plasmatic contaminations. *Arch Int Physiol Biochim Biophys* 1993;101:257-262.

Lachelin GC, McGarrigle HH. A comparison of saliva, plasma unconjugated and plasma total oestriol levels throughout normal pregnancy. *Brit J Obstet Gyn* 1984;91:1203-1209.

Lechner W, Marth C, Daxenbichler G. Correlation of estriol levels in saliva, plasma and urine of pregnant women. *Acta Endocrinol* 1985;109:266-268.

Lipson SF, Ellison PT. Normative study of age variation in salivary progesterone profiles. *J Biosoc Sci* 1992; 24: 233-244.

Lo MS, Ng ML, Azmy BS, Khalid BA. Clinical applications of salivary cortisol measurements. *Sing Med J* 1992; 33: 170.

Lonning PE, Dowsett M, Jacobs S, Schem B, Hardy J, Powles TJ. Lack of diurnal variation in plasma levels of androstenedione, testosterone, estrone and estradiol in postmenopausal women. *J Steroid Biochem.* 1989; 34(1-6): 551-3.

Lu Y, Bentley GR, Gann PH, Hodges KR, Chatterton RT. Salivary estradiol and progesterone levels in conception and nonconception cycles in women: evaluation of a new assay for salivary estradiol. *Fertil Steril* 1999; 71:863-868.

Lu YC, Chatterton R T , V ogelsong KM, May LK. Direct radioimmunoassay of progesterone in saliva. *J Immunoassay* 1997;18:149-163.

McGregor JA, Hastings C, Roberts T, Barrett J. Diurnal variation in saliva estriol level during pregnancy: a pilot study. *Am J Obstet Gynecol* 1999; 180:S223-225.

McGregor JA, Jackson GM, Lachelin GC, Goodwin TM, Artal R, Hastings C, Dullien V. Salivary estriol as risk assessment for preterm labor: a prospective trial. *Am J Obstet Gynecol* 1995;173:1337- 1342.

Metcalf MG, Evans JJ, Mackenzie JA. Indices of ovulation: comparison of plasma and salivary levels of progesterone with urinary pregnanediol. *J Endocr* 1984;100:75-80.

Meulenbergh PM, Hofman JA. Salivary progesterone excellently reflects free and total progesterone in plasma during pregnancy. *Clin Chem* 1989;35:168-172.

Moran DJ, McGarrigle HH, Lachelin GC. Lack of normal increase in saliva estriol/progesterone ratio in women with labor induced at 42 weeks' gestation. *Am J Obstet Gynecol* 1992; 167: 1563-1564.

Nahoul K, Rao LV, Scholler R. Saliva testosterone time-course response to hCG in adult normal men, comparison with plasma levels. *J Steroid Biochem* 1986;24:1011-1015.

Nahoul K, Scholler R. Comparison of saliva and plasma 17-hydroxyprogesterone timecourse response to hCG administration in normal men. *J Steroid Biochem* 1987;26:251-257.

Navarro MA, Nolla JM, Machuca MI, Gonzalez A, Mateo L, Bonnin RM, Roig-Escofet D. Salivary testosterone in postmenopausal women with rheumatoid arthritis. *J Rheumatol* 1998;25:1059-1062.

Navarro MA, Villabona CM, Blanco A, Gomez JM, Bonnin RM, Soler J. Salivary excretory pattern of testosterone in substitutive therapy with testosterone enanthate. *Fertil Steril* 1994;61:125-128.

Perry LA, Wathen N, Chard T. Saliva levels of oestradiol and progesterone in relation to nonprotein-bound concentrations in blood during late pregnancy. *Horm Metab Res.* 1987 Sep;19(9):444-7.

Peter H. Gann, Susan Giovanazzi, Linda Van Horn, Amy Branning and Robert T. Chatterton, Jr. Saliva as a Medium for Investigating Intra- and Interindividual Differences in Sex Hormone Levels in Premenopausal Women. *Can Ep Biomarkers & Prevention* Vol. 10, 59-64, January 2001

Petsos P, Ratcliffe WA, Heath DF, Anderson DC. Comparison of blood spot, salivary and serum progesterone assays in the normal menstrual cycle. *Clin Endocrin* 1986;24:31-38.

