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A SURVEY ON THE IMPACT OF STRESS ON BODY FUNCTIONS

Tariq Ahmad Ashai*

Associate Professor Department of Chemistry Amar Singh College, Srinagar J&K (India)

***Corresponding Author: Tariq Ahmad Ashai**
Associate Professor Department of Chemistry Amar Singh College, Srinagar J&K (India).

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ABSTRACT
Any characteristic or extraneous improvement that summons a natural reaction is known as pressure. The compensatory reactions to these anxieties are known as pressure reactions. In view of the sort, timing and seriousness of the applied boost, stress can apply different activities on the body going from adjustments in homeostasis to dangerous impacts and demise. Largely, the pathophysiological confusions of illness emerge from pressure and the subjects presented to pressure, for example, those that work or live in upsetting conditions, have a higher probability of many problems. Stress can be either a setting off or disturbing variable for some sicknesses and neurotic circumstances. In this review, we have assessed a portion of the significant impacts of weight on the essential physiological frameworks of people.

KEYWORDS: compensatory, homeostasis, pathophysiological.

EFFECT ON VASCULAR SYSTEM

The presence of a positive relationship among stress and cardiovascular illness has been checked (Rozanski et al., 1999[93]). Stress, whether intense or constant, maliciously affects the capability of the cardiovascular framework (Rozanski et al., 1999[93]; Kario et al., 2003[48]; Crowd, 1991[1]). The impacts of weight on the cardiovascular framework are stimulatory, yet additionally inhibitory in nature (Engler and Engler, 1995[2]). It tends to be hypothesized that pressure causes autonomic sensory system enactment and by implication influences the capability of the cardiovascular framework (Lazarus et al., 1963[3]; Vrijkotte et al., 2000[4]). On the off chance that these impacts happen upon enactment of the thoughtful sensory system, it principally brings about an expansion in pulse, strength of compression, vasodilation in the corridors of skeletal muscles, a limiting of the veins, constriction of the supply routes in the spleen and kidneys, and diminished sodium discharge by the kidneys (Crowd, 1991[5]). In some cases, stress actuates the parasympathetic sensory system (Pagani et al., 1991[6]). In particular, on the off chance that it prompts feeling of the limbic framework, it brings about a diminishing, or even a complete halting of the heart-beat, diminished contractility, decrease in the direction of motivations by the heart improvement transmission organization, fringe vasodilatation, and a decrease in pulse (Cohen et al., 2000[7]). At long last, stress can tweak vascular endothelial cell capability and increment the gamble of apoplexy and ischemia, as well as increment platelet collection (Rozanski et al., 1999[7]).

The underlying impact of weight on heart capability is generally on the pulse (Vrijkotte et al., 2000[8]). Contingent on the course of the change in the sympatho-vagal reaction, the heart beat will either increment or abatement (Corridor et al., 2004[9]). The following massive impact of weight on cardiovascular capability is pulse (Laitinen et al., 1999[10]). Stress can animate the autonomic thoughtful sensory system to increment vasoconstriction, which can intervene an expansion in circulatory strain, an expansion in blood lipids, messes in blood thickening, vascular changes, atherogenesis; all, of which, can cause cardiovascular arrhythmias and ensuing myocardial localized necrosis (Rozanski et al., 1999[11]; Vrijkotte et al., 2000[120]; Sgoifo et al., 1998. These impacts from pressure are noticed clinically with atherosclerosis and prompts an expansion in coronary vasoconstriction (Rozanski et al., 1999. Obviously, there are individual contrasts as far as the degree of autonomic-based reactions because of stress, which relies upon the individual qualities of a given individual (Rozanski et al., 1999. Consequently, preparing programs for pressure the executives are pointed toward decreasing the outcomes of stress and passing coming about because of coronary illness (Engler and Engler, 1995. What's more, there are orientation subordinate contrasts in the cardiovascular reaction to stretch and, likewise, it has been assessed that ladies start to display coronary illness a decade after the fact that men, which has been credited to the defensive impacts of the estrogen chemical (Rozanski et al., 1999.

