160 - PHYSICAL ACTIVITY TO WIN MEMORY AND INTELLIGENCE: THE BENEFITS OF BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF).

LISSETTE ESPINOZA MORALES
FUNDACION CREANDO FUTURO
SANTIAGO, RM, CHILE
lili_aspeck@hotmail.com

INTRODUCTION

Previous studies have provided such information, the variety of benefits of regular practice of physical activity, but beyond knowing that contributes to better blood circulation and brain function, had never been told that exercise can contribute to better functioning memory and intelligence.

John Ratey, author of "Spark: The Revolutionary New Science on the exercise and the brain" says that the rapid and intense exercise increases the production of a protein called brain derived neurotrophic factor (BDNF) "which nourish the brain and allows better connections between brain cells.

Physical activity stimulated by electrical impulses to the brain, and thus activates the cells responsible for these processes: neurons. It has also established that exercise would increase the availability of a protein called BDNF (brain derived neurotrophic factor) essentially responsible curb diseases such as Alzheimer's or degeneration by age, precisely because these neurons regenerate.

Chile has been questioning a few years ago the obligatory incorporation of more hours of physical education in the curriculum of schools, this finding adds to the many existing arguments in favor of this initiative, as one might assume that exercise would be beneficial in children with learning difficulties, since BDNF facilitate processes related to the acquisition of behavior in the consolidation of learning in the retention and recall of information. Also act positively in memory formation.

With regard to job performance, is also very positive this finding, since BDNF helps to counteract the action of the symptoms caused by stress.

Because of the many qualities that has cognitive level of BDNF was determined to make a study group, which was made an IQ test before starting physical training, after it underwent exercise for 6 months intense physical and ending with an IQ test again.

METHODS:

HYPOTHESIS:

Hi: The practice of consecutive strong and intense exercise triggers the release of the derived neurotrophic factor produces an increase in the memory of men and women aged 20 to 30 years in the city of Santiago, Chile.

H0: The practice of consecutive strong and intense exercise inhibits the release derived neurotrophic factor produces an increase in the memory of men and women aged 20 to 30 years in the city of Santiago, Chile.

OBJECTIVES:

General:

To determine whether consecutive practice strong and intense exercise triggers the release of the derived neurotrophic factor in men and women aged 20 to 30 years in Santiago, Chile.

Specific:

- Identify data collection points (gym)
- Observe men and women between 20 and 30 years, starting in physical activity
- Implement initial IQ test
- Training with intense physical exercise program and fast for a month, every other day
- Implement process IQ test
- Training with intensive exercise program of brisk exercise every day intensive
- Implement final IQ test
- Tabulate and analyze the data.

Data Collection:

The confirmation of scientific studies on the neurotrophic factor is held in Greenland Fitness, where as previous studies have been conducted.

It attended the sports field for a month straight and I watch most of the attendees. There were some who were for many years and had their very toned muscles and some who were just starting out and your muscles the betrayed.

The working group was sought was the profile of those who did not attend the gym often and were just beginning.

We selected a mixed group of 25 people of similar age in a range of 20 to 30 years in Greenland Fitness gym that met similar characteristics, which were initiated in the field of sport, sport-sedentary people.

After selection they made a diagnosis of Intelligence Quotient test (IQ)

Monitoring is ongoing support group to the gym and was awarded after an evaluation of a workout specialist rapid and intense that included jogging, running, aerobics and power jump, body combat and spinning.

Those selected had to do their personal routines (according to their physical abilities) for a trial period of 1 month.

This was done after a new IQ test process which yielded positive results, all tested had increased the capacity of concentration, memory and IQ at different levels (some more than others depending on the intensity of the exercise program.) Following this there were new workouts even more intense and practiced intensively (every day) for two months. When time was a new IQ test which significantly increased the levels of concentration, memory and neuronal plasticity.

People made the routine every other day given by the coach, after a month they made a new IQ test (Procedure) there

was a slight increase in the concentration capacity and the acquisition of new knowledge

To end the group made a daily routine intensively for two months, finally making a last IQ test which showed a great increase in IQ levels and concentration of all studied.

