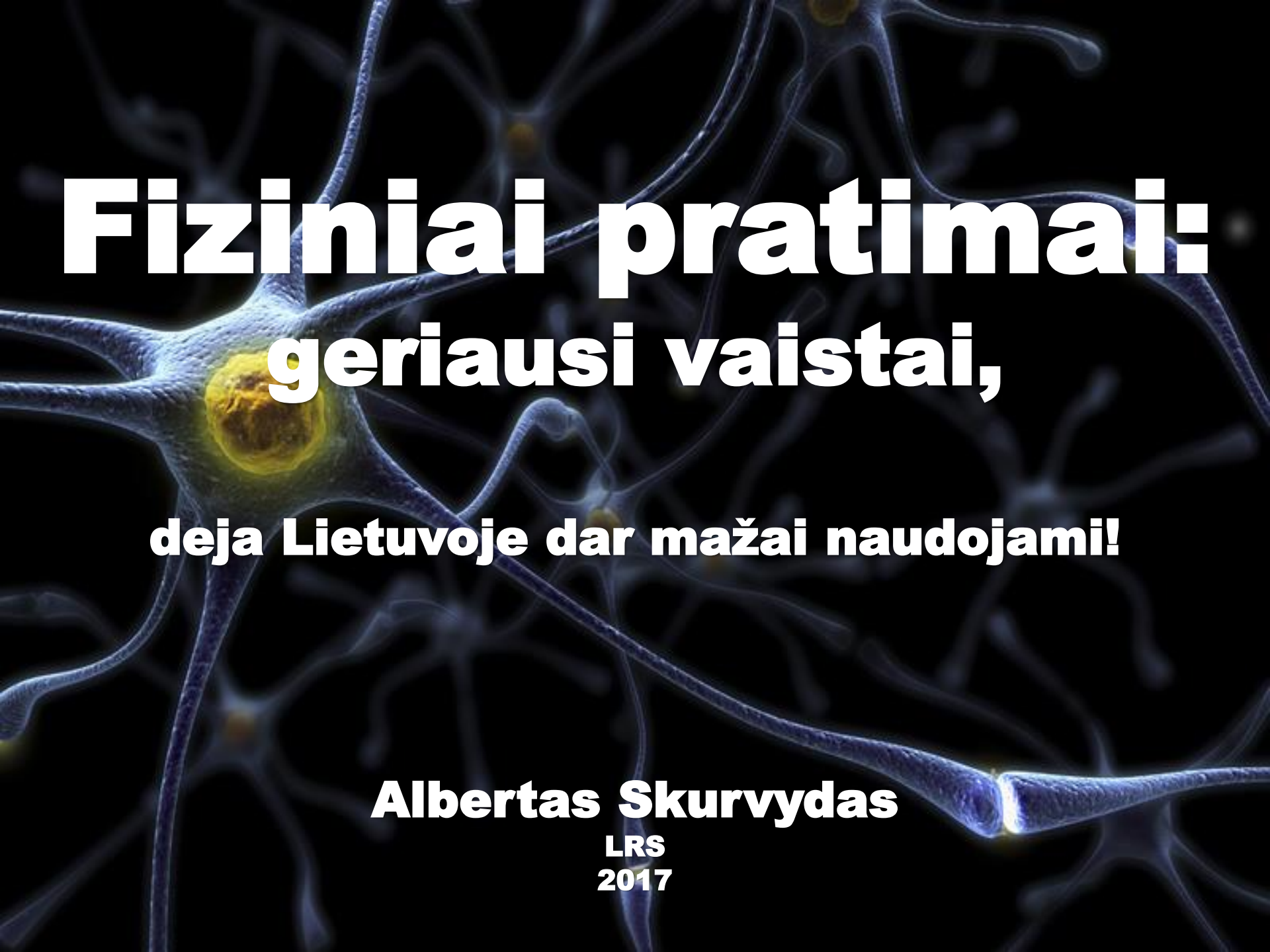


Fiziniai pratimai:
geriausi vaistai,

deja Lietuvoje dar mažai naudojami!

Albertas Skurvydas
LRS
2017

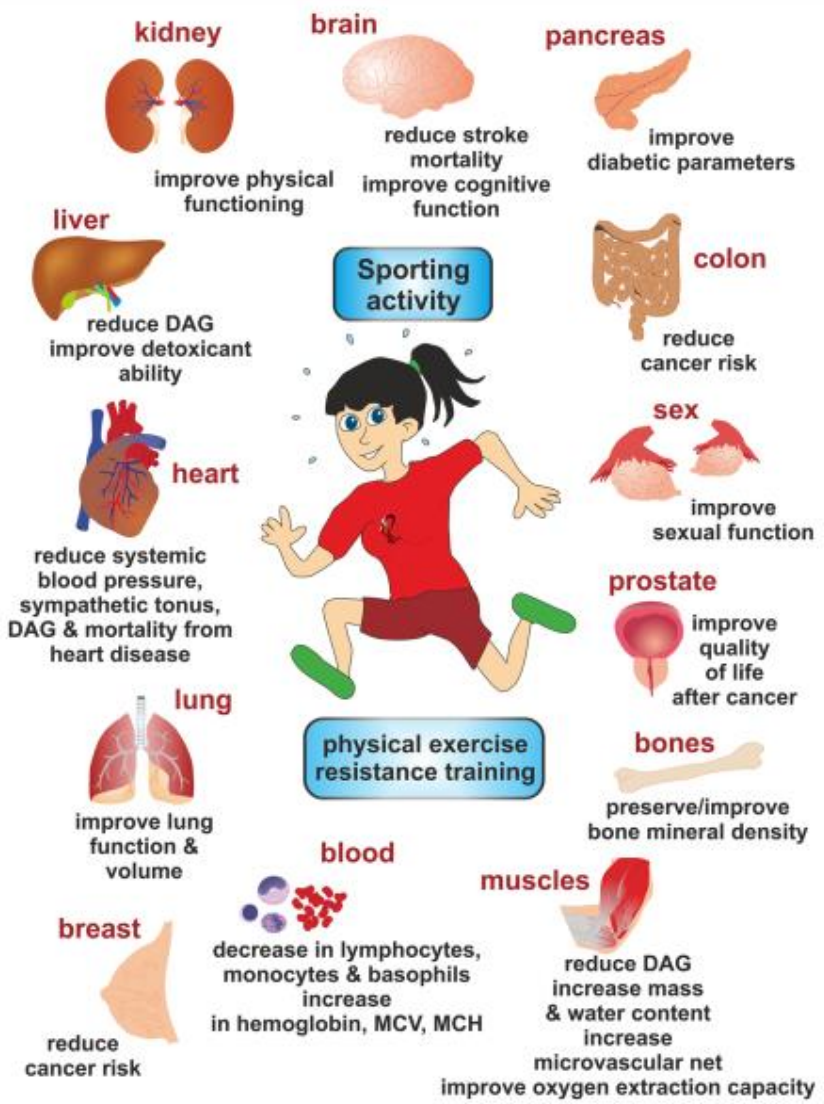


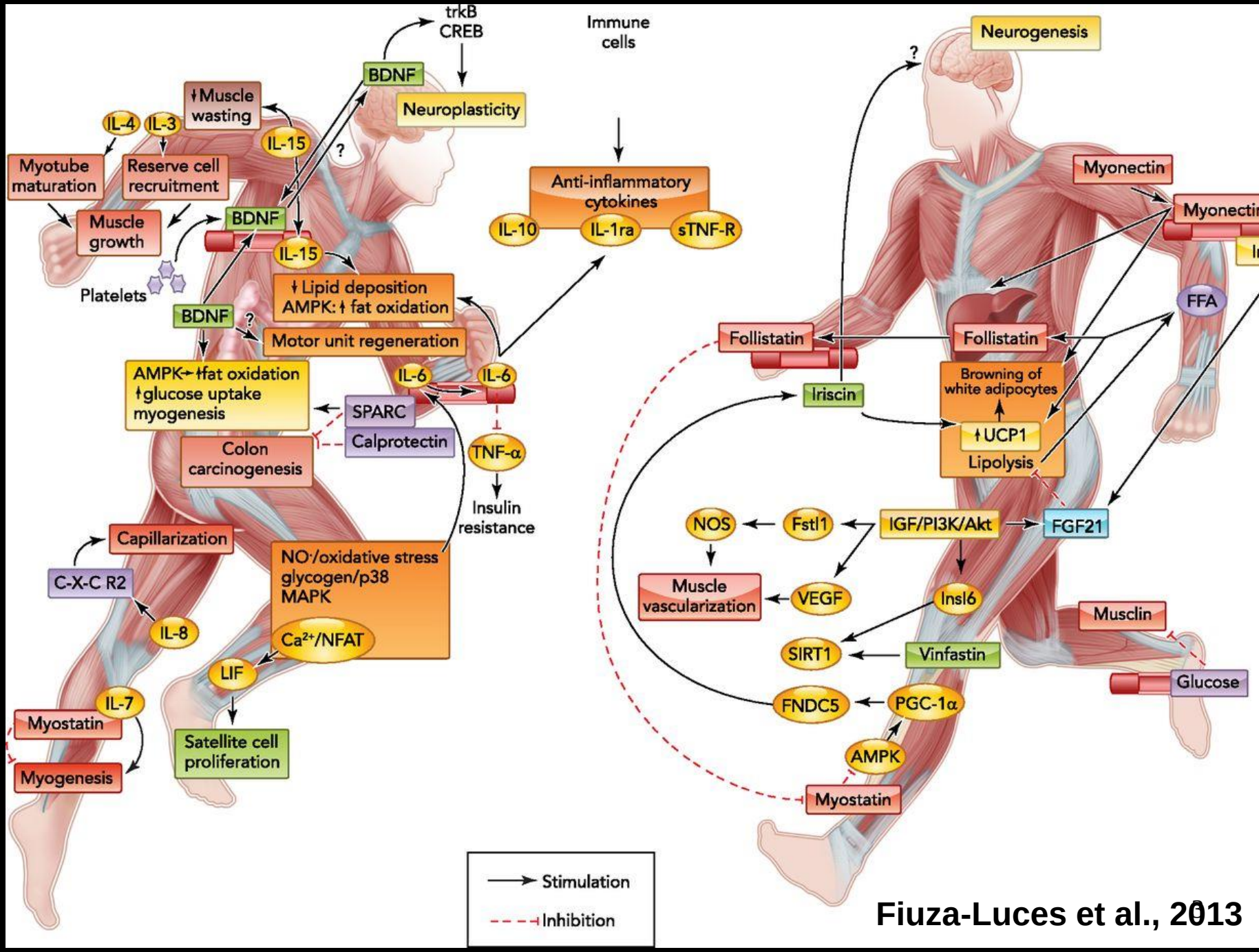
FIGURE 1 | Representative health-promoting effects of sports, physical exercise, and resistance training on various organs. Numerous reports have shown that sporting activity promotes health and functionality of muscles, lung, heart, liver, kidney, brain, pancreas, colon, prostate, and bones. In addition, it is reported that doing sports improves sexual function and significantly impacts the composition of the blood. Abbreviations used are: DAG, diacylglyerol; MCH, mean corpuscular hemoglobin; MCV, mean corpuscular volume.

gy

REVIEW
published: 30 August 2016
doi: 10.3389/fphar.2016.00283

Exercise-Induced Release of Pharmacologically Active Substances and Their Relevance for Therapy of Hepatic Injury

Hans-Theo Schon and Ralf Weiskirchen**



Fiuza-Luces et al., 2013

LIETUVOS SPORTO UNIVERSITETAS

Annu. Rev. Public Health 2011. 32:349–65

Physical Activity for Health: What Kind? How Much? How Intense? On Top of What?

