



A Science of Medicine
The Art of Care

The Challenging Response of Physis to Inflammation

Part 3 – Stress, Lifestyle Factors and Inflammation

Dr Linda Mayer and Prof Rashid Bhikha

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The holistic approach in Tibb not only illustrates the complexity of the human being, it also illustrates the comprehensive understanding of the relationship between the human being (microcosm) and the environment (macrocosm), and the role of Physis in maintaining homeostasis. It recognises the physical, emotional, mental, social and spiritual aspects of the human being.

Health is a state of optimal physical, mental and social wellbeing, which, in Tibb, is dependent on the ideal balance and ratio of the Qualities and Humours, in relation to the Temperament of an individual.

Tibb believes that **disease** is a natural process and that its symptoms are an expression of the reactions of the body to restore qualitative and/or humoral imbalances. Lifestyle and other factors play a crucial role in maintaining or disrupting the balance of the state of the body, which may result in illness or disease.

A self-preservative power or **Physis**, strives to restore the balance of the Humours, in an effort to regain and/or maintain the healthy equilibrium of the body.

Tibb recognises the mental, emotional, spiritual and physical causes of illness or health, as well as techniques of modern science and medicine.¹ It sees the body as being infinitely complex, not just a simple machine. It understands that there are several factors in the origin of most diseases. It brings in a person's diet, lifestyle, emotions, interaction with the environment and even spiritual factors into consideration.

There is a direct communication between the endocrine, the immune, and the nervous systems of the body. The brain and the immune system continuously signal each other, often along the same pathways, which may explain how one's state of mind influences health. Chemicals produced by immune cells signal the brain, and the brain in turn sends chemical signals to restrain the immune system. The immune system communicates by releasing immune cells into the bloodstream which travel to new locations to deliver their messages or to perform other functions.²

The immune system is connected to the brain and the body, therefore systemic inflammatory reactions and responses can influence the functioning of the brain. The blood brain barrier filters blood borne cells and proteins, and peripheral cytokines either penetrate the blood-brain barrier **directly** via active transport mechanisms, or **indirectly** via vagal nerve. There is abundant evidence that inflammatory mechanisms within the central nervous system contribute to cognitive impairment via cytokine-mediated interactions between neurons and glial cells.³

Current research suggests that depression is an inflammatory disorder because the plasma levels of certain cytokines are increased, while other levels of markers are not altered in depression, suggesting that there is no T cell activation in that illness. Findings also indicate that cell-mediated immune activation is the key component of depression.⁴

Stress and Lifestyle Factors which trigger Inflammation

Lifestyle Factors is based on the systems of the body, and play an integral part in the maintenance of health and prevention and treatment of illness. "Health, stability and the body's state of equilibrium are regulated through moisture, which oppresses the heat. Each of these two qualities upholds the other, and the body is upheld by them both. When one of them exceeds the other, the body becomes indisposed accordingly."⁵

- **Environmental air and breathing** is linked with the respiratory and cardiovascular systems.
- **Food and drink** is linked with the digestive, hepatic and metabolic systems.
- **Movement and rest** are linked with the musculoskeletal system.
- **Sleep and wakefulness** is linked with the nervous system.
- **Emotions** are linked with the nervous system.
- **Elimination and Retention** is linked with the renal, dermatological and genital systems.

1. **Physical stress**

The human body is a very complex system, completely integrated and independent. Whilst a person may be suffering from a headache or mouth sores, and the link between this and a toxin-filled colon may not be apparent, but in Tibb this link as the cause, is clearly identified.

Hippocrates believed that health is the effective digestion, assimilation and elimination of the **lifestyle factors**. The correct amount of **sleep** is required for each person's ideal temperament; and adequate **retention** of nourishment and **elimination** of toxins is vital to the overall health of an individual.

Exercise is beneficial for the maintenance of health and wellness, with respect to the physical, emotional, mental, social and spiritual facets of the individual. A healthy body creates a healthy mind and a healthy soul. When all these facets are working in unison with one another, the humours and functioning of the body and all its members will be in harmony with the overall quality of the temperament of the individual. Any changes in the quality and/or ratios of heat, moistness, coldness or dryness, will affect the overall health of the individual. The amount of exercise needed for an individual is dependent on the ideal Temperament.

