Breathing Free and Easy

Introduction

Just as the heart pumps without our conscious awareness, breathing is a largely autonomic process that most of us are unaware of until some stressor, be it strenuous exercise or the induction of fight or flight mechanisms, calls our attention to it. We especially become conscious of the act when we have difficulty taking in a breath, such as when we are swimming, or as the result of some pathology, such as anaphylaxis, asthma, or apnea, or even from the congestion of the common cold. Breath is our most immediate and vital form of nourishment, and from perspective of *Ayurveda*, is synonymous with the flow of consciousness, and all activities of the mind and body. Thus problems with respiration extend far beyond the health of the lungs, or even the physiological status of gases such as oxygen (O_2) and carbon dioxide (CO_2): breath is life, and thus the maintenance of lung function is paramount to maintaining proper health.

Ayurveda and breath

In *Ayurveda*, the word for 'breath' is synonymous with the term *prana,* referring to the inhaled 'vital wind' that animates the corporeal body. It functions to maintain neuroregulatory control over the entire body and mind. When *prana* is functioning normally, the mind is clear, the senses are sharp and the body energized and relaxed. When *prana* becomes disturbed, it leads to a state of neuroregulatory dysfunction that is referred to *vata dosha.* Thus *vata* is *prana* in a disturbed state.

The Care of Breath

Given the intrinsic connection between breath and autonomic function, it is important to assess the impact of chronic stress on breathing. The activation of sympathetic responses as a coping mechanism, often muted due to the limitations of socially acceptable behavior, results in a number of breathing pattern dysfunctions:

- reverse-breathing
- chest-breathing
- collapsed-breathing
- hyperventilation

Most of these patterns are often accompanied by a down-regulation of digestive secretion, increased muscle spasticity, and compensatory immunosuppression and weight gain from adrenocorticoid secretion. Each pattern must be deconstructed with the patient, and techniques provided to bring greater awareness to breath. This may include:

1. Slowing down breath.
2. Relaxing the abdomen.

3. Releasing tension in the upper shoulders and neck.
4. Grounding the patient in the present moment.
5. Assessing the need to hurry or rush in daily life.
6. Body image counseling.
7. Emphasize meditation and menial tasks.
8. Address anxiety and fear.

Botanical support is often helpful when breaking down dysfunctional breathing patterns that relate specific behaviors:

- over-thinking, circular thinking: *Ganoderma, Ceanothus, Aesculus, Passiflora;*
- anxiety and fear: *Withania, Valeriana, Stachys, Anenome;*
- too busy, no time: *Verbena, Scutellaria, Agrimonia, Lycopus, Leonurus, Matricaria;*
- environmental and social sensitivities: *Achillea, Hypericum, Ganoderma;*
- depression and poor self-esteem: *Mahonia, Gentiana, Calendula, Hypericum, Actaea.*

In addition to these measures, magnesium citrate (800-1000 mg daily) and vitamin B complex (100-200 mg daily) may be used as a supplement support nervous function.

Catarrh and cough

The first and most overt sign of respiratory distress is increased **catarrh**. In some cases respiratory catarrh is produced in response to some kind of direct mucosal irritation (e.g. pollutants, dust, pollen), but in many cases it represents the accumulation of metabolic wastes, which, according to Priest and Priest, is a relationship that extends especially to that of the liver, bowels and kidneys, which if weakened state or otherwise inefficient condition, "...throws the burden of excretion on to the respiratory system". Thus in a catarrhal state it is important to review the function of the eliminatory organs, and the state of the diet, which may contain certain foods that act as allergens or otherwise promote a catarrhal response (e.g. dairy, flour). Even if a viral pathogen is involved, measures to reduce catarrh will invariably have a favorable effect on the manifestation and progression of the illness. One of the most direct measures to achieve this in *Ayurveda* is *samsarjana krama,* or the 'graduated diet'.

A common response to the accumulation of catarrh is the **cough**, a reflexive act of the respiratory tract to some kind of irritation or obstruction. The most sensitive part of the bronchus is the carina, the point at which the trachea divides into the left and right primary bronchus. Although it is largely an autonomic response, the cough-reflex center is located in the medulla of the brain and is partially mediated by voluntary control. There is an embryonic link between the respiratory and digestive tracts, and thus the observed connection in traditional cultures between the digestive system and the respiratory system is supported by modern investigation. The respiratory and digestive tracts share common vagal innervation, and recent associations between asthma and H_2 (histamine) receptors in the stomach support the idea of the interconnectedness of these two systems.