Kenneth E. Powell,[1] Amanda E. Paluch,[2] and Steven N. Blair[2]

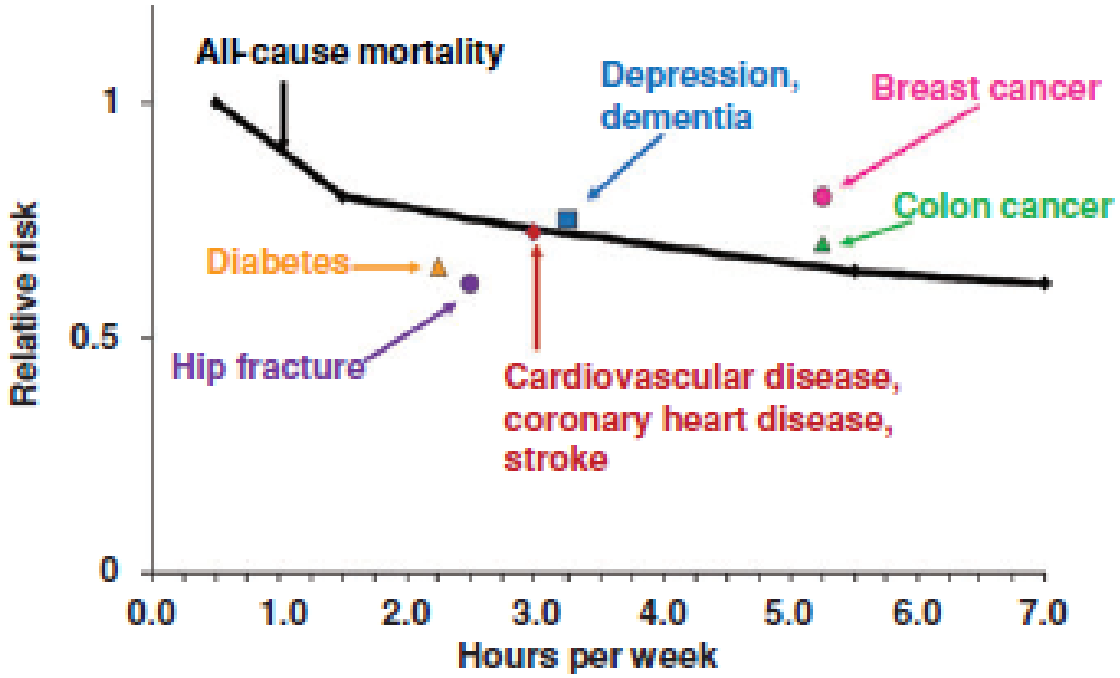
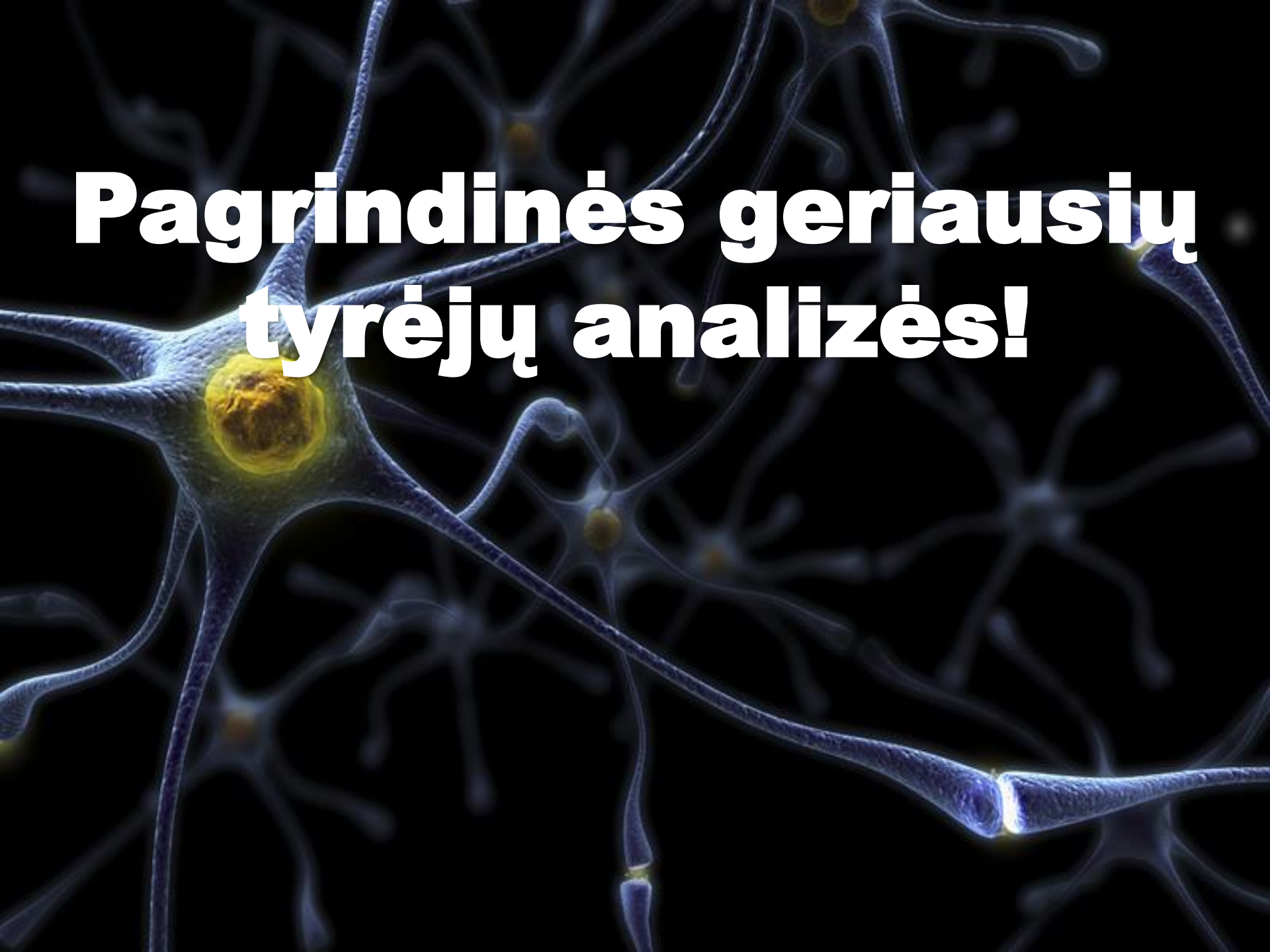


Figure 2

Risk of selected health events by hours/week of moderate to vigorous physical activity.


Pagrindinės geriausių tyrėjų analizės!

Compr Physiol. 2012 April ; 2(2): 1143–1211. doi:10.1002/cphy.c110025.

Lack of exercise is a major cause of chronic diseases

Frank W. Booth, Ph.D.[1], **Christian K. Roberts, Ph.D.**[2], and **Matthew J. Laye, Ph.D.**[3]

36 lėtinės ligos

The clinical consequences of insulin resistance, alone, have been delineated by Reaven (425): Some degree of glucose intolerance/impaired fasting glucose/impaired glucose tolerance, dylipidemia (↑ triglycerides, ↓ HDL-C, ↓ LDL partical size, ↑ postprandial accumulation of triglyceride-rich lipoproteins), endothelial dysfunction (↑ nonnuclear cell adhesion, ↑ plasma cellular adhesion molecules, ↑ plasma asymmetric dimethylarginine, ↓ endothelial-dependent vasodilation), Procoagulant factors (↑ plasminogen activator inhibitor-1, ↑ fibrinogen), hemodynamic factors (↑ sympathetic nervous system activity, ↑ renal sodium retention), markers of inflammation (↑ C-reactive protein, ↑ white blood cell count) abnormal uric acid metabolism (↑ plasma uric acid concentration, ↓ uric renal acid concentration), ↑ testosterone (ovary), and sleep-disordered breathing. By a direct cause of insulin resistance, physical inactivity indirectly, directly, or both in some cases (endothelial dysfunction) causes all of the aforementioned.