Studies have demonstrated the way that mental pressure can cause alpha-adrenergic excitement and, thusly, increment pulse and oxygen interest (Rozanski et al., 1999, 1999; Jiang et al., 1996. Subsequently, coronary vasoconstriction is improved, which might build the gamble of myocardial dead tissue (Yeung et al., 1991; Boltwood et al., 1993 Dakak et al., 1995. A few examinations have shown that mental pressure diminishes the microcirculation in the coronary veins by an endothelium-subordinate system and expands the gamble of myocardial dead tissue (Dakak et al., 1995[12]). Then again, mental pressure by implication prompts likely commitment to unsafe ways of behaving for the heart, like smoking, and straightforwardly prompts excitement of the neuroendocrine framework as a component of the autonomic sensory system (Hornstein, 2004. It has been proposed that extreme mental pressure can bring about unexpected passing (Pignalberi et al., 2002. For the most part, stress-intervened unsafe ways of behaving that influence cardiovascular wellbeing can be summed up into five classifications: an expansion in the feeling of the thoughtful sensory system, commencement and movement of myocardial ischemia, improvement of heart arrhythmias, excitement of platelet total, and endothelial brokenness (Wu, 2001)

EFFECT OF STESS ON IMMUNE SYSTEM

The connection among stress and the invulnerable framework has been considered for quite a long time (Khansari et al., 1990. Dantzer and Kelley, 1989. The overall mentality between the relationship of stress and resistant framework reaction has been that individuals under pressure are bound to have an impeded invulnerable framework and, thus, experience the ill effects of more incessant sickness (Khansari et al., 1990. Likewise, old stories depicting opposition of certain individuals to extreme sickness utilizing the force of the psyche and their manners of thinking, has advanced this mentality (Khansari et al., 1990. In around 200 AC, Aelius Galenus (Galen of Pergamon) announced that melancholic ladies (who have elevated degrees of stress and, consequently, debilitated safe capability) are bound to have disease than ladies who were more sure and presented to less pressure (Reiche et al., 2004. This might be the main recorded case about the connection between the safe framework and stress. In an old concentrate in the mid 1920's, specialists found that the movement of phagocytes in tuberculosis diminished when close to home pressure was prompted. As a matter of fact, it was likewise recommended that living with pressure builds the gamble of tuberculosis by stifling the safe framework (Ishigami, 1919. Following this review, different scientists recommended that the likelihood of illness appearance increments following an unexpected, major, and very unpleasant way of life change (Holmes and Rahe, 1967; Calabrese et al., 1987.

Throughout the course of recent many years, there have been many examinations researching the job of weight on invulnerable framework capability (Dantzer and Kelley, 1989 Segerstrom and Mill operator, 2004. These investigations have demonstrated the way that pressure go betweens can go through the blood-mind boundary and apply their consequences for the invulnerable framework (Khansari et al., 1990. In this way, the impact of weight on the safe framework is presently an acknowledged relationship or affiliation.

Stress can influence the capability of the safe framework by adjusting processes in the CNS and neuroendocrine framework (Khansari et al., 1990; Kiecolt-Glaser and Glaser, 1991 Following pressure, a few neuroendocrine and brain reactions bring about the arrival of corticotropin-delivering chemical (CRH), adrenocorticotropic chemical (ACTH), and other pressure middle people (Carrasco and Van de Kar, 2003[13]). Notwithstanding, proof recommends that the lymphatic framework, which is a piece of the resistant framework, likewise assumes a part in delivering these middle people (Khansari et al., 1990. For example, thymus peptides, for example, thymopentine, thymopoietin, and thymosin portion 5, cause an expansion in ACTH creation (Goya et al., 1993. Moreover, the presence of CRH in thymus has been demonstrated (Redei, 1992. It has likewise been demonstrated that interleukin-1 set free from phagocytes plays a part in ACTH discharge (Berkenbosch et al., 1987[4]). Then again, regular or engineered glucocorticosteroids (which are the last pressure administrators) are known as mitigating medications and safe suppressants and their job in the hindrance of lymphocytes and macrophages has been shown too (Elenkov et al., 199 Reiche et al., 2004. Additionally, their part in hindering the creation of cytokines and other safe middle people and diminishing their impact on track cells during openness to push has not entirely set in stone (Reiche et al., 2004.

Notwithstanding adrenal steroids, different chemicals are impacted during pressure. For instance, the discharge of development chemical will be ended during extreme pressure. A review showed that drawn out organization of CRH into the mind ventricles prompts a suspension in the arrival of development chemical (Rivier and Vale, 1985. Stress likewise causes the arrival of narcotic peptides to be changed during the time span over which the individual is presented to pressure (McCarthy et al., 2001. Truth be told, stress changes the emission of chemicals that assume a basic part in the capability of the safe framework (Khansari et al., 1990. Until this point in time, it has been shown that different receptors for various chemicals associated with safe framework capability are unfavorably impacted by pressure. For instance, ACTH, vasoactive gastrointestinal peptide (celebrity), substance P, development chemical, prolactin, and steroids all have receptors in different tissues of the safe framework and can tweak its capability (De la Fuente et al., 1996; Occasion, 1991; Mantyh, 1991. What's more, dynamic safe cells are likewise ready to discharge a few chemicals; in this way,

a few scientists trust that these chemicals, as go betweens of resistant framework, assume a critical part in adjusting its capability (Blalock et al., 1985.

