Sri Lakshmi Narayana Institute of Medical Sciences

Osudu, Puducherry-605502

Date : 04.05.2018

From
V.Senthil kumar
Professor and Head,
Dept.of physiology
SLIMS,
Bharath Institute of Higher Education and Research.
Chennai.

To
The Dean,
SLIMS
Bharath Institute of Higher Education and Research,
Chennai.

Sub: Permission to conduct value-added course: Certificate course of Exercise in stress management

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **Certificate course of Exercise in stress management** on Feb 2018 - Apr 2018. We solicit your kind permission for the same

Kind Regards

DR.V.Senthil kumar

FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:

The Dean: DR.Sugumaran Annamalai

The HOD: DR.V Senthil kumar

Expert :DR.R.Vijayakumar

The committee has discussed about the course and is approved.

Dean

subject expert

HOD

OFFICE OF THE DEAN

Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.

[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]
[Affiliated to Bharath University, Chennai - TN]

Circular

Date: 17-01- 2018

Sub: Organising Value-added Course: Certificate course of Exercise in stress management -reg

With reference to the above mentioned subject, it is to bring to your notice that **SLIMS, Bharath Institute of Higher Education and Research**, is organising Certificate course of Exercise in stress management". The course content is enclosed below."

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before Jan 2018. Applications received after the mentioned date shall not be entertained under any circumstances.

Dean

DEAN
SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES
OSUDU, AGARAM VILLAGE,
KUDAPAKKAM POST,
PUDUCHERRY - 605 502.

Encl: Copy of Course content and Registration form.

VALUE ADDED COURSE

1. Name of the programme & Code

Certificate course of Exercise in stress management PHYC06

2. Duration & Period

30 hrs & Feb 2018 – Apr 2018

3. Information Brochure and Course Content of Value-Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

Descriptive questions- *Enclosed as Annexure- III*

6. Certificate model

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 Feb 2018 – Apr 2018

8. Year of discontinuation: 2018

9. Summary report of each program year-wise

Value Added Course- Feb 2018– Apr 2018

Sl. No	Course Code	Course Name	Resource Persons	Target Students	Strength & Year
1	PHYC 06	Certificate course of Exercise in stress management	Dr. S.Latha	1st MBBS	20 (Feb 2018 – Apr 2018)

10. Course Feed Back

Enclosed as Annexure-

RESOURCE PERSON

COORDINATOR

Annexure -1- Course Proposal

Course Title: Certificate course of Exercise in stress management

Course Objective: The main objective of the course is to enable the students to know about the stress and their impact on health and the effect of exercise on stress management

Course Outcome: On successful completion of the course the students will acquire sufficient information on stress and the role of exercise in stress

Course Audience: Ist MBBS students

Course Coordinator: DR.V.Senthil kumar

Course Faculties with Qualification and Designation:

1. **DR.R.Vijayakumar. Ph.D. Professor**
2. **DR.Premaraja, MD, Assistant professor**
3. **DR.R.Deivanayagame, MD, Assistant professor**

Course Curriculum/Topics with schedule (Min of 30 hours)

SINo	Date	Topic	Time	Hours
1.	10/02/18	Stress and its causes	2-5pm	3
2	17/02/18	Stages of stress	2-5pm	3
3	24/02/18	Hypothalamo-hypophysial-adrenal axis	2-5pm	3
4	03/03/18	Cortisol and its effects	2-5pm	3
5	10/03/18	Adverse effect of stress	2-5pm	3
6	17/03/18	Exercise and its types	2-5pm	3
7	24/03/18	Beneficial effects of exercise	2-5pm	3
8	31/03/18	Exercise and stress	2-5pm	3
9	07/04/18	Stress reducing exercises	2-5pm	3
10	14/04/18	Assessment	2-5pm	3
			Total Hours	30

REFERENCE BOOKS:

1. Stress physiology-DP.Singh

2.A Textbook of Sports & Exercise Physiology - kumar dey

CERTIFICATE COURSE OF EXERCISE IN STRESS MANAGEMENT

PARTICIPANT HAND BOOK

COURSE DETAILS

Particulars	Description
Course Title	Certificate course of Exercise in stress management PHYC06
Course Code	PHYC06
Duration	30 Hrs . Feb 2018– Apr 2018
Key Competencies	1. Stress and its causes 2. Stages of stress 3. Hypothalamo-hypophysial-adrenal axis 4. Cortisol and its effects 5. Adverse effect of stress 6. Exercise and its types 7. Beneficial effects of exercise 8. Exercise and stress 9. Stress reducing exercises
objectives	On successful completion of the course the students will acquire adequate knowledge on stress and the role of exercise in stress.
Target Student	1st MBBS Students
Assessment Procedure	Descriptive questions based assessment

Course content

Stress:

The threatening or challenging situation is referred to as a "stressor." When a person encounters a stressor, the body prepares to respond to the challenge or threat. The autonomic nervous and

endocrine systems respond by producing the hormones epinephrine, norepinephrine, and cortisol. The result of this hormone production is a cascade of physiological reactions that make up the stress response.