PSYCHIATRIC DISEASES
- Depression
- Anxiety
- Stress
- Schizophrenia

NEUROLOGICAL DISEASES
- Dementia
- Parkinson's disease
- Multiple sclerosis

METABOLIC DISEASES
- Obesity
- Hyperlipidemia
- Metabolic syndrome
- Polycystic ovarian syndrome
- Type 2 diabetes
- Type 1 diabetes

CARDIOVASCULAR DISEASES
- Cerebral apoplexy
- Hypertension
- Coronary heart disease
- Heart failure
- Intermittent claudication

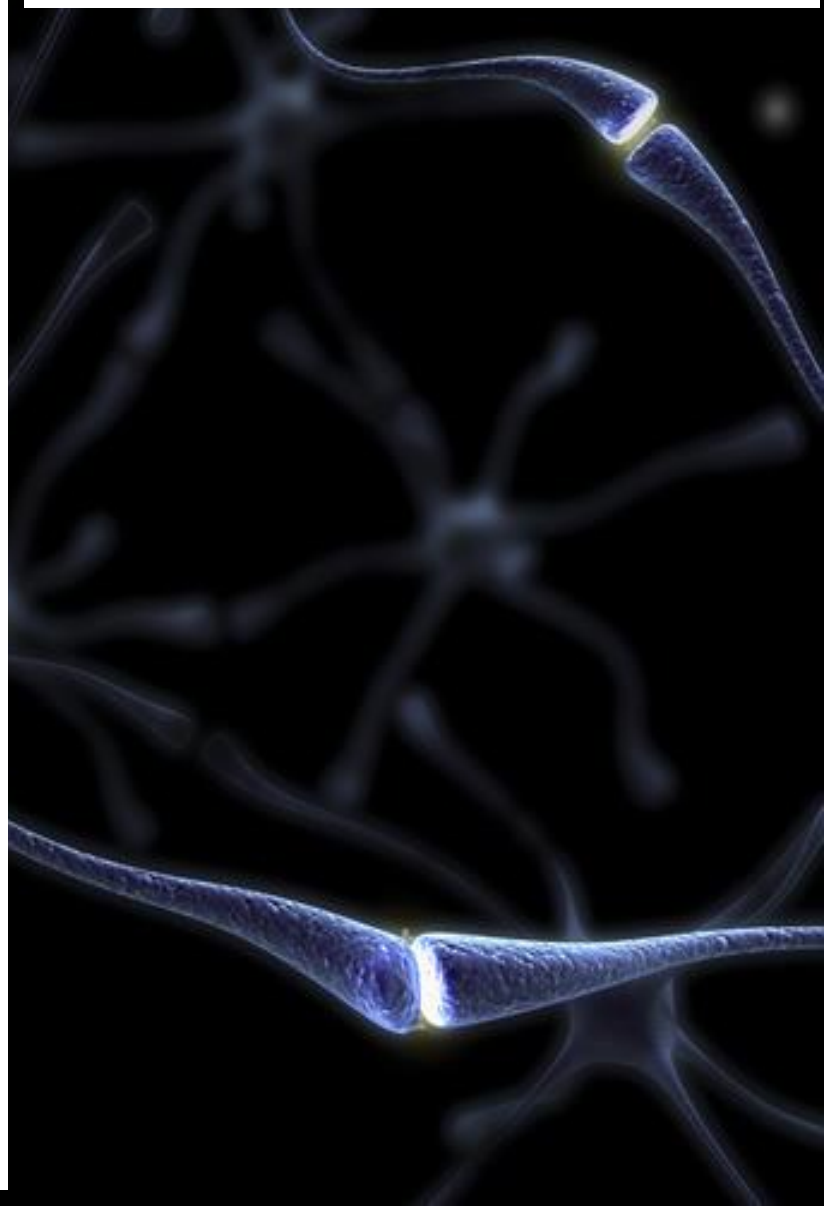
PULMONARY DISEASES
- Chronic obstructive pulmonary disease
- Bronchial asthma
- Cystic fibrosis

Scand J Med Sci Sports 2015: (Suppl. 3) 25: 1–72
doi: 10.1111/sms.12581

SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS

Exercise as medicine – evidence for prescribing exercise as therapy in 26 different chronic diseases

B. K. Pedersen[1], B. Saltin[2]



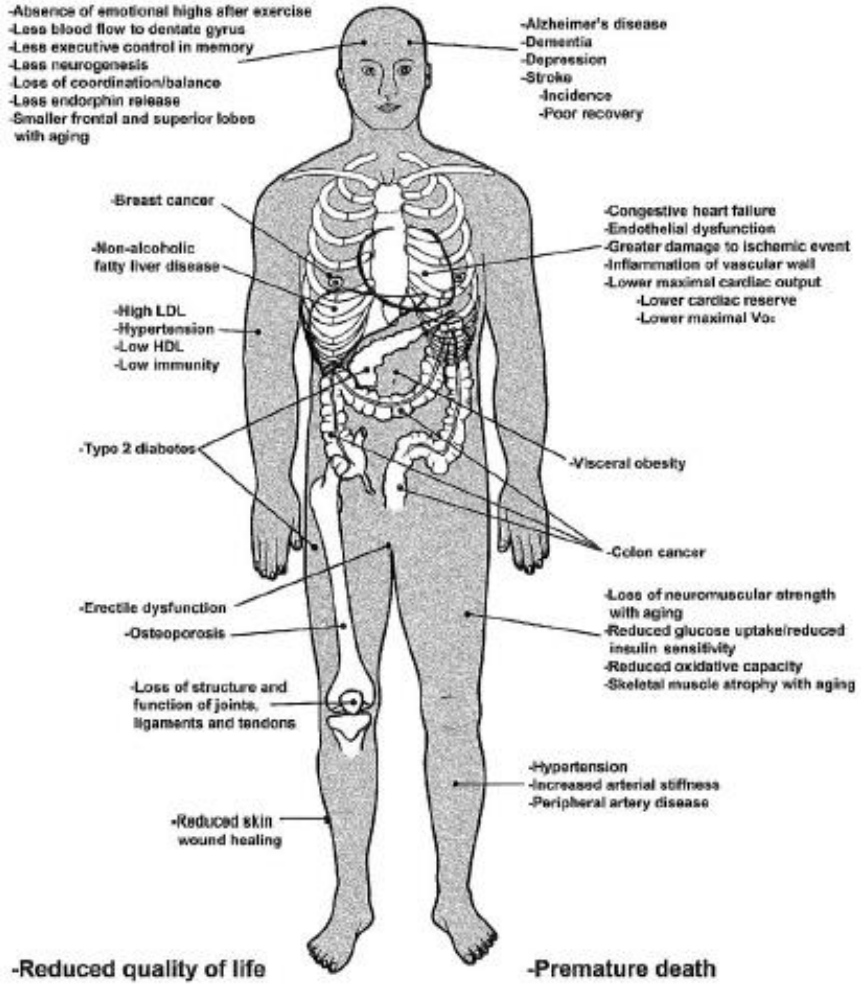


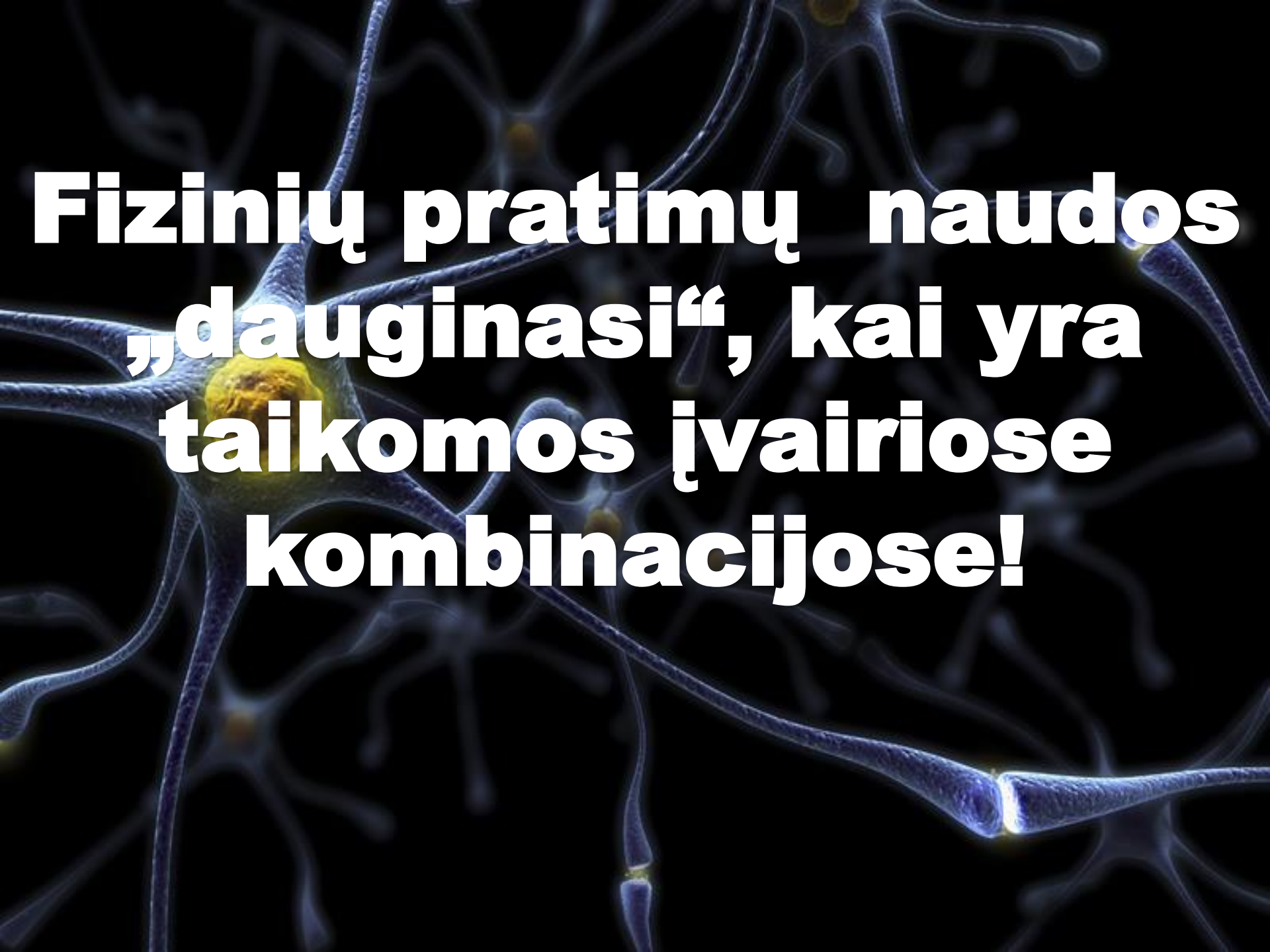
Figure 3.

Health deficiencies accelerated by decreasing physical activity from higher to lower levels. Gheorghe Constantinescu generously made original drawing. [Reproduced with permission from (53)].

–1211. doi:10.1002/cphy.c110025.

or cause of chronic diseases

K. Roberts, Ph.D.[2], and Matthew J. Laye, Ph.D.[3]


Fizinių pratimų naudos „dauginasi“, kai yra taikomos įvairiose kombinacijose!


Nefarmakologinės
smegenų sveikatos
stiprinimo strategijos!