When a foreign particle enters into the respiratory tract, mucus secretions trap this particle and the mucociliary escalator moves this particle upwards into the nasopharynx for expectoration. During a respiratory viral infection the mucous membranes secrete a copious IgA-laden mucus flow in response to localized inflammation. This is the prototypical "runny nose" of a viral infection, and phytotherapeutic measures at this juncture should not work to inhibit this process. Coughing from such a situation is in response to excessive mucus flow, and is usually moist and easy. Preparations containing *Hydrastis* are often marketed to people with these symptoms, but the usage of large doses of Goldenseal will dry out the mucous membranes and inhibit the IgA-laden mucosal secretions. For viral rhinitis topical remedies such as a mustard plaster or inhalants such as the essential oil of Eucalyptus, Tea tree, Spruce or Pine, reduce congestion, are antiviral and enhance recovery. **Digestive expectorants** such as *Allium, Pimpinella, Zingiber, Cinnamomum* and *Angelica* may also be used at this time, taken before meals. These herbs have a nature contrary to the cold and wet features of an upper respiratory tract infection, clearing the congestion from the lungs into the nasopharynx for expectoration. In a similar fashion, botanicals classically referred to as diaphoretics can be used to activate cellular immunity, including *Ligusticum, Lomatium,* or *Angelica*. If the catarrhal load is significant, **astringent expectorants** such as *Myrica, Euphrasia, Verbascum,* or *Solidago,* can be introduced after ensuring proper digestion.

If the catarrhal state and infection has spread to the lungs causing a spasmodic cough, **antispasmodic expectorants** are indicated to limit bronchial constriction and a feeling of tightness in the chest, such as *Thymus, Tussilago, Verbascum, Prunus,* and *Hyssopus.* Although **demulcent expectorants** such as *Althaea, Ulmus* and *Chondrus* are often contraindicated in URI infections due to their damp and congestive properties, they are particularly indicated for dry, tickling coughs, where the mucus load is low.

If the infection is not defeated with a week of the first onset of symptoms, the mucous membranes become 'boggy' and congested, requiring the use of **stimulating expectorants** to stimulate the activities of the mucociliary escalator, such as *Inula, Populus, Viola* and *Primula.* If irritation becomes chronic, if coughing is painful, or if coughing is promoting sleeplessness, the judicious use of more powerful respiratory spasmolytics may be indicated, including *Grindelia, Lobelia, Lactuca, Ephedra,* and *Papaver.*

Viral infections are typically identified by the production of clear or clear-white mucus *(kapha)*, and when the mucus turns yellow, green or is tinged with blood, this is a good indication of the emergence of a bacterial infection *(pitta)*. In such cases **antimicrobial expectorants** including *Hydrastis, Azadirachta, Berberis, Commiphora, Echinacea* and *Baptisia* may be indicated. If the infection is fungal in origin, similar herbs can be used, in conjunction with measures to support digestion, vitality and immune function. Lastly, if the cough is the result of endogenous inflammation, from allergic and immune processes rather than infection, antiinflammatory expectorants in conjunction with the proper measures to address causation (e.g. diet, lifestyle) can be used, including *Glycyrrhiza, Phyllanthus, Amenarrhena,* and *Rehmannia* (Sheng di).

Allergic rhinitis

Allergic rhinitis, hay fever or pollinosis is an acute type I hypersensitivity reaction stimulated by tree, grass or weed pollens, affecting the upper respiratory tract, ears, eyes, nose and throat. It very often accompanies sensitivities to a variety of other allergens such as house dust, animal and human dander, certain textiles like wool or cotton and certain foods. It is a hypersensitivity to these allergens that cause the inflammation of the nasal passages, accompanied by watery nasal discharge, itchy red eyes, itching of the soft palate and itching of the Eustachian tube. In severe cases it can induce asthma and even anaphylaxis.

According to Ayurvedic medicine, *kapha* is the primary pathogenic factor in allergic rhinitis. In normalcy, *kapha* attends to the structural functions of the body, lubricating, moisturizing, nourishing and providing support. The cold weather of winter, coupled with a nourishing diet, causes an increase in *kapha*. This natural increase of *kapha* undergoes vitiation as the heat of the sun in spring begins to increase. An analogy would be the snow that has accumulated in the mountains over winter beginning to melt and flood the streams and rivers with water. This flooding of kapha throughout the body, but primarily in the areas of the upper body, impairs digestive function and if left unattended, gives rise to such conditions as chronic respiratory tract infections or allergic rhinitis. The traditional practice in many cultures of a spring cleanse is very useful at this time, best implemented just before the season has changed from winter to spring.