Quissell D. Steroid hormone analysis in human saliva. *Ann N Y Acad Sci.* 1993;694:143-145.

Raff H, Raff JL, Findling JW. Late-night salivary cortisol as a screening test for Cushing's Syndrome. *J Clin Endocrinol Metab* 1998;83:2681-2686.

Read GF, Harper ME, Peeling WB, Griffiths K. Changes in male salivary testosterone concentrations with age. *Int J Androl* 1981;4:623-627.

Read GF, Walker RF, Wilson DW, Griffiths K. Steroid analysis in saliva for the assessment of endocrine function. *Ann NY Acad Sci* 1993: 260-274.

Read GF, Wilson DW, Campbell FC, Holliday HW, Blamey RW, Griffiths K. Salivary cortisol and dehydroepiandrosterone sulphate levels in postmenopausal women with primary breast cancer. *Eur J Cancer Clin Oncol* 1983;19:477-483.

Read GF. Status report on measurement of salivary estrogens and androgens. *Ann NY Acad Sci* 1993:146- 160.

Riad-Fahmy D, Read GF, Walker RF. Salivary steroid assays for assessing variation in endocrine activity. *J Steroid Biochem* 1983;19:265-272.

Rosmond R, Bjorntorp P. The hypothalamic-pituitary-adrenal axis activity as a predictor of cardiovascular disease, type 2 diabetes and stroke. *J Int Med* 2000;247:188-197.

Ruutiainen K, Sannikka E, Santti R, Erkkola R, Adlercreutz H. Salivary testosterone in hirsutism: correlations with serum testosterone and the degree of hair growth. *J Clin Endocrinol Metab* 1987;64:1015-1020.

Sannikka E, Terho P, Suominen J, Santti R. Testosterone concentrations in human seminal plasma and saliva and its correlation with non-protein-bound and total testosterone levels in serum. *Int J Andrology* 1983;6:319- 330.

Scheer FA, Buijs RM. Light affects morning salivary cortisol in humans. *J Clin Endocrinol* 1999;84:3395-3398.

- Schramm W, Smith RH, Craig PA, Paek SH, Kuo HH. Determination of free progesterone in an ultrafiltrate of saliva collected in situ. *Clin Chem* 1990;36:1488-1493.
- Schurmeyer T, Nieschlag E. Effect of ketoconazole and other imidazole fungicides on testosterone biosynthesis. *Acta Endocrinol* 1984;105:275-280.
- Schwartz EB, Granger DA, Susman EJ, Gunnar MR, Laird B. Assessing salivary cortisol in studies of child development. *Child Dev* 1998;69:1503-1513.
- Shirtcliff EA, Granger DA, Schwartz EB, Curran MJ, Booth A, Overman WH. Assessing estradiol in biobehavioral studies using saliva and blood spots: simple radioimmunoassay protocols, reliability, and comparative validity. *Horm Behav* 2000;38:137-147.
- Stones A, Groome D, Perry D, Hucklebridge F, Evans P. The effect of stress on salivary cortisol in panic disorder patients. *J Affect Disorders* 1999;52:197-201.
- Sufi SB, Donaldson A, Gandy SC, Jeffcoate SL, Chearskul S, Goh H, Hazra D, Romero C, Wang HZ. Multicenter evaluation of assays for estradiol and progesterone in saliva. *Clin Chem*. 1985 Jan;31(1):101-3.
- Sumiala S, Tuominen J, Huhtaniemi I, Maenpaa J. Salivary progesterone concentrations after tubal sterilization. *Obstet Gynecol* 1996;88:792-796.
- Swinkels LM, Ross HA, Smals AG, Benraad TJ. Concentrations of total and free dehydroepiandrosterone in plasma and dehydroepiandrosterone in saliva of normal and hirsute women under basal conditions and during administration of dexamethasone/synthetic corticotropin. *Clin Chem* 1990; 16: 2042-2046.
- Thijssen JH, Gispens-de Wied CC, van Heeswijk GM, Veeman W. Determination of dexamethasone in saliva. *Clin Chem* 1996;42:1238-1242.
- Tschop M, Behre HM, Nieschlag E, Dressendorfer RA, Strasburger CJ. A time-resolved fluorescence immunoassay for the measurement of testosterone in saliva: monitoring of testosterone replacement therapy with testosterone buciclate. *Clin Chem Lab Med* 1998;36:223-230.
- Tulppala M, Bjorses UM, Stenman UH, Wahlstrom T, Ylikorkala O. Luteal phase defect in habitual abortion: progesterone in saliva. *Fertil Steril* 1991;56:41-44.
- Tunn S, Mollmann H, Barth J, Derendorf H, Krieg M. Simultaneous measurement of cortisol in serum and saliva after different forms of cortisol administration. *Clin Chem* 1992;38:1491-1494.
- Vedhara K, Hyde J, Gilchrist ID, Tytherleigh M, Plummer S. Acute stress, memory, attention and cortisol. *Psychoneuroendocrinol* 2000;25:535-549.
- Vining RF, McGinley RA, Symons RG. Hormones in saliva: mode of entry and consequent implications for clinical interpretation. *Clin Chem* 1983;29:1752-1756.
- Vining RF, McGinley RA. The measurement of hormones in saliva: possibilities and pitfalls. *J Steroid Biochem*. 1987; 27(1-3): 81-94.
- Vitteck J, L'Hommedieu D, Gordon G, Rappaport S, Southren L. Direct radioimmunoassay (RIA) of salivary testosterone: correlation with free and total serum testosterone. *Life Sciences* 1985;37:711-716.