Research in Neuroscience 2013, 2(3): 39-49
DOI: 10.5923/j.neuroscience.20130203.02

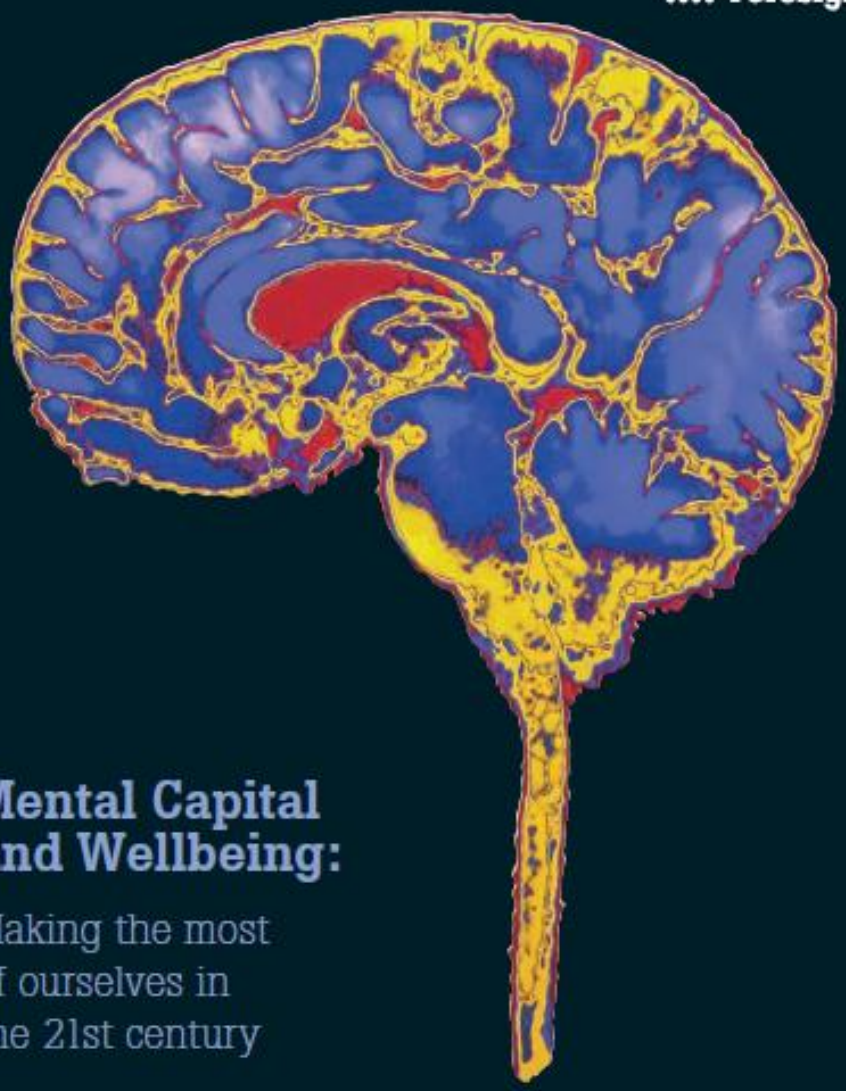
Non-Pharmacological Interventions for Enhancing Brain Plasticity and Promoting Brain Recovery: A Review

Farheen Farzana[1,*], Yog Raj Ahuja[1], Vemula Sreekanth[2]

Figure 2. Non-Pharmacological Interventions for Enhancing Brain Plasticity. A. Cognitive Stimulation Therapy: Brain games, Video games and Indoor activities. B. Environment Enrichment (Adopted from Michael J. Meaney et. al, 1988). C. Social Interactions. D. Dietary modification: Fruits, Vegetables and Omega-3 fatty acids. E. Physical Exercise. F. Relaxation Techniques: Meditation, Yoga, Tai-chi, Aromatherapy

Government Office for Science

Foresight



Mental Capital and Wellbeing:

Making the most of ourselves in the 21st century

FINAL PROJECT REPORT

Immunol Res (2014) 58:193–210
DOI 10.1007/s12026-014-8517-0

IMMUNOLOGY AT STANFORD UNIVERSITY

Effects of stress on immune function: the good, the bad, and the beautiful

Firdaus S. Dhabhar

Firdaus S. Dhabhar

STAYING ON THE GOOD SIDE OF THE STRESS SPECTRUM

GOOD Stress (short-term)

BAD Stress (chronic / long-term)

RESTING ZONE

LIFESTYLE FACTORS
sleep
nutrition
exercise / physical activity

PSYCHOSOCIAL BUFFERS
appraisal, coping,
social support, authenticity,
gratitude, compassion

ACTIVITIES
meditation, yoga, mindfulness,
nature, walking, dancing, music,
writing, art, craft, painting, fishing…

Optimize
GOOD Stress

Minimize
BAD Stress

Maximize RESTING ZONE

PSYCHOLOGICAL & PHYSIOLOGICAL RESILIENCE

↑ protective immunity, ↑ cognitive & physical performance, ↑ health


Sveiko senėjimo
pamatai!

Ageing and neuronal vulnerability

Mark P. Mattson‡ and Tim Magnus**

www.nature.com/reviews/neuro

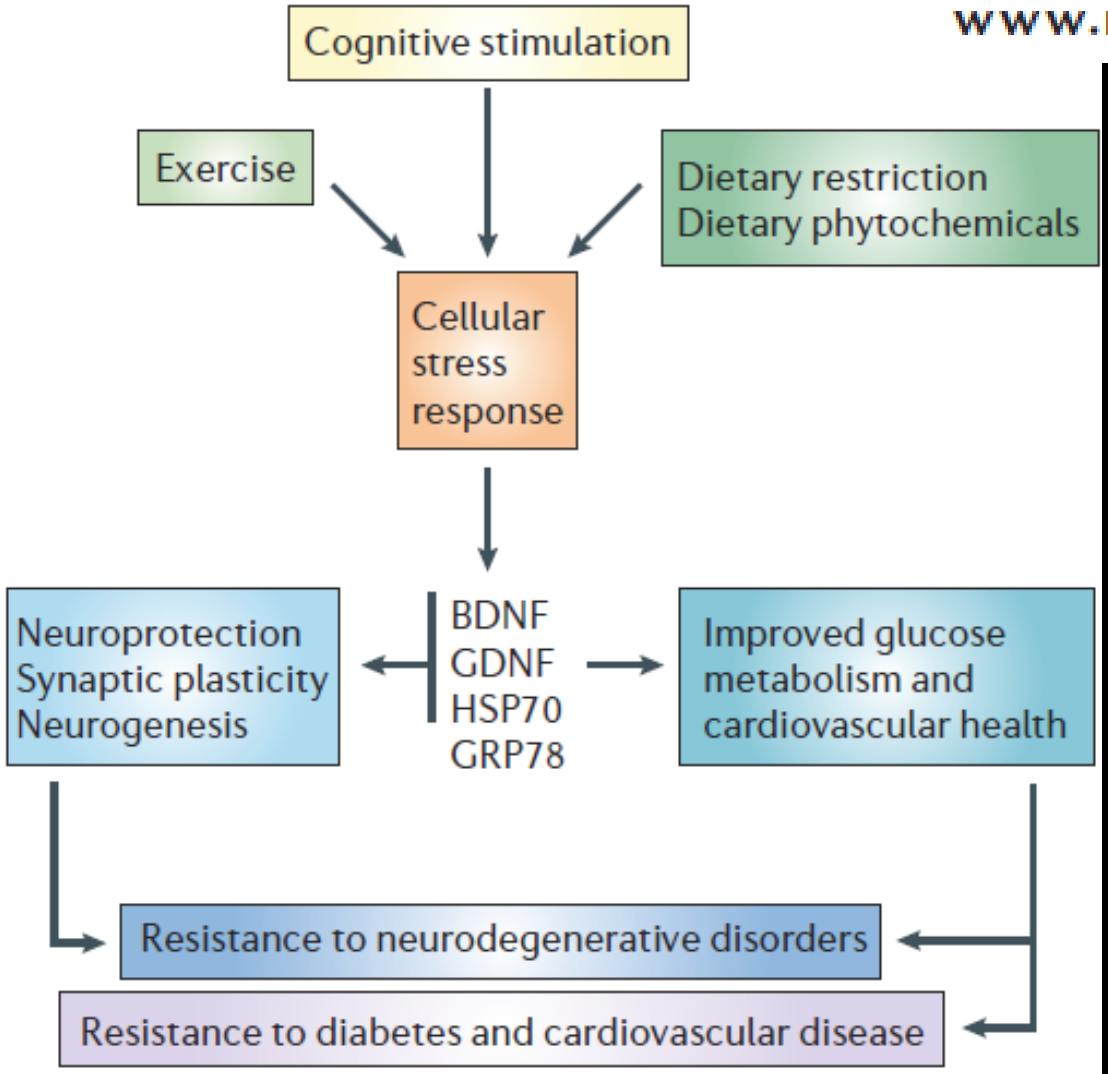


Figure 5 | **Counteracting ageing by stimulating beneficial cellular stress responses.** Exercise, dietary


Didžiausia naujiena FA moksle!

Didžiausia šiandien naujiena fizinio aktyvumo ir sporto moksle?

