

Featured Article

MEN'S HEALTH— MALE FACTOR INFERTILITY

By Will Maclean, M.Sc. Chin. Med.

The incidence of male factor infertility is believed to be increasing in the Western world. It is associated with problems of sperm quality and/or delivery with numerous factors implicated, including low sperm concentration, non-liquefaction of semen, high proportion of abnormal sperm, sperm motility problems and structural impediments in the reproductive pathway.



In Chinese, the word for sperm and essence is the same (jīng 精), that is, they have the same origin and are inextricably linked. According to Chinese medicine, the quality of sperm and its ability to fertilize an ovum is intimately linked to the health of the Kidneys and requires a number of factors to converge. Firstly, sperm must be formed in sufficient numbers, a function of Kidney essence. They must be healthy, motile and energetic. This requires intact Kidney yang, while the seminal fluid that maintains them on their journey towards the egg must be nutritious and of the right consistency, a function of Kidney yin.

Secondly the hardware must be functional. The passageways from the testes to the urethral meatus must be clear and unimpeded by phlegm, damp heat or blood stasis, and the hydraulics of the reproductive system must be intact to enable copulation and ejaculation to occur.

While the widespread intervention of in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) has rendered copulation and ejaculation less relevant for the purposes of reproduction, the crucial factor, from the Chinese medical point of view, remains the quality of the essence that goes into making the baby; this determines the health and vitality of the next generation.



PATHOLOGY

Sperm and the supporting matrix of fluids and nutrients can be damaged by a variety of factors, of which Kidney deficiency and heat are the most important.

Acquired or congenital weakness of the Kidneys leads to poor or abnormal production of sperm. Heat, in the form of damp heat, from yin deficiency, fire from qi

constraint, an external pathogen with high fever, or environmental sources (sauna, tight pants), has a significant effect on seminal quality and quantity. Being so yang, sperm function best in a slightly cool environment; similarly, seminal fluids are congealed and thickened by heat.

RANGE OF SPERM VALUES¹ PER EJACULATE REQUIRED FOR IMPREGNATION

- Semen volume: > 1.5mL
- Total sperm number: > 39 x 10⁶
- Sperm concentration: > 15 x 10⁶/mL
- Total motility: > 40%
- Progressive motility: > 32%
- Live spermatozoa: > 58%
- Sperm morphology (normal forms): > 4%

¹World Health Organization: Laboratory Manual for the Examination and Processing of Human Semen (5th Ed.)

ETIOLOGY

External pathogens

Damp heat can gain access to the lower burner through the local

DRUGS AND OTHER FACTORS THAT INFLUENCE SPERM QUALITY AND QUANTITY

Drugs

- alcohol
- nicotine
- cannabis
- cocaine
- antihypertensive medications
- narcotics
- phenytoin
- chemotherapy
- anabolic steroids
- aminoglycoside antibiotics
- sulphasalazine
- cimetidine
- colchicine

Additional factors

- radiation
- overheating the testicles; sauna and hot tub; tight or constricting underwear; prolonged sitting; a laptop computer on ones lap; prolonged bicycle riding
- recent febrile illness
- testicular trauma, surgery
- industrial chemicals and organic solvents such as benzene, toluene, xylene, pesticides and herbicides
- estrogens in the water supply

collaterals and channels, or be introduced with the diet.

When damp heat gains access to the lower burner directly by transmission via sexual activity, the features are largely contained within the lower burner. When damp heat sinks into the lower burner from the middle burner, symptoms of middle burner disharmony and weight problems are apparent. Damp heat, regardless of the source, is a common cause of sperm disorder and infertility. It damages essence and sperm, leading to poor morphology and congelation of semen and seminal fluid.

Emotional factors

Persistent internalized or repressed emotion and stress constrain the circulation of Liver qi, and as the Liver channel passes through the lower burner, the movement of lower burner qi is obstructed. Persistent qi constraint in turn generates heat or fire, which can damage essence, blood and yin, leading to weakness of the sinews and the 'ancestral sinew of the Liver', i.e. the penis, with detrimental effects on erectile function. The combination of heat and essence damage leads to poor sperm quality and production. Obstructed qi fails to lead the blood, resulting in qi and blood stasis, and additional heat accumulation.

Constrained Liver qi can invade and weaken the Spleen, causing qi deficiency and leakage of blood from the vessels, or to the development of damp, which sinks into the lower burner, potentially generating heat and establishing the damp heat cycle.

