FREE FROM PAIN™

George Ampat

Consultant Orthopaedic Surgeon

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- **A BASIC INTRODUCTION**
- WHO IS THIS PROGRAMME FOR?
- WHY IS THIS PROGRAMME IMPORTANT?
- HOW DOES THIS PROGRAMME WORK?
- WHAT EVIDENCE IS THIS BASED ON?
- ONGOING EVALUATION

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WHO IS THIS PROGRAMME FOR?

WHY IS THIS PROGRAMME IMPORTANT?

HOW DOES THIS PROGRAMME WORK?

WHAT EVIDENCE IS THIS BASED ON?

ONGOING EVALUATION

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WHAT IS IT?

Lifestyle based intervention to improve the musculoskeletal health in people aged 60 or over

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Fear
Reduction
Exercise
Early,
Food from plants,
Rest and relaxation,
Organisation (family and friends) and
Motivation (purpose) to reduce
Pain from
Arthritis and to
Increase
Natural strength.

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THE PROGRAMME

- Online consultation
- Exercise booklet providing exercises from Otago for balance, Motor Control for lower back and Isometric for neck and shoulder.
- 12 information leaflets. One leaflet each week.
- 12 metaphor leaflets to help with understanding musculoskeletal pain. One leaflet each week.
- 12 online exercise classes

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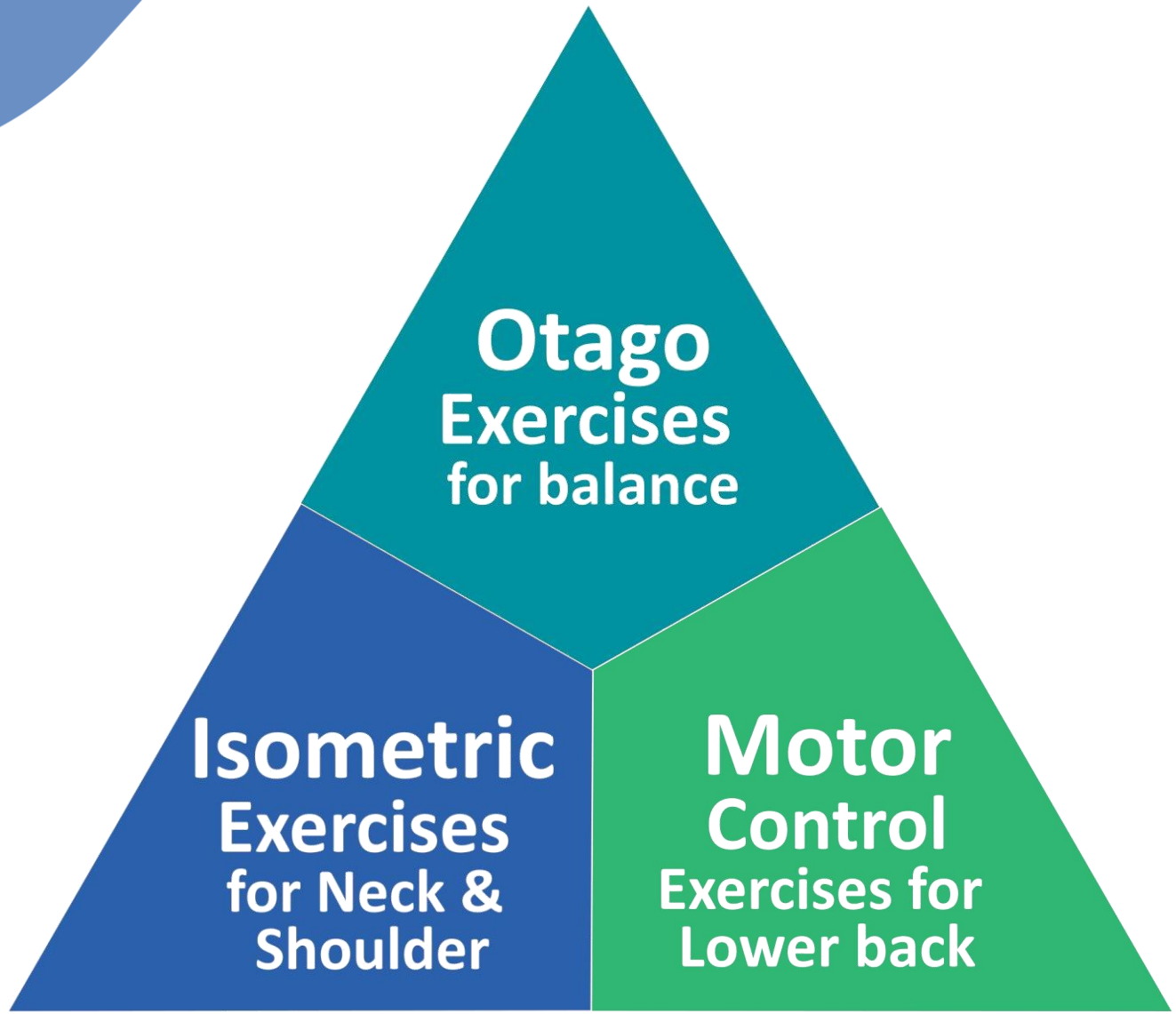

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WHO IS THIS PROGRAMME AIMED AT?

>60s who wish to try non operative management for their pain in preference to surgical options.

>60s who have tried surgical options but have not got the results that they hoped for.

>60s who want to remain healthy and prevent problems later on in life.

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Original Article | Journal of INTERNAL MEDICINE

doi: 10.1111/j.1365-2796.2010.02281.x

Physical activity and risk of cognitive decline: a meta-analysis of prospective studies

F. Sofi[1,2,3], D. Valecchi[1], D. Bacci[1], R. Abbate[2], G. F. Gensini[1], A. Casini[3] & C. Macchi[1]

From the [1]Don Carlo Gnocchi Foundation, Centro S. Maria agli Ulivi, Onlus IRCCS; [2]Department of Medical and Surgical Critical Care, Thrombosis Centre, University of Florence; and [3]Regional Agency of Nutrition, Azienda Ospedaliero-Universitaria Careggi, Florence, Italy

Abstract. Sofi F, Valecchi D, Bacci D, Abbate R, Gensini GF, Casini A, Macchi C (Centro S. Maria agli Ulivi, Onlus IRCCS; Thrombosis Centre, University of Florence; Azienda Ospedaliero-Universitaria Careggi, Florence, Italy). Physical activity and risk of cognitive decline: a meta-analysis of prospective studies. *J Intern Med* 2011; **269**: 107–117.

Objective. The relationship between physical activity and cognitive function is intriguing but controversial. We performed a systematic meta-analysis of all the available prospective studies that investigated the association between physical activity and risk of cognitive decline in nondemented subjects.

Methods. We conducted an electronic literature search through MedLine, Embase, Google Scholar, Web of Science, The Cochrane Library and bibliographies of retrieved articles up to January 2010. Studies were included if they analysed prospectively the association between physical activity and cognitive decline in nondemented subjects.

Results. After the review process, 15 prospective studies (12 cohorts) were included in the final analysis. These studies included 33 816 nondemented subjects followed for 1–12 years. A total of 3210 patients showed cognitive decline during the follow-up. The cumulative analysis for all the studies under a random-effects model showed that subjects who performed a high level of physical activity were significantly protected (–38%) against cognitive decline during the follow-up (hazard ratio (HR) 0.62, 95% confidence interval (CI) 0.54–0.70; $P < 0.00001$). Furthermore, even analysis of low-to-moderate level exercise also showed a significant protection (–35%) against cognitive impairment (HR 0.65, 95% CI 0.57–0.75; $P < 0.00001$).

Conclusion. This is the first meta-analysis to evaluate the role of physical activity on cognitive decline amongst nondemented subjects. The present results suggest a significant and consistent protection for all levels of physical activity against the occurrence of cognitive decline.

Keywords: cognitive decline, dementia, exercise, physical activity.

Introduction

It is unquestionable that physical activity has positive effects on health; indeed, over the last few decades, a large body of evidence has shown that physical activity helps to reduce the risk of cardiovascular and cerebrovascular diseases, diabetes, obesity, hypertension and some cancers [1]. Moreover, it has been demonstrated that an active lifestyle impacts on all causes of mortality. With ageing, some cognitive functions such as attention, memory and concentration decline, becoming slower and inefficient, as for some physical functions such as walking and balance. These manifestations are the result of neural cell loss in the frontal, parietal and temporal lobes [2] and strongly depend on an ipofunction of the monoaminergic and cholinergic pathways [3]. Many of these cognitive changes are evident and can cause mild disability, even if a state of dementia is not reached.

Cognitve decline is heterogeneous, depending on various factors. Many studies have shown an inverse relation between physical activity and the risk of developing cognitive decline [4, 5], but the cause of the association has not been clearly established. Individuals who remain active throughout life, especially during middle age, generally have better cognitive

Sofi F, Valecchi D, Bacci D, et al. Physical activity and risk of cognitive decline: a meta-analysis of prospective studies. *J Intern Med*. 2011;269(1):107-117

A Meta-analysis of 15 studies with 33,816 participants. Physical activity protects mental functions even in subjects without neurodegenerative disease.

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Inactivity shrinks the brain

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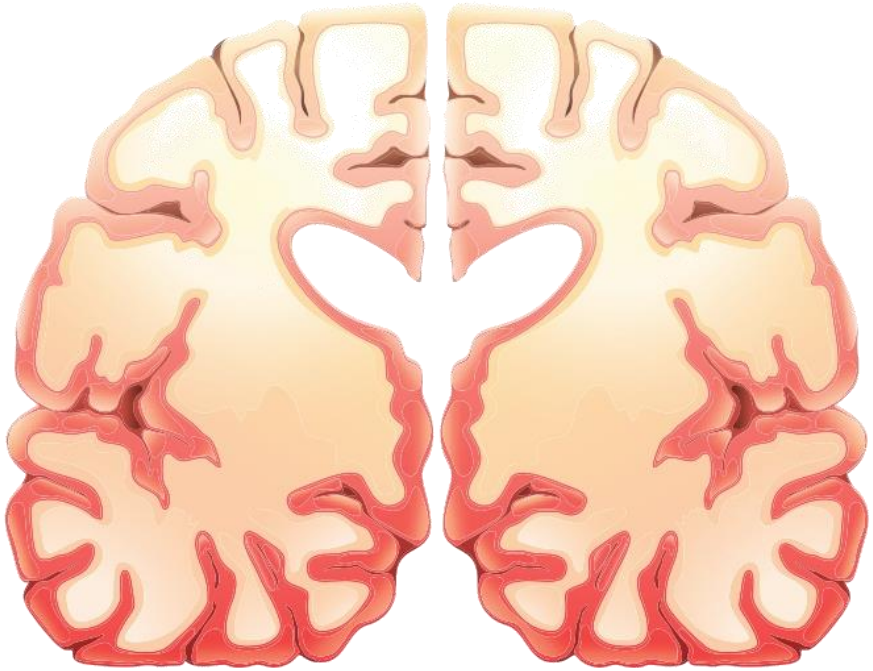
Activity maintains the brain



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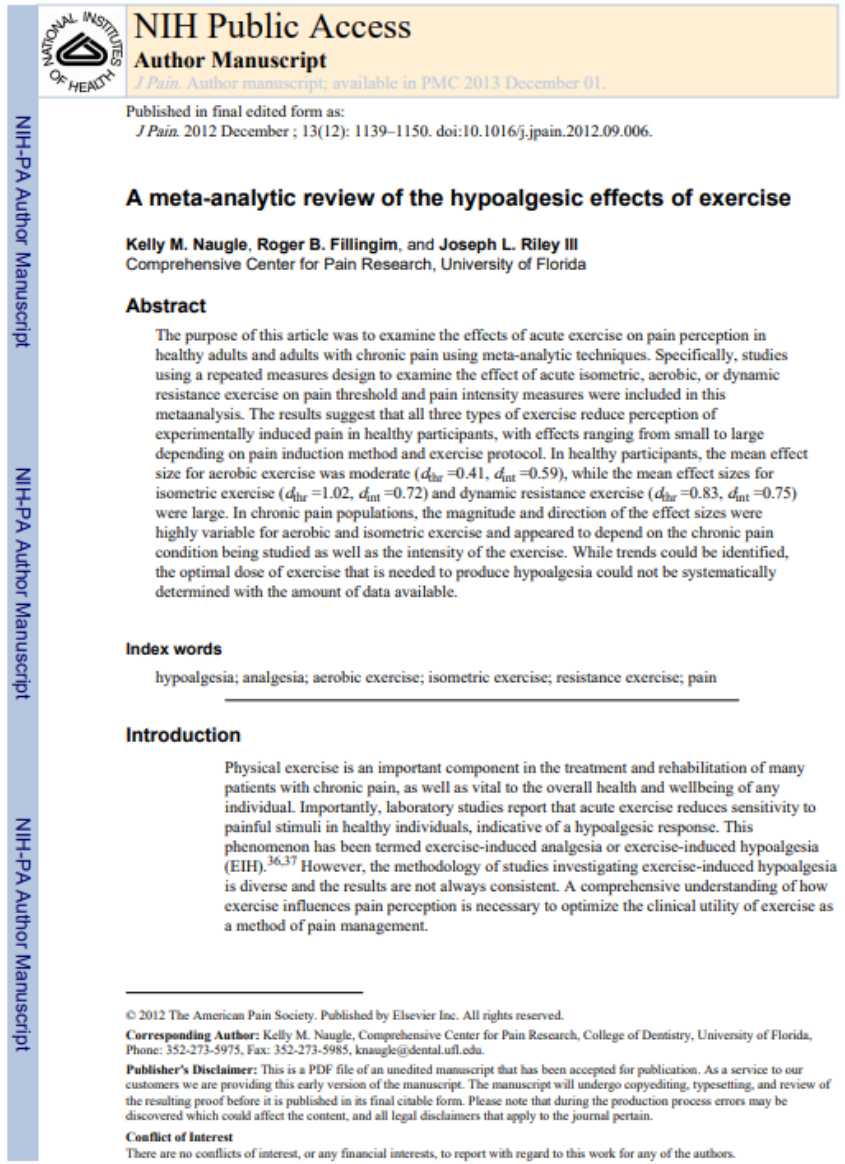

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A meta-analytic review of the hypoalgesic effects of exercise

Kelly M. Naugle, **Roger B. Fillingim**, and **Joseph L. Riley III**
Comprehensive Center for Pain Research, University of Florida

Abstract

The purpose of this article was to examine the effects of acute exercise on pain perception in healthy adults and adults with chronic pain using meta-analytic techniques. Specifically, studies using a repeated measures design to examine the effect of acute isometric, aerobic, or dynamic resistance exercise on pain threshold and pain intensity measures were included in this metaanalysis. The results suggest that all three types of exercise reduce perception of experimentally induced pain in healthy participants, with effects ranging from small to large depending on pain induction method and exercise protocol. In healthy participants, the mean effect size for aerobic exercise was moderate (d_{thr} =0.41, d_{int} =0.59), while the mean effect sizes for isometric exercise (d_{thr} =1.02, d_{int} =0.72) and dynamic resistance exercise (d_{thr} =0.83, d_{int} =0.75) were large. In chronic pain populations, the magnitude and direction of the effect sizes were highly variable for aerobic and isometric exercise and appeared to depend on the chronic pain condition being studied as well as the intensity of the exercise. While trends could be identified, the optimal dose of exercise that is needed to produce hypoalgesia could not be systematically determined with the amount of data available.