Smegenis keičiantis stimulai

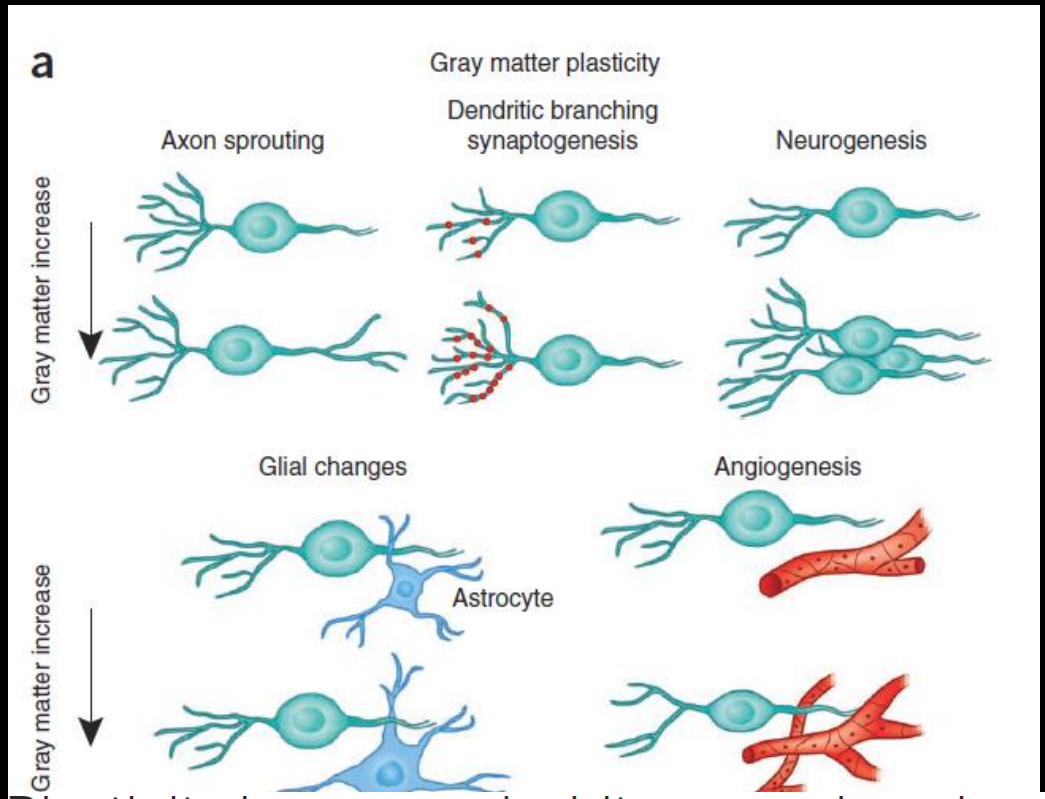
a) Įdomus su atpildu Fizinis aktyvumas

b) Kognityvinis ir socialinis aktyvmas

c) Sensorinių stimulų įvairovė

d) Kalorijų apribojimas

e) Dofaminas-atpildas

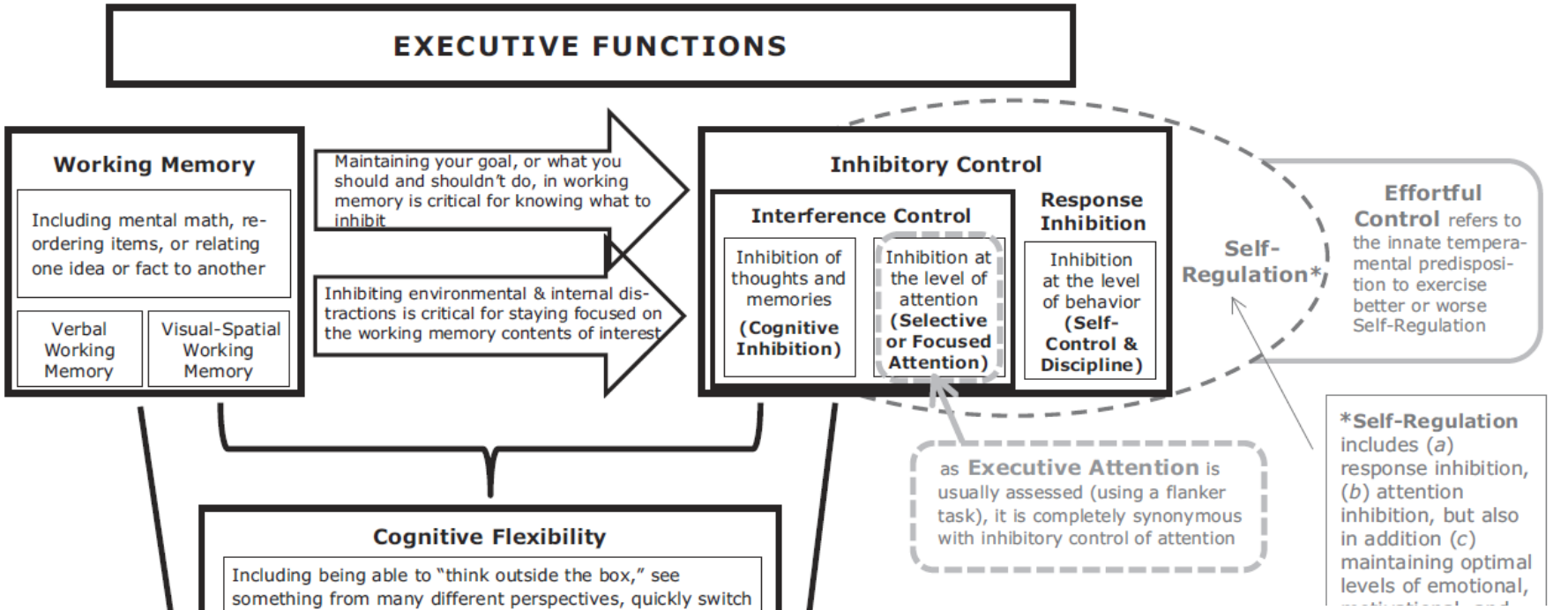


Plasticity in gray and white: neuroimaging changes in brain structure during learning

Executive Functions

Annu. Rev. Psychol. 2013. 64:135–68

Adele Diamond



https://v

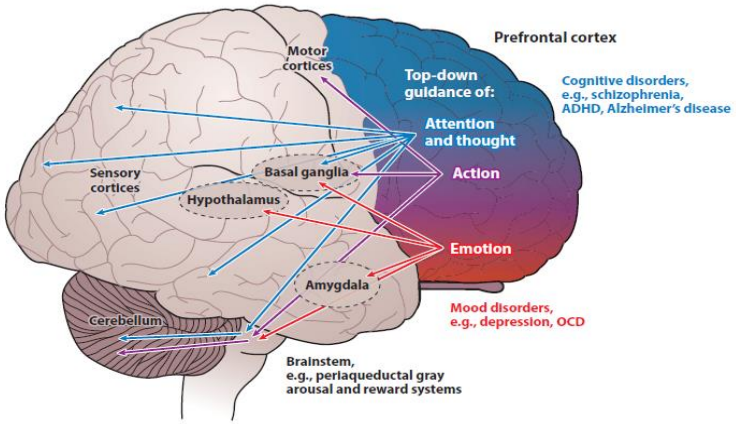


Figure 1


Miokinai, exercinai, adiponectinai – stimuliuoja, gydo ir reabilituoja!

Pedersen BK, 2017

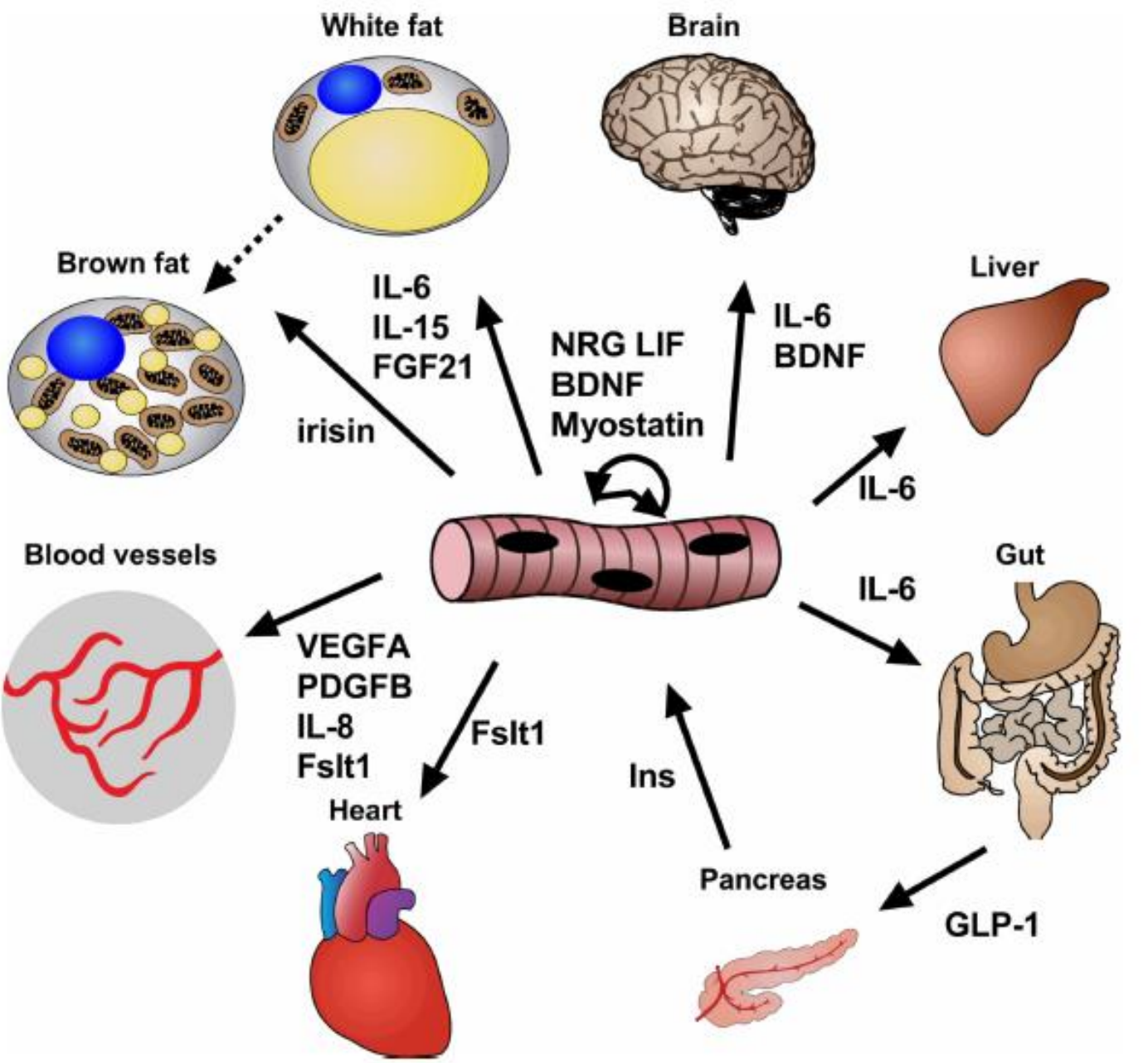


Figure 5.
Muscle as an endocrine organ. Exercise triggers the secretion from muscle of numerous factors that impinge on systemic function. See text for details.

Bone. 2015 November ; 80: 115–125. doi:10.1016/j.bone.2015.02.008.