Extreme pressure can prompt harm by stifling the resistant framework (Reiche et al., 2004. As a matter of fact, stress can diminish the action of cytotoxic T lymphocytes and regular executioner cells and lead to development of dangerous cells, hereditary precariousness, and growth extension (Reiche et al., 2004[88]). Studies have shown that the plasma centralization of norepinephrine, which increments after the acceptance stress, has an opposite relationship with the invulnerable capability of phagocytes and lymphocytes (Reiche et al., 2004). In conclusion, catecholamines and narcotics that are delivered following pressure have safe smothering properties (Reiche et al., 2004.

EFFECT ON COGNITION AND LEARNING

Cognizance is one more significant component of cerebrum capability. Discernment implies gathering and view of seen boosts and its translation, which incorporates learning, direction, consideration, and judgment (Sandi, 2013[95]). Stress manily affects perception that rely upon its power, span, beginning, and greatness (Sandi, 20130. Like memory, perception is principally shaped in the hippocampus, amygdala, and transient curve (McEwen and Sapolsky, 1995. The net impact of weight on perception is a decrease in cognizance and subsequently, it is said that any conduct steps embraced to diminish pressure prompts expansion in discernment (Scholey et al., 2014. As a matter of fact, stress enacts a few physiological frameworks, like the autonomic sensory system, focal synapse and neuropeptide framework, and the nerve center pituitary-adrenal hub, which straightforwardly affect brain circuits in the cerebrum engaged with information handling (Sandi, 2013). Enactment of stress brings about the creation and arrival of glucocorticosteroids. On account of the lipophilic properties of glucocorticosteroids, they can diffuse through the blood-mind obstruction and apply long haul consequences for handling and discernment (Sandi, 2013).

Apparently being presented to pressure can cause pathophysiologic changes in the mind, and these progressions can be appeared as conduct, mental, and temperament problems (Li et al., 2008[60]). As a matter of fact, studies have demonstrated the way that persistent pressure can cause complexities like expanded IL-6 and plasma cortisol, yet diminished measures of cAMP responsive component restricting protein and mind determined neurotrophic factor (BDNF), which is basically the same as what is seen in individuals with wretchedness and temperament issues that display a large number of mental issues (Melody et al., 2006[14]). Moreover, the expanded groupings of provocative elements, similar to interleukins and TNF-α (which assume a significant part in making mental problems), demonstrates a physiologic connection among stress and mind-set based mental issues (Solerte et al., 2000[13]; Marsland et al., 2006[8]; Li et al., 2008[6]). Concentrates on creatures propose that mental issues coming about because of stress are made due to neuroendocrine and neuroamine factors and neurodegenerative cycles (Li et al., 2008[60]). In any case, it ought to be noticed that downturn may not generally be because of the over enactment of the physiological-based pressure reaction (Osanloo et al., 2016[1]).

Mental issues following openness to stretch have been accounted for in past examinations (Lupien and McEwen, 1997. Stress affects cognizance both intensely (through catecholamines) and constantly (through glucocorticosteroids) (McEwen and Sapolsky, 1995. Intense impacts are mostly brought about by beta-adrenergic impacts, while persistent impacts are prompted in a drawn out way by changes in quality articulation interceded by steroids (McEwen and Sapolsky, 1995. As a rule, numerous systems balance the impacts of weight on discernment (McEwen and Sapolsky, 1995; Mendl, 1999. For example, adrenal steroids influence the capability of the hippocampus during cognizance and memory recovery in a biphasic way (McEwen and Sapolsky, 1995. In constant pressure, these steroids can obliterate neurons with other stimulatory synapses (Sandi, 2013. Openness to stress can likewise cause problems in hippocampus-related comprehension; explicitly, spatial memory (Borcel et al., 2008[9]; Sandi et al., 2003[96]). Moreover, stress can end or diminish the beginning of neurons in the dentate gyrus region of the hippocampus (this region is one of the restricted mind regions in which neurogenesis happens in grown-ups) (Gould and Tanapat, 1999 Köhler et al., 2010. Despite the fact that age is a variable known to influence comprehension, concentrates on creatures have exhibited that youthful rodents presented to high portions of adrenal steroids show similar degree of decrease in their perception as more established grown-up creatures with typical plasma convergences of glucocorticoids (Landfield et al., 1978. Likewise, a reduction in the emission of glucocorticosteroids causes protection of spatial memory in grown-ups and has likewise been displayed to make neuroprotective impacts (Montaron et al., 2006. Different examinations have shown that pressure (or the infusion of adrenal steroids) brings about shifted consequences for comprehension. For example, infusion of hydrocortisone at the hour of its greatest plasma focus (in the early evening) prompts a decline in response time and further develops cognizance and memory (Lupien et al., 2002. In synopsis, the unfavorable impacts of weight on discernment are different and rely upon the sort, timing, power, and length (Sandi, 2013. For the most part, it is accepted that gentle pressure works with an improvement in mental capability, particularly on account of virtual or verbal memory. Nonetheless, in the event that the force of pressure passes past a foreordained limit (which is different in every person), it causes mental problems,