Stages of stress

Stress triggers a wide range of body changes called General Adaptation Syndrome (GAS) which was also the postulation by Hans Selye (1938). According to Selye (1938), the GAS involves 3 stages;

1. Alarm stage
2. Resistance stage
3. Exhaustion stage

Alarm Stage (Fight & Flight Reaction)

It involves series of immediate responses of body to stress. It mobilizes the body's resources for immediate physical activities. It is short lived. If the stress is mild the body mechanism return to normal, if stress is great enough the body mechanisms may not be able to cope and death may result . If the organism survives, it soon enters the second stage.

Resistance Stage

Though this stage starts slowly, its effects last long and provide body an adaptation towards that stress. This stage allows the body to continue fighting the stressor for a longer period and it increases the rate at which life saving processes occur. Generally the resistance reaction is successful in combating the stress. This stage fails, only if the stress is powerfully noxious.

Exhaustion Stage

Because of the continuous activities of various systems of the body in the first two stages, by the time the stage of exhaustion is reached, there are lots of disturbances in electrolyte and water balance along with non-availability of nutrients to different tissues. Thus, the vital organs cease functioning followed by death.

Mode of action via sympathetic:

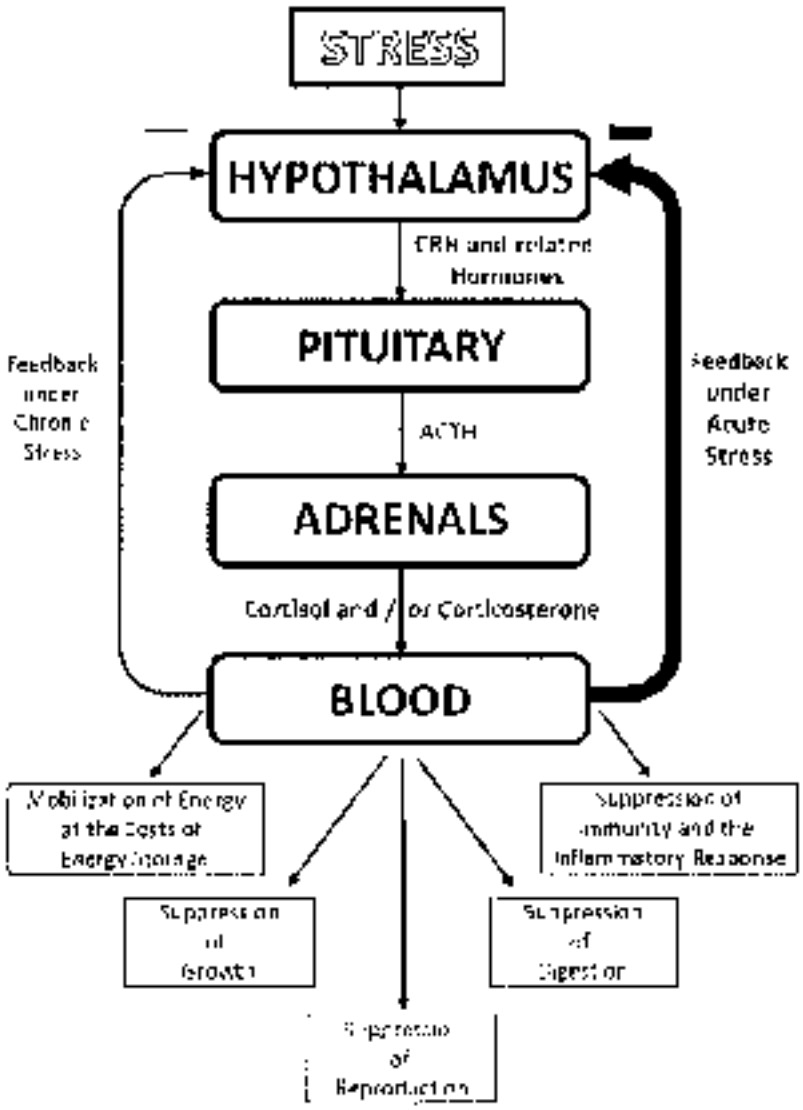
This produces responses of stage of alarm reaction. The visceral effectors immediately respond. During this stage, there is supply of tremendous amount of glucose and oxygen to the organs (brain, heart and skeletal muscle) which are most active in fighting the stress. This is due to release of adrenaline and nor adrenaline which causes:

1. Increased rate and force of contraction of heart.
2. Dilation of blood vessels to brain and muscles.
3. Constriction of blood vessels in visceral organs except heart and lungs.
4. Contraction of spleen and discharge of stored blood.
5. Conversion of liver glycogen into glucose.
6. Increased respiratory rate.
7. Reduced secretion of digestive enzymes.