Skeletal muscle as an endocrine organ: PGC-1α, myokines and exercise

Svenia Schnyder and **Christoph Handschin***

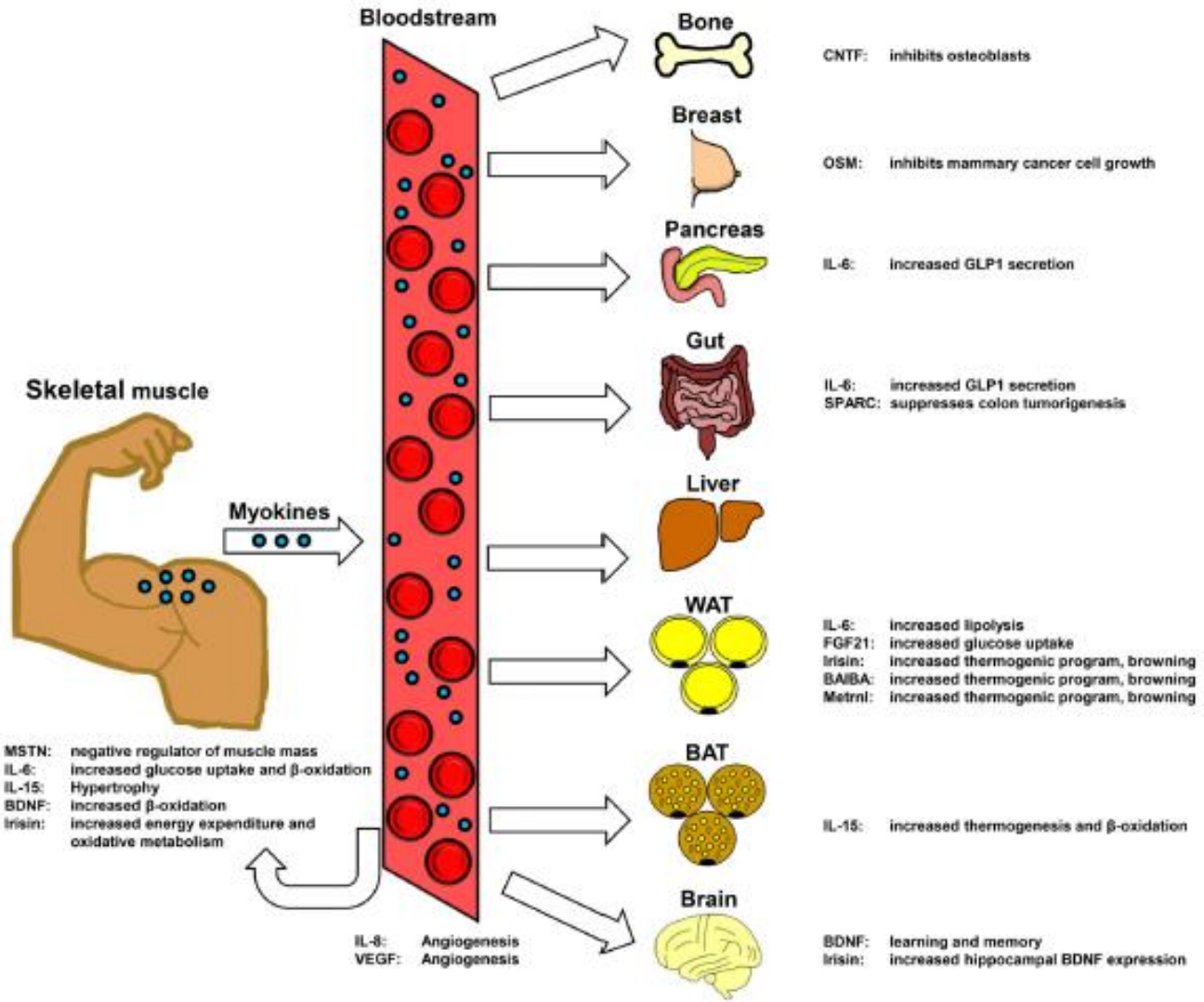
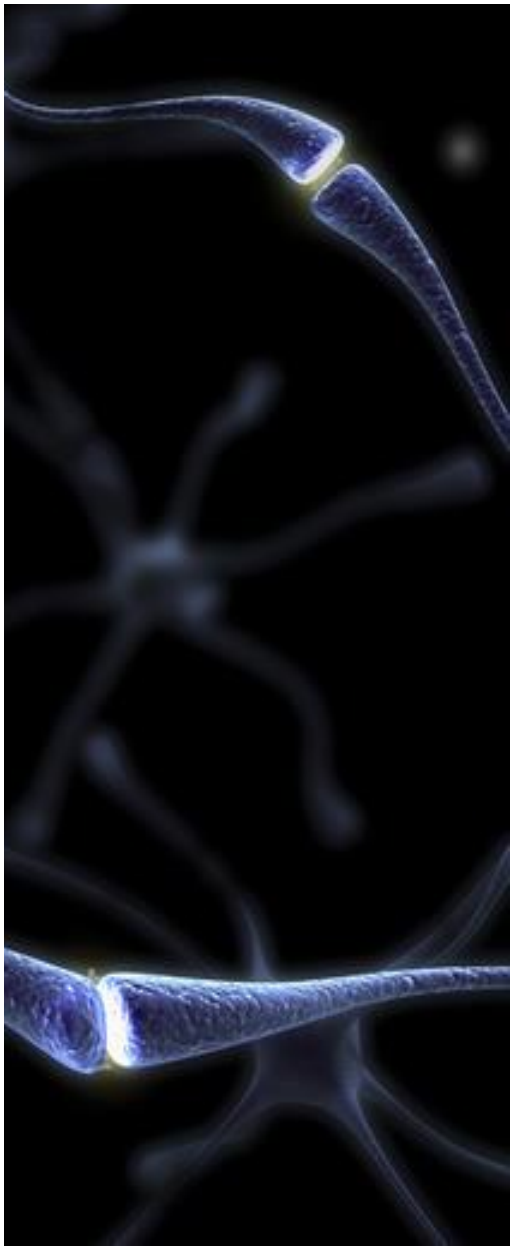


Fig. 2. Auto-, para- and endocrine effects of myokines

Selected examples of the physiological consequences of the production and release of myokines on skeletal muscle and other organs are depicted.



Exp Physiol 94.12 pp 1153–1160

Experimental Physiology – *Hot Topic Review*

Role of exercise-induced brain-derived neurotrophic factor production in the regulation of energy homeostasis in mammals

Bente K. Pedersen[1,2], Maria Pedersen[1,2], Karen S. Krabbe[1,2], Helle Bruunsgaard[1,2], Vance B. Matthews[3] and Mark A. Febbraio[3]

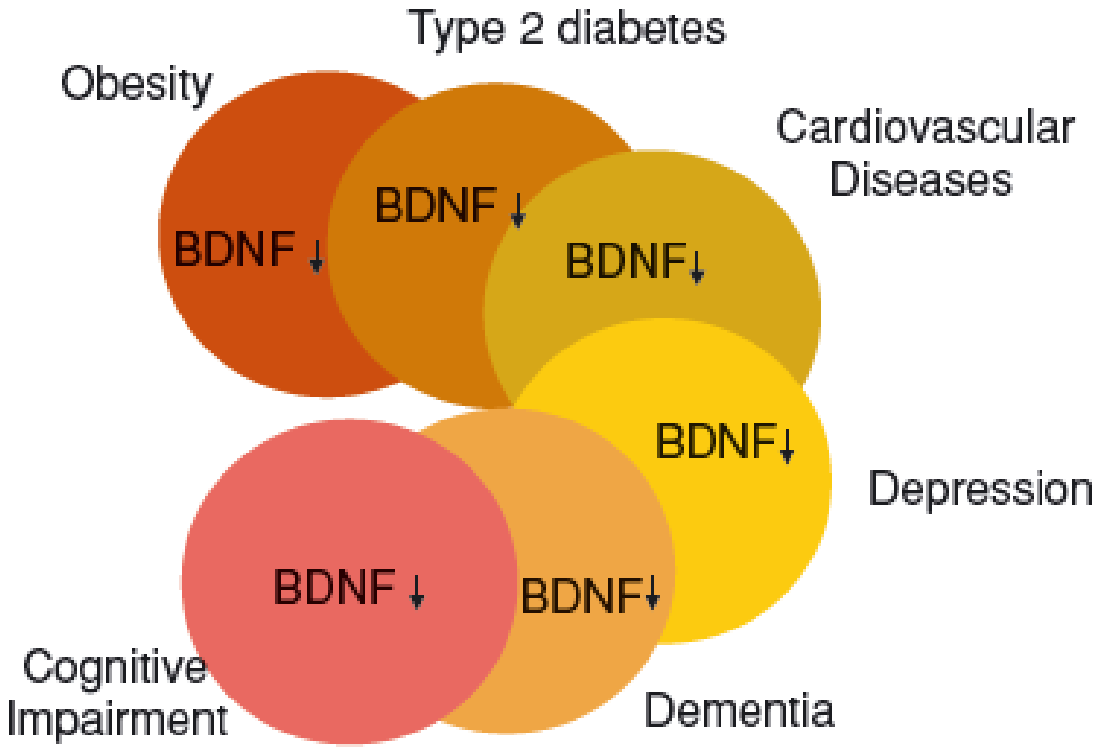


Figure 1. Chronic disorders associated with low circulating levels of brain-derived neurotrophic factor (BDNF)


Japonų strategija:
“+10”!


AE smegenų „vaistas“!

Hillman CH, Erickson KI, Kramer AF. Nat Rev Neurosci. 2008 Jan;9(1):58-65.

Be smart, exercise your heart: exercise effects on brain and cognition.

Aerobiniai pratimai treniruoja ir širdį, ir smegenis.

Aerobinis darbingumas, atliekamas kintančiomis sąlygomis, gerai koreliuoja su protiniu darbingumu.

Tai kontroliuoja APOE genas.

