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The Science of Balancing Hormones - quite different from supplementing!

Hormones are a controversial subject that causes angst and confusion for women (in particular, but not exclusively) and pressure for solutions on doctors in general practice, gynaecology, endocrinology, psychiatry, psychology, oncology and even gerontology - a clear indication that hormones affect us physically, mentally and emotionally.

Let's look at a tiny fraction of the evidence of their diversity of effect.

According to a new study, published in the Archives of Internal Medicine (October, 2006), anxiety disorders can and do have a basis in a physical problem such as thyroid (hormonal) and migraine headaches (again often hormonal) and depression has long been linked to physical illness (hormone imbalance can feature here too).

Another new study, published by the Journal of Endocrinology (October, 2006), has established a link between HRT (specifically synthetic oestrogen) and Alzheimer's disease. Whilst the Journal of Neuroscience (August 2006) has linked stress hormones as playing a central role in the development and progression of Alzheimer's.

In Breast Cancer News (September, 2006) findings indicate that breast discomfort during hormone therapy may indicate increased risk for breast cancer. Whilst another shows hearing loss (September, 2006 Endocrinology News) as a recognised side effect of HRT.

Meanwhile, researchers in Oregon, USA (36th annual meeting of the Society for Neuroscience, October, 2006), report that it has been established that there is a link between the sex hormones and emotions.

Finally, in another study in the October issue of the Journal of Clinical Psychiatry, researchers are recommending that women with moderate-to-severe PMS should be prescribed with low dose anti-depressants. (PMS is an aspect of hormonal imbalance.)

It can be overwhelming, so where does anyone start with hormones? I would like to start with an overview.

As the studies highlighted above indicate, hormone imbalances can manifest in a multitude of ways but these health problems are not merely the result of a deficiency or an excess of one particular hormone. There are many factors that contribute to disease but, where hormonal involvement is suspected, imbalances can be a great place to start because they can also have a major impact on the person's experience of a health problem.

Hormones are our body's chemical messengers and they affect every cell in the body, including those in the brain. For a woman, the hormone changes that affect her during the different stages of life can cause major imbalances that can be difficult to address if not viewed through the hormone lens and taking physical, mental and emotional impacts into account. We also need to be aware that hormones are very complex in the way they work, or don't work, as the case may be:

Hormones may be blocked from a cell receptor. Insulin resistance is a good example of this.

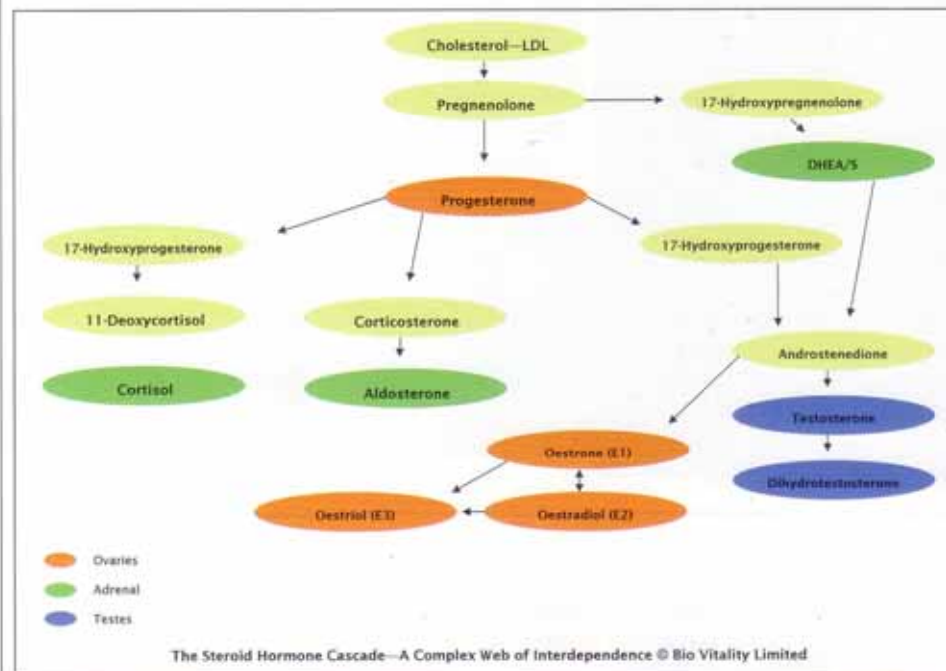
Hormones may find that the cell receptor is occupied. The stress hormone cortisol can block progesterone from its receptors on osteoblasts (bone building cells), indicating the importance of

evaluating cortisol levels in the osteopenia/osteoporosis hormone equation. Synthetic progestins/progestogens can also occupy progesterone receptors but, alas, being of a different molecular structure do not provide the same message. Women on synthetic progestins/progestogens can experience side effects more associated with androgens or male hormones.