<u>Protocol for allergic rhinitis</u>

1. Inhibit the inflammatory response:
    - antiinflammatory botanicals: *Tanacetum*, *Urtica, Chrysanthemum, Mahonia, Scutellaria bai., Forsythia, Picrorhiza, Curcuma, Azadirachta, Eclipta, Solidago, Crataegus, Phyllanthus, Anemopsis;*
    - adjust EFA ratio of diet to 1:2 (n3:n6); avoid supplements, use diet (no seed oils);
    - vitamin A: 20,000 daily for 2-3 weeks, thereafter use diet;
    - vitamin B complex: 100-200 mg daily;
    - vitamin C: 3-5 g/day;
    - vitamin E: 800 IU/day;
    - mixed bioflavonoids: 3-5 g daily.

2. Enhance digestion:
    - eliminate heavy, sticky or greasy dietary articles such as dairy, flour, etc. that promote thick mucoid accumulations, or contain constituents (e.g. gluten, ANFs, casein, lectins, sugars) that directly damage the gut wall or alter the gut ecology;
    - digestives: *Acorus, Carum, Foeniculum, Mentha, Angelica, Pimpinella, Elettaria, Citrus, Crataegus pin., Zingiber*, *Elettaria*, *Piper, Ferula;*
    - Spleen Qi restoratives: *Astragalus, Codonopsis, Atractylodes, Panax;*

- cholagogues: *Berberis, Gentiana, Erythrina, Menyanthes, Hydrastis, Picrorhiza, Andrographis;*
- aperients: Triphala, *Rheum, Operculina, Rhamnus;*
- Digestive enzymes, full spectrum (i.e. HCl, pancreatic enzymes, ox bile);
- avoid overeating, do not eat within three hours of bedtime;
- avoid deep-fried foods, e.g. French fries, potato chips, etc.;
- live culture vegetable foods, e.g. sauerkraut, pickles, kimchi, achaar.

3. Tone and restore the respiratory mucosa and lungs:
   - respiratory tonics and mucolytics: *Myrica, Hydrastis, Armoracea, Hamamelis, Verbascum, Solidago, Euphrasia, Zingiber*, *Xanthium*, *Magnolia, Ephedra sin., Piper long.*, *Elettaria, Inula, Adatodha;*
   - demulcents and vulneraries: *Glycyrrhiza, Hypericum, Symphytum, Plantago, Althaea, Stellaria*, *Ophiopogon, Rehmannia* (Shu di)*, Dendrobium.*

4. Modulate the immune response, and support the nervous and endocrinal system:
   - immunomodulants, adrenal restoratives, *rasayana*, fu zheng: *Ganoderma, Astragalus, Withania, Emblica, Tribulus, Eleuthrococcus, Zizyphus, Serenoa, Asparagus, Panax, Schizandra,* Shilajit, *Glycyrrhiza, Angelica sin., Lycium, Panax quin.;*
   - parasympathomimetics, *medhya*, herbs to quiet the heart: *Verbena, Avena, Withania, Valeriana, Bacopa, Scutellaria, Leonorus, Nepeta, Nardostachys, Centella, Polygonum, Passiflora, Turnera, Piper methysticum;*
   - zinc, immunomodulant activities: 50 mg daily;
   - magnesium and calcium, relieves bronchospasm: 800-1000 mg of each per day.

5. Formulations:
   - Trikatu, 2-3 g taken with honey, tid;
   - Pe Min Kan Wan, 3-5 pills each thrice daily.

6. Lifestyle measures:
   - avoid alcohol and smoking, and direct exposure to triggers, e.g. dust and pollen;
   - for daily use in the diet: cumin seed, five spice powder, rosemary, basil, turmeric, garlic, shallots, ginger, apple cider vinegar, miso, sauerkraut;
   - herbal teas: nettle, horsetail, red clover and mint are all useful;
   - juicing with green vegetables can be a very effective short-term technique to relieve symptoms and reduce mucus;
   - the traditional practice in many cultures of a spring cleanse is very useful at this time, best implemented just before the season has changed from winter to spring;
   - *vamana* (vomiting) therapy;
   - nasal medication *(nasya, neti);*
   - daily exercise.

Sinusitis

Sinusitis is the inflammation of one or more of the paranasal sinuses (frontal, sphenoid and maxillary sinuses), often as a complication of rhinitis. With the inflammation of the nasal mucus membranes the openings from the sinuses may be obstructed promoting the accumulation of sinus secretions, causing pain, pressure, headache, fever and local tenderness. Sinusitis can be either acute or chronic, but it can be difficult to distinguish between the two, and as both are attributed to bacterial infection they are treated identically with antibiotics.