Diet, medications and drugs

Excessive consumption of rich, greasy, sweet or spicy foods and alcohol results in middle burner disharmony and the generation of damp heat, which can sink and settle in the lower burner.

Alternatively, excess cold natured or raw food weakens Spleen qi and yang, leading to dampness, which in turn can stagnate and generate heat and damp heat. Persistent damp heat in the lower burner damages essence and yin, and congeals fluids while prolonged Spleen deficiency drains Kidney yang. A variety of pharmaceutical and recreational substances can also have a deleterious effect on sperm (See box to the left).

Constitutional factors

Congenital weakness of Kidney essence contributes to poor sperm production. When this is the case there will usually be other evidence of Kidney deficiency, such as undescended testicle, delayed development of puberty and secondary sex characteristics, or more overt physical and mental deformity or retardation.

Exhaustion, overwork, age

The volume of available essence declines with age, and although men can father children into their twilight years, the quality of sperm and potential quantity of essence their children inherit becomes progressively meagre. Acquired Kidney deficiency, as a result of working long hours or in gruelling labor, excessive reproductive activity, chronic illness, drug use or lack of restorative sleep has much the same effect, and may intervene at a younger age.

Environmental factors

Those that negatively affect Sperm quality include heat, which is a particular problem and may originate from constrictive underwear, frequent exposure to saunas or hot tubs, long motorcycle or bike riding or the use of lap top computers, and chemical exposure (See box above left).

TREATMENT DURATION

Treatment to improve sperm quality needs to continue for a minimum of three months, or longer in patients with significant Kidney deficiency. Both acupuncture and herbs are effective for assisting sperm production, although herbs are essential in deficiency patterns. Regardless of therapeutic intervention, appropriate changes in diet and lifestyle, and avoidance of factors that damage sperm production are necessary. There are also some specific supplements, in particular antioxidants, which compliment the Chinese medical program and further enhance the outcome.

Although a number of patterns are recognized and described, in practice we often see reasonably healthy young men, without obvious or discernible pathology, present with

SUPPLEMENTS TO ASSIST WITH SPERMATOGENESIS

- Vitamin C – 2,000 mg/day
- Vitamin E – 800 IU/day
- Beta-carotene – 100,000 IU/day
- Selenium
- Zinc – 60 mg/day
- Vitamin B12 – 1000 mcg/day
- L-Arginine – 4 g/day
- L-Carnitine – 600 mg, three times daily

CHINESE MEDICINE AND PATHOLOGY FINDINGS

Low sperm count

•Primarily associated with failure of sperm manufacture as a result of essence deficiency, but can also result from the terminal influence of heat on the developing sperm, either from damp heat, yin deficiency or local blood stasis and build up of yang qi.

Poor motility

•Mostly associated with lack of yang qi propulsion, but can also be due to thickening of seminal fluids from heat.

Poor liquefaction

•Primarily associated with increased viscosity of seminal and prostatic fluid as a result of being 'cooked' by damp heat or dried out by yin deficiency.

Abnormal morphology

•Primarily associated with the negative influence of heat or damp heat on the developing sperm, or lack of essence from which sperm are built.

Anti-sperm antibodies

•An immune response against sperm, which causes sperm to stick together, interfering with their motility.

•Primarily associated with stickiness and clumping of sperm due to fluid damage from damp heat or yin deficiency, congealing cold from yang deficiency, or congested blood flow in blood stasis.

'sub fertility' or 'unexplained oligospermia', that is, failure to impregnate with sperm test results at the low end of the normal range.

PATTERNS OF MALE FACTOR INFERTILITY

- Liver qi constraint
- Damp heat
- Phlegm damp
- Qi and blood stasis
- Qi and blood deficiency
- Kidney deficiency

In such cases, a hypothesis of some degree of Kidney deficiency, in combination with one or more of the additional factors (noted in box to the left) is usually reasonable. Treatment based on this hypothesis should have a positive impact on sperm parameters within three months. If not, blood stasis is often implicated.

Bio: William Maclean, M.Sc Chin. Med. is an internationally renowned practitioner, teacher and author from Australia, with 25 years of clinical experience in the field of Chinese medicine. Will teaches in the Masters programs at the University of Sydney and University of Technology Sydney, and lectures to students and practitioners around the world. In addition to his long years in practice, Will is the author (with Jane Lyttleton) of the Clinical Handbook of Internal Medicine series Volumes 1, 2 and 3, the Clinical Manual of Chinese Herbal Patent Medicines, and the Clinical Handbook of Chinese Herbs: Desk Reference.