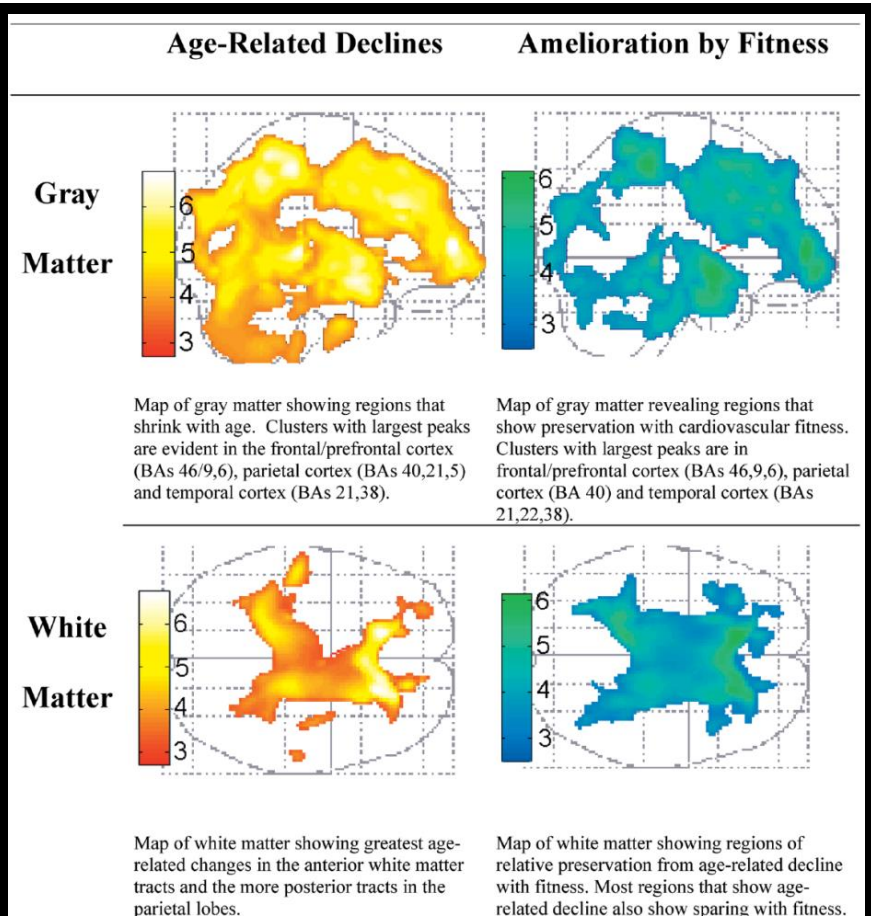
Memory Restored In Mice Through Enriched Environment: New Hope For Alzheimer's, ScienceDaily (Apr. 30, 2007)

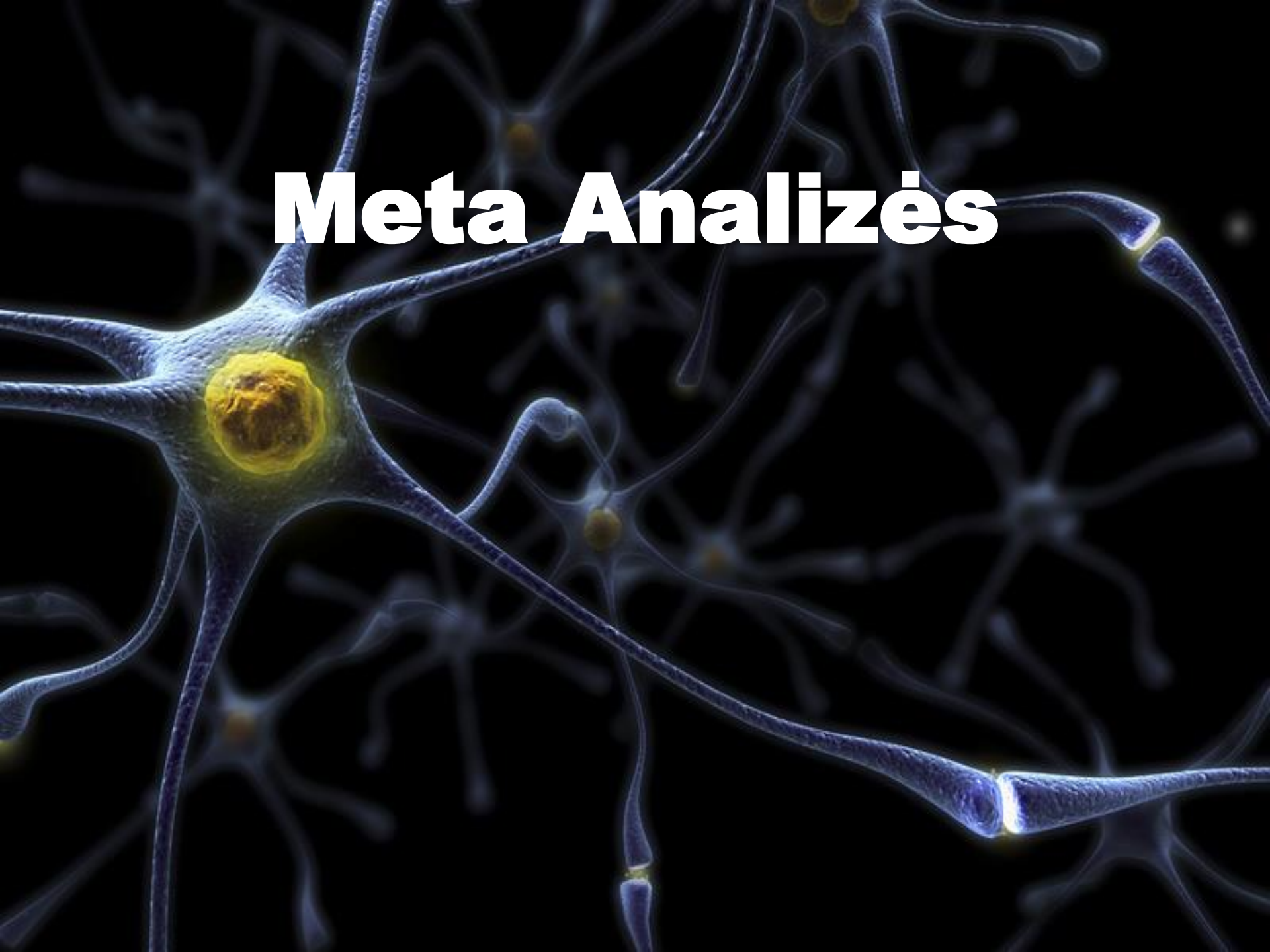
Mice whose brains had lost a large number of neurons due to neurodegeneration regained long-term memories and the ability to learn after their surroundings were enriched with toys and other sensory stimuli, according to new studies by Howard Hughes Medical Institute researchers.

Journal of Gerontology: MEDICAL SCIENCES
2003, Vol. 58A, No. 2, 176–180

Aerobic Fitness Reduces Brain Tissue Loss in Aging Humans

Stanley J. Colcombe,[1] Kirk I. Erickson,[1] Naftali Raz,[2] Andrew G. Webb,[1] Neal J. Cohen,[1] Edward McAuley,[1] and Arthur F. Kramer[1]



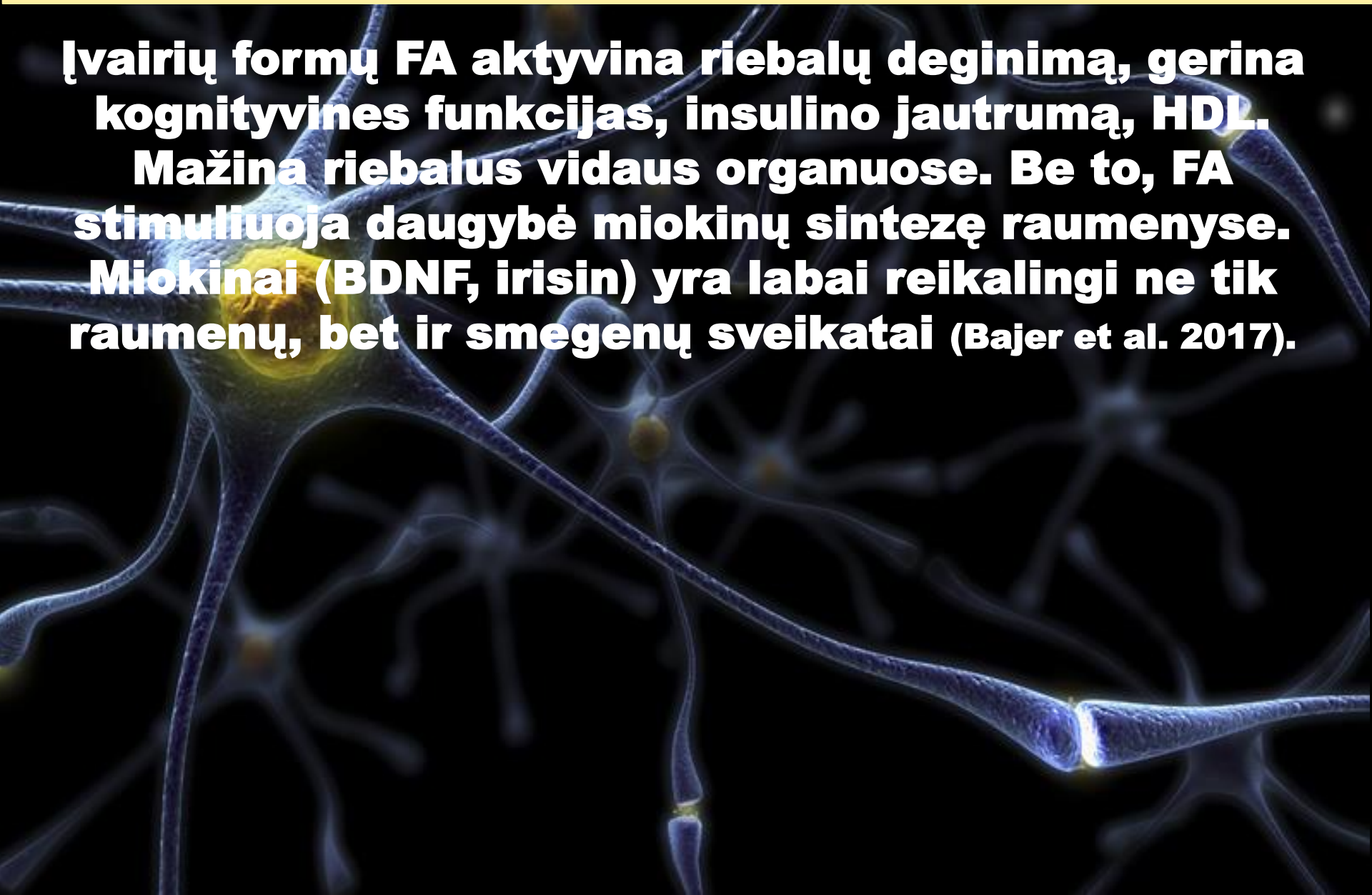

Meta Analizės

Fizinio aktyvumo Medicina

FA sumažina kognityvinio senėjimo tempus ir tuo pačiu yra laba gera prevencinė priemonė prieš Azheimerį ir Demenciją. FA tai įtakoja per BDNF, anti-uždegiminį ir anti-stresinį efektą bei insulino jautrumo padidėjimą (Kennedy et al. 2017).