Index words

hypoalgesia; analgesia; aerobic exercise; isometric exercise; resistance exercise; pain

Introduction

Physical exercise is an important component in the treatment and rehabilitation of many patients with chronic pain, as well as vital to the overall health and wellbeing of any individual. Importantly, laboratory studies report that acute exercise reduces sensitivity to painful stimuli in healthy individuals, indicative of a hypoalgesic response. This phenomenon has been termed exercise-induced analgesia or exercise-induced hypoalgesia (EIH).[36,37] However, the methodology of studies investigating exercise-induced hypoalgesia is diverse and the results are not always consistent. A comprehensive understanding of how exercise influences pain perception is necessary to optimize the clinical utility of exercise as a method of pain management.

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Conflict of Interest

There are no conflicts of interest, or any financial interests, to report with regard to this work for any of the authors.

J Pain. 2012 Dec; 13(12): 1139–1150.
A meta-analytic review of the hypoalgesic effects of exercise
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- Aerobic exercises
- Isometric
- Dynamic resistance exercises

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Conflict of Interest
There are no conflicts of interest, or any financial interests, to report with regard to this work for any of the authors.

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A meta-analytic review of the hypoalgesic effects of exercise
Kelly M. Naugle, Roger B. Fillingim, and Joseph L. Riley, III

Exercise reduce perception of experimentally induced pain in healthy participants

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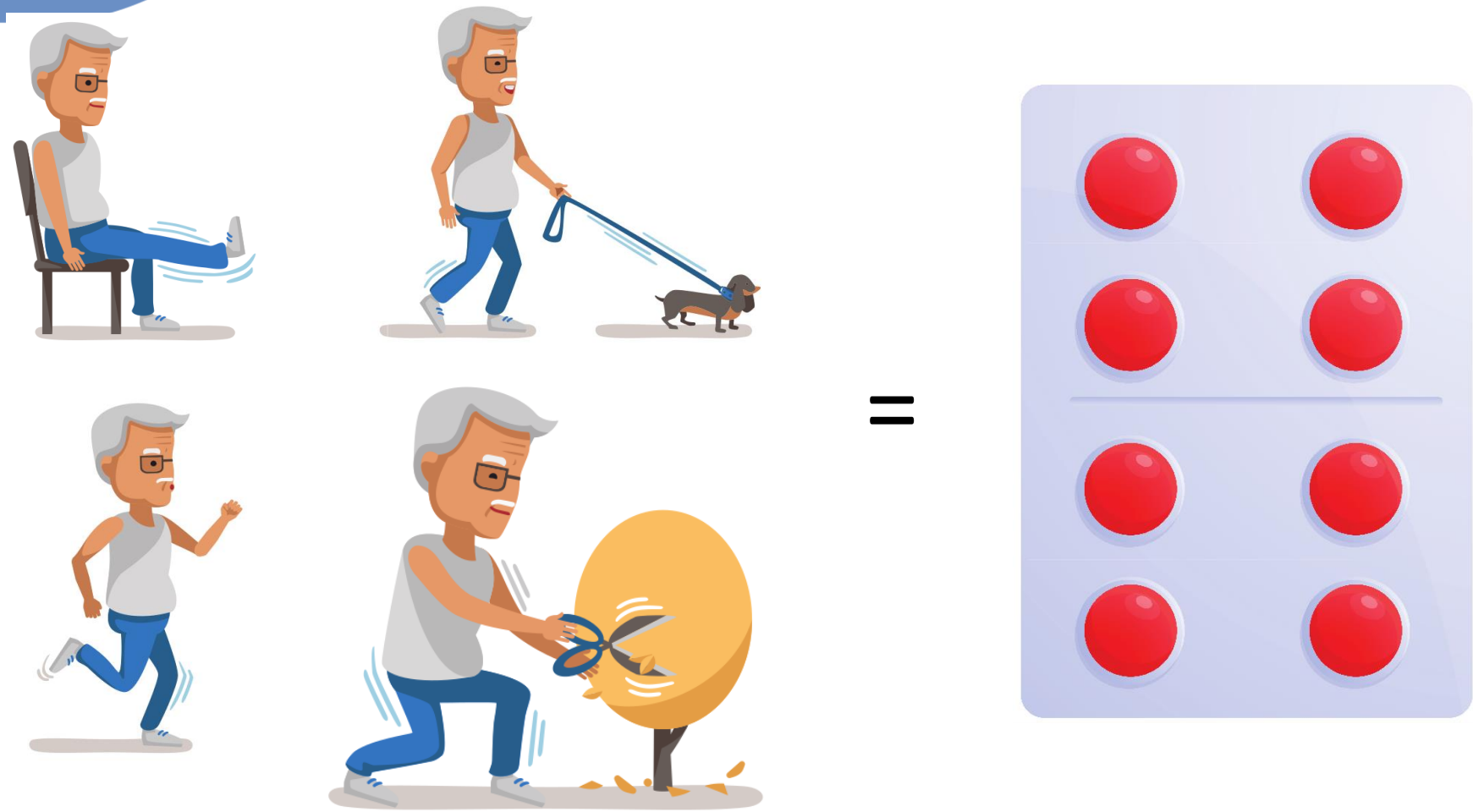
Exercise is a painkiller



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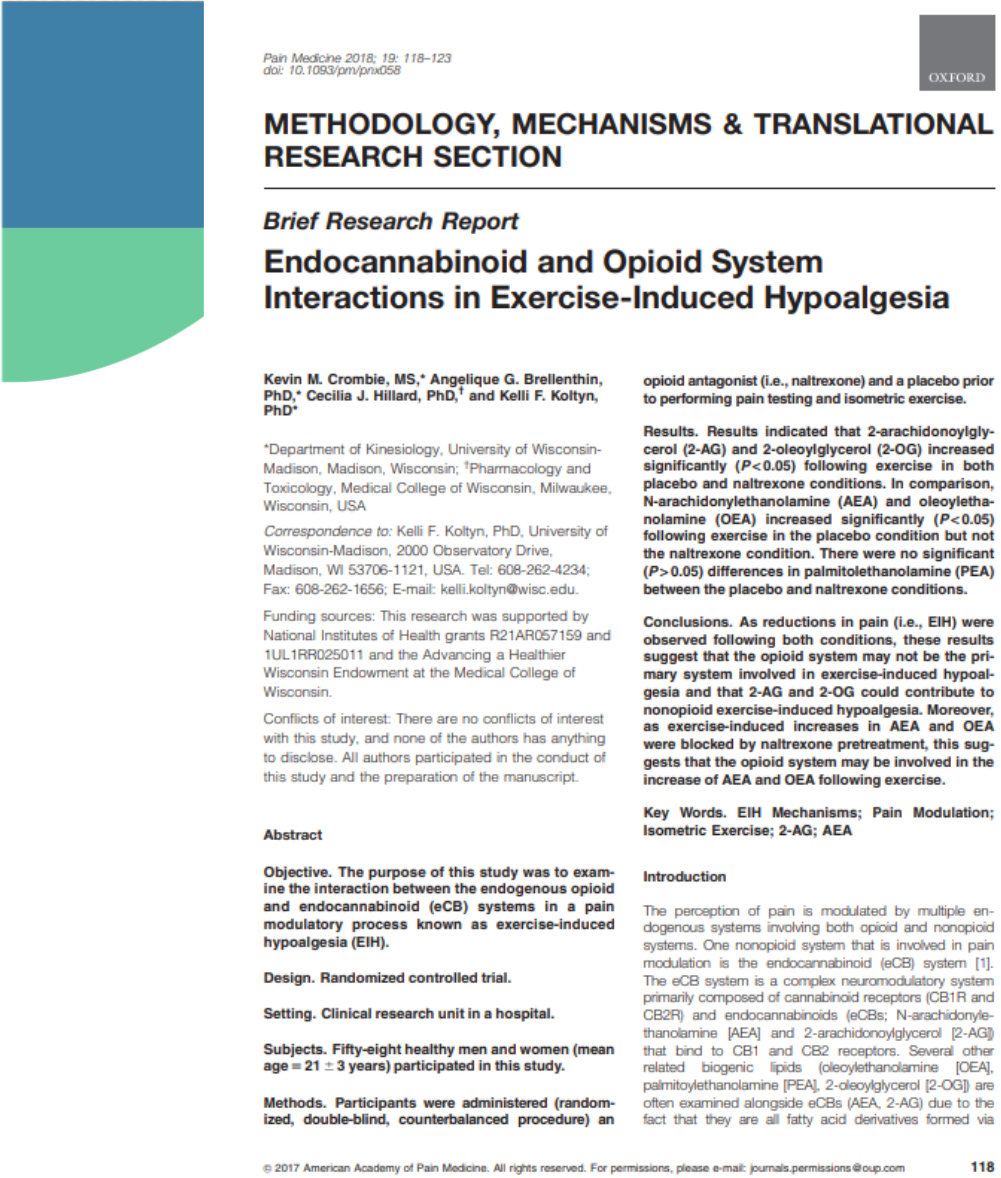

Pain Medicine 2018; 19: 118–123
doi: 10.1093/pm/pnx058

OXFORD

METHODOLOGY, MECHANISMS & TRANSLATIONAL RESEARCH SECTION

Brief Research Report

Endocannabinoid and Opioid System Interactions in Exercise-Induced Hypoalgesia

Kevin M. Crombie, MS,* Angelique G. Brellenthin, PhD,* Cecilia J. Hillard, PhD,† and Kelli F. Koltyn, PhD*

*Department of Kinesiology, University of Wisconsin-Madison, Madison, Wisconsin; †Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee, Wisconsin, USA

Correspondence to: Kelli F. Koltyn, PhD, University of Wisconsin-Madison, 2000 Observatory Drive, Madison, WI 53706-1121, USA. Tel: 608-262-4234; Fax: 608-262-1656; E-mail: kelli.koltyn@wisc.edu.

Funding sources: This research was supported by National Institutes of Health grants R21AR057159 and 1UL1RR025011 and the Advancing a Healthier Wisconsin Endowment at the Medical College of Wisconsin.

Conflicts of interest: There are no conflicts of interest with this study, and none of the authors has anything to disclose. All authors participated in the conduct of this study and the preparation of the manuscript.

Abstract

Objective. The purpose of this study was to examine the interaction between the endogenous opioid and endocannabinoid (eCB) systems in a pain modulatory process known as exercise-induced hypoalgesia (EIH).

Design. Randomized controlled trial.

Setting. Clinical research unit in a hospital.

Subjects. Fifty-eight healthy men and women (mean age = 21 ± 3 years) participated in this study.

Methods. Participants were administered (randomized, double-blind, counterbalanced procedure) an opioid antagonist (i.e., naltrexone) and a placebo prior to performing pain testing and isometric exercise.

Results. Results indicated that 2-arachidonoylglycerol (2-AG) and 2-oleoylglycerol (2-OG) increased significantly ($P < 0.05$) following exercise in both placebo and naltrexone conditions. In comparison, N-arachidonylethanolamine (AEA) and oleoylethanolamine (OEA) increased significantly ($P < 0.05$) following exercise in the placebo condition but not the naltrexone condition. There were no significant ($P > 0.05$) differences in palmitolethanolamine (PEA) between the placebo and naltrexone conditions.

Conclusions. As reductions in pain (i.e., EIH) were observed following both conditions, these results suggest that the opioid system may not be the primary system involved in exercise-induced hypoalgesia and that 2-AG and 2-OG could contribute to nonopioid exercise-induced hypoalgesia. Moreover, as exercise-induced increases in AEA and OEA were blocked by naltrexone pretreatment, this suggests that the opioid system may be involved in the increase of AEA and OEA following exercise.

Key Words. EIH Mechanisms; Pain Modulation; Isometric Exercise; 2-AG; AEA

Introduction

The perception of pain is modulated by multiple endogenous systems involving both opioid and nonopioid systems. One nonopioid system that is involved in pain modulation is the endocannabinoid (eCB) system [1]. The eCB system is a complex neuromodulatory system primarily composed of cannabinoid receptors (CB1R and CB2R) and endocannabinoids (eCBs; N-arachidonylethanolamine [AEA] and 2-arachidonoylglycerol [2-AG]) that bind to CB1 and CB2 receptors. Several other related biogenic lipids (oleoylethanolamine [OEA], palmitoylethanolamine [PEA], 2-oleoylglycerol [2-OG]) are often examined alongside eCBs (AEA, 2-AG) due to the fact that they are all fatty acid derivatives formed via

Kevin M Crombie, MS, Angelique G Brellenthin, PhD, Cecilia J Hillard, PhD, Kelli F Koltyn, PhD, Endocannabinoid and Opioid System Interactions in Exercise-Induced Hypoalgesia, *Pain Medicine*, Volume 19, Issue 1, January 2018, Pages 118–123

Both opioid and endocannabinoid systems involved in Exercise induced hypoalgesia

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New Brain Effects behind "Runner's High"

The sensation may not just be about endorphins. A new study points to the same system of the brain involved in a marijuana buzz

By Judy Lavelle, Chemical & Engineering News on October 8, 2015

German researchers have shown the brain's endocannabinoid system—the same one affected by marijuana's Δ9-tetrahydrocannabinol (THC)—may also play a role in producing runner's high, at least in mice Credit: Christopher Futcher ©iStock.com

After a nice long bout of aerobic exercise, some people experience what's known as a "runner's high": a feeling of euphoria coupled with reduced anxiety and a lessened ability to feel pain. For decades, scientists have associated this phenomenon with an increased level in the blood of β-endorphins, opioid peptides thought to elevate mood.