particularly in memory and judgment. The disturbance to memory and judgment is because of the impacts of weight on the hippocampus and prefrontal cortex (Sandi, 2013. Obviously, it should be understood that elements like age and orientation may likewise assume a part in a few mental issues (Sandi, 2013. Critically, it ought to be underscored that various individuals might display fluctuated reactions in comprehension when presented to exactly the same unpleasant improvement (Hatef et al., 2015.

EFFECT OF STRESS ON MEMORY

Memory is one of the significant practical parts of the CNS and it is ordered as tangible, present moment, and long haul. Transient memory is subject to the capability of the front facing and parietal curves, while long haul memory relies upon the capability of enormous region of the cerebrum (Wood et al., 2000[14]). Nonetheless, complete capability of memory and the transformation of transient memory to long haul memory are subject to the hippocampus; a region of the mind that has the most elevated thickness of glucocorticosteroid receptors and furthermore addresses the most elevated level of reaction to push (Scoville and Milner, 1957[107]; Asalgoo et al., 2015[1]). In this way, during the beyond a very long while, the connection between the hippocampus and stress have been extremely controversial (Asalgoo et al., 2015[15]; Lupien and Lepage, 2001. In 1968, it was demonstrated that there were cortisol receptors in the hippocampus of rodents (McEwen et al., 1968[16]). Afterward, in 1982, by utilizing explicit agonists of glucocorticosteroid and mineralocorticoid receptors, the presence of these two receptors in the cerebrum and hippocampus area of rodents was demonstrated (Veldhuis et al., 1982. It ought to likewise be noticed that the amygdala is vital to surveying the profound encounters of memory (Roozendaal et al., 2009.

The consequences of past investigations have exhibited the impact of weight on the course of memory (Ghodrat et al., 2014[17]). Different examinations have demonstrated the way that pressure can cause utilitarian and primary changes in the hippocampus segment of the cerebrum (McEwen, 1999. These primary changes incorporate decay and neurogenesis issues (Lupien and Lepage, 2001. Likewise, ongoing pressure and, subsequently, an expansion in plasma cortisol, prompts a decrease in the quantity of dendritic branches (Woolley et al., 1990[18]) and the quantity of neurons (Sapolsky et al., 1990 as well as underlying changes in synaptic terminals (Sapolsky et al., 1990 and diminished neurogenesis in the hippocampus tissue (Gould et al., 1998. Glucocorticosteroids can prompt these progressions by either affecting the cell digestion of neurons (Lawrence and Sapolsky, 1994[19]), or expanding the responsiveness of hippocampus cells to stimulatory amino acids (Sapolsky and Pulsinelli, 1985 as well as expanding the degree of extracellular glutamate (Sapolsky and Pulsinelli, 1985.

High convergences of stress chemicals can cause revelatory memory problems (Lupien and Lepage, 2001. Creature studies have demonstrated the way that pressure can cause a reversible decrease in spatial memory because of decay of the hippocampus (Luine et al., 1994. As a matter of fact, high plasma groupings of glucocorticosteroids for broadened timeframes can cause decay of the hippocampus prompting memory problems (Issa et al., 1990. Moreover, individuals with either Cushing's condition (with an expanded discharge of glucocorticosteroids), or individuals who get high measurements of exogenous manufactured calming drugs, are seen to have decay of the hippocampus and related memory problems (Ling et al., 1981[20]). X-ray pictures taken from the minds of individuals with post-horrendous pressure problem (PTSD) have shown a decrease in the volume of the hippocampus alongside neurophysiologic impacts like a frail verbal memory (Bremner, 1999[21]). A few human investigations have proposed that even normal restorative dosages of glucocorticosteroids and dexamethasone can create some issues with unequivocal memory (Keenan et al., 1995[22]; Kirschbaum et al., 1996. In this way, there is a converse connection between the degree of cortisol and memory (Ling et al., 1981[61]), with the end goal that rising degrees of plasma cortisol following delayed pressure prompts a decrease in memory (Kirschbaum et al., 1996[53]), which improves when the degree of plasma cortisol diminishes (Seeman et al., 1997[108]).

