Stress and Strain plays a direct or contributing role in seven of the ten leading causes of death in developed nations, including heart disease, strokes, injuries, cancer and chronic liver disease. In some countries, over 10% of the labor force is on extended or permanent stress leave.

There is no single medical or psychological specialty with particular expertise in stress. For this reason, partnerships including family physicians and mental health professionals often provide the most effective approach to treating stress-related disorders.

*Fast Facts – Stress and Strain* offers a concise overview of the psychophysiology of stress, the symptoms of stress-related disorders, the diagnosis of stress and strain, and the preventive management of stress and treatment of strain. The up-to-date, practical information provided here by two leading international experts will help family physicians to reach the right decisions about long-term preventive strategies and short-term treatment options.

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Stress and Strain

Second edition

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Glossary

DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, 4th edition

Eustress: the healthy, positive, constructive outcome of stressful events and the stress response

Job stress: the mind–body arousal resulting from physical and/or psychological stressors associated with a job and work

Medical management: tertiary prevention and treatment of strain based on medications, physical therapy and surgery

Preventive management: an approach and set of principles for promoting eustress and health while preventing strain and dysfunction

Primary prevention: the preventive management of stress by modifying, reducing, or altering stressors

Psychological management: tertiary prevention and treatment of strain based on psychotherapy, behavior therapy and traumatic event debriefing

Post-traumatic stress disorder (PTSD): a condition characterized by the reliving of an extremely traumatic event, accompanied by the symptoms of increased arousal and avoidance of stimuli associated with the trauma

Secondary prevention: the preventive management of stress by modifying, altering or changing the person's stress response to inevitable or unalterable stressors

Strain: the physiological, psychological and/or behavioral deviation from an individual's healthy functioning (synonymous with distress)

Stress management methods: methods for preventing strain while enhancing eustress

Stress response: the generalized, patterned, unconscious mobilization of the body's natural energy resources when confronted with a stressor

Stressor: a physical or psychological stimulus to which an individual responds (synonymous with demand)

Tertiary prevention: preventive management by treatment intervention to heal a person's strain

Trauma: a highly stressful, deeply disturbing or dramatically unexpected stressful event experienced as traumatic by the individual

Type A behavior pattern: a behavior–personality complex with the predominant features of competitive overdrive, devotion to work, anger–aggression and time urgency
Introduction

The stress response is a normal psychophysiological response to stressful or traumatic events, environmental stressors and interpersonal conflicts experienced by an individual. Stress poses a risk to health when it occurs frequently or is intense, prolonged or mismanaged. Stressful events can pose a threat to both health and life. Stress, although not the only or primary cause, is implicated in over half of all human morbidity and mortality. In the USA and developed countries, the ten leading causes of death account for 79–80% of all deaths (Figure 1). Stress is directly implicated in four causes (heart disease, strokes, injuries, and suicide and homicide) and indirectly implicated in a further three (cancer, chronic liver disease, and emphysema and chronic bronchitis). Common presenting symptoms are anxiety and depression.

Extensive research on stress, most notably in the past 30 years, has significantly increased our understanding of the role of stress in health

Figure 1 In 1990, stress was implicated in seven (highlighted in orange) of the ten leading causes of death in the developed world.
as well as in specific disorders and diseases. This scientific understanding has been translated and communicated to patients, dramatically increasing their awareness of stress. Consequently, family physicians and patients need to develop a greater understanding of stress and its implications, both in the short and long term.

Family physicians are seeing an increasing number of patients with stress-related anxiety and depression, and with chronic medical illnesses and psychological disorders that have a stress component. Stress-related disorders, and in particular anxiety and depression, continue to carry stigmas for many patients and some physicians. *Fast Facts – Stress and Strain* offers a concise overview of the psychophysiology of stress, the symptoms of stress-related disorders, the diagnosis of stress and strain, and the preventive management of stress and treatment of strain. The up-to-date, practical information provided here will help doctors and patients to reach appropriate decisions about long-term preventive strategies and short-term treatment options. Family physicians will also benefit from forming partnerships with mental health professionals in the diagnosis and treatment of stress-related disorders, because stress is a multidisciplinary concern.

### Key references


The stress response is one element of the stress process. It consists of a generalized pattern of psychophysiological reactions triggered by stressors such as pressure, conflict or trauma (Figure 1.1). In contrast to more specific medical conditions, stress is a systemic mind–body response activated by the combined actions of the sympathetic nervous system and the endocrine system (Figure 1.2). The stress response is implicated in a range of chronic medical, behavioral and psychological disorders, and has four combined effects.