Hypothalamo-Hypophyseal-Adrenal axis:

The hypothalamic–pituitary–adrenal axis (HPA axis or HTPA axis) is a complex set of direct influences and feedback interactions among three components: the hypothalamus, the pituitary gland (a pea-shaped structure located below the thalamus), and the adrenal (also called "suprarenal") glands (small, conical organs on top of the kidneys).

These organs and their interactions constitute the HPA axis, a major neuroendocrine system that controls reactions to stress and regulates many body processes, including digestion, the immune system, mood and emotions, sexuality, and energy storage and expenditure. It is the common mechanism for interactions among glands, hormones, and parts of the midbrain that mediate the general adaptation syndrome (GAS). While steroid hormones are produced mainly in vertebrates, the physiological role of the HPA axis and corticosteroids in stress response is so fundamental that analogous systems can be found in invertebrates and monocellular organisms as well.



Role of cortisol in stress:

Cortisol, a glucocorticoid (steroid hormone), is produced from cholesterol in the two adrenal glands located on top of each kidney. It is normally released in response to events and circumstances such as waking up in the morning, exercising, and acute stress. Cortisol's far-reaching, systemic effects play many roles in the body's effort to carry out its processes and maintain homeostasis.

Cortisol (along with its partner epinephrine) is best known for its involvement in the "fight-or-flight" response and temporary increase in energy production, at the expense of processes that are not required for immediate survival. The resulting biochemical and hormonal imbalances (ideally) resolve due to a hormonally driven negative feedback loop. The following is a typical example of how the stress response operates as its intended survival mechanism

Whole-Body Effects of Elevated Cortisol

Blood Sugar Imbalance and Diabetes

Under stressful conditions, cortisol provides the body with glucose by tapping into protein stores via gluconeogenesis in the liver. This energy can help an individual fight or flee a stressor. However, elevated cortisol over the long term consistently produces glucose, leading to increased blood sugar levels.

Theoretically, this mechanism can increase the risk for type 2 diabetes, although a causative factor is unknown.1 Since a principal function of cortisol is to thwart the effect of insulin—essentially rendering the cells insulin resistant—the body remains in a general insulin-resistant state when cortisol levels are chronically elevated. Over time, the pancreas struggles to keep up with the high demand for insulin, glucose levels in the blood remain high, the cells cannot get the sugar they need, and the cycle continues.

Weight Gain and Obesity

Repeated elevation of cortisol can lead to weight gain. One way is via visceral fat storage. Cortisol can mobilize triglycerides from storage and relocate them to visceral fat cells (those under the muscle, deep in the abdomen). Cortisol also aids adipocytes' development into mature fat cells. The biochemical process at the cellular level has to do with enzyme control (11-hydroxysteroid dehydrogenase), which converts cortisone to cortisol in adipose tissue. More of these enzymes in the visceral fat cells may mean greater amounts of cortisol produced at the tissue level, adding insult to injury (since the adrenals are already pumping out cortisol). Also, visceral fat cells have more cortisol receptors than subcutaneous fat.

A second way in which cortisol may be involved in weight gain goes back to the blood sugar-insulin problem. Consistently high blood glucose levels along with insulin suppression lead to cells that are starved of glucose. But those cells are crying out for energy, and one way to regulate is to send hunger signals to the brain. This can lead to overeating. And, of course, unused glucose is eventually stored as body fat.

Another connection is cortisol's effect on appetite and cravings for high-calorie foods. Studies have demonstrated a direct association between cortisol levels and calorie intake in populations of women. Cortisol may directly influence appetite and cravings by binding to hypothalamus receptors in the brain. Cortisol also indirectly influences appetite by modulating other hormones and stress responsive factors known to stimulate appetite.