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Cannabinoid receptor type 1 (CB1)

Cannabinoid receptor type 2 (CB2)

Endogenous Cannabinoid neurotransmitter

- Anandamide (AEA)
- 2-arachidonoylglycerol (2-AG)

Extraneous Cannabis

- Tetrahydrocannabinol (THC)

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PAIN

→

MORE PAIN

FAILURE TO MOVE

WEAK MUSCLES

LESS SUPPORT FOR THE BONES

The vicious cycle

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PAIN → LESS PAIN

CONTINUE TO MOVE

STRONGER MUSCLES

MORE SUPPORT FOR THE BONES

The victorious cycle

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Activity prevents sarcopaenia

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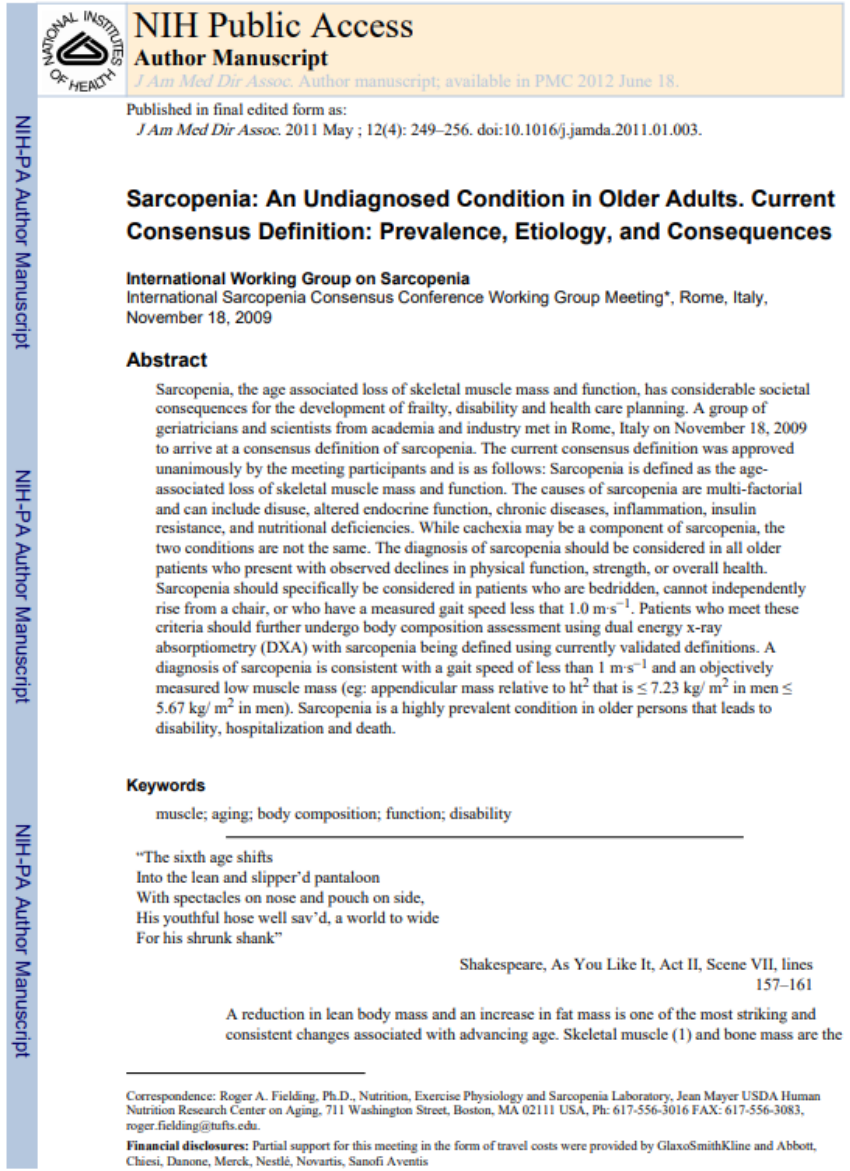

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J Am Med Dir Assoc. 2011 May ; 12(4): 249–256. doi:10.1016/j.jamda.2011.01.003.

Sarcopenia: An Undiagnosed Condition in Older Adults. Current Consensus Definition: Prevalence, Etiology, and Consequences

International Working Group on Sarcopenia
International Sarcopenia Consensus Conference Working Group Meeting*, Rome, Italy, November 18, 2009

Abstract

Sarcopenia, the age associated loss of skeletal muscle mass and function, has considerable societal consequences for the development of frailty, disability and health care planning. A group of geriatricians and scientists from academia and industry met in Rome, Italy on November 18, 2009 to arrive at a consensus definition of sarcopenia. The current consensus definition was approved unanimously by the meeting participants and is as follows: Sarcopenia is defined as the age-associated loss of skeletal muscle mass and function. The causes of sarcopenia are multi-factorial and can include disuse, altered endocrine function, chronic diseases, inflammation, insulin resistance, and nutritional deficiencies. While cachexia may be a component of sarcopenia, the two conditions are not the same. The diagnosis of sarcopenia should be considered in all older patients who present with observed declines in physical function, strength, or overall health. Sarcopenia should specifically be considered in patients who are bedridden, cannot independently rise from a chair, or who have a measured gait speed less that 1.0 $m \cdot s^{-1}$. Patients who meet these criteria should further undergo body composition assessment using dual energy x-ray absorptiometry (DXA) with sarcopenia being defined using currently validated definitions. A diagnosis of sarcopenia is consistent with a gait speed of less than 1 $m \cdot s^{-1}$ and an objectively measured low muscle mass (eg: appendicular mass relative to ht^2 that is ≤ 7.23 kg/ m^2 in men ≤ 5.67 kg/ m^2 in men). Sarcopenia is a highly prevalent condition in older persons that leads to disability, hospitalization and death.

Keywords

muscle; aging; body composition; function; disability

"The sixth age shifts
Into the lean and slipper'd pantaloon
With spectacles on nose and pouch on side,
His youthful hose well sav'd, a world to wide
For his shrunk shank"

Shakespeare, As You Like It, Act II, Scene VII, lines 157–161

A reduction in lean body mass and an increase in fat mass is one of the most striking and consistent changes associated with advancing age. Skeletal muscle (1) and bone mass are the

Correspondence: Roger A. Fielding, Ph.D., Nutrition, Exercise Physiology and Sarcopenia Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging, 711 Washington Street, Boston, MA 02111 USA, Ph: 617-556-3016 FAX: 617-556-3083, roger.fielding@tufts.edu.

Financial disclosures: Partial support for this meeting in the form of travel costs were provided by GlaxoSmithKline and Abbott, Chiesi, Danone, Merck, Nestlé, Novartis, Sanofi Aventis

Fielding RA, Vellas B, Evans WJ, et al. Sarcopenia: an undiagnosed condition in older adults. Current consensus definition: prevalence, etiology, and consequences. J Am Med Dir Assoc. 2011;12(4):249-256

Sarcopenia, the age associated loss of skeletal muscle mass and function, has considerable societal consequences for the development of frailty, disability and health care planning.

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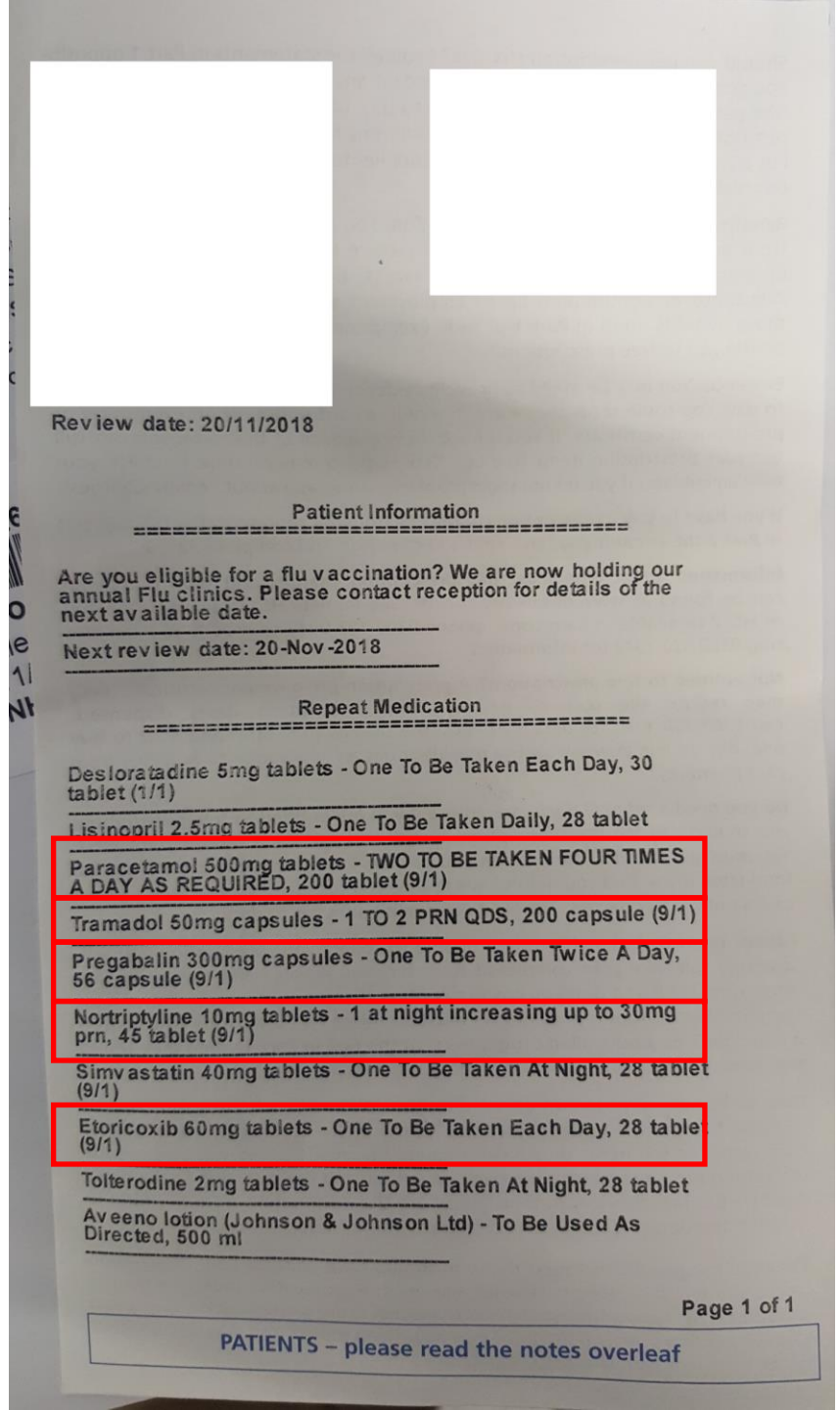
Over medicalisation



Review date: 20/11/2018

Patient Information

Are you eligible for a flu vaccination? We are now holding our annual Flu clinics. Please contact reception for details of the next available date.

Next review date: 20-Nov-2018

Repeat Medication

Desloratadine 5mg tablets - One To Be Taken Each Day, 30 tablet (1/1)

Lisinopril 2.5mg tablets - One To Be Taken Daily, 28 tablet

Paracetamol 500mg tablets - TWO TO BE TAKEN FOUR TIMES A DAY AS REQUIRED, 200 tablet (9/1)

Tramadol 50mg capsules - 1 TO 2 PRN QDS, 200 capsule (9/1)

Pregabalin 300mg capsules - One To Be Taken Twice A Day, 56 capsule (9/1)

Nortriptyline 10mg tablets - 1 at night increasing up to 30mg prn, 45 tablet (9/1)

Simvastatin 40mg tablets - One To Be Taken At Night, 28 tablet (9/1)

Etoricoxib 60mg tablets - One To Be Taken Each Day, 28 tablet (9/1)

Tolterodine 2mg tablets - One To Be Taken At Night, 28 tablet

Aveeno lotion (Johnson & Johnson Ltd) - To Be Used As Directed, 500 ml

Page 1 of 1

PATIENTS – please read the notes overleaf

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Makary MA, Daniel M. Medical error-the third leading cause of death in the US. *BMJ*. 2016;353

thebmj

BMJ 2016;353:i2139 doi: 10.1136/bmj.i2139 (Published 3 May 2016)

ANALYSIS

Medical error—the third leading cause of death in the US

Medical error is not included on death certificates or in rankings of cause of death. **Martin Makary** and **Michael Daniel** assess its contribution to mortality and call for better reporting

Martin A Makary *professor*, Michael Daniel *research fellow*

Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, MD 21287, USA

The annual list of the most common causes of death in the United States, compiled by the Centers for Disease Control and Prevention (CDC), informs public awareness and national research priorities each year. The list is created using death certificates filled out by physicians, funeral directors, medical examiners, and coroners. However, a major limitation of the death certificate is that it relies on assigning an International Classification of Disease (ICD) code to the cause of death.[1] As a result, causes of death not associated with an ICD code, such as human and system factors, are not captured. The science of safety has matured to describe how communication breakdowns, diagnostic errors, poor judgment, and inadequate skill can directly result in patient harm and death. We analyzed the scientific literature on medical error to identify its contribution to US deaths in relation to causes listed by the CDC.[2]

Death from medical care itself

Medical error has been defined as an unintended act (either of omission or commission) or one that does not achieve its intended outcome,[3] the failure of a planned action to be completed as intended (an error of execution), the use of a wrong plan to achieve an aim (an error of planning),[4] or a deviation from the process of care that may or may not cause harm to the patient.[5] Patient harm from medical error can occur at the individual or system level. The taxonomy of errors is expanding to better categorize preventable factors and events.[6] We focus on preventable lethal events to highlight the scale of potential for improvement.

The role of error can be complex. While many errors are non-consequential, an error can end the life of someone with a long life expectancy or accelerate an imminent death. The case in the box shows how error can contribute to death. Moving away from a requirement that only reasons for death with an ICD code can be used on death certificates could better inform healthcare research and awareness priorities.

How big is the problem?

The most commonly cited estimate of annual deaths from medical error in the US—a 1999 Institute of Medicine (IOM) report[7]—is limited and outdated. The report describes an incidence of 44 000-98 000 deaths annually.[7] This conclusion was not based on primary research conducted by the institute but on the 1984 Harvard Medical Practice Study and the 1992 Utah and Colorado Study.[8 9] But as early as 1993, Leape, a chief investigator in the 1984 Harvard study, published an article arguing that the study's estimate was too low, contending that 78% rather than 51% of the 180 000 iatrogenic deaths were preventable (some argue that all iatrogenic deaths are preventable).[10] This higher incidence (about 140 400 deaths due to error) has been supported by subsequent studies which suggest that the 1999 IOM report underestimates the magnitude of the problem. A 2004 report of inpatient deaths associated with the Agency for Healthcare Quality and Research Patient Safety Indicators in the Medicare population estimated that 575 000 deaths were caused by medical error between 2000 and 2002, which is about 195 000 deaths a year (table 1⇓).[11] Similarly, the US Department of Health and Human Services Office of the Inspector General examining the health records of hospital inpatients in 2008, reported 180 000 deaths due to medical error a year among Medicare beneficiaries alone.[12] Using similar methods, Classen et al described a rate of 1.13%.[13] If this rate is applied to all registered US hospital admissions in 2013[14] it translates to over 400 000 deaths a year, more than four times the IOM estimate.

Similarly, Landrigan et al reported that 0.6% of hospital admissions in a group of North Carolina hospitals over six years (2002-07) resulted in lethal adverse events and conservatively estimated that 63% were due to medical errors.[14] Extrapolated nationally, this would translate into 134 581 inpatient deaths a year from poor inpatient care. Of note, none of the studies captured deaths outside inpatient care—those resulting from errors in care at home or in nursing homes and in outpatient care such as ambulatory surgery centers.