A new and expanded edition of the Clinical Handbooks of Internal Medicine to be available at the end of the year:

Clinical Handbook of Internal Medicine, Vol. 1, Lung, Kidney, Liver, Heart

William Maclean, Jane Lyttleton

The first of a 3-volume TCM clinical guide, covering Lung, Kidney, Liver and Heart disorders. Within each organ's section, pathologies are organized by established TCM patterns within biomedical categories. All disorders are discussed with reference to etiology pathophysiology, clinical features, treatment principle, prescription, modifications, patent medicines, applicable acupuncture points and clinical notes. Where applicable, variations and additional prescriptions are referenced. In addition, appendices contain information on; original unmodified formulas, processing methods, delivery methods, herbs contraindicated during pregnancy, incompatible and antagonistic herbs, toxic substances, and medicinals derived from endangered species and animals. A comprehensive and intuitive index makes it easy to search for topics by biomedical application, formula name or TCM pattern.

Clinical Handbook of Internal Medicine, Vol. 2, Spleen and Stomach

William Maclean, Jane Lyttleton

The second of a 3-volume TCM clinical guide, with in-depth analysis of more than 20 common disorders affecting the Spleen and Stomach. Each pattern is discussed from the perspective of its presentation and treatment in a Western context, with insights, practical advice and clinical tips relevant to Western patients. Keys to diagnosis and pattern identification accompany major disorders. Disorders are discussed with reference to etiology pathophysiology, clinical features, treatment principle, prescription, variations, modifications, patent medicines, applicable acupuncture points and clinical notes. The clinical notes section offers general prognoses to help elucidate the kind of results that may be reasonably expected when correct treatment is applied, as well as a general estimate of the length of treatment required. As an added benefit the text includes a section on diet which includes information on what foods help treat common TCM patterns as well as a section on the properties and TCM actions of common foods.

Clinical Handbook of Internal Medicine, Vol. 3, Qi, Blood, Fluid, Channels

William Maclean, Jane Lyttleton

This is the final volume of a 3-volume TCM clinical guide. It focuses on diseases of qi, blood, and fluids, and contains chapters on abdominal masses, blood stasis, colds and flu, depression, diabetes, edema, fainting, fits and funny turns, acute fever, persistent and recurrent fever, gallbladder disorders, headache, hysteria, neck lumps, numbness, obesity, painful obstruction (bi), phlegm disorders, purpura,

sweating, thin mucus syndromes, and tiredness. All disorders are discussed with reference to etiology, pathophysiology, clinical features, treatment principle, prescription, modifications, patent medicines, applicable acupuncture points and clinical notes. A comprehensive and intuitive index makes it easy to search for topics by biomedical application, formula name or TCM pattern.

“The Clinical Manual of Chinese Herbal Patent Medicines”

Channels

William Maclean, Kathryn Taylor

The extensively revised second edition (August 2003) of the Clinical Manual of Chinese Herbal Patent Medicines is an essential addition to the desk and bookshelf of all practitioners and students interested in using patent medicines. One nice feature of the text is its use of small icons in the left margin to highlight useful information. Each formula is discussed in terms of its TCM Actions, Biomedical actions, Indications, Composition, Combinations, Dose and Method of Administration, and Cautions and Contraindications. An²⁸ feature that facilitates quick reference is the authors' use of simple line drawings to illustrate the key symptoms and signs for each formula/pattern. These are often expressive of the emotional and psychological characteristics that match the pattern indicated. The text also includes: - An intuitive 75 page index, complete with listings for both biomedical and TCM disorders. - Tables of comparisons between similar formulas designed to aid differentiation. - Potential herb drug interactions laid out in table form. - A glossary describing the TCM medical terms used in the text in clear language.

“Clinical Handbook of Chinese Herbs”

William Maclean

Proficiency in the prescription of Chinese herbs depends not only on good diagnosis but on an intimate knowledge of the raw materials. This in turn depends on being able to discriminate the fine points of difference between the similar herbs within a group, and a deep understanding of the unique characteristics of each herb. This volume of comparative charts is designed to aid the student or the busy practitioner in selecting the optimal medicinals for their patients. Each table describes the characteristics of a group of herbs, including extensive indications with relative strengths of action and function, the domain, flavor, nature, and dosage guidelines. The tables and text in this book will facilitate efficient comparative study for the student, as well as make clear the fine points of discrimination for the experienced practitioner. Easy to use, with clear and accurate tables comparing all the main herbs used in a modern clinic, this tome is a practical assistant to the complex world of Chinese herbal prescription.