Results and discussion:

The research results through an initial three measurements, a process and final results show the following levels of intelligence quotient (IQ) of the participants:

Person	1° IQ Test	2° IQ Test	3° IQ Test	Person	1° IQ Test	2° IQ Test	3° IQ Test
n°1	58	64	101	n°14	117	124	168
n°2	60	72	114	n°15	109	117	142
n°3	61	74	110	n°16	67	79	138
n°4	74	89	125	n°17	59	63	99
n°5	82	94	159	n°18	108	120	133
n°6	66	72	90	n°19	65	67	96
n°7	72	79	95	n°20	89	92	123
n°8	88	95	138	n°21	73	81	148
n°9	90	104	162	n°22	69	74	143
n°10	75	81	124	n°23	84	90	156
n°11	94	97	148	n°24	92	99	168
n°12	98	106	162	n°25	101	106	152
n°13	103	120	171				

With the results shown in the table above clearly shows that the participants had a normal intellectual level (not highlighted), they are subjected to three tests similar in complexity but different in terms of questions the test was for a IQ bright and early diagnosis results were as expected for a IQ normal medium.

They were then subjected to an exercise routine for a rapid and intense period of 1 month and all participants increased slightly from an intellectual level, the retention capacity in the short and long term.

In order to conclude the investigation work two consecutive months with a new routine even more rapid and intense that better results in significantly increased participants intelligence levels in each of the participants even reaching double its initial level, in addition to this significant increase was observed an increase in holding capacity (memory) and most importantly greater neural plasticity, a topic quite favorable because the greater plasticity occurs in children up to 7 years, that's where they have greater capacity and ease of acquisition new learning, however as the years pass and enters the stage of adulthood decreases neuronal plasticity and learning increasingly become more complex to assimilate and acquire.

The advantage conferred by the exercise is that as adults can get a child or adolescent plasticity which makes them faster and more plastic minds to new learning.

To end it is noteworthy that the derived neurotrophic factor in addition to being advantageous for the memory, plasticity and intelligence also reduces a level of cortical which is responsible for the stress hormone that causes slower performance of the brain at the level of nerve connections.

With the information gathered and analysis of their results are accepted hypothesis: "The practice of consecutive strong and intense exercise triggers the release of the derived neurotrophic factor produces an increase in the memory of men and women aged 20 to 30 years in the city Santiago, Chile." As in all cases the rapid and intense exercise produced an increase in synthesis-derived neurotrophic factor, resulting in higher levels in the IQ test

CONCLUSION:

In conclusion, the rapid and intense exercise, including aerobics and running, increase levels of trophic factors, mainly derived neurotrophic (BDNF factor) in the hippocampus (part of the brain responsible for memory both long and short term), and this increase leads to differential expression of certain genes related to neuronal activity, synaptic structure (interaction neuron - neuron to transmit the signal) and neuronal plasticity. It also increases the synthesis of glutamate (the principal excitatory neurotransmitter of the nervous system and decreases the GABA (the major inhibitory neurotransmitter).

As is evident, the exercise has a surprising impact on gene expression.

By reducing the levels of cortical (stress hormone), the brain starts to work faster and thereby triggering synaptic develop more connections in an exponential increase in the ability to capture, analyze and store new ideas, which maintains the biologically active memory and renewed as a teen except that study are all adults.

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Endereco: Neptuno 090 apartamento D 71, comuna de estación central,
Ciudad: Santiago - Chile.
lili_aspeck@hotmail.com

PHYSICAL ACTIVITY TO WIN MEMORY AND INTELLIGENCE: THE BENEFITS OF BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF).

ABSTRACT:

The human body secretes a substance called daily-derived neurotrophic factor that is responsible for activating the hypothalamus (responsible for memory both long and short term).

Living things can increase the amount of brain-derived neurotrophic factor secreted by day practicing sports, specifically rapid and intense exercise. By practicing this exercise on a continuous levels of cortisol (hormone responsible for stress), increases the neuronal synapses, the synthesis of glutamate (the principal excitatory neurotransmitter of the nervous system and decreases the GABA (the major inhibitory neurotransmitter).

Thanks to all the properties given neurotrophic factor and the result is a decrease in stress levels, increased concentration, increased memory and short-and long-term neuronal plasticity, not to mention an increase in levels CI To see all of the above study was conducted in the Greenland Fitness with a mixed group study of 25 people aged 20 to 30 years, which was submitted to a special routine of exercises and three IQ test as a result it was observed that without exception all participants increased their level of CI and its concentration by rapid and intense routine of exercises.

KEYWORDS: Derived neurotrophic factor – intelligence – neuronal plasticity

ACTIVITE PHYSIQUE POUR GAGNER MÉMOIRE ET L'INTELLIGENCE: LES AVANTAGES DU FACTEUR NEUROTROPHIQUE DÉRIVÉ DU CERVEAU (BDNF).

RÉSUMÉ:

Le corps humain sécrète une substance appelée quotidienne-derived neurotrophic factor qui est responsable de l'activation de l'hypothalamus (responsable de la mémoire à la fois long et court terme).