Correspondence to: M A Makary mmakary1@jhmi.edu

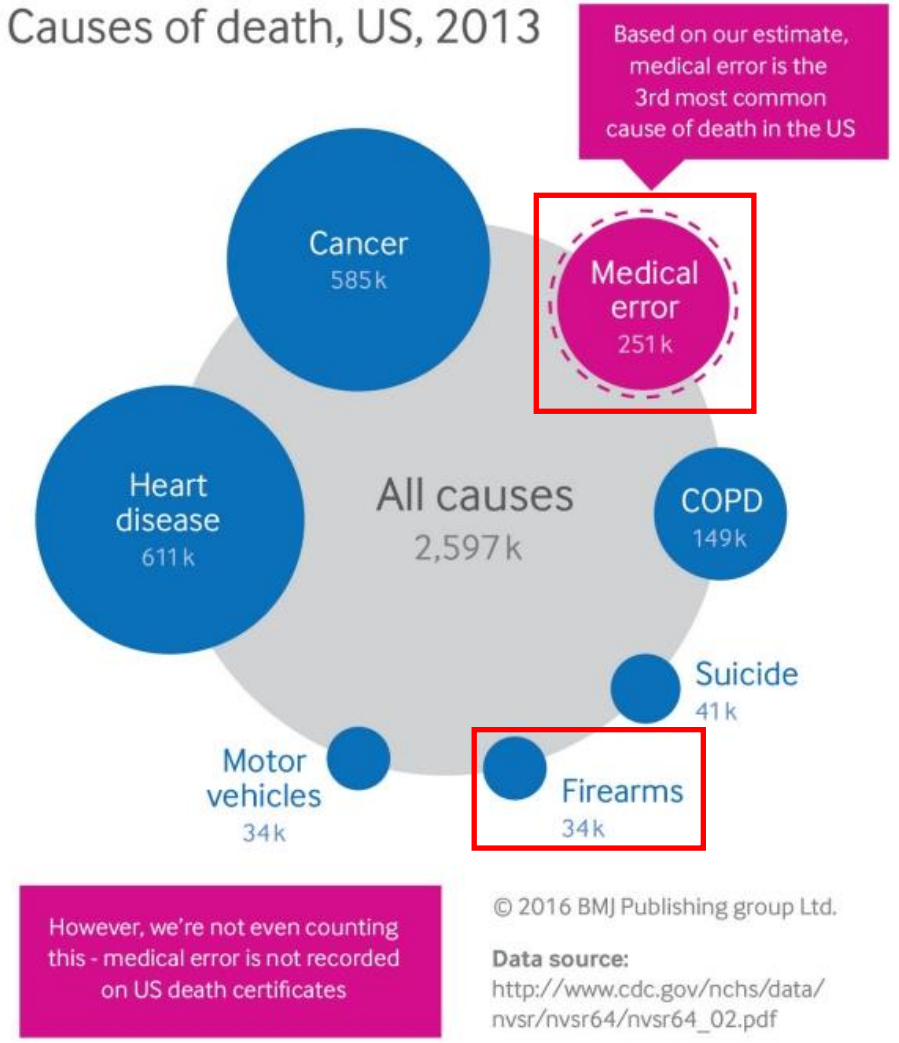

Fig 1 Most common causes of death in the United States, 2013[2]

A SURGEON CUTS
THROUGH THE EVIDENCE

SURGERY, THE ULTIMATE PLACEBO

'The scalpel is probably the most powerful placebo known to modern medicine. Ian Harris provides the surgical antidote: facts and rational argument.' – Dr Norman Swan

People_

Professor Ian Harris

AM, MMed(Clin Epi), PhD, FRACS, FAHMS

Honorary Professor, School of Public Health

Email
ian.harris@sydney.edu.au

Resume
Curriculum vitae

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Biographical details

Professor Harris is a practicing orthopaedic surgeon and an academic. His clinical interests are in trauma surgery. His research interests broadly cover the topic of surgical effectiveness and clinical research. He conducts randomised trials, systematic reviews, cohort studies and methodological studies.

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- **A BASIC INTRODUCTION**
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- WHY IS THIS PROGRAMME IMPORTANT?
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- WHAT EVIDENCE IS THIS BASED ON?
- ONGOING EVALUATION

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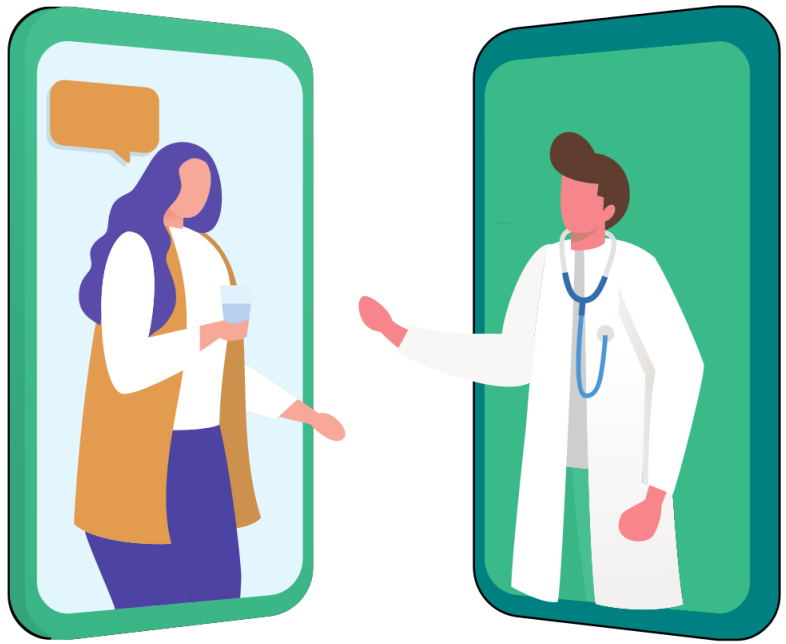
Online consultation + Exercise booklet



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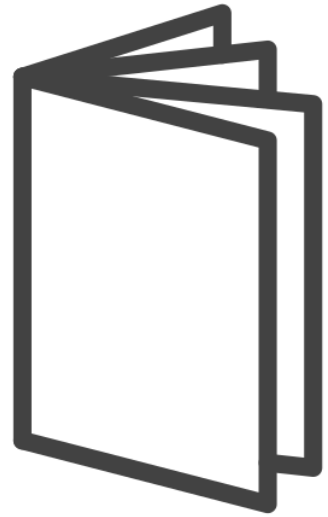

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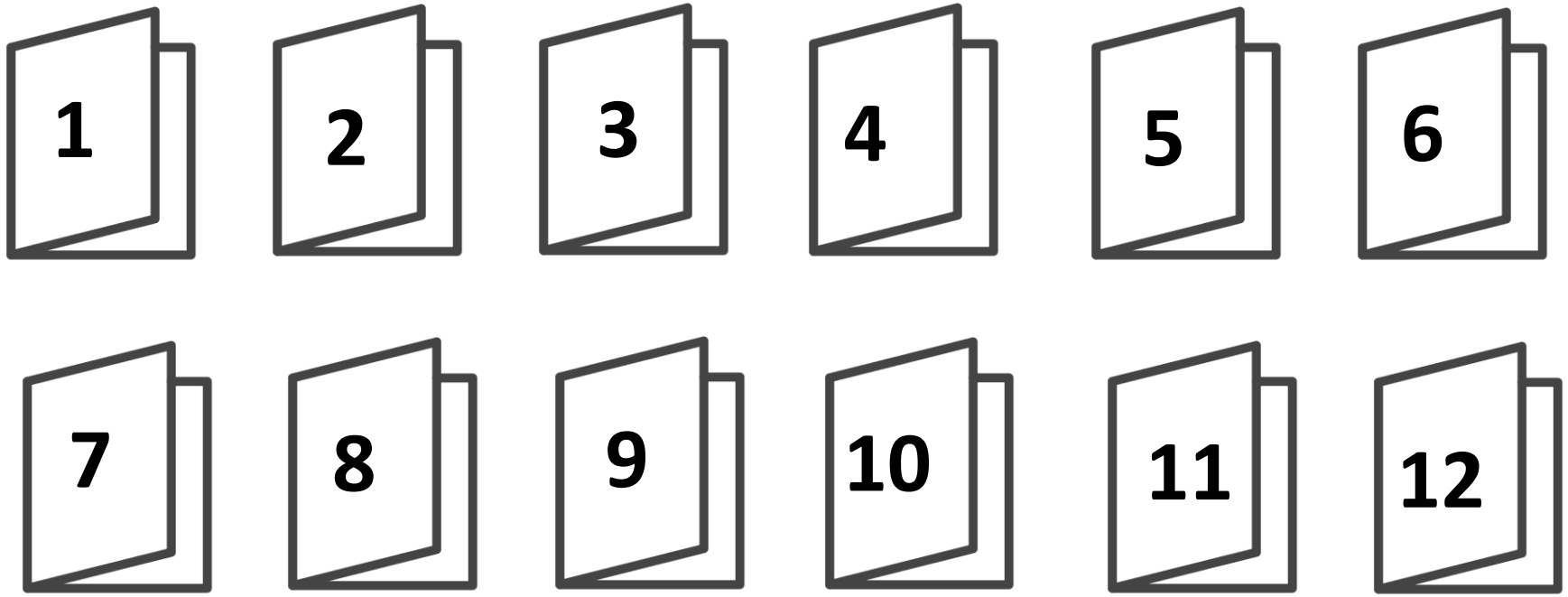
Therapeutic Patient Education Leaflets x 12



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Therapeutic Patient Education Leaflets x 12

4. Food from plants

A plant based diet through the Ages

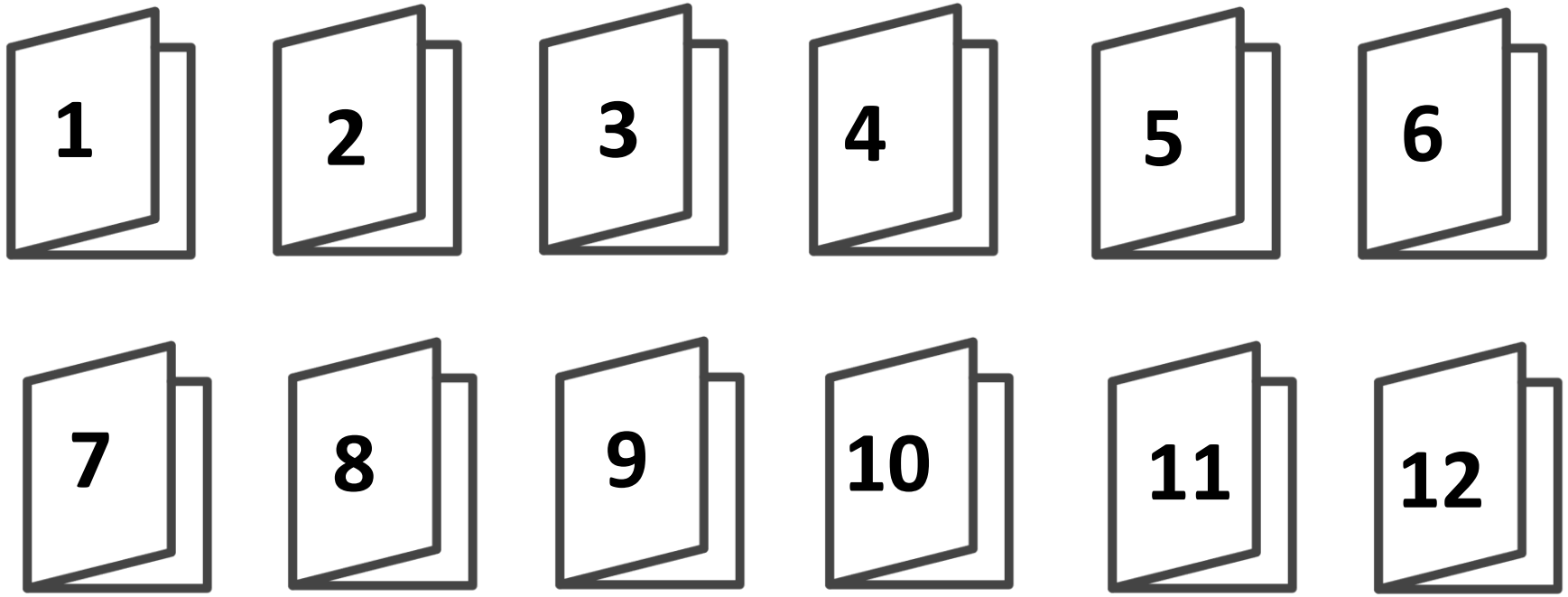
In the modern day, vegetarianism is becoming more and more ordinary, as people realise the health and environmental benefits of reducing meat consumption. However, vegetarianism is not a modern concept.. The idea of plant based diets is even highlighted in the Bible. In the story of Daniel and his three friends, four young captives in Babylon were chosen by the King to be his subjects. The young men accepted this way of life in every sense – except for the diet of the King. They refused to eat the royal food and wine and instead chose a diet of vegetables and water. This surprised the King's officers, so Daniel suggested a ten day test. Daniel and his friends ate their plant based diet for the duration of the test, while the other subjects enjoyed the royal food. The scripture states that; 'At the end of the ten days, they looked healthier and more nourished that the other young men who ate the royal food'. This may be the first controlled experiment recorded in human history.

This story is over 2500 years old, yet highlights the benefits of a plant based diet. Additionally, early medicine revolved around the prescription of vegetables and fruits as medicine in order to prevent diseases.

The Adventist Philosophy

Religion has promoted plant-based diets throughout history. The Seventh-day Adventist Church of Loma Linda has linked theology and food in order to encourage a vegetarian lifestyle amongst believers. The church educated the masses, encouraging them to take on a vegetarian diet. Followers of the church believe their bodies are holy temples which should only be fed the healthiest foods. As a result, they began mass producing their own plant-based foods including meat alternatives, breakfast cereals and soy milk [1].

Metaphor Leaflets x 12



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Metaphor Leaflets x 12

1) HOW CAN I PREVENT INJURING MY BACK?

WHAT'S THE STORY?

Peter are Paul are identical twins with the same genetic make up. At the age of 40 they still look alike but had very different jobs.

Peter worked in a removals company and lifted a total of 4 tonnes every day moving boxes from the house to the van and from the van to the house.

Paul however worked in an office, and had a largely sedentary lifestyle.

One weekend they both decided to do some gardening and as part of this, needed to move some potted plants which weighed around 20kgs. Peter had no problem when lifting the pots, but Paul struggled and injured his back. In the end, Paul blamed the lifting as the cause of his back pain.