Stress likewise adversely affects learning. Results from hippocampus-subordinate stacking information exhibit that subjects are not as acquainted with another climate in the wake of having been presented to another climate (Bremner, 1999[10]). Besides, adrenal steroids lead to modification in long haul potentiation (LTP), which is a significant cycle in memory development (Delight and Lømo, 1973[7]).

Two variables are engaged with the memory interaction during stress. The first is noradrenaline, which makes close to home parts of recollections in the basolateral amygdala region (Joëls et al., 2011[23]). In addition, this cycle is worked with by corticosteroids. In any case, on the off chance that the arrival of corticosteroids happens a couple of hours sooner, it causes restraint of the amygdala and comparing ways of behaving (Joëls et al., 2011. Consequently, there is a shared harmony between these two chemicals for making a reaction in the memory cycle (Joëls et al., 2011.

Stress doesn't necessarily influence memory. Now and again, under extraordinary circumstances, stress can really further develop memory (McEwen and Lupien, 2002[24]. These circumstances incorporate non-commonality, non-consistency, and hazardous parts of forced excitement. Under these particular circumstances, stress can briefly work on the capability of the cerebrum and, subsequently, memory. Truth be told, it has been recommended that pressure can hone memory in certain

circumstances (Schwabe et al., 2010. For instance, it has been demonstrated the way that taking a composed assessment can further develop memory for a brief timeframe in assessment members. Strangely, this condition is related with a diminishing in the degree of cortisol in the spit (Vedhara et al., 2000. Different examinations have shown that approaching pressure prior to learning happens can likewise prompt either an expansion in the force of memory (Arches et al., 2002[25]; Schwabe et al., 2008, or decline in the limit with respect to memory (Precious stone et al., 2006[26] Kirschbaum et al., 1996. This Catch 22 outcomes from the sort of forced pressure and either the level of profound association with the unpleasant occasion (Payne et al., 2007[23]; Jewel et al., 2007[25]), or the timeframe between the monumental pressure and the most common way of learning (Precious stone et al., 2007.[27]

The method involved with fortifying memory is normally supported after pressure (Schwabe et al., 2012. Different examinations on creature and human models have shown that organization of either glucocorticosteroids, or stress soon after learning has happened works with memory (Schwabe et al., 2012. Additionally, it has been shown that glucocorticosteroids (not mineralocorticoids) are important to further develop learning and memory (Lupien et al., 2002[66]). In any case, the recovery of occasions in memory after openness to stress will be diminished (Schwabe et al., 2012, which might result from the opposition of refreshed information for capacity in memory in an upsetting state (de Kloet et al., 1999. A few examinations have shown that either openness to stress, or infusion of glucocorticosteroids before a test to survey maintenance, diminishes the force of memory in people and rodents (Schwabe and Wolf, 2009. In outline, it has been reasoned that the impact of weight on memory is exceptionally reliant upon the hour of openness to the unpleasant upgrade and, as far as the planning of the forced pressure, memory can be either better or more terrible (Schwabe et al., 2012. Besides, late examinations have shown that utilizing a particular planned timetable of openness to stretch influences hippocampus-subordinate memory, yet additionally striatum-subordinate memory, which features the job of timing of the forced distressing upgrade (Schwabe et al., 2010.

CONCLUSION

Out and out, stress might incite both gainful and unsafe impacts. The advantageous impacts of pressure include saving homeostasis of cells/species, which prompts proceeded with endurance. Nonetheless, much of the time, the unsafe impacts of pressure might get more consideration or acknowledgment by a person because of their part in different obsessive circumstances and illnesses. As has been examined in this audit, different variables, for instance, chemicals, neuroendocrine middle people, peptides, and synapses are engaged with the body's reaction to stretch. Many problems start from pressure, particularly assuming the pressure is serious and drawn out. The clinical local area needs to have a more prominent appreciation for the critical job that pressure might play in different illnesses and afterward treat the patient in like manner utilizing both pharmacological (prescriptions as well as nutraceuticals) and non-pharmacological (change in way of life, day to day work out, sound nourishment, and stress decrease programs) restorative mediations.

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