Immune System Suppression

Cortisol functions to reduce inflammation in the body, which is good, but over time, these efforts to reduce inflammation also suppress the immune system. Chronic inflammation, caused by lifestyle factors such as poor diet and stress, helps to keep cortisol levels soaring, wreaking havoc on the immune system. An unchecked immune system responding to unabated inflammation can lead to myriad problems: an increased susceptibility to colds and other illnesses, an increased risk of cancer, the tendency to develop food allergies, an increased risk of an assortment of gastrointestinal issues (because a healthy intestine is dependent on a healthy immune system), and possibly an increased risk of autoimmune disease.

Gastrointestinal Problems

Cortisol activates the sympathetic nervous system, causing all of the physiologic responses previously described. As a rule, the parasympathetic nervous system must then be suppressed, since the two systems cannot operate simultaneously. The parasympathetic nervous system is stimulated during quiet activities such as eating, which is important because for the body to best use food energy, enzymes and hormones controlling digestion and absorption must be working at their peak performance.

Imagine what goes on in a cortisol-flooded, stressed-out body when food is consumed: Digestion and absorption are compromised, indigestion develops, and the mucosal lining becomes irritated and inflamed. This may sound familiar. Ulcers are more common during stressful times, and many people with irritable bowel syndrome and colitis report improvement in their symptoms when they master stress management. And, of course, the resulting mucosal inflammation leads to the increased production of cortisol, and the cycle continues as the body becomes increasingly taxed.

Cardiovascular Disease

As we've seen, cortisol constricts blood vessels and increases blood pressure to enhance the delivery of oxygenated blood. This is advantageous for fight-or-flight situations but not perpetually. Over time, such arterial constriction and high blood pressure can lead to vessel damage and plaque buildup — the perfect scenario for a heart attack. This may explain why stressed-out type A (and the newly recognized type D) personalities are at significantly greater risk for heart disease than the more relaxed type B personalities.

Fertility Problems

Elevated cortisol relating to prolonged stress can lend itself to erectile dysfunction or the disruption of normal ovulation and menstrual cycles. Furthermore, the androgenic sex hormones are produced in the same glands as cortisol and epinephrine, so excess cortisol production may hamper optimal production of these sex hormones.

Other Issues

Long-term stress and elevated cortisol may also be linked to insomnia, chronic fatigue syndrome, thyroid disorders, dementia, depression, and other conditions.

Stimulation of Anterior Pituitary and Adrenal Cortex

This occurs during stage of resistance reaction. Hypothalamus causes activation of adrenal cortex and also the thyroid via anterior pituitary gland by secreting releasing hormones. The pituitary, thyroid and adrenal cortical hormones produce the various responses. The responses are :

1. Gluconeogenesis from fat in liver –by glucocorticoids to provide glucose to brain during emergency as brain cell can only utilize glucose. Moreover, brain cells are not insulin dependent for their uptake and utilization
2. Increased catabolism of carbohydrates stores by catecholamine
3. Reduction of inflammation and sensitization of blood vessels-by glucocorticoids
4. Retention of sodium followed by retention of water and elimination of hydrogen ions by mineralocorticoids.

Adverse effect of stress:

Stress overtime, causes disease and disability and reduces performance due to physiological changes. The stress response also varies depending on the level of perceived control one has over the stressor ([9]). If there is a way for one to actively cope with the stressor that is reasonable, then the individual usually perceives more control over the situation. With this uncontrollable type of stressor, there is a more negative reaction with greater productions of cortisol, which can have damaging health effects because of the suppression of immune function.

It is estimated that between 75% and 90% of primary care physician visits are caused by stress-related illnesses. Cardiovascular disease, obesity, diabetes, depression, anxiety, immune system suppression, headaches, back and neck pain, and sleep problems are some of the health problems associated with stress. stress can increase the risk for chronic diseases and other health problems, dealing with chronic conditions and poor health can increase the amount of stress one experiences. Stress also influences behaviors that affect health. Diet choices, sleep habits, and drug use are behaviors that are often negatively affected by stress.

Exercise:

Exercise can be an effective component of a stress management program, and all types of exercise can be beneficial for stress management. Exercise programs consistent with the current recommendations to improve health can be prescribed to manage stress. Fitness professionals should recognize that it might be necessary to refer a client to a psychologist or other health care provider to help develop strategies for managing stressors that produce chronic and acute episodic stress.

Health benefits of exercise

1. Exercise controls weight

Exercise can help prevent excess weight gain or help maintain weight loss. When you engage in physical activity, you burn calories. The more intense the activity, the more calories you burn.

Regular trips to the gym are great, but don't worry if you can't find a large chunk of time to exercise every day. Any amount of activity is better than none at all. To reap the benefits of

exercise, just get more active throughout your day – · take the stairs instead of the elevator or rev up your household chores. Consistency is key.