FA mažina stresą ir todėl galima sakyti, kad yra labai geri “vaistai”, gydantys depresiją (Stubbs et al. 2017).

Fizinio aktyvumo Medicina



Įvairių formų FA aktyvina riebalų deginimą, gerina kognityvines funkcijas, insulino jautrumą, HDL. Mažina riebalus vidaus organuose. Be to, FA stimuliuoja daugybė miokinų sintezę raumenyse. Miokinai (BDNF, irisin) yra labai reikalingi ne tik raumenų, bet ir smegenų sveikatai (Bajer et al. 2017).

FA Medicina

Išsami Meta Analizė (apžvegus 3439874 tiramųjų duomenis) parodė, kad FA labai gera prevencinė priemonė prieš ŠKS ligas (miokardo infarktą, insultą), diabetą (Wahid et al. 2016). Rizika sumažėja apie 15-30 procentų, kai FA yra 150 min per savaitę.

44 eksperimentai rodo, kad aerobiniai vienkartiniai krūviai ir vaikams, ir suaugusiems pagerina vykdomąją funkciją (Ludyga et al. 2016).

18 tyrimų Meta Analizė parodė, kad FA mažina tikimybę susirgti krūties vėžiu bei gerina darbingumą ir nuotaiką žmonių, sergančių šia liga (Kang et al. 2016).

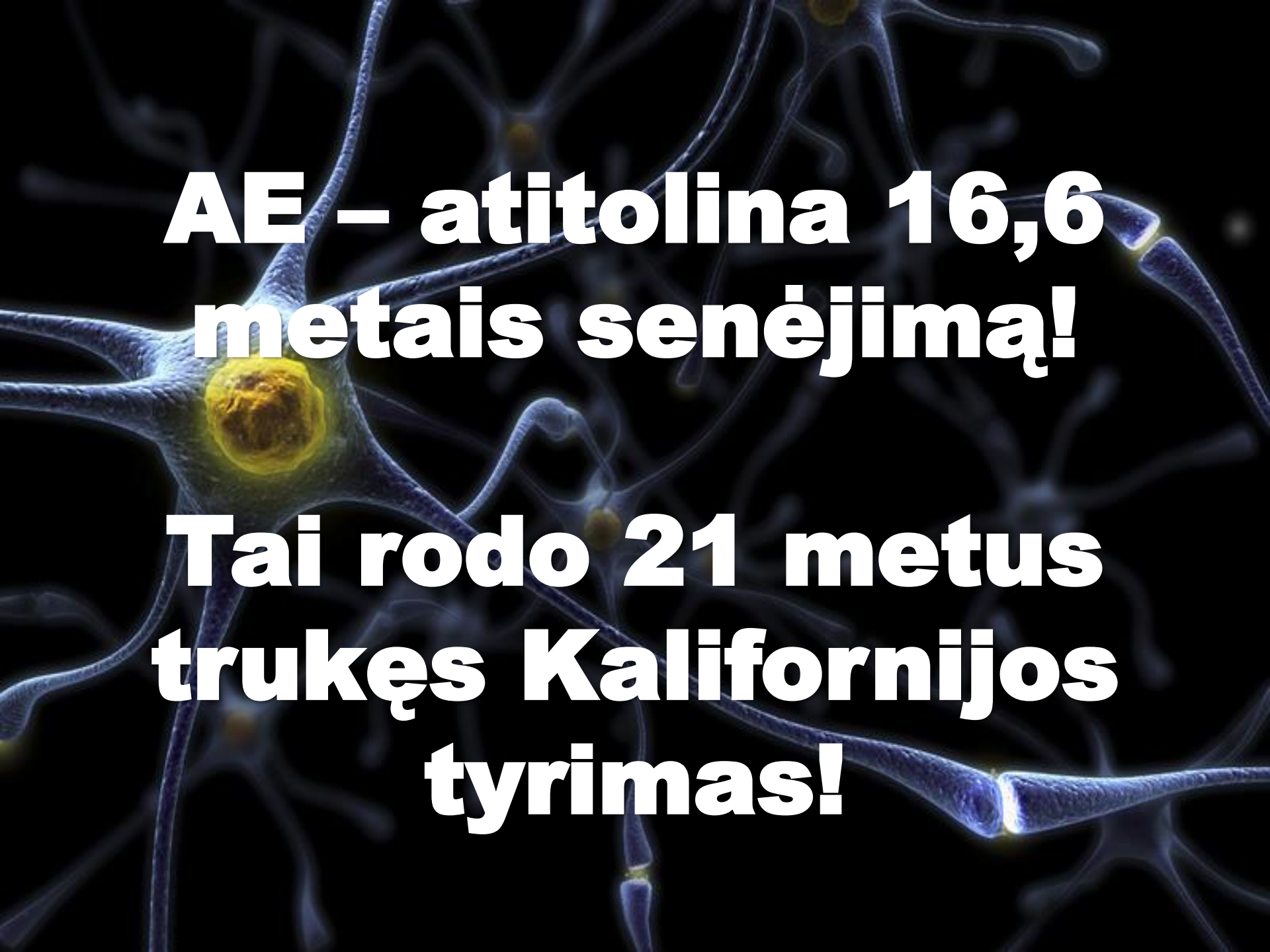
Fizinio aktyvumo Medicina

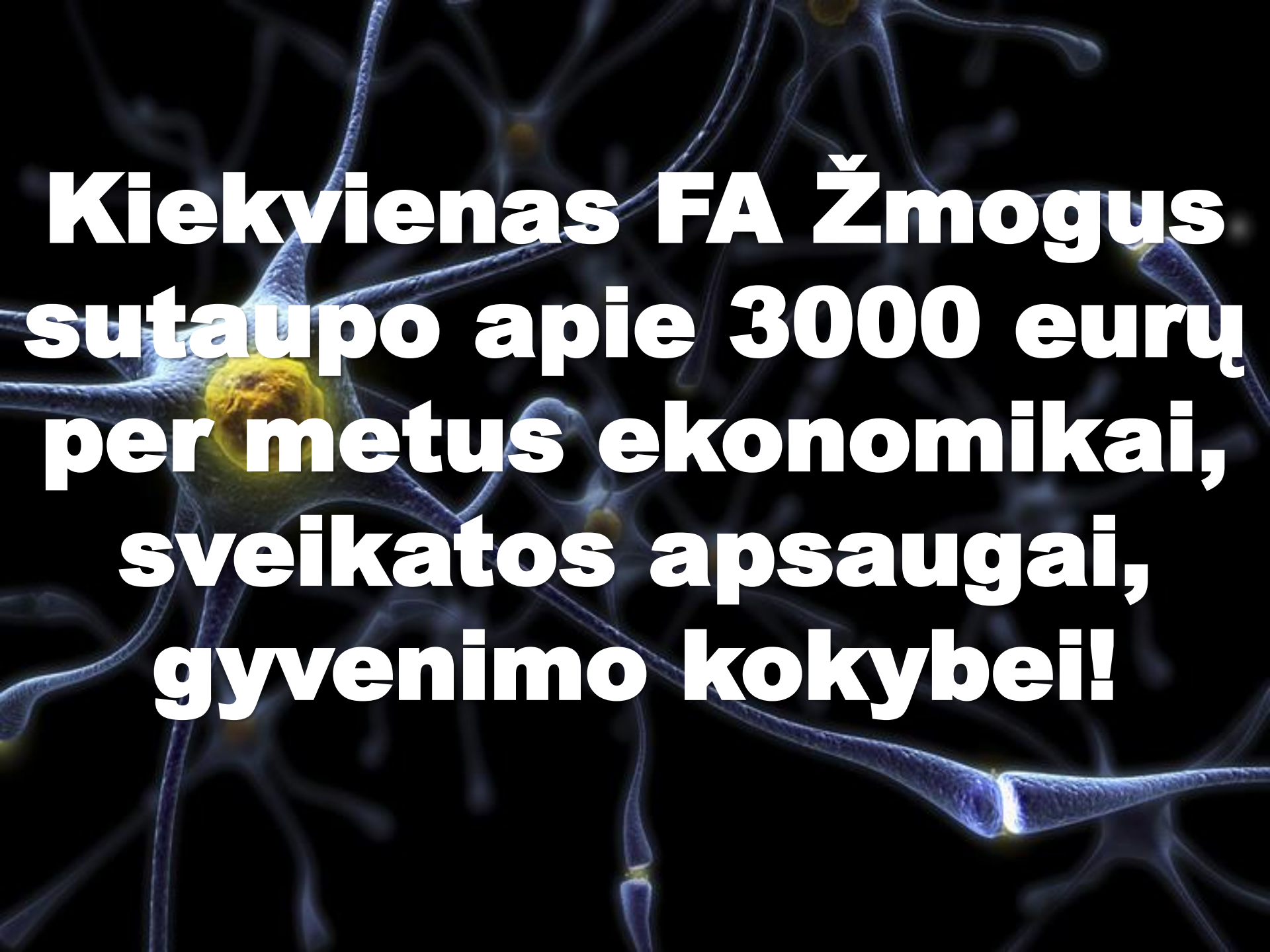
Patys geriausi vaistai nuo demencijos – tai optimalus fizinis aktyvumas ir pilnavertis miegas (Wilckens et al. 2016). Miego kokybė yra labiau svarbi nei miego kiekis. Be to, optimalus FA gerina miego kokybę.

FA yra labai gera prevencinė priemonė prieš 25 lėtines ligas. Sumažėja rizika nuo šių ligų apie 20-30 procentų, kai FA yra apie 150 min/per savaitę (Warburton and, Bredin, 2016). FA normos turi būti individualizuojamos. Labi svarbu, kad būtų mažas fizinis pasyvumas per visą dieną.

Fizinio aktyvumo Medicina

6 mėnesius taikant aerobinius krūvius padidėja apie 5 procentus HDL (Tiainen et al. 2016).


AE – atitolina 16,6 metais senėjimą!
Tai rodo 21 metus trukęs Kalifornijos tyrimas!


Kiekvienas FA Žmogus sutaupo apie 3000 eurų per metus ekonomikai, sveikatos apsaugai, gyvenimo kokybei!


Pabaiga!