- Blood flow is redirected from the skin, intestines and other vegetative organs to the muscles and brain.
- Glucose and fatty acids are mobilized from storage sites into the bloodstream to provide readily available energy.
- Alertness is increased through a sharpening of sensory processes, such as vision and hearing.
- Functioning of the immune system, restorative processes and routine maintenance functioning, such as digestion, is reduced (Figure 1.3).

These effects have an important role at times of emergency and in stressful situations, yet pose a risk to health if they are sustained over a prolonged period, or elicited frequently or at a high intensity.

**The sympathetic nervous system**

The somatic nervous system controls skeletal muscle, and the autonomic nervous system controls the visceral organs. The autonomic
Figure 1.2 The physiological changes resulting from the stress response.

- 'Fight-or-flight' area of hypothalamus stimulated
- Increased sympathetic nervous system activity
- Increased blood flow to muscles
- Increased respiratory rate
- Increased heart rate and blood pressure
- Increased sweating
- Increased body metabolism

Figure 1.3 Immune system changes under stress. Under mild stress, the immune response is triggered and the heart’s moderately increased pumping activates the skin, lymph nodes, spleen and bone marrow. Under chronic or severe stress, the immune response is suppressed or reduced. Immune organs atrophy and white blood cells are destroyed.
Primary and secondary prevention methods are long-term approaches to changing how an individual experiences, manages and responds to a wide range of stressors and trauma. These prevention methods require the patient to acquire some complex behavioral skills, which are not short-term solutions for acute stress-related problems. Primary and secondary prevention methods provide behavioral and psychological tools that enable individuals to develop self-reliance skills for the long-term, successful preventive management of stress. Some patients are likely to practice one or more of these primary and secondary skills already. The physician should consider prescribing one or two additional methods for the patient to develop. Suggesting more than two new prevention methods at any one time has been shown to significantly reduce successful integration of the practice into the patient’s lifestyle.

**Primary preventive management**

Four methods for primary preventive stress management are:

- learned optimism
- time management and planning
- modifying type A behavior pattern
- building supportive social relationships.

These methods are complementary; each emphasizes a different aspect of the behavioral and psychological skills necessary for successful stress management. To achieve the greatest benefit, an individual should select and regularly practice one or two of the skills that are most appropriate for them.

**Learned optimism.** This psychological skill helps a person to modify their perceptions about events, primarily bad events and adversity, and to think positively instead. Individuals tend to develop either optimistic or pessimistic habits of thought with regard to life events. Optimistic
thinkers focus on the benefits of good events and minimize the stressful aspects of bad events. These individuals view adversity as temporary, with limited bad effects, and something that is not their personal responsibility. In contrast, pessimistic habits of thought tend to magnify adversity and the stressful aspects of bad events, and minimize the benefits of good events. Pessimistic thinkers feel responsible for adversity and view it as more permanent and with wider-ranging consequences.

The aim of learned optimism is to change the way in which a person views life events, particularly adversity, and consequently to make bad events less stressful while increasing the experience of hope for the individual concerned. The patient should answer the questions in Table 5.1 and follow the suggestions for changing habits of thinking. More details for practice can be found in Seligman (1990).

The physician can prescribe diary writing for patients who may be pessimistic thinkers, as in Case report 2.1 (page 15). By recording thoughts and feelings at the end of each day for a minimum of 2 weeks and then reading through the diaries after a week’s delay, a patient can see how pessimistic, or optimistic, their thinking may be. This initial knowledge is the important first step identified in Table 5.1. Pessimistic or negative thinking also manifests as worry, which is another form of dysfunctional beliefs and perceptions. Exercises, rules and prescriptions for patients who want to stop worrying can be found in the time-tested methods of Carnegie (1984/1944). His rules include: keep busy, don’t sweat the small stuff, cooperate with the inevitable, and let the past die in peace.

**Time management and planning** are primary prevention skills that allow healthy achievement, while avoiding overload and a crisis management approach. Crisis managers create more stress both for themselves and for others around them. People who manage events in a broader context are macro time managers with skills to plan using a GP³ approach (Goal setting, Prioritize, Plan, Praise; Table 5.2). Developed by Brooks and Mullins, this approach helps people set and prioritize goals, create and execute plans, and then feel good about achieving results. Personal goals are as important as professional goals. A further skill of good macro time managers is to recognize that goals