2. Exercise combats health conditions and diseases

Worried about heart disease? Hoping to prevent high blood pressure? No matter what your current weight is, being active boosts high-density lipoprotein (HDL) cholesterol, the "good" cholesterol, and it decreases unhealthy triglycerides. This one-two punch keeps your blood flowing smoothly, which decreases your risk of cardiovascular diseases.

Regular exercise helps prevent or manage many health problems and concerns, including:

- Stroke
- Metabolic syndrome
- High blood pressure
- Type 2 diabetes
- Depression
- Anxiety
- Many types of cancer
- Arthritis
- Falls

It can also help improve cognitive function and helps lower the risk of death from all causes.

3. Exercise improves mood

Need an emotional lift? Or need to blow off some steam after a stressful day? A gym session or brisk walk can help. Physical activity stimulates various brain chemicals that may leave you feeling happier, more relaxed and less anxious.

You may also feel better about your appearance and yourself when you exercise regularly, which can boost your confidence and improve your self-esteem.

4. Exercise boosts energy

Winded by grocery shopping or household chores? Regular physical activity can improve your muscle strength and boost your endurance.

Exercise delivers oxygen and nutrients to your tissues and helps your cardiovascular system work more efficiently. And when your heart and lung health improve, you have more energy to tackle daily chores.

5. Exercise promotes better sleep

Struggling to snooze? Regular physical activity can help you fall asleep faster, get better sleep and deepen your sleep. Just don't exercise too close to bedtime, or you may be too energized to go to sleep.

6. Exercise puts the spark back into your sex life

Do you feel too tired or too out of shape to enjoy physical intimacy? Regular physical activity can improve energy levels and increase your confidence about your physical appearance, which may boost your sex life.

But there's even more to it than that. Regular physical activity may enhance arousal for women. And men who exercise regularly are less likely to have problems with erectile dysfunction than are men who don't exercise.

Exercise and Stress

Exercise and stress research has typically focused on aerobic exercise. There have been consistent findings that people report feeling calmer after a 20- to 30-minute bout of aerobic exercise, and the calming effect can last for several hours after exercise. Human and animal research indicates that being physically active improves the way the body handles stress because of changes in the hormone responses, and that exercise affects neurotransmitters in the brain such as dopamine and serotonin that affect mood and behaviors.

Exercise can be an effective component of a stress management program for many individuals and should be recommended to help those who are dealing with acute, acute episodic, or chronic stress.

STRESS REDUCING EXERCISES:

1.Yoga

Why it works to reduce stress: Yoga postures are a form of strength training, making you more resilient and flexible. which in turn relieves physical tension. It also uses deep breathing, which triggers the body's relaxation response. Studies have shown that yoga reduces blood pressure too. But perhaps yoga's biggest benefit is the mental focus it promotes. Focus is key to stress management.

How to do it: Yoga classes that appeal to all ages. temperaments and fitness levels abound at gyms, studios and community colleges. Some classes. such as hatha. are gentler and focus primarily on stress reduction, while others – ashtanga, vinyasa, power, Bikram – are more athletic.

Why it works to reduce stress: Derived from an ancient Chinese martial art, tai chi (also known as tai chi chuan) links physical movement to the breath. Often called "meditation in motion," tai chi promotes a focus on the present a mental absorption in which everyday worries fall away. Tai chi also increases flexibility and boosts energy, which result in an improved sense of well-being. Other benefits include better balance, more restful sleep and increased cardiovascular fitness.

2.Walking

*Why it works to reduce stress:*It's easy to do and requires no classes or special equipment.b Walking frequently can reduce the incidence of many of the stress-related conditions, including cardiovascular disease, high blood pressure and cholesterol, and type 2 diabetes. People with regular walking regimens also report reduced stress levels and a self-confidence that comes from taking an active role in their well-being."Walking releases tension from the major muscle groups, deepens the breathing and quiets the nervous system," Migdow says. "It also gets us out into nature, which is relaxing."*How to do it.*If you're just getting started on walking for exercise, aim for two 10-minute walks a week. After two or three weeks, gradually increase the frequency and duration of your walks. Five or six 30-minute walks a week are usually recommended to maintain health and stress management. To lose weight, you'll have to make

those walks longer when you have time (say, 90 minutes on Sundays) and/or more intense (take a hilly route or ramp up speed). Your breath should be heavy but not labored.

3. Gardening

Why it works to reduce stress: Gardening is actually a low-impact workout. Weeding alone can burn 200 calories an hour, and more strenuous activities, such as hauling bags of dirt or raking, can shed up to 600 calories an hour.But gardening has the stress-busting bonus of putting you in contact with the earth, which refreshes your spirit.

