146 - PHYSICAL ACTIVITY, THE ALZHEIMER A PROTECTIVE FACTOR: THE BENEFITS OF THE RELEASE OF BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF).

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INTRODUCTION:

Previous studies have provided as information the variety of benefits offered by the regular practice of physical activity, but beyond knowing that contributes to better blood circulation and brain function, he had never said that exercise can contribute to better functioning memory and intelligence, even in mitigation of dementia.

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

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

One of the most complex diseases that an elder is at risk of developing Alzheimer's. Many people suffer from this problem in the brain that affects performance to 100% everyday and makes them dependent on other people who care and take care of them.

The medical indications are crucial in the treatment of this disease, and it is advisable to resort to professionals. But you yourself can do something to treat Alzheimer's disease (a disease that makes our ever held neurotrophic factor release less per day), physical activity, is the only one who can make our brain secretes neurotrophic factor as much per day, substance responsible for our memory and intelligence.

In this research, we worked with 30 elders in a senior citizens club, where all participants had a degree of Alzheimer's disease, underwent a medical examination to see how much they possessed neurotrophic factor and subsequently underwent some personnel workout routines so that they were recovering their memory, after a few weeks underwent an IQ test and underwent a more intense workout, repeating the IQ test, to end was increased as much as possible (always according to their physical) exercise routine and IQ was measured again, the results showed a significant increase in IQ.

To support the increase in IQ was the result of an increased release of neurotrophic factor, we conducted a further medical examination of the amount of neurotrophic factor in the brain and working with memory games, welcome all seniors in a high percentage expanded its memory (down to some split your Alzheimer) The results were clear: the cognitive ability of the elderly improved significantly compared with elders who had not participated in the program.

The findings of this study not only contribute to the treatment of such a complicated disease, but realizes the importance of exercise to treat it, and that we ourselves can directly affect our health, leading a healthy life.

OBJETIVES:

GENERAL:

- Determine whether the increased secretion derived neurotrophic factor reduces Alzheimer's men and women aged 60 to 80 years in Santiago, Chile.

ESPECIFIC:

- Identify data collection sites (older club).
- Observe men and women between 60 and 80 years beginning in physical activity.
- Apply initial memory test.
- Conduct initial medical examination to measure the amount derived neurotrophic factor in the brain "isoenzymes test CPK."
- Training with intense physical exercise program according to the capabilities of the elderly for a month, every other day.
- Apply memory test process.
- Training with intensive exercise program for seniors every day.
- Apply final memory test.
- Perform final medical examination to measure the amount derived neurotrophic factor in the brain "isoenzymes test CPK"
- Tabulate and analyze the data.

HYPOTHESIS:

Hi: The practice of consecutive intense exercise triggers the release of neurotrophic factor reduces Alzheimer derivative in men and women 60 to 80 years in Santiago, Chile.

H0: The straight practice of intense exercise slows the release of neurotrophic factor reduces Alzheimer derivative in men and women 60 to 80 years in Santiago, Chile.

DATA COLLECTION:

Confirmation of scientific studies on neurotrophic factor in mitigation of Alzheimer's took place at a senior citizens club (located in a polyclinic in the town of Peñalolén in Santiago, Chile), which is attended by men and women aged 60 to 80 years of age. The center conducted psychological therapies, therapies and further integration exercises to help lessen the symptoms of various diseases senile.

He attended the senior citizens club for a month and I watch most of the attendees. They talk to them and they make a

game called Shanghai, which is purely from memory, also known as the play of the two pairs, there were grandparents who developed the game with considerable autonomy and simplicity, while others failed to finish it. He attended the club for several weeks where it remained playing grandparents to create bonds of trust. Following that, he took the elders to pass on the clinic's medical to make a small test to calculate the level of these derived neurotrophic factor released daily. With the results of examination shall be continued to perform exercise routines that were intense but also suitable for older people, taking into account all their ailments and diseases.

Accompanied by exercises that originally were every other day, is still exercising the memory game Shanghai.

After a month there is clearly a memory test that half of these grandparents, many if not all, increased their level of memory, and do not cost much to develop the game.

In order to strengthen memory and won, were increased every other day exercises every day, Monday through Friday, to support this work with the game shanghai.

After two months into the study was conducted a final test of memory where the majority of grandparents played without any problems, memorize their addresses, phone numbers and birthdays.

In order to finalize and make sure that the exercise was responsible for releasing this power derived neurotrophic factor, which in turn decreases the chances of arriving at an Alzheimer's test was performed again on average, the physician-derived neurotrophic factor levels released on a daily espontamentente in our brain. The definite outcomes of this review figures marked significant increase in the delivered dose of neurotrophic factors.

