



TMD News

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Temporomandibular Disorders/Orofacial Pain
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Toting Your Allostatic Load

Long-term Stress Weakens Immune System... Many factors can contribute to the development of a temporomandibular disorder (TMD). Extrinsic trauma to the jaw is an obvious etiology. Less obvious and often more complex are TMDs resulting from intrinsic trauma, such as repetitive parafunctional behaviors like bruxing. There is much yet to be learned about the causes of bruxing, but **one well-studied contributing factor is stress**. We will update our knowledge about stress and its effects on our overall health in this issue and relate this information more directly to the onset of TMD in a future issue.

Healthcare professionals are trained in the importance of short-term stress as a positive force in mounting our body's protective physiological and behavioral responses to the various challenges and threats we perceive in everyday life. We learn to also appreciate the negative force that stress can become when our biochemical mediators such as cortisol and catecholamines have damaging vs. protective effects. We observe patients' immune systems weakened by long-term stress, making them more susceptible to the onset and progression of many illnesses and disorders. We recognize that **many symptoms have a psychophysiological basis rooted in stress**.

Sterling and Eyer (1988) introduced the term **allostasis** to define *“how the body maintains stability, or homeostasis, through change.”* These changes are positive and protective when they are short-term. Our **allostatic systems** that respond specifically to protect the body are *“the parts of the nervous system that control the cardiovascular, hormonal, metabolic and immune systems.”* These permit us to adapt healthfully to usual, everyday stresses. When stressful events persist or recur frequently, however, a variety of physical and emotional symptoms can result that may not go away. Excessive stress over a long period causes us to lose the ability to calm down physiologically and psychologically.

Unresolved Stress... Dr. Bruce McEwen (1998) defined years of unresolved stress in terms of **allostatic load**, which is *“the wear and tear that results from chronic overactivity or underactivity of allostatic systems.* Perception of stress is influenced by one's experiences, genetics and behavior. When the brain perceives an experience as stressful, physiologic and behavioral responses are initiated leading to allostasis. Over time, allostatic load can accumulate and the overexposure to neural, endocrine, and immune stress mediators can have adverse effects on various organ systems, leading to disease.” A chronic state of perceived stress gives us a heavy allostatic load that damages our systems and can lead to physiological problems like insulin resistance, hypertension and atherosclerosis. It can lead to emotional disorders as well, such as anxiety and depression.

Our individual allostatic load is comprised of many factors such as capacity to change, genetics, early childhood experiences, diet, exercise, lifestyle, where we stand economically and educationally, and the treatment accorded us by our societies. McEwen notes that **“there are considerable individual differences in coping with challenges based upon interacting genetic, developmental and experiential factors.** There is a cascading effect of genetic predisposition and early developmental events, such as abuse and neglect or other forms of early life stress, to predispose a person to over-react physiologically and behaviorally to events throughout life.”

Stress is Personal... Healthcare practitioners should **consider each individual patient's allostatic load when diagnosing and treating illness.** They can help their patients to reduce their stress level by learning coping skills, seeking emotional and social support, and changing unhealthy lifestyle habits.