How to do it: Start small. Even one or two herb plants grown on a sunny windowsill can increase your connection to nature.

4. **Dancing**

Why it works to reduce stress: Dancing has many physical, mental and even emotional benefits. It's a great workout that improves grace and agility as it raises your heart rate.And researchers have found that people who ballroom dance twice a week have less risk of developing dementia, perhaps because learning new steps challenges your brain too.

Dancing also fosters a sense of community and connection to other people, which lowers stress levels and boosts happiness. *How to do it:* Ballroom, salsa, swing or square take your pick. You can enroll in a class at a studio such as Arthur Murray or a community center. Many music and dance clubs offer free lessons before evening events.

Circuit Training

Why it works to reduce stress: Circuit training alternates weight-training moves with cardio, with short rests in between. The result is a high-intensity workout that offers the same benefits of longer exercise sessions in less time (30 minutes or less).It's short, sweet and pumps up your body's endorphin level, which improves your mood. Better yet, you don't have to stress about finding lots of time to fit a workout in.*How to do it:* Onepopular circuit training program is Curves, the national chain that uses musical cues to guide members to switch stations during a 30-minute exercise circuit.

8. Pilates

Why it works to reduce stress: Pilates is a series of exercises that emphasizes body awareness, core strength and proper alignment."With its equal focus on strengthening and lengthening

muscles, Pilates creates a physical harmony that simply doesn't allow stress to take hold as easily," says Ellen Barrett, fitness expert and creator of the Pilates DVD *Slim Sculpt*. Like yoga, the mental concentration required for Pilates "zaps you into the moment, leaving little mental space for worrying," Barrett says. Finally, Pilates is known for reducing back and neck pain, another side effect of stress. *How to do it:* Pilates can be performed on a machine known as "The Reformer" – typically available only in Pilates studios – or on a mat on the floor (logically labeled "mat" or "floor" Pilates on gym schedules).

Tennis

A great cardio workout, tennis can prevent many stress-related conditions, such as high blood pressure and heart disease. And because you can't play tennis alone, the sport keeps you connected to others – a key component of stress reduction."Working out on the tennis court triggers your brain to release endorphins into your body. Those are the biochemicals that produce euphoric feelings of peace and satisfaction," says John Sklare, Life script's Personal Coach and a tennis coach.

Assessment Procedure

Descriptive questions-based assessment after successful completion of theory sessions

Bharath Institute of Higher Education and Research

Annexure -II

SLIMS Participant list of Value added course: Certificate course of Exercise in stress management

Feb 2018 Apr 2018

Sl.No	Reg.No	Name of the candidate	Signature
1	U17MB300	GRANDHI KARISHMA	
2	U17MB301	GREESHMA SHAJI.K	
3	U17MB302	GUDDATI KOTA SATYA SAI NAGA S RAMESH	
4	U17MB303	GURUNATHAN S	
5	U17MB304	HARSH BHARTI	
6	U17MB305	HENRITTA.I	
7	U17MB306	HIYA SAIKIA	
8	U17MB307	HRITHICK MANICKAM R	
9	U17MB308	JAYASHREE SAIKIA	
10	U17MB309	JITHU MOHAN	
11	U17MB310	KAILA PRASANTH KUMAR	
12	U17MB311	KAJAL MISHRA	
13	U17MB312	KAVIYA EV	
14	U17MB313	KAYANAT FARHEEN	
15	U17MB314	KEVIKONO BIO	
16	U17MB315	KEVIN RAHUL.S	
17	U17MB316	KURRI BHARGAV REDDY	
18	U17MB317	LALITHA PRIYA.G	
19	U17MB318	MAGESHWAR.G.V	
20	U17MB319	MALLI SOHAN	

SRI LAKSHMI NARAYANA INSTITUE OF HIGHER EDUCATON AND RESEARCH

Annexure -III

Certificate course of Exercise in stress management

DESCRIPTIVE QUESTIONS

I. ANSWER ALL THE QUESTIONS

ESSAY: **2x15=30**

1.Give in detail about the stress reducing exercises

2.Write the effects of elevated cortisol level in stress

Short answers: **4x5=20**

1. What are the different stages of stress
2. Hypothalamo-hypophyseal adrenal axis
3. Explain the mode of action of stress
4. Write the effect of exercise in stress

Course/Training Feedback Form

Annexure -V

Course: Certificate course of Exercise in stress management
Date: Feb 2018– Apr 2018
Name: Divya Saxena
Reg NO. 1/17 MB 306
Department: Physiology