FREE FROM PAIN™, aka Fear Reduction Exercise Early, Food from plants, Rest and relaxation, Organisation (family and friends) and Motivation (purpose) to reduce Pain from Arthritis and to Increase Natural strength.
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Online exercise class x 12

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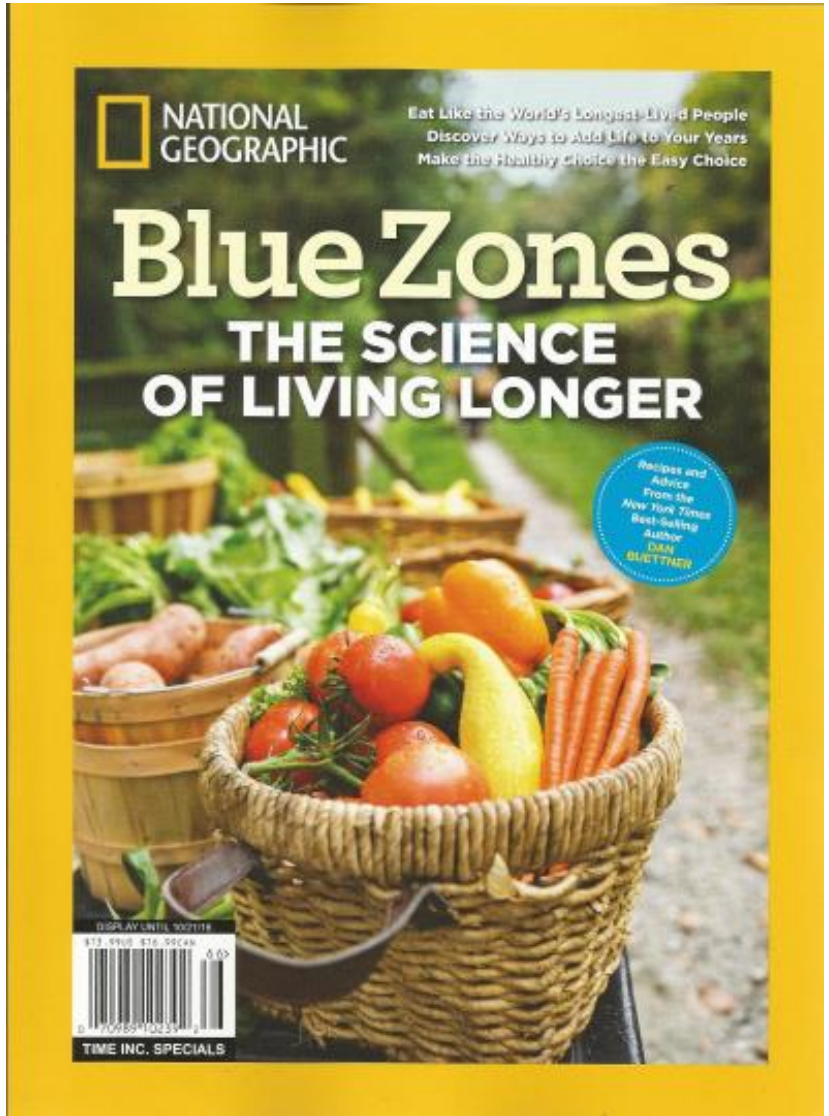
BLUE ZONES
Dan Buettner



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STATE OF THE ART
REVIEWS

Dan Buettner, BA, and Sam Skemp, BA

Blue Zones: Lessons From the World's Longest Lived

Abstract: *What began as a National Geographic expedition, lead by Dan Buettner, to uncover the secrets of longevity, evolved into the discovery of the 5 places around the world where people consistently live over 100 years old, dubbed the Blue Zones. Dan and his team of demographers, scientist and anthropologists were able to distill the evidence-based common denominators of these Blue Zones into 9 commonalities that they call the Power 9. They have since taken these principles into communities across the United States working with policy makers, local businesses, schools and individuals to shape the environments of the Blue Zones Project Communities. What has been found is that putting the responsibility of curating a healthy environment on an individual does not work, but through policy and environmental changes the Blue Zones Project Communities have been able to increase life expectancy, reduce obesity and make the healthy choice the easy choice for millions of Americans.*

Keywords: Blue Zones; Power 9; Life Radius; Vitality Compass; Longevity; Health; Dan Buettner

The Danish Twin Study[1] established that only about 20% of how long the average person lives is dictated by our genes, whereas the other 80% is dictated by our lifestyle. In 2004, Dan Buettner, CEO of Blue Zones LLC, was determined to uncover the specific aspects of lifestyle and environment that led to longevity. By teaming up with National Geographic and the National Institute on Aging, Dan and his team, found the 5 demographically confirmed, geographically defined areas with the highest percentage of centenarians (Loma Linda, CA, USA; Nicoya, Costa Rica; Sardinia, Italy; Ikaria, Greece; Okinawa, Japan; seen in Figure 1). These 5 areas were located using epidemiological data, statistics, birth certificates, and other research. These areas were dubbed *Blue Zones*, where people reach age 100 at 10 times greater rates than in the United States. Once these areas were established, they sent in a team of anthropologists, demographers, epidemiologists, and researchers to identify the lifestyle characteristics that might explain longevity. They found that the lifestyles of all Blue Zones residents shared 9 specific characteristics. These are called the Power 9.

> However, many individuals have the capacity to make it well into the early 90s and largely without chronic disease.

Power 9

To make it to age 100, it seems that a person must have to win the genetic lottery. However, many individuals have the capacity to make it well into the early 90s and largely without chronic disease. Blue Zones uncovered 9 evidence-based common denominators among the world's centenarians that are believed to slow this aging process.

1. *More naturally.* The world's longest-lived people do not pump iron, run marathons, or join gyms. Instead, they live in environments that constantly nudge them into moving without thinking about it. They grow gardens and do not have mechanical conveniences for house and yard work.

DOI: 10.1177/1559827616637066. From Blue Zones, LLC, Minneapolis, Minnesota. Address correspondence to: Dan Buettner, BA, Blue Zones, LLC, 80 South 8th Street, STE 1400, Minneapolis, MN 55402; e-mail:Dan@bluezones.com.

These articles are based on The Annual Conference of the American College of Lifestyle Medicine (ACLM) held November 1-4, 2015, in Nashville, Tennessee—Lifestyle Medicine 2015: Integrating Evidence into Practice.

Buettner D, Skemp S. Blue Zones: Lessons From the World's Longest Lived. Am J Lifestyle Med. 2016;10(5):318-321.

1. Moderate, regular physical activity.
2. Life purpose.
3. Stress reduction.
4. Moderate caloric intake.
5. Plant-based diet.
6. Moderate alcohol intake
7. Engagement in spirituality or religion.
8. Engagement in family life.
9. Engagement in social life.

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FEAR

REDUCTION

EXERCISE

EARLY WITH

FOOD FROM PLANTS

REST AND RELAXATION

ORGANISATION (FAMILY)

MOTIVATION (PURPOSE) TO HELP WITH

PAIN FROM

ARTHRITIS AND TO

INCREASE

NATURAL STRENGTH

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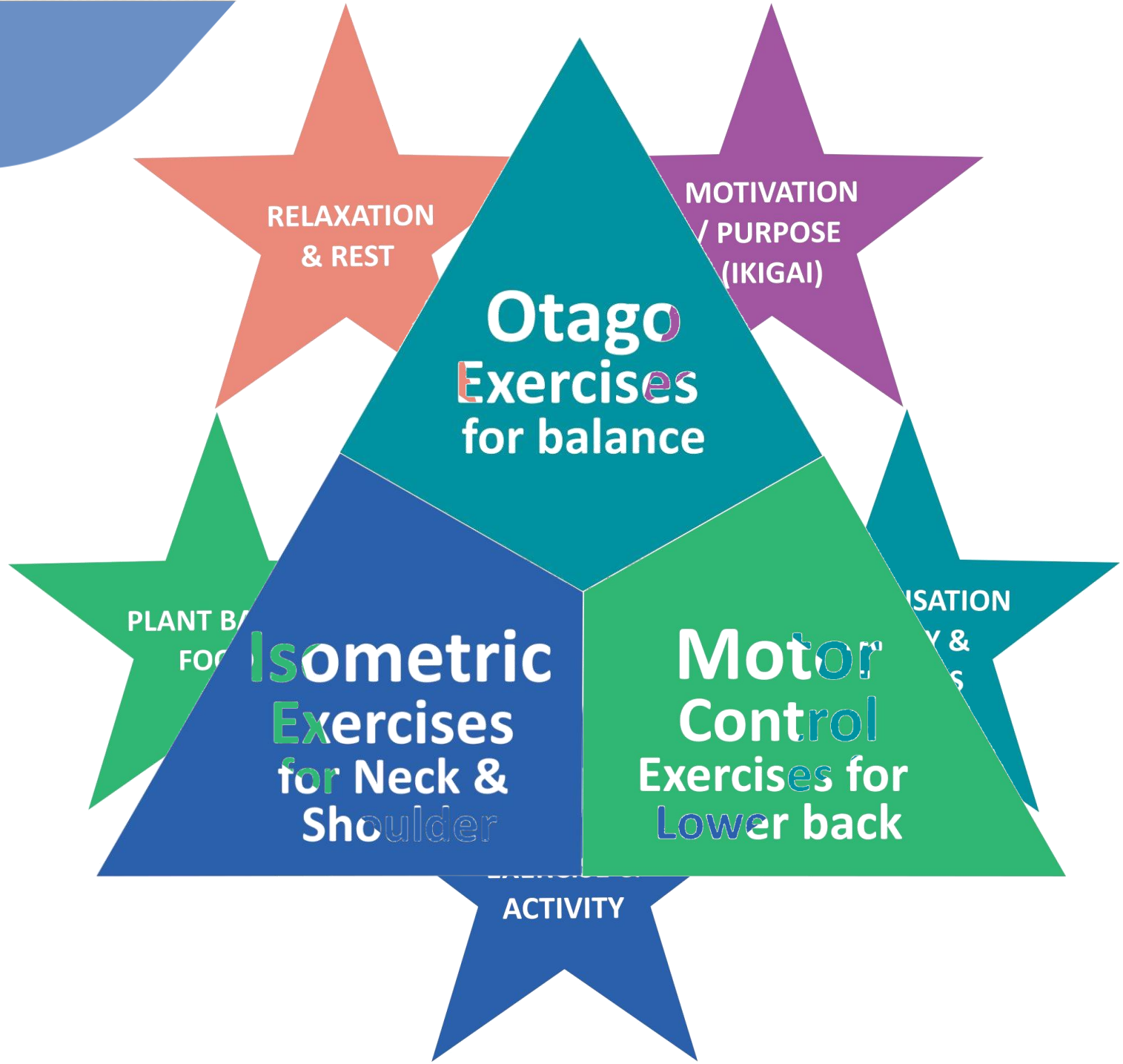

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Age and Ageing 1999; 28: 513–518

Falls prevention over 2 years: a randomized controlled trial in women 80 years and older

A. John Campbell, M. Clare Robertson, Melinda M. Gardner, Robyn N. Norton[1], David M. Buchner[2]

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[1]Injury Prevention Research Centre, The University of Auckland School of Medicine, Auckland, New Zealand
[2]VA Puget Sound Health Care System, Seattle, WA, USA

Address correspondence to A. J. Campbell. Fax: (+64) 3 479 5459. Email: john.campbell@stonebow.otago.ac.nz

Abstract

Background: after 1 year, a home-based programme of strength and balance retraining exercises was effective in reducing falls and injuries in women aged 80 years and older. The exercise programme had been individually prescribed by a physiotherapist during the first 2 months of a randomized controlled trial.
Objective: we aimed to assess the effectiveness of the programme over 2 years.
Setting: 17 general practices in Dunedin, New Zealand.
Subjects: women from both the control group and the exercise group completing a 1-year trial (213 out of the original 233) were invited to continue for a further year.
Methods: falls and compliance to the exercise programme were monitored for 2 years.
Results: 81 (74%) in the control group and 71 (69%) in the exercise group agreed to continue in the study. After 2 years, the rate of falls remained significantly lower in the exercise group than in the control group. The relative hazard for all falls for the exercise group was 0.69 (95% confidence interval 0.49–0.97). The relative hazard for a fall resulting in a moderate or severe injury was 0.63 (95% confidence interval 0.42–0.95). Those complying with the exercise programme at 2 years had a higher level of physical activity at baseline, were more likely to have reported falling in the year before the study and had remained more confident in the first year about not falling compared with the rest of the exercise group.
Conclusions: falls and injuries can be reduced by an individually tailored exercise programme in the home. For those who keep exercising, the benefit continues over a 2-year period.

Keywords: *community, falls, old age, physical activity, randomized controlled trial*

Introduction

Randomized controlled trials of strength and balance retraining programmes have shown total falls reduction in the intervention group at 1 year [1, 2]. In one multiple intervention study, in which the exercise programme was set up in a 2 h initiation session and was based on encouragement to participate in brisk walking, there was a 9.3% reduction in falls at 1 year, but no difference at 2 years [3]. Buchner *et al.* found that exercise had a protective effect up to 25 months [4]. The meta-analysis of the Frailty and Injuries: Co-operative Studies of Intervention Techniques (FICSIT) trials in which subjects were followed for 2–4 years demonstrated a 10% reduction in fall risk in those programmes with an exercise component and a 17% reduction in risk in programmes with balance retraining [5].

Those falls prevention programmes which have produced falls reductions of about 30% have been based on specific balance retraining exercises and strength training [1, 2]. Such strength and balance retraining is effective in reducing falls for as long as the exercises are carried out, but there is no reason to believe that longer term, sustainable benefit is conferred. Long-term reduction in falls will depend not only on the continued effectiveness of the programme but also on the willingness of subjects to persist with it.

Campbell AJ, Robertson MC, Gardner MM, Norton RN, Buchner DM. Falls prevention over 2 years: a randomized controlled trial in women 80 years and older. Age Ageing. 1999;28(6):513-518. doi:10.1093/ageing/28.6.513

After 1 year, a home-based programme of strength and balance retraining exercises was effective in reducing falls and injuries in women aged 80 years and older.