Hormones can be inhibited by nutritional deficiencies or environmental toxins, which block optimal response. For example, in thyroid problems, selenium deficiency can adversely affect the T4 to T3 conversion because it's vital to the 5-deiodinase enzymes and fluoride causes an increase in bone calcification by interfering with the expression of bone and means that



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there will be a higher risk of fractures.

Hormones can give 'mixed messages'. For example, oestrogen and progesterone work in partnership and if a woman has been progesterone deficient for an extended period of time the introduction of progesterone will initially cause an oestrogenic symptom response such as breast tenderness. Progesterone deficiency is very common because anovulatory, or non-egg producing, cycles start at around the age of 25 - no ovulation = no rise in progesterone levels in the luteal (second) half of the cycle. When oestrogen and progesterone are in better balance the symptoms disappear to provide all round improvement, resolving problems such as heavy periods, for example.

This is clearly not an extensive essay about hormones but I hope provides some insight into why hormone balancing is an important concept. Hormone supplementation, whether it's HRT or the Pill or even phytoestrogens (by supplements or excessive amounts in the diet), is not a truly effective solution because hormonal symptoms can be misinterpreted and inappropriate supplementation will enhance imbalance.

Let's take a look at the bigger picture.

In order to get a better idea of what is going on for a patient/client we need to recognise the importance of the individual and their hormone-related biochemistry. This is not as complex or time-consuming as it might sound. However, we have to recognise another aspect of hormone imbalance and that is the fact that hormones out of balance create more imbalance with the help of binding globulins. For example, an excess of oestradiol, will stimulate higher production of Sex Hormone Binding Globulin (SHBG), this reduces the bioavailability of testosterone. This is an irony of being on the Pill as many women have much higher levels of SHBG and report a resultant loss of libido (Journal of Sexual Medicine, 2006)!

So we need to be more cognisant of bio-available or 'free' hormone levels. This came through in a study by O'Leary et al (Clinical Endocrinology, 2000) who looked at the absorption of transdermal progesterone through saliva testing (free hormones) and serum testing (total hormones). Serum progesterone levels were not significantly different from baseline in all subjects, yet salivary testing showed that concentrations peaked at around 1 - 4 hours following application.

So what are we learning here?

Blood tests measure protein-bound hormones and protein-bound hormones are not active. This is true for oestrogen, progesterone, testosterone and the corticosteroids. For example, normal levels of endogenous (made in the body) progesterone are about 12-24 ng/ml when measured by blood testing during the luteal phase. Normal levels for saliva testing are about 0.3-0.5 ng/ml (2 ng/ml as the upper limit). However, just looking at the levels of hormones in isolation will not provide absolute answers. As I said earlier cortisol levels will block progesterone receptors making them less able to respond and test results may appear to show normal levels of progesterone, so it is important to examine the adrenals too. This problem is not just limited to the obvious sex hormone connections either: Inflammatory Bowel Disease can induce high levels of cortisol and lead to symptoms of oestrogen dominance: tender breasts, water retention, bloating and mood swings amongst other things, which only add to the stress of the condition.

Saliva testing of unbound, bio-available or 'free' hormones is innovative but not untried and untested, there is a substantial volume of published clinical and scientific research that strongly

supports it for the steroid hormones (oestradiol, oestriol, oestrone, progesterone, testosterone, DHEA and cortisol). The World Health Organisation approved this method in the 1990's when it was found to be an accurate, convenient and non-invasive measurement of 'free' hormone levels. It also happens to be the best way of looking at cortisol levels as there is no stress involved in taking a sample and four samples during the course of a day are easily collected by a patient for an adrenal profile.

Evaluating the hormonal picture with accurate symptom reporting across appropriate physical, mental and emotional aspects of health will empower any practice whether medical or CAM. A hormone balancing approach provides a tool to promote patient/client education, improve compliance and self-responsibility and ultimately improve outcomes.

Alyssa Burns-Hill, MSc, FRSH, MIHPE is the resident Hormone Health Specialist at Bio Vitality Limited, the Guernsey-based hormone health company. She has a Master's degree in health, is a published author and works with the media and regularly speaks at local and national events. She is also the Hormone Health Expert for the Complementary Medical Association. In 2001 Alyssa was diagnosed with invasive breast cancer and following a huge programme of research and soul-searching she chose a more natural route to healing, avoid the drugs and radiotherapy. The mainstay of that approach has been a natural hormone balancing. Bio Vitality has a CPD Approved Hormone Masterclass for CAM practitioners, which includes your own hormone testing.

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