Review

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Abstract: Stress is a pervasive factor in everyday life that critically affects development and functioning. Severe and prolonged stress exposure impairs homeostatic mechanisms, particularly associated with the onset of depressive illness. Brain food is aimed at preventing as well as treating a growing number of stress-related mental disorders. Some topics on the association of stress and nutrition is reviewed. (1) An increased activity of serotonergic neurons in the brain is an established consequence of stress. An increase in brain tryptophan levels on the order of that produced by eating a carbohydrate-rich/protein-poor meal causes parallel increases in the amounts of serotonin released into synapses. (2) Eating is thought to be suppressed during stress, due to anorectic effects of corticotrophin releasing hormone, and increased during recovery from stress, due to appetite stimulating effects of residual cortisol. (3) A strong inverse association between coffee intake and risk of suicide. (4) Night eating syndrome has been found to occur during periods of stress and is associated with poor results at attempts to lose weight and disturbances in the hypothalamic-pituitary-adrenal axis. (5) Dietary antioxidants present in fruits and vegetables may improve cognitive function. Therefore, it is concluded that the establishment of functional foods that correctly regulate stress response must be firmly based upon scientific knowledge and legal regulation.

Keywords: stress, nutrition, functional food, serotonin, antioxidant
stress \rightarrow \text{corticotrophin releasing hormone} \rightarrow \text{cortisol} \rightarrow \text{gluconeogenesis}

\text{leptin} \rightarrow \text{lipolysis} \rightarrow \text{hyperphagia} \rightarrow \text{weight gain}

\begin{tikzpicture}
\node (stress) {stress};
\node (crh) [below of=stress] {corticotrophin releasing hormone};
\node (cortisol) [below of=crh] {cortisol};
\node (gluconeogenesis) [below of=cortisol] {gluconeogenesis};
\node (leptin) [left of=gluconeogenesis] {leptin};
\node (lipolysis) [below of=leptin] {lipolysis};
\node (hyperphagia) [below of=lipolysis] {hyperphagia};
\node (weight_gain) [below of=hyperphagia] {weight gain};
\end{tikzpicture}

\text{noradrenergic system} \rightarrow \text{galanin} \rightarrow \text{increased appatite}
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