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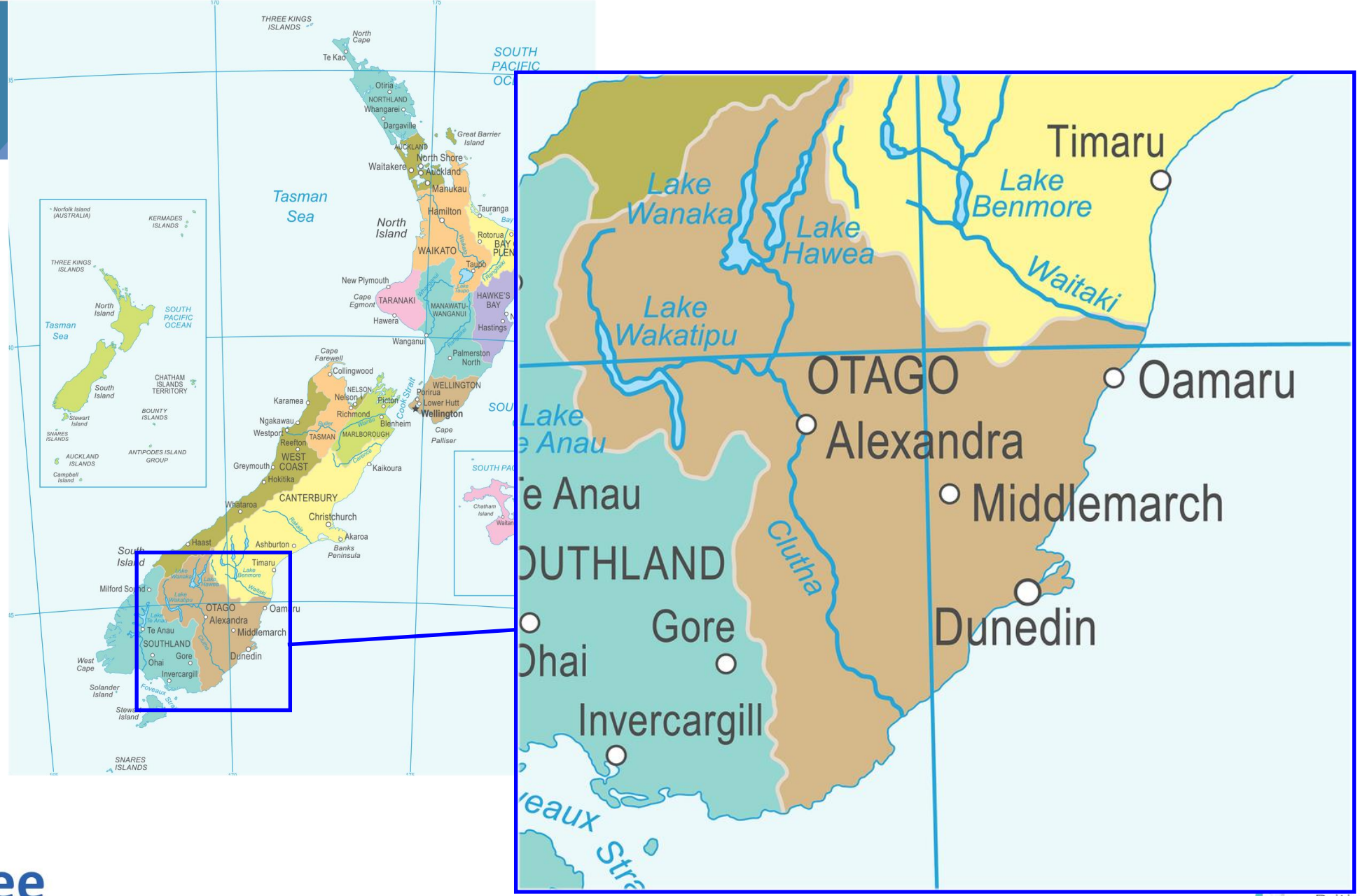

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Clinical Interventions in Aging

Dovepress

ORIGINAL RESEARCH

Impact of the fall prevention Otago Exercise Programme on pain among community-dwelling older adults: a short- and long-term follow-up study

This article was published in the following Dove Press journal:
Clinical Interventions in Aging

Sara Cederbom[1]
Marina Arkkukangas[2,3]

[1]OsloMet – Oslo Metropolitan University, Faculty of Health Sciences, Department of Physiotherapy, Oslo, Norway; [2]Uppsala University, Department of Neuroscience, Section of Physiotherapy, Eskilstuna, Sweden; [3]Uppsala University, Centre for Clinical Research Sörmland, Eskilstuna, Sweden

Background: Pain is a major public health issue among community-dwelling older adults, with a prevalence of 45–80%. In addition to being strongly associated with reduced physical function, loss of independence, psychological distress, lower quality of life, and risk of earlier death. Recent research has also found that pain in older adults is associated with a higher risk of falls, which itself is another major health concern. Long-term and high-intensity pain are predictors of chronic pain and pain-related disability. Therefore, establishing an evidence-based intervention that can reduce both pain and falls in older adults is of high importance.

Purpose: This study aimed to investigate whether a home-based fall-preventive exercise-program can reduce pain in the target population over both the short and long term.

Patients and methods: This was a quasi-experimental study with a 1-group pretest-posttest design. We included 119 participants who had participated in a recent 2-year fall prevention intervention in a randomized controlled trial. The intervention included exercises based on the Otago Exercise Programme (OEP), an individually tailored and prescribed program that involves home-based exercises supervised by a physiotherapist. Pain was measured using an item from the EuroQol-5D questionnaire.

Results: Pain was significantly reduced from baseline (n=119) at 3 (n=105, p=0.003), 12 (n=96, p=0.041), and 24 (n=80, p=0.028) months following the commencement of OEP-based exercises.

Conclusions: These results indicate that the OEP could be a suitable evidence-based program for both pain management and fall prevention among community-dwelling older people who live with pain and are at a higher risk of falling. Our study highlights an effective technique for better pain management and fall prevention in older adults.

Keywords: elderly, pain management, physical therapy, randomized controlled trial

Introduction

Some kind of pain problem is reported in 45–80% of community-dwelling older adults, with the prevalence of pain among older people expected to increase as the population continues to age. The prevalence of pain is particularly high among older women, those who live alone, and those who are dependent on formal or informal care to manage their everyday lives.[1–3] The most common pain type among older people is musculoskeletal pain due to the high rate of musculoskeletal disorders in later life.[1]

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Cederbom S, Arkkukangas M. Impact of the fall prevention Otago Exercise Programme on pain among community-dwelling older adults: a short- and long-term follow-up study. Clin Interv Aging. 2019;14:721-726.

45–80% of older adults have pain. The Otago Exercise Programme reduced pain at 3 months, 12 months and at 24 months.

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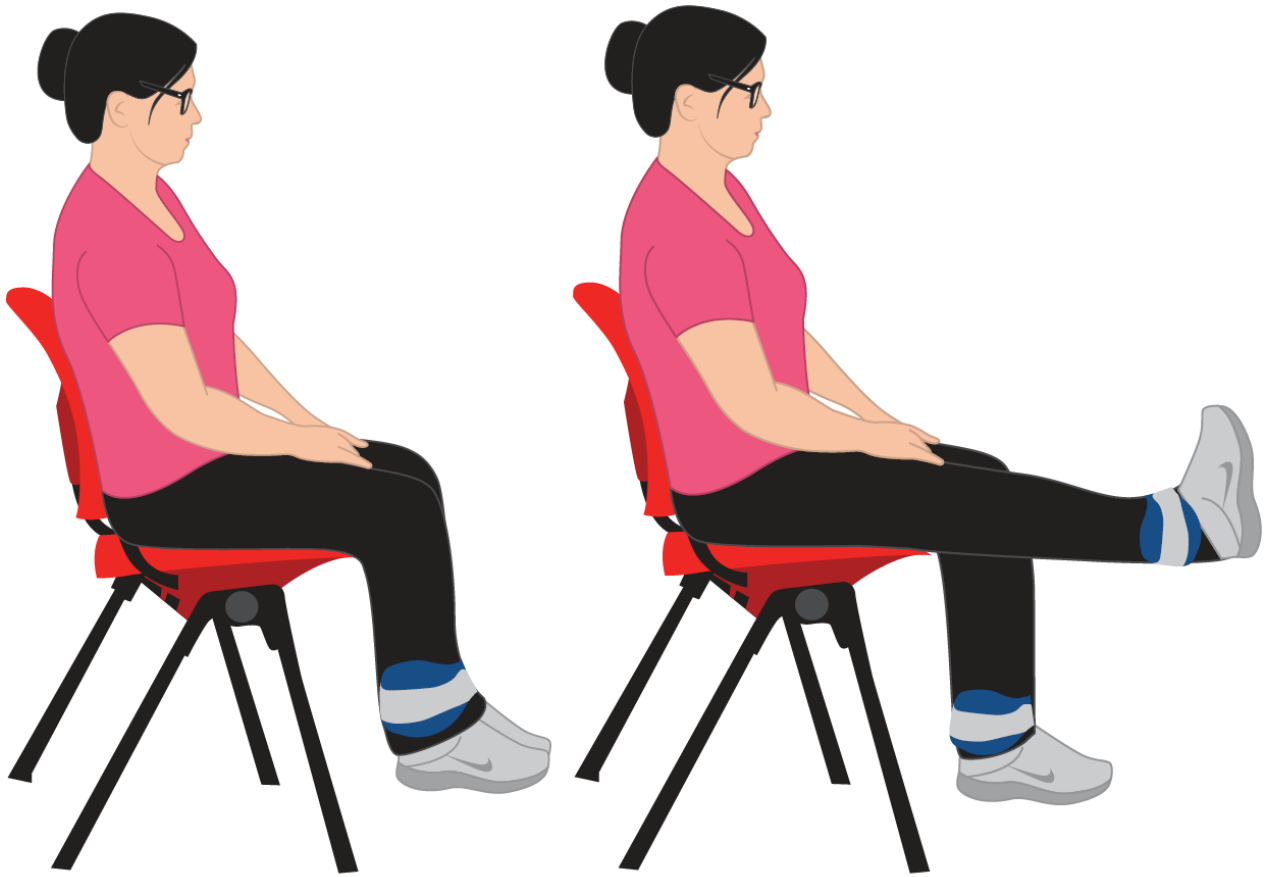

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- [x] Prevention of falls
- [x] Relief of pain

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Spine

SPINE Volume 38, Number 6, pp E350–E358

LITERATURE REVIEW

Motor Control Exercises Reduces Pain and Disability in Chronic and Recurrent Low Back Pain

A Meta-Analysis

Martin Gustaf Byström, RPT, MSc,* Eva Rasmussen-Barr, PhD,*† and Wilhelmus Johannes Andreas Grooten, PhD*‡

Study Design. Meta-analysis of randomized, controlled trials.

Objective. To determine the short-term, intermediate, and long-term effectiveness of MCE, with regard to pain and disability, in patients with chronic and recurrent low-back pain.

Summary of Background Data. Previous meta-analyses have shown no difference between the effects of MCE and general exercise in the treatment of low back pain. Several high quality studies on this topic have been published lately, warranting a new meta-analysis.

Methods. We searched electronic databases up to October 2011 for randomized controlled trials clearly distinguishing MCE from other treatments. We extracted pain and disability outcomes and converted them to a 0 to 100 scale. We used the RevMan5 (Nordic Cochrane Centre, Copenhagen, Denmark) software to perform pooled analyses to determine the weighted mean differences (WMDs) between MCE and 5 different control interventions.

Results. Sixteen studies were included. The pooled results favored MCE compared with general exercise with regard to disability during all time periods (improvement in WMDs ranged from −4.65 to −4.86), and with regard to pain in the short and intermediate term (WMDs were −7.80 and −6.06, respectively). Compared with spinal manual therapy, MCE was superior with regard to disability during all time periods (the WMDs ranged between −5.27 and −6.12), but not with regard to pain. Furthermore, MCE was superior to minimal intervention during all time periods with regard to both pain (the WMDs ranged between −10.18 and −13.32) and disability (the WMDs ranged between −5.62 and −9.00).

Conclusion. In patients with chronic and recurrent low back pain, MCE seem to be superior to several other treatments. More studies are, however, needed to investigate what subgroups of patients experiencing LBP respond best to MCE.

Key words: exercise therapy, low back pain, motor control, multifidus, rehabilitation, stability exercise, transversus. **Spine 2013;38:E350–E358**

Low back pain (LBP) is one of the most common pain complaints, with a lifetime prevalence of between 60% and 80%.[1] Despite this, the etiology of LBP remains largely unknown and the majority of cases do not receive a specific diagnosis, giving rise to the term "nonspecific LBP."[1,2] One proposed mechanism in the development of LBP is that spinal instability causes injury to structures with embedded mechanoreceptors.[3,4] Panjabi[3,5] hypothesized that spinal stability depends on 3 systems: the passive articular system, an active muscular system, and a neural control system. Bergmark[6] divided the muscular system into a local system, which fine controls intervertebral motion, and a global system, which generates spinal motion. Muscles that have been argued to play a major role in spinal stability are primarily the transversus abdominis (TrA) and the multifidus, but also the pelvic floor and the diaphragm.[6–10] Recent research has proposed that the activity of the TrA is associated with postural demand in standing.[11] In individuals with LBP, the local musculature exhibits disturbed motor control patterns and changed physiological properties.[7,10–17] Motor control exercises (MCE) have been devised to correct these deficiencies and retrain optimal movement patterns and control of spinal motion and are currently being used by physical therapists worldwide in the treatment of LBP. Five systematic reviews on MCE in LBP have been published,[18–22] 2 of which carried out pooled analyses.[18,21] Macedo *et al*[18] searched the literature up to June 2008 and concluded that MCE is superior to minimal intervention, but not to spinal manual therapy or general exercise in subacute, chronic, and recurrent LBP. Since 2008, a number of high quality, randomized controlled trials (RCTs) have been published, warranting an updated pooled analysis.

The objective of the present meta-analysis was to investigate the short-term, intermediate, and long-term effect of MCE

From the *Department of Neurobiology, Division of Physiotherapy Caring Sciences, and Society, Karolinska Institute, Huddinge, Sweden; †Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden; and ‡Department of Health Sciences, Division of Occupational and Environmental Medicine, Karolinska Institute, Stockholm, Sweden.

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The manuscript submitted does not contain information about medical device(s)/drug(s).

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No relevant financial activities outside the submitted work.

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DOI: 10.1097/BRS.0b013e31828435fb

Byström MG, Rasmussen-Barr E, Grooten WJ. Motor control exercises reduces pain and disability in chronic and recurrent low back pain: a meta-analysis. Spine (Phila Pa 1976). 2013;38(6):E350-E358.

In patients with chronic and recurrent low back pain, MCE seem to be superior to several other treatments.

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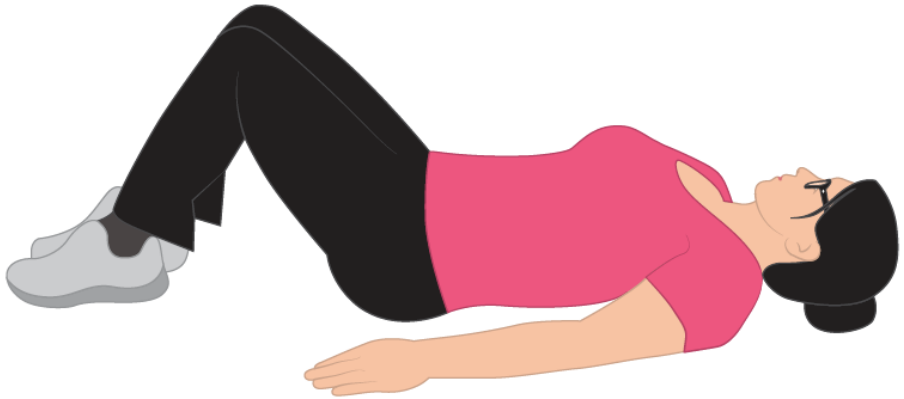
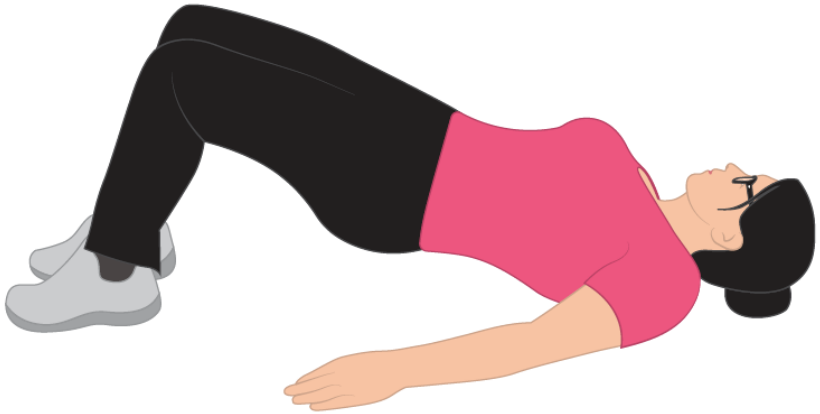
MCE exercises for the lower back