Q 1: Please rate your overall satisfaction with the format of the course:

a. ✓ Excellent b. Very Good c. Satisfactory d. unsatisfactory

Q 2: Please rate course notes:

a. Excellent b. ✓ Very Good c. Satisfactory d. unsatisfactory

Q 3: The lecture sequence was well planned

a. ✓ Excellent b. Very Good c. Satisfactory d. unsatisfactory

Q 4: The lectures were clear and easy to understand

a. ✓ Excellent b. Very Good c. Satisfactory d. unsatisfactory

Q 5: Please rate the quality of pre-course administration and information:

a. Excellent b. ✓ Very Good c. Satisfactory d. unsatisfactory

Q 6: Any other suggestions:

Comments:

Thank you for taking the time to complete this survey, your comments are much appreciated.

OPTIONAL Section: Name ________
Signature Divya Saxena ________ Date ________

Date: 16.04.18

From
DR.V.Senthil kumar
Dept.of physiology
SLIMS
Bharath Institute of Higher Education and Research.
Chennai.

Through Proper Channel

To
The Dean,
SLIMS
Bharath Institute of Higher Education and Research.
Chennai.

Sub: Completion of value-added course: Certificate course of Exercise in stress management

Dear Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: Certificate course of Exercise in stress management on Feb 2018– Apr 2018. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards

DR.V.Senthil kumar

Encl: Certificates

Photographs

Sri Lakshmi Narayana Institute of Medical Sciences

CERTIFICATE OF MERIT

This is to certify that HIYA SAHA has actively participated in the Value Added Course on Certificate course of Exercise in stress management held during Feb 2018– Apr 2018 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr. R.Vijayakumar
RESOURCE PERSON

Dr. V.Senthil kumar
COORDINATOR

Course: Certificate course of Exercise in stress management

Code: PHYC06

D. NO.	

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Total Number of pages written including additional sheets [ ]

BHARATH UNIVERSITY

(Declared under Section 3 of the UGC Act 1956)
CHENNAI - 600 073

MAIN ANSWER BOOK

NAME OF THE EXAMINATION : VALUE ADDED COURSE

SUBJECT OF THE EXAMINATION : VAC PHYSIOLOGY

SECTION : PHYC 05

DATE OF THE EXAMINATION : 14/11/18

QUESTION NUMBERS / MARKS

Section						Sub Total
A	1	2				
B	a	b	c	d	e	
	f	g	h	i	j	
C	a	b	c	d	e	
	f	g	h	i	j	
					TOTAL	

Total Marks in words .....

OFFICE USE

[ ]

BUNDLE NO

Signature of the Examiner .....

CANDIDATES TO FILL THIS COLUMN CAREFULLY

REG NO.	U1MB305

FOR OFFICE USE ONLY

D. NO.	

PAGE No.

5. Stress reducing - exercises

The stress reducing exercises are

-> Yoga
-> walking
-> Dancing
-> circuit training
-> Pilates
-> Tennis
->

Yoga :

-> Yoga relieves physical tension. It uses deep breathing also keeps body relaxation

-> Yoga reduces blood pressure

-> It provides mental stress - relief as a key to stress management.

-> focus on a present - a mental absorption and switch everyday worries to a way.

-> Yoga increases flexibility and

and boost energy which result in improved sense of well being, other human attitude better balance, more restful sleep and increased cardio vascular fitness.

walking:

walking frequently reduces the incidence of many of the stress related conditions including cardiovascular disease, high blood pressure and cholesterol and type 2 diabetes mellitus.

- People with regular walking reported that reduced stress level and, improve self confidence
- walking relieves tension form major muscle groups.

Dancing

Dancing have many physical, mental and emotional benefits. It is a great workout that improves grace and tone and makes heart fit

Dancing is a form of communication to the people which lowers stress levels and builds happiness

Circuit Dancing

Circuit training alternates weight-training moves with cardio, with short rest in between. The result of high intensity workout that offers the same benefits of longer exercise sessions in less time. Circuit dancing increases body cardiac level which improves the mood.

Pilates

Pilates is a series of exercises that emphasizes body awareness, core strength and proper alignment.

Pilates can be performed on a machine or on a mat on the floor

PAGE No.