Voss HF. Saliva as a fluid for measurement of estradiol levels. *Am J Obstet Gynecol* 1999;180:S226-231.

Vuorento T, Lahti A, Hovatta O, Huhtaniemi I. Daily measurements of salivary progesterone reveal a high rate of anovulation in healthy students. *Scand J Clin Lab Invest* 1989;49:395-401.

Walker RF, Read GF, Wilson DW, Riad-Fahmy D, Griffiths K. Chronobiology in laboratory medicine: principles and clinical applications illustrated from measurements of neutral steroids in saliva. *Chronobiology: its role in clinical medicine, general biology, and agriculture, Part A*, pages 105-117.

Wang DY, Fantl VE, Habibollahi F, Clark GM, Fentiman IS, Hayward JL, Bulbrook RD. Salivary oestradiol and progesterone levels in premenopausal women with breast cancer. *Eur J Cancer Clin*

Wang DY, Knyba RE. Salivary progesterone: relation to total and non-protein-bound blood levels. *J Steroid Biochem* 1985;23:975-979.

Weissbach A, Freymann E, Hubl W, Seefried W, Neef B, Thiele HJ. Enzymeimmunoassay of unconjugated estriol in serum and saliva during pregnancy. *Exp Clin Endocrinol*. 1985 Dec;86(2):178-84.

Wellen JJ, Smals AG, Rijken JC, Kloppenborg PW, Benraad TJ. Testosterone and androstenedione in the saliva of patients with Klinefelter's Syndrome. *Clin Endocrinol* 1983;18:51-59.

Wong YF, Mao K, Panesar NS, Loong EP, Chang AM, Mi ZJ. Salivary estradiol and progesterone during the normal ovulatory menstrual cycle in Chinese women. *Eur J Obstet Gynecol Reprod Biol* 1990;34:129-135.

Worthman CM, Stallings JF, Hofman LF. Sensitive salivary estradiol assay for monitoring ovarian function. *Clin Chem* 1990;36:1769-1773.

Wren B, McFarland K, Edwards L, O'Shea P, Sufi S et al. Effect of sequential transdermal progesterone cream on endometrium, bleeding pattern, and plasma progesterone and salivary progesterone levels in postmenopausal women. *Climacteric* 2000;3:155-160.

Young MC, Walker RF, Riad-Fahmy D, Hughes I A. Androstenedione rhythms in saliva in congenital adrenal hyperplasia. *Arch Dis Child* 1988;63:624-628.