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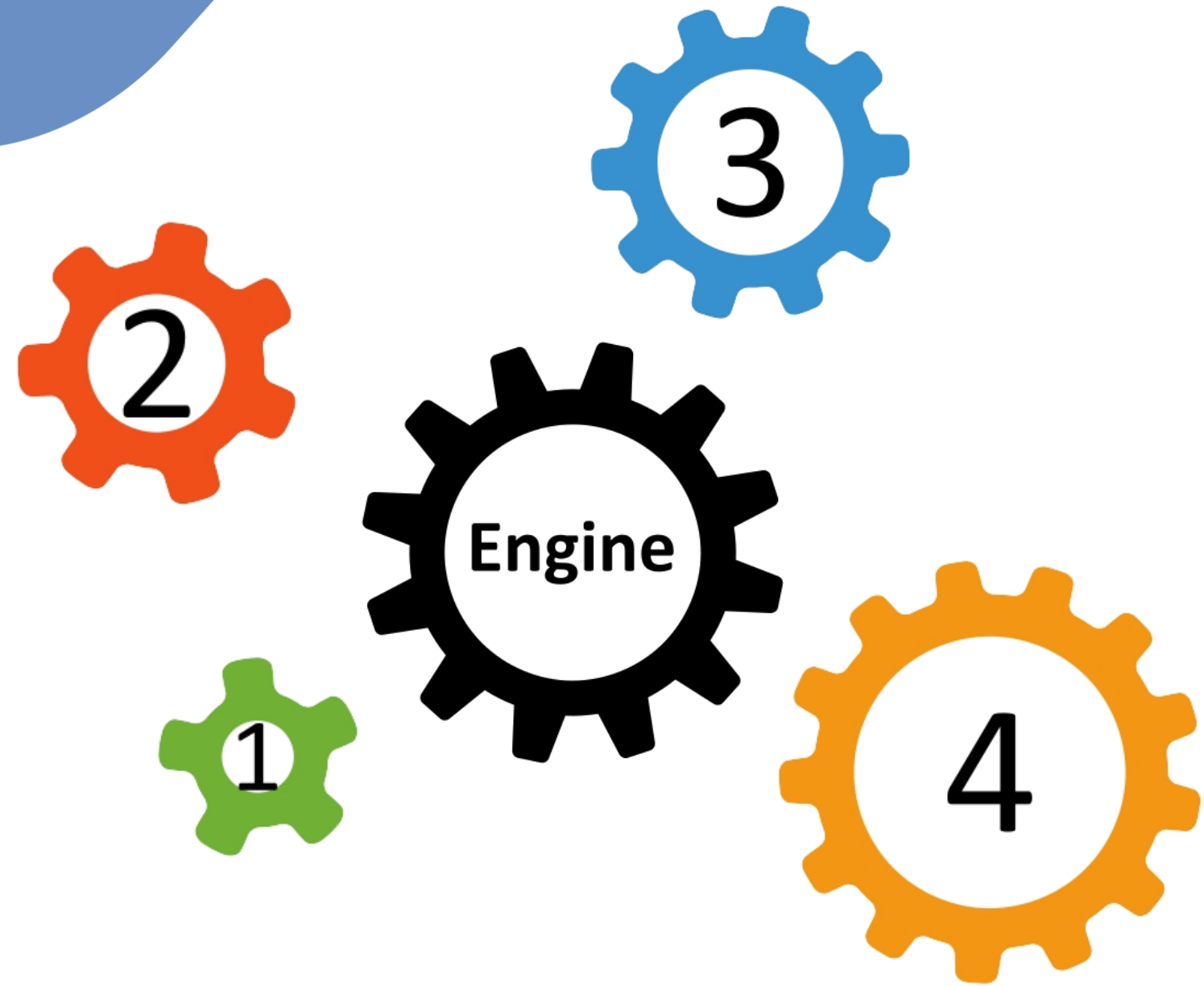

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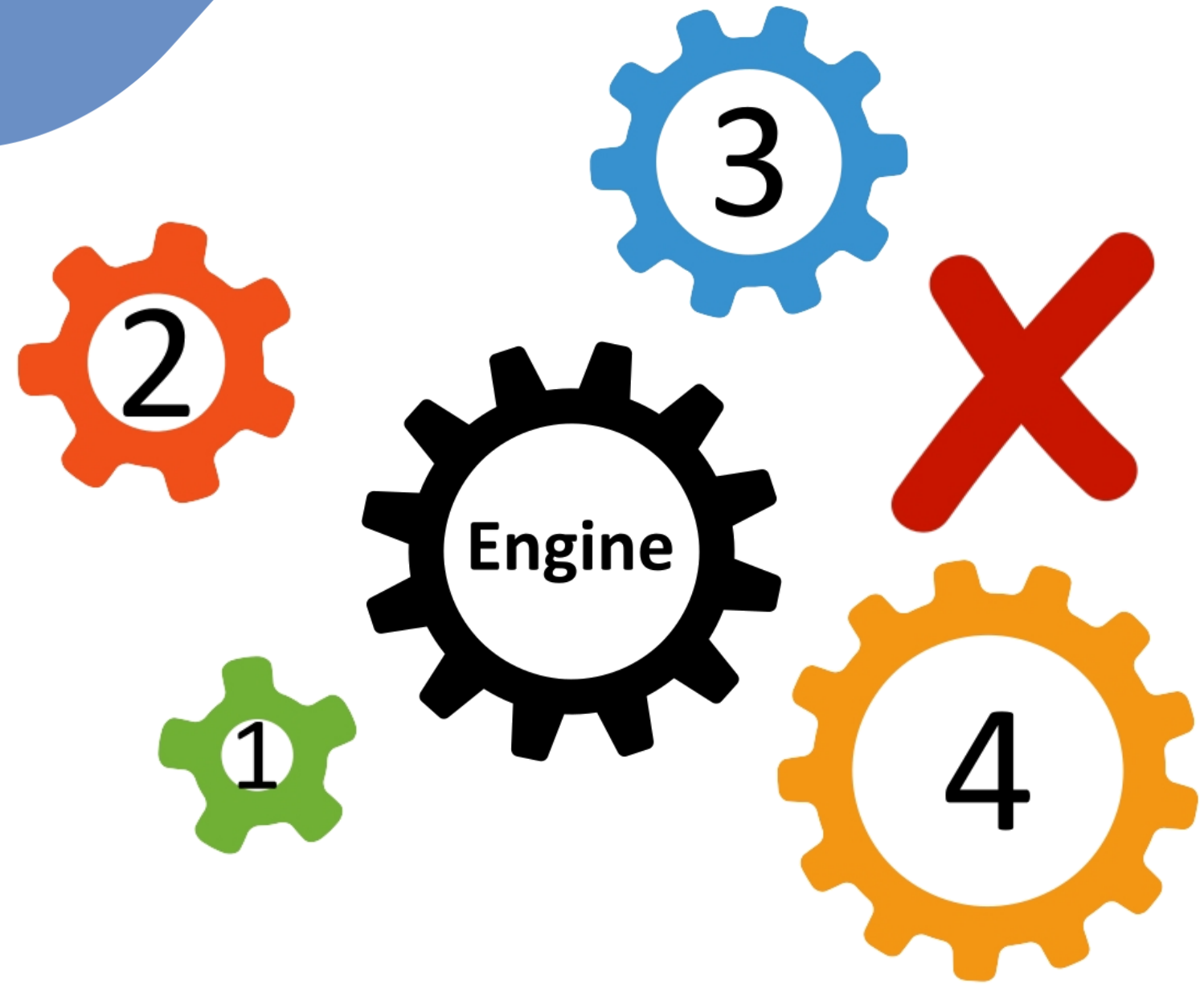

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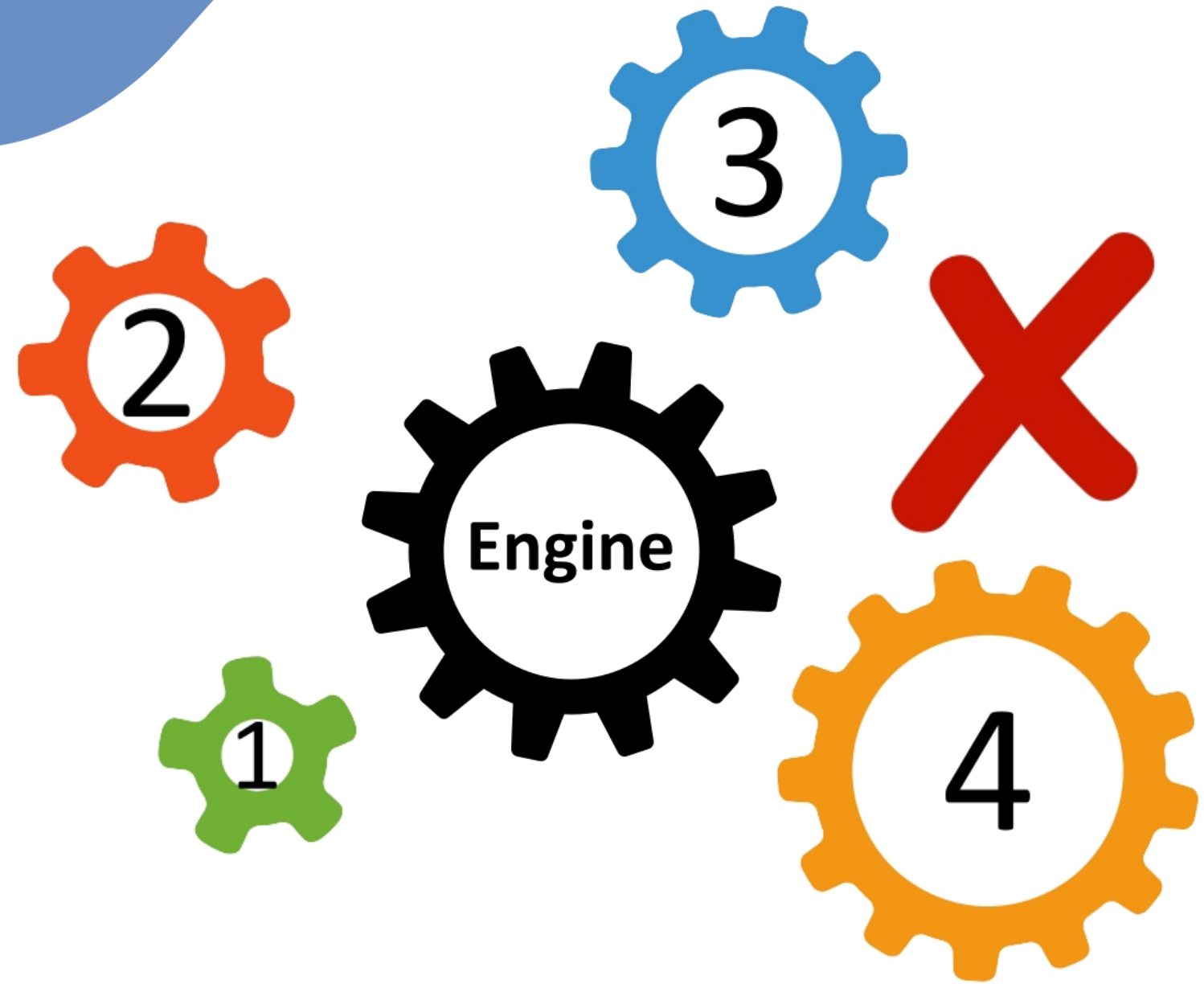

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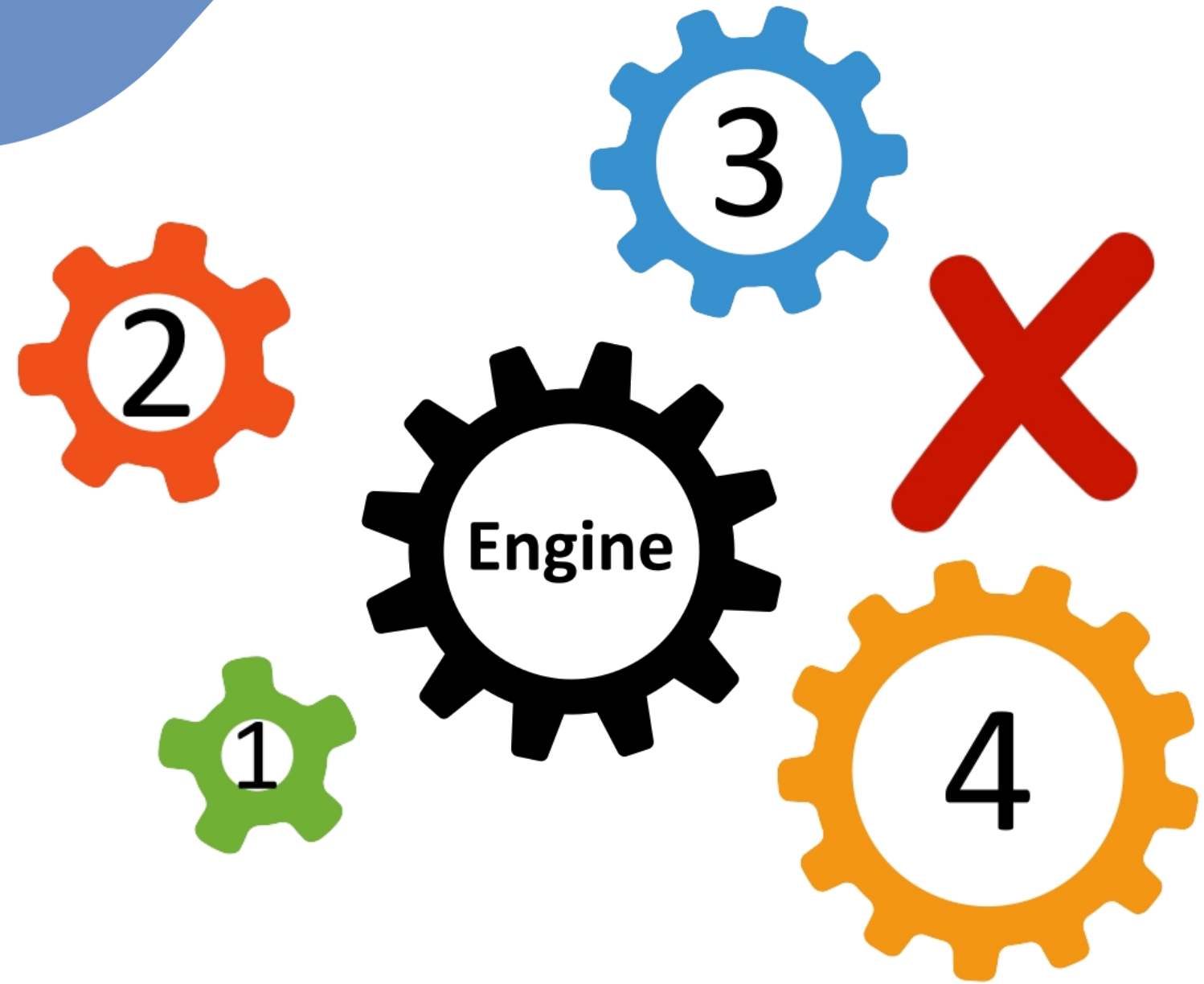