The functioning of each part of the body is interdependent upon one another. For example, if the brain is not functioning at its optimal capacity, this will influence the physiological and psychological functioning of the body.

Physical stressors include:

- Trauma from a blunt or penetrating object, such as a fall or a knife wound. Trauma may also be a result of burns or frostbite. Foreign bodies include splinters.
- Intense physical exercise such as weight lifting and other high intensity training/competitions.
- Lack of exercise can also lead to inflammation due to poor muscle and ligament strength and tone, which increase the risk of injuries.
- Repetitive motion such as typing or walking, cycling or jogging.
- Infections from bacteria, viruses, parasites, fungi or yeast. An example is the *Helicobacter pylori* (H pylori) which is a bacterium in the stomach that contributes to inflammation and the development of ulcers, because of weakening of the protective mucous of the stomach and duodenum, from the effects of hydrochloric acid and pepsin. Other inflammatory diseases include gastric ulcer, colitis or irritable bowel syndrome.
- Co-existing chronic medical conditions such as arthritis, or any other inflammatory illnesses.

- Immune reactions are also known as hypersensitivity reactions, such as an anaphylactic shock. Allergies from food, such as casein and gluten are proteins which are found in wheat and dairy products, may cause an inflammatory response. An example is coeliac disease from wheat intolerance.
- A weakened immune system may result from poorly controlled co-existing premorbid diseases, and/or poorly managed lifestyle factors. This result is severe pressure of Physis to restore the ideal humoral composition required by an individual's temperament.

2. Environmental stress

Tibb recognizes the intimate relationship that exists between the individual and the **environment**. The existence and wellbeing of an individual depends on the continuous interaction and adjustment between their internal and external environmental factors.

If the body accumulates toxins many diseases will occur, such as allergies during spring time.

Air is the primary source of nutrition as oxygen transforms nutrients, present in food, into energy and into humours and body fluids. However, pollution, climatic and temperature changes, humidity and air speed, may predispose people to heart attacks, strokes, respiratory problems and other disorders. If the quality of the air is poor, then the onset and development of specific diseases can be accelerated. Many occupational diseases have their origin in lungs which have been weakened by exposure to poor quality air.

When the organisms fail to adjust or adapt to the environment, either due to a weakened immune system (innate deficiency), or due to overwhelming antagonistic environmental factors, which are contrary to the ideal humoral composition for an individual's temperament, it results in disease or death.

Illness conditions, linked to humours, exacerbate in seasons where there is a predominance of the qualities associated with the respective season. For example:

During **summer** the Bilius humour is more active, and accumulates due to the increased heat. During winter, the phlegmatic humour is more active, and accumulates, due to the increased moisture. During spring, the phlegmatic humour, which has accumulated and hardened, begins to soften and melt. Similarly, during

autumn an increase in cold, cools down the light and thin bilious humour; both seasons are preparing these humours for expulsion.⁶

As summer moves into **autumn**, the days remain hot, but the nights grow colder. These widening temperature fluctuations put a strain on the body to adapt. The pores may open and sweat during the heat of the day, and allow evening chills to enter. Excess cold foods and drinks consumed in summer may have generated superfluous phlegmatic humour that may increase one's vulnerability to chills when the weather starts changing in autumn. The cool weather of autumn can produce dry, chapped skin, coryza and sore throats, coughs and hoarseness.

In **winter** as a result of the increased food intake to increase energy levels to maintain warmth, the phlegmatic humour accumulates and hardens. As cold becomes severe and dryness intensifies in mid-Winter, the Melancholic humour tends to get aggravated, resulting in symptoms of stiff and painful joints and muscles.

In **spring** the hardened phlegmatic humour begins to melt and the volume becomes great in the circulatory channels. As a result of the increased circulating phlegmatic humour, the digestive activity weakens, causing diseases.

3. **Emotional stress**

Emotions play a large role in the health and wellbeing of the individual. A positive mental attitude can influence the outcome of the healing process and recovery, whilst a negative mental attitude can result in a delay or halt in the healing process and recovery, illness and even death.