Les êtres vivants peuvent augmenter la quantité de facteur neurotrophique dérivé du cerveau sécrétée par jour la pratique du sport, particulièrement rapide et un exercice physique intense. En pratiquant cet exercice sur un niveau continu de cortisol (hormone responsable du stress), augmente les synapses neuronales, la synthèse du glutamate (principal neurotransmetteur excitateur du du système nerveux et diminue le GABA (principal neurotransmetteur inhibiteur). Merci à tous les biens donnés facteur neurotrophique et le résultat est une diminution des niveaux de stress, augmentation de la concentration, une mémoire accrue et à court et à long terme la plasticité neuronale, sans parler d'une augmentation des niveaux de CI

Pour voir toutes de l'étude ci-dessus a été réalisée dans le Groenland de remise en forme avec un groupe d'étude mixte de 25 personnes âgées de 20 à 30 ans, qui a été soumis à une procédure spéciale d'exercices et trois test de QI En conséquence, il a été observé que, sans exception, tous les participants ont augmenté leur niveau de CI et sa concentration par la routine rapide et intense d'exercices.

MOTS-CLÉS: Le facteur neurotrophique dérivé – intelligence – plasticité neuronale

ACTIVIDAD FISICA PARA GANAR MEMORIA E INTELIGENCIA: LAS BONDADES DEL FACTOR NEUROTRÓFICO DERIVADO DEL CEREBRO (BDNF).

RESUMEN:

El cuerpo humano secreta a diario una sustancia llamada factor neurotrófico derivado que es el responsable de activar en el hipotálamo (responsable de la memoria tanto a largo como a corto plazo).

Los seres vivos podemos aumentar la cantidad de factor neurotrófico derivado secretado por día practicando deporte, específicamente ejercicio rápido e intenso. Al practicar este tipo de ejercicio de manera continua los niveles de cortisol aumentan (hormona responsable del stress), aumenta la sinapsis neuronal, aumenta la síntesis de glutamato (el principal neurotransmisor excitatorio del sistema nervioso y disminuye el GABA (el principal neurotransmisor inhibitorio).

Gracias a todas las propiedades que otorga el factor neurotrófico como resultado se obtiene una disminución en los niveles de stress, aumento de la concentración, aumento de la memoria a corto y a largo plazo y plasticidad neuronal, sin dejar de mencionar un incremento en los niveles de C.I.

Para poder comprobar todo lo antes mencionado se realizo un estudio en the Greenland Fitness con un grupo mixto estudio de 25 personas de 20 a 30 años, a los cuales se sometió a una rutina especial de ejercicios y a tres test de C.I. como resultado se pudo observar que todos los participantes sin excepción aumentaron su nivel de C.I. y su concentración gracias a la rutina rápida e intensa de ejercicios.

PALABRAS CLAVES: Factor neurotrófico derivado – inteligencia – plasticidad neuronal

ACTIVIDADE FISICA PARA GANHAR MEMORIA E INTELIGENCIA: AS BONDADES DO FATOR NEUROTRÓFICO DERIVADO DO CÉREBRO (BDNF).

RESUMO:

O corpo humano segrega diariamente uma substância chamada fator neurotrófico derivado que é responsável da ativação do hipotálamo (responsável da memória tanto longo e curto prazo).

Os seres vivos podem aumentar a quantidade de fator neurotrófico derivado no cérebro secretada por dia praticando esportes, especificamente exercício rápido e intenso. Ao praticar este exercício em um tempo contínuo os níveis de cortisol aumentan (hormônio responsável pelo estresse), aumenta as sinapses neuronais, a síntese de glutamato (principal neurotransmissor excitatório do do sistema nervoso e diminui o GABA (o principal neurotransmissor inibidor). Gracas a todas as propriedades dadas fator neurotrófico como resultado se obtem uma diminuição nos níveis de stress, aumento da concentração, aumento de memória de curto e longo prazo, a plasticidade neuronal, sem deixar de falar do aumento nos níveis CI

Para ver todo, o estudo acima foi realizado no Ginásio Greenland Fitness com um grupo estudo misto de 25 pessoas de 20 a 30 anos, que foi submetido a uma rotina de exercícios especiais e três testes de CI como resultado, foi observado que, sem excepção, todos os participantes aumentaram seu nível de CI e sua concentração pela rotina rápido e intenso de exercícios.

PALAVRAS CHAVE: Factor neurotrófico derivado – inteligencia – plasticidade neural