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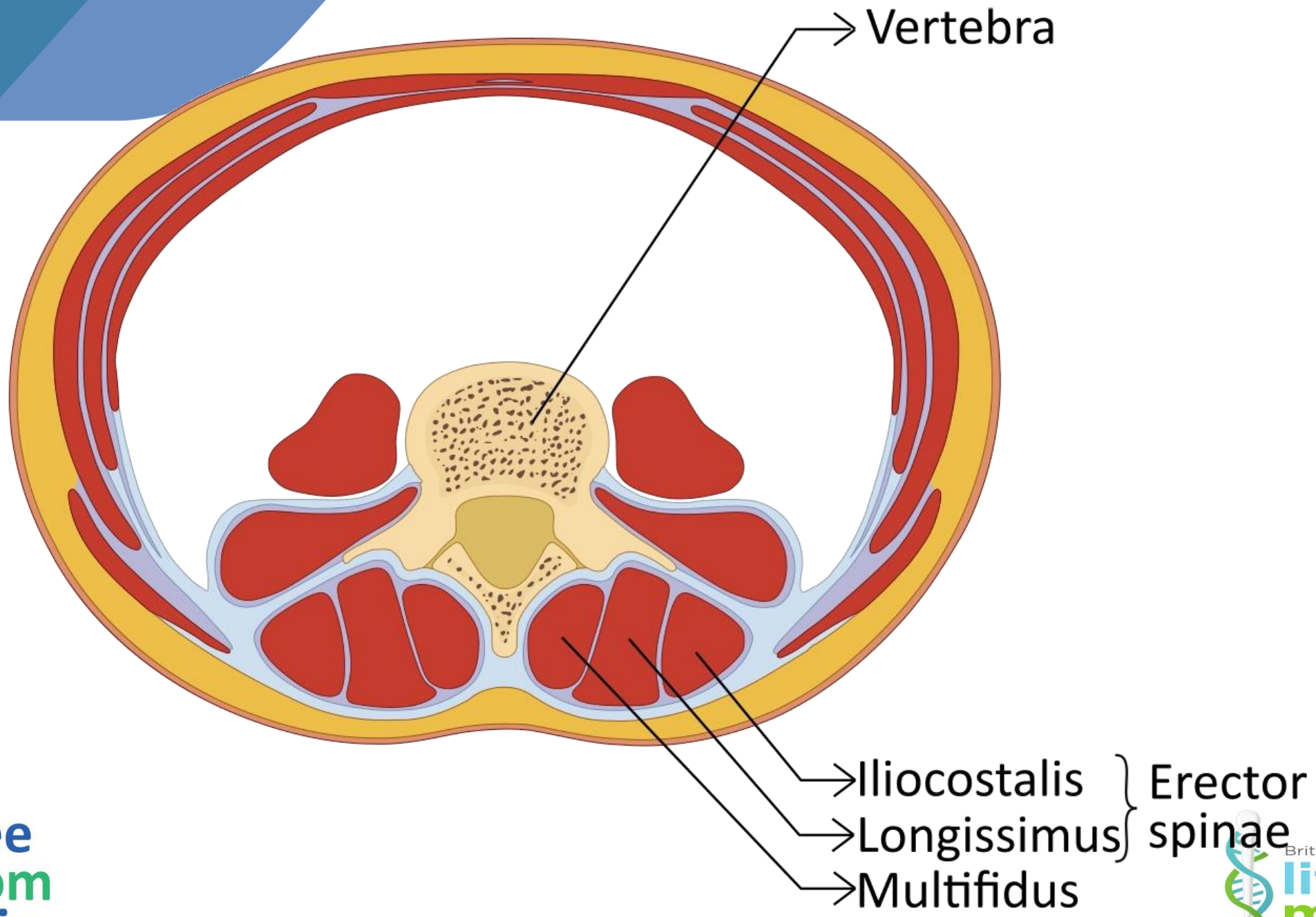

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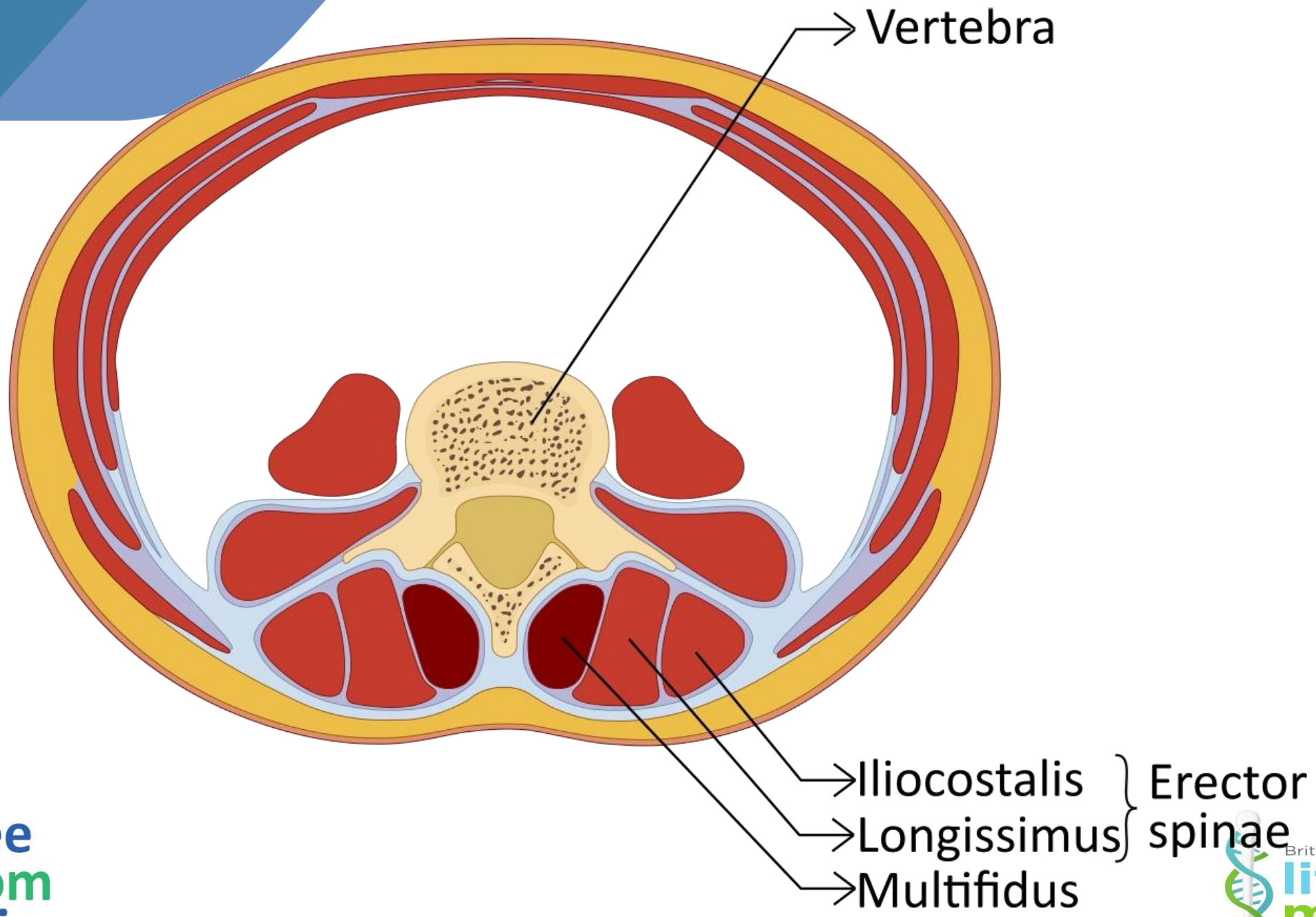

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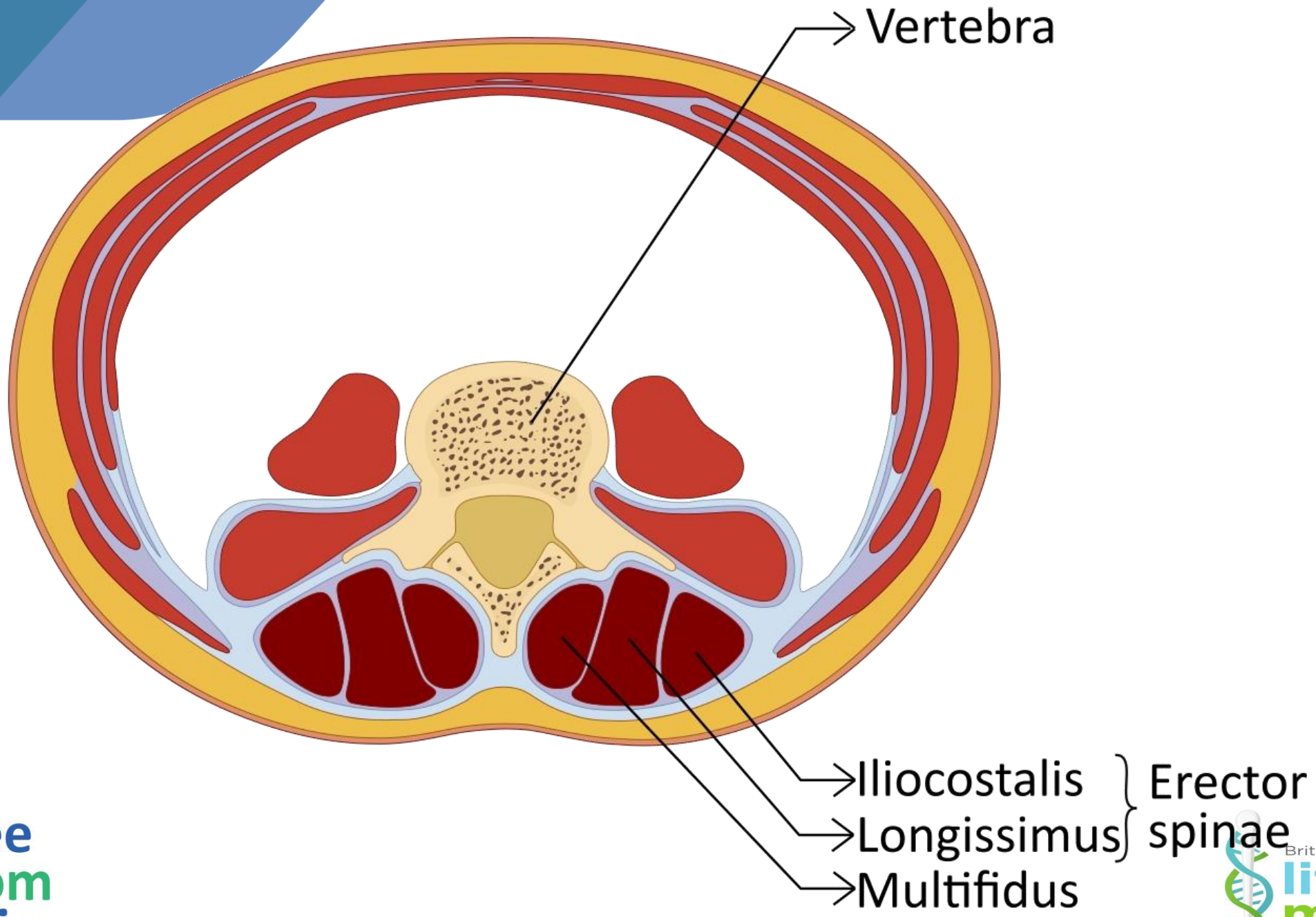

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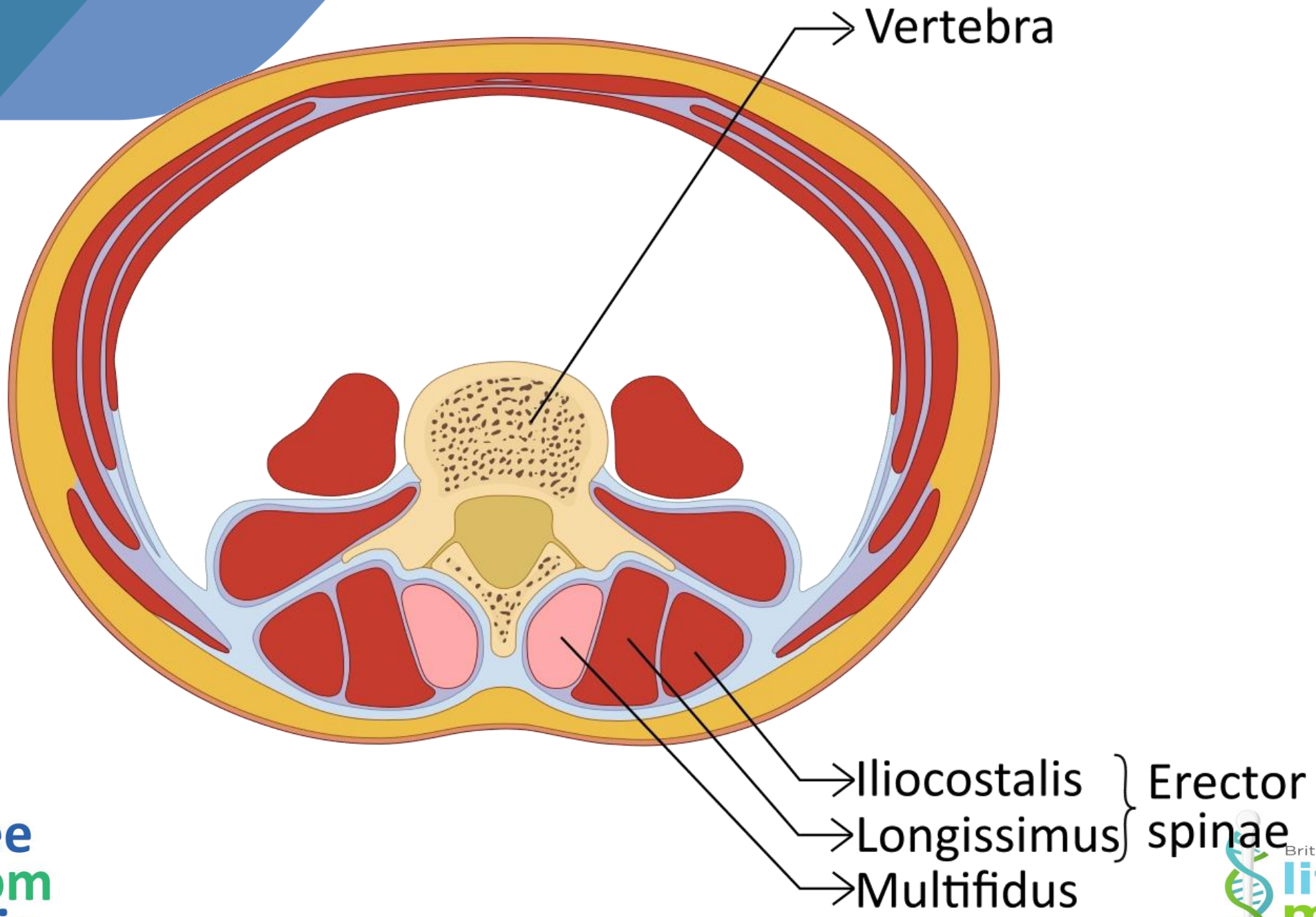

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