Thoughts, the mind's energy, directly influence how the physical brain controls the body's physiology. Thought 'energy' can activate or inhibit the cell's function-producing proteins via the mechanics or constructive and destructive interference.⁷

People respond differently under similar circumstances, which is inherent in their genetic make-up and Temperamental Qualities. Some people can handle stress, and others cannot. Some people by nature are calm, and others are easily ruffled.

Life stressors such as bereavement, marital separation, academic examinations, or the stress of Alzheimer spousal care giving, have all been shown to have effects on immune function:

- Individuals undergoing bereavement, show alterations of cellular immunity and changes in blood levels.
- Psychological stress during relatively minor aversive events, such as academic examinations, temporally increases white blood cell counts.

- Chronic stressors that last over periods of one or more years not only increase the risk for depression but also are likely to result in alterations of immune function.⁸
- Stress increases platelet activation, which is a cause of heart attacks. Other correlations are pointed out between stress and gastrointestinal disorders, chronic pain and diabetes.

Every emotion is connected to a particular organ of the body, which stimulates a respective humour in the body, for example:

- Anger has hot and dry qualities, and is connected to the Liver, the gall bladder, the heart and the brain. A person with a Bilious Temperament will be more influenced by the negative effects of the intensity of anger, due to its similar qualities of heat and dryness.
- Anxiety and worry have hot and moist qualities, and are connected to the pancreas and spleen, and an excess of heat and moistness may result in the imbalance of glucose metabolism, such as insulin resistance and type 2 Diabetes.
- Depression has moist and hot qualities, and is connected to the Brain and Nerves, which stimulates the Phlegmatic humour. Excessive depression is harmful to the brain, and can lead to marked weaknesses in the body, as well as lack of energy, enthusiasm and vitality.
- Fear has qualities of coldness and moistness, and is connected to the kidneys and urinary bladder, and long-lasting fear results in excessive coldness in the body. Fear causes the blood circulation to suddenly move inwards, causing the skin to become pale and cold, with shallow breathing. Long-lasting fear results in excessive coldness in the body.
- Happiness and Excitement have qualities of heat and dryness, and are connected to the Heart.
- Grief has qualities of coldness and dryness, and is connected to the Lungs, Brain, Heart and Liver. Excessive grief, anguish or sadness may result in diseases and conditions of the lungs and nervous systems.

Emotional stressors include:

- Inflammation is made worse by stress, as histamine is produced as a stress response.⁹
- If stress is experienced over a prolonged period the levels of cortisol increase, which alters the effectiveness of cortisol to regulate the inflammatory response. Examples include Irritable Bowel Syndrome or Inflammatory Bowel disease.
- Chronic stress can kill the good bacteria in the gut, such as lactobacillus; a lack thereof will affect digestion and enzymes necessary for the good

functioning of the digestive tract. Examples include indigestion, bloating, diarrhoea or constipation.

- Stress causes the pH of the body to become more acidic, which enhances the environment for the growth of bacteria. This compromises the immune system, which leads to disease such as ulcerative colitis.
- Episodes of anger produce harmful effects in the heart, liver, and damage the brain. Excessive or uncontrolled anger is associated with the *bilious* temperament, and increases heat and dryness in the body.

4. Chemical Stress

Free radicals are chemicals which are produced in the body from oxidative stress, which largely affects the joints. Chemical stressors include:

- The ingestion of rancid fats.
- An excess of iron or copper supplements, or other food chemicals, cleaning fluid, cosmetics and car fumes.
- Irradiation.
- Toxins, such as mercury or pesticides.
- An excess intake of alcohol, especially sweet ones, will promote inflammation.

5. Nutritional stress

The humours are the primary fluids that are manufactured from the digestion of food and drink, which are processed and transformed in the liver. Any dysfunction in the liver will affect the quantitative and qualitative balance of the humours.