RESULTS AND DISCUSSION:

The research results obtained through an initial three measurements, one of process and final results show the following levels of intelligence quotient (IQ) and also the initial and final test that measures amount of neurotrophic factors in the blood of participants:

N° person	examination 1	test CI n°1	test CI n°2	test CI n°3	examination 2
♂ 1	0.3 µ	60	68	100	3.3 µ
♀ 2	1.5 µ	54	59	84	3.9 µ
♂ 3	3.4 µ	63	68	102	3.6 µ
♂ 4	2.2 µ	71	74	114	3.8 µ
♀ 5	1.1 µ	68	75	119	3.0 µ
♀ 6	1.0 µ	52	63	99	3.1 µ
♀ 7	1.9 µ	56	62	87	3.8 µ
♀ 8	2.7 µ	49	55	81	3.5 µ
♀ 9	0.3 µ	70	73	98	2.9 µ
♂ 10	3.1 µ	58	65	89	4.0 µ
♂ 11	2.8 µ	61	66	85	3.3 µ
♂ 12	1.6 µ	67	74	104	3.1 µ
♀ 13	1.4 µ	53	60	99	2.9 µ
♂ 14	3.3 µ	56	61	88	4.0 µ
♂ 15	2.1 µ	72	80	116	4.2 µ
♀ 16	2.6 µ	80	84	121	3.5 µ
♀ 17	2.9 µ	74	79	98	3.4 µ
♀ 18	1.87 µ	46	51	89	2.9 µ
♀ 19	2.3 µ	79	87	120	3.2 µ
♀ 20	0.5 µ	59	67	110	2.7 µ
♂ 21	0.9 µ	67	71	105	4.1 µ
♂ 22	1.1 µ	65	69	113	4.2 µ
♂23	1.6 µ	86	70	123	3.8 µ
♀ 24	1.8 µ	67	73	106	3.8 µ
♀ 25	2.2 µ	78	85	125	3.6 µ
♀ 26	2.4 µ	82	88	123	4.1 µ
♂ 27	3.0 µ	48	54	96	4.0 µ
♀ 28	2.9 µ	56	62	101	3.2 µ
♀ 29	1.8 µ	45	56	94	2.8 µ
♂ 30	3.2 µ	77	81	123	4.5 µ

With the results illustrated in the above table clearly shows that the participants had a level of memory under normal IQ, they were subjected to medical tests to measure their neurotropic factor and most of the elderly results belonging to the club came under the normal range which indicates that these elders released neurotrophic factor less than normal, which can translate single words or Alzheimer's dementia, after the medical examination was carried out an exercise routine according to their level of effort to see if the exercise were increased levels of the factor, please all the people under study in small amounts increase factor secretion, increase in intensity was subsequently held and again the measured IQ, which was observed as a result grandpa is that each significantly increased their ability to memorize, so that could be done to improve the memory of each patient underwent a final workout with the maximum possible endurance of each grandfather and the increase was significant, the majority reached a similar range than normal and some exceeded s after prolonged exercise, intense was achieved with these grandparents an almost normal memory with practice it will continue to improve, so that these results were reliable was conducted blood test again to see if indeed increased or not, the results were positive all the members of this club were with mild neurological damage and some almost completely healthy.

In order to conclude the research work three consecutive months with a workout in the participants significantly increased levels of intelligence in each of them reaching even to double its initial level, in addition to this significant increase was

observed an increase in capacity retention (memory, mitigating the alzehimer) and most importantly increased neural plasticity, item quite favorable as the greater plasticity occurs in children up to 7 years, that's where they have greater capacity and easier to acquire new learning, in contrast to as you get older and enter the stage of adulthood decreases neuronal plasticity and learning increasingly become more complex to assimilate and acquire.

The advantage is that it provides exercise as adults can get a child or adolescent plasticity making them faster and more plastic mind to new learning.

Finally it is noteworthy that the derived neurotrophic factor in addition to being beneficial for memory and intelligence plasticity also decreases the levels of cortisol is the hormone responsible for stress causing slower performance of the brain at the level of nerve connections.

With the information gathered and analysis of results the hypothesis is accepted: "The practice of consecutive heavy exercise triggers the release of neurotrophic factor reduces Alzheimer derivative in men and women 60 to 80 years in Santiago, Chile."

Since in all cases the rapid and intense exercise produced an increase in the synthesis of derived neurotrophic factor, resulting in higher levels in IQ tests

CONCLUSION:

In conclusion, exercise in the elderly, increases the levels of certain trophic factors, particularly BDNF (derived neurotrophic factor) which is responsible for memory. The decrease of this factor is paramount in the suffering of Alzehimer since its low production is responsible for the loss of memory. Its 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 major excitatory neurotransmitter in the nervous system) and decreases the GABA (main inhibitory neurotransmitter).

As a result clearly, the exercise has a dramatic impact on gene expression.

By lowering the levels of cortisol (stress hormone), the brain begins to run faster by which to develop more synaptic connections in developing an exponential increase in the ability to capture, store and analyze new ideas, which keeps the memory biologically active and renewed like any teenager with justification that the studies are all adults.

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PHYSICAL ACTIVITY, THE ALZHEIMER A PROTECTIVE FACTOR: THE BENEFITS OF THE RELEASE OF BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF).