2. @ Effects of elevated cortisol level in stress

Stress

The fight or flight response is referred to as a stress response. Stress is when a person encounters a stressor, the body prepares to respond to the challenge or threat

The autonomic nervous and endocrine system respond by producing the stress hormone epinephrine, now epinephrine and cortisol the result of this hormone production is a cascade of physical reactions that makeup the stress response

B. Role of cortisol in Stress

Cortisol is involved in fight or flight response and temporary

increase in energy production.

whole body energy & elevated cortisol

(1) Blood Sugar Imbalance and Diabetes

Cortisol provides the body with

glucose via gluconeogenesis in the liver

Elevated cortisol over the long term

Aggressively produces glucose, leading to

increased blood sugar level. when cells

become resistant, overtime

liver can eventually deplete, overtime

the pancreas struggles to keep up with

high demand for insulin. glucose level is

high and blood sugar is high.

Weight gain and obesity

Repeated elevation of cortical can

lead to weight gain. Cortical cannot

mobilize triglycerides from storage and

release them to visceral fat cells.

The biochemical process of the

Cellular level has to do with enzyme Cortisol which [illegible] to cortisol in adipose tissue

The cortex increases appetite and intake of high calorie foods.

Immune system depression.

Cortisol suppress the immune system & chronic inflammation caused by life style factors helps to keep Cortisol level to increase then leads to increased susceptibility to cold and other illness, increased risk of cancer, the tendency to develop food allergies.

Gastrointestinal problem

Cortisol activates sympathetic nervous system, parasympathetic system is suppressed, this leads to imbalance in the hormones controlling the digestion and absorption.

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Short note

what are the different Stages of Stress.

(1) Alarm stage
2) Resistance Stage
3) Exhaustion stage

Alarm stage (fight or flight response)

-> It indicates Levels of Immediate response of body stress.

-> short term

-> If stress is mild the body mechanism return to normal

-> If stress is great enough the body mechanism may not be able to cope and death may result

Resistance Stage

-> starts slowly

-> provide body an adaptation towards the stress

-> This stage fails if the stress is not relieved

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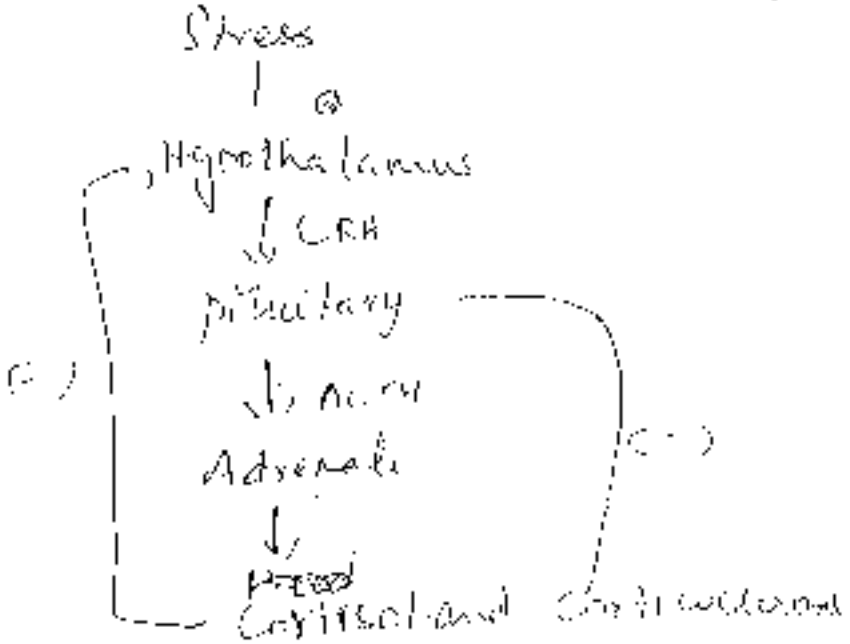
Exhaustion stage :

Continuous activity of various systems of body in the first two stages, by the time the stage of exhaustion reached.

→ loss of electrolytes and water balance along with non-availability of nutrients to the different tissues.

→ the vital organs cease functioning followed by death.

Hypothalamus - Hypophysectomy adrenal axis



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2. Explain the mode of action of stress.

Stress increases the cortisol level thro' the Hypothalamo-Hypophysael portal system.

The increased cortisol level leads to

→ mobilization of energy at the cost of energy storage.

→ Suppression of growth

→ Suppression of growth

→ Suppression of reproduction

→ Decrease in digestion

→ Suppression of immunity and non inflammatory response.

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Exercise effects on brain

Exercise can reduce stress by
releasing the brain happy and
decreases the stress hormones
energy and improves mood.

The exercise and brain scans
that typically focused on aerobic exercise
like people report feeling relaxed
after a 20 minutes of exercise

The exercise affects neurotransmitters
in the brain such as dopamine and
serotonin that affect mood and
behaviour.