Excessive intake of food and drink with the same qualities as the dominant qualities associated with a person's temperament will increase the respective humour the fastest and the most. For example: A person with a dominant Bilious (Hot & Dry) temperament will be much more affected by foods which have qualities of heat and dryness, such as chicken, onion and green and red peppers. Hot and dry foods which are pungent, spicy, seasoned or bitter, would also affect the Bilious temperament the most, because, of the qualities of heat and dryness.

The unique Temperament of an individual enables one to predict who is more predisposed to certain illnesses conditions. This enables one to balance the qualities of heat, moistness, coldness and dryness by making the right lifestyle choices, especially concerning nutrition and the intake of tissue salts. **“Let food be thy medicine and medicine be thy food”** (Hippocrates).

Inflammation is only part of the defence mechanism the body employs in an attempt to heal itself. White blood cells are produced in abundance, and require fuel, in the form of saturated fat and cholesterol, both for cell formation and repair.⁹

Nutritional stressors include:

- Increased body fat especially in obesity whereby fat cells produce inflammatory chemical;
- A diet high in saturated fats (also known as 'B' fats), may have inflammatory effects on the body if taken in excess, or if one has a co-existing medical condition as explained above. Examples include dairy products, such as butter, cheese, cream and milk.
- A diet high in trans fats (bad cholesterol) and hydrogenated fats and oils blocks the production of anti-inflammatory agents. Examples include margarine and peanut butter. Trans fats also create free radicals that damage healthy cells and trigger inflammation.
- A diet with an excess intake of omega-6 polyunsaturated vegetable oils, (also known as 'A' fats) is high in linoleic acid, which the body converts into arachidonic acid, changing their natural anti-inflammatory qualities to inflammatory ones. Examples are as sunflower, peanuts and soy.
- A diet consisting of high carbohydrates and low protein is considered to be inflammatory.
- Refined sugar and other refined and processed foods have a high glycaemic index, which increases insulin levels, due to surges of blood sugar. This puts the immune system on high alert. Hormones in the body, called Eicosanoids, which act as anti-inflammatory agents, become imbalanced when insulin levels are high, which, in turn, activates enzymes that raise levels of arachidonic acid in the blood.
- A diet low in antioxidants, such as fresh vegetables, will prevent the expulsion of free radicals from the body.

Anti-Inflammatory Diet

- **Whole foods:** unprocessed, unrefined, real food and high in powerful anti-inflammatory plant chemicals called phytonutrients.¹⁰
- **Monounsaturated fats:** such as avocados, walnuts, almonds, pecans and Brazil nuts (also a plant-based protein source), rice bran oil, grape seed oil and walnut oil.¹²
- **Fruit and vegetables:** such as green and bright coloured vegetables and fruits, such as blueberries, strawberries, broccoli, spinach, squash and carrots. These are rich in vitamins, minerals, fibre, antioxidants and phytochemicals.¹¹
- **Protein sources:** Nuts, lean poultry and fatty fish (includes omega-3 and protein). Plant-based protein sources are found in legumes, nuts and seeds, as well as soy and soy foods, such as tofu.¹¹

- **Take probiotics:** (“good bacteria”) daily to help your digestion to improve the healthy bacteria in your gut which reduces inflammation, such as Bulgarian yogurt.¹¹
- **Other anti-inflammatory foods and antioxidants** include: Ginger, garlic, turmeric, olive oil, berries, tart cherries, beets, tomatoes, peppers, soy and almonds.

Summary

The holistic approach in Tibb not only illustrates the complexity of the human being, it also illustrates the comprehensive understanding of the relationship between the individual and the environment. Tibb emphasises the need for integrating and recognising every component of the individual, from the physical, mental, emotional and social, to the spiritual aspects. It takes into account the ideal temperament and humours of each individual, respecting Physis, in the maintenance of health and the curing of disease.

The six lifestyle factors are considered in Tibb to be vital components in the maintenance of health and restoration back to health in the event of disease. These include: environment, air and breathing; sleep and wakefulness; elimination and retention; movement and rest; emotions and feelings, as well as food and drink.

Wrong lifestyle choices can trigger inflammatory reactions in the body, and, if left unchecked or suppressed by medication, may result in chronic and debilitating conditions.

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