SUMMARY:

Alzheimer's disease (AD) is characterized by progressive neuronal loss, which begins at the level of cholinergic structures preferably as the basal ganglia of the brain and is associated with reduced levels of cholinergic enzymes such as acetyl cholinesterase, which is related to the decline of intellectual functions (Perry, 1978).

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). This factor is affected by decreasing the levels of product daily secretion of Alzheimer's.

In previous studies (conducted last year) showed that the derived neurotrophic factor is secreted in greater amounts to the execution of exercise, underwent exercise older adults according to their capabilities to test whether or not the increased secretion of factor stopped or decreased neurotrophic effects of Alzheimer's disease.

Thus to study a group of 30 elderly people with the disease, underwent routine exercises and measured their memory and Alzheimer's, it was demonstrated that his memory improved considerably.

KEYWORDS: Memory - derived neurotrophic factor - exercise

RÉSUMÉ:

La maladie d'Alzheimer (MA) est caractérisée par une perte neuronale progressive, qui débute au niveau des structures cholinergiques de préférence comme les noyaux gris centraux du cerveau et est associée à des niveaux réduits d'enzymes cholinergiques tels que acétyl-cholinestérase, qui est liée à la baisse des fonctions intellectuelles (Perry, 1978).

Le corps humain sécrète une substance appelée facteur neurotrophique dérivé du quotidien qui est responsable de l'activation de l'hypothalamus (responsable de la mémoire à la fois long et court terme). Ce facteur est affecté par la baisse du

taux de sécrétion de produit quotidien de la maladie d'Alzheimer.

Dans des études précédentes (réalisées l'an dernier) a montré que le facteur neurotrophique dérivé est sécrétée en plus grande quantité à l'exécution de l'exercice, ont subi les adultes plus âgés d'exercice en fonction de leurs capacités afin de tester si oui ou non l'augmentation de la sécrétion du facteur de arrêté ou diminué effets neurotrophiques de la maladie d'Alzheimer.

Ainsi l'étude d'un groupe de 30 personnes âgées atteintes de la maladie, a subi des exercices de routine et ont mesuré leur mémoire et la maladie d'Alzheimer, il a été démontré que sa mémoire sont considérablement améliorées.

MOTS-CLÉS: Mémoire - facteur neurotrophique dérivé - exercice

RESUMEN:

La enfermedad de Alzheimer (EA) se caracteriza por una pérdida neuronal progresiva, que comienza a nivel de estructuras preferentemente colinérgicas como los núcleos basales del cerebro y se asocia con niveles reducidos de las enzimas colinérgicas como la acetil colinesterasa, que guarda relación con la declinación de las funciones intelectuales (Perry, 1978).

El cuerpo humano secreta a diario una sustancia llamada factor neurotrópico derivado que es el responsable de activar en el hipotálamo (responsable de la memoria tanto a largo como a corto plazo). Este factor se ve afectado disminuyendo sus niveles de secreción diario producto del Alzheimer.

En estudios anteriores (realizado el año pasado) se demostró que el factor neurotrópico derivado se secretaba en mayores cantidades con la ejecución de ejercicio, se sometió a los adultos mayores a ejercicio acorde a sus capacidades para testear si efectivamente el aumento de la secreción de factor neurotrofico detenía o disminuía los efectos de la enfermedad del Alzheimer.

Fue así que se estudio un grupo de 30 ancianos que padecían la enfermedad, se les realizo rutina de ejercicios y se midió su memoria y Alzheimer, se pudo demostrar que su memoria mejoro considerablemente.

PALABRAS CLAVES: Memoria – factor neurotrofico derivado - ejercicio

ATIVIDADE FISICA, UM FATOR DE PROTECAO CONTRA O ALZHEIMER: OS BENEFÍCIOS DA LIBERAÇÃO DO FATOR NEUROTRÓFICO DERIVADO DO CÉREBRO (BDNF).

RESUMO:

Doença de Alzheimer (AD) é caracterizada pela perda neuronal progressiva, que começa no nível de estruturas colinérgicas de preferência como os gânglios basais do cérebro e está associada com níveis reduzidos de enzimas colinérgicas como acetilcolinesterase, que está relacionado com o declínio das funções intelectuais (Perry, 1978).

O corpo humano secreta uma substância a diário chamada fator neurotrófico derivado que é responsável pela activação do hipotálamo (responsável pela memória a longo ea curto prazo). Este fator é afetado pela diminuição dos níveis de secreção de produto diário da doença de Alzheimer.

Em estudos anteriores (realizada no ano passado) mostrou que o fator neurotrófico derivado é secretado em maior quantidade para a execução do exercício, foram submetidos adultos mais velhos ao exercício de acordo com as suas capacidades para testar se o aumento da secreção do fator neurotrofico derivado detem ou disminui os efeitos da doença de Alzheimer.

Assim, se estudeo um grupo de 30 idosos com a doença, foram submetidos a exercícios de rotina e mediu a sua memória e mal de Alzheimer, foi demonstrado que a sua memória melhorou consideravelmente.

PALAVRAS CHAVE: Memória - fator neurotrófico derivado - exercício