It is estimated that 37 million people in the United States suffer from chronic sinusitis, making it one of the most commonly experienced conditions. Similar to acute sinusitis, chronic sinusitis is thought to be bacterial in origin, and is typically treated with antibiotic therapy. Most patients however, while obtaining some temporary benefit, find that their symptoms return with a matter of a few weeks. In a recent study of chronic sinusitis patients, researchers at the Mayo clinic found that 93% of 210 consecutive patients diagnosed with chronic rhinosinusitis were found to be suffering from fungal infections, and that all cases were characterized by the presence of eosinophils in the nasal tissue and mucus. Thus, the routine use of antibiotics may be contraindicated in chronic sinusitis, and may end up making the problem worse by tipping ecological factors in favour of the fungi.

<u>Protocol for sinusitis</u>

1. Alleviate congestion and promote sinus drainage:
    - mucolytics: *Myrica, Hydrastis, Armoracea, Hamamelis, Verbascum, Solidago, Euphrasia, Zingiber*, *Xanthium, Magnolia, Piper longum*, *Elettaria;*
    - *pranayama:* i.e. *nasya* on a daily basis, with *Anu taila* or *Sabindu taila*, 2-4 drops in each nostril, bid; followed with *nadi shodhana* (alternate nostril breathing);
    - bedside humidification/aromatherapy with essential oils, e.g. spruce, eucalyptus, lavender, rosemary, cedar, pine, etc.

2. Enhance digestion (see under Allergic rhinitis):
    - avoid refined carbohydrates and sugar;
    - avoid yeasted foods: beer, wine, vinegar, kombucha, tibicos.

3. Resolve infection:
    - antibacterials: *Echinacea, Baptisia*, *Hydrastis, Allium, Berberis, Azadirachta, Commiphora, Coptis, Forsythia, Lonicera, Isatis, Scutellaria bai.;*
    - antifungals: *Allium, Artemisia*, *Tabebiua, Berberis, Echinacea, Spilanthes, Azadirachta Coptis, Ocimum, Eclipta, Ferula.*

4. Balance inflammation and restore immune function, after acute infection is resolved:
    - immunomodulants: *Ganoderma, Astragalus, Phyllanthus, Schizandra;*

- antiinflammatories: *Glycyrrhiza, Hypericum, Plantago, Althaea, Stellaria, Tinospora, Chrysanthemum, Phyllanthus, Curcuma*, *Rehmannia* (Shu di), *Dendrobium, Ophiopogon;*
- adjust EFA ratio of diet to 1:2 (n3:n6); avoid supplements, use diet (no seed oils);
- quercetin and bioflavonoids, 5 g daily, to stabilize mast cells and histamine release;
- immunosupportive nutrients, including vitamins A (25,000 IU daily), B complex (50 mg daily), C (to bowel tolerance) E (800 IU daily), and zinc (50 mg daily).

5. Formulae:
- Trikatu churna, 2-3 g bid-tid with honey and water
- Alarasayana, 2 pills bid
- Bi Yan Pian (for Wind-Cold and Wind Heat), 6 pills bid-tid
- Bi Tong Pian (Wind Heat, Phlegm, Liver Heat), 4 pills bid-tid

5. Lifestyle:
- avoid alcohol; quit smoking;
- limit exposure to environmental toxins, especially in air-conditioned indoor environments; personal air filters in such environments are recommended.

Sleep apnea

Obstructive sleep apnea is a sleep disorder that relates to a significant decrease and sometimes complete impairment in airflow while breathing during sleep. It is often associated with snoring, which results from the excess vibration of the pharynx, uvula and soft palate. Sleep apnea is associated with asthma, smoking, alcohol, and in particular, is associated with truncal abdominal obesity, and thus is an indicator disease for metabolic syndrome.

While the accumulation of fat around the structures of throat and neck can impact sleep apnea, the locus of the pathology is the respiratory mucosa and underlying basement membrane, which is usually in a thickened, boggy, and congested state. Treatment is thus directed to resolving this state of congestion, improving air flow and breathing, as well as addressing the underlying metabolic factors.

<u>Protocol for sleep apnea</u>

1. Enhance digestion (see Allergic rhinitis).

2. Decongest mucosa (see Allergic rhinitis, Sinusitis).

3. Improve respiratory airflow:
- *pranayama e.g. nasya, nadi shodhana* (see under Sinusitis).

4. Resolve underlying metabolic issues:

- low carbohydrate diet, to restore insulin sensitivity;
- anaerobic/muscle-building exercise;
- hypolipidemic cholagogues: *Curcuma, Berberis, Gentiana, Menyanthes, Swertia;*
- antioxidants: *Phyllanthus, Curcuma longa, Centella, Ganoderma, Cordyceps;*
- circulatory support: *Boswellia, Commiphora, Crataegus, Rosmarinus, Panax notoginseng.*

5. Formulae:
- Trikatu rasayana: 2 pills bid
- Alarasayana: 2 pills bid
- Shilajitu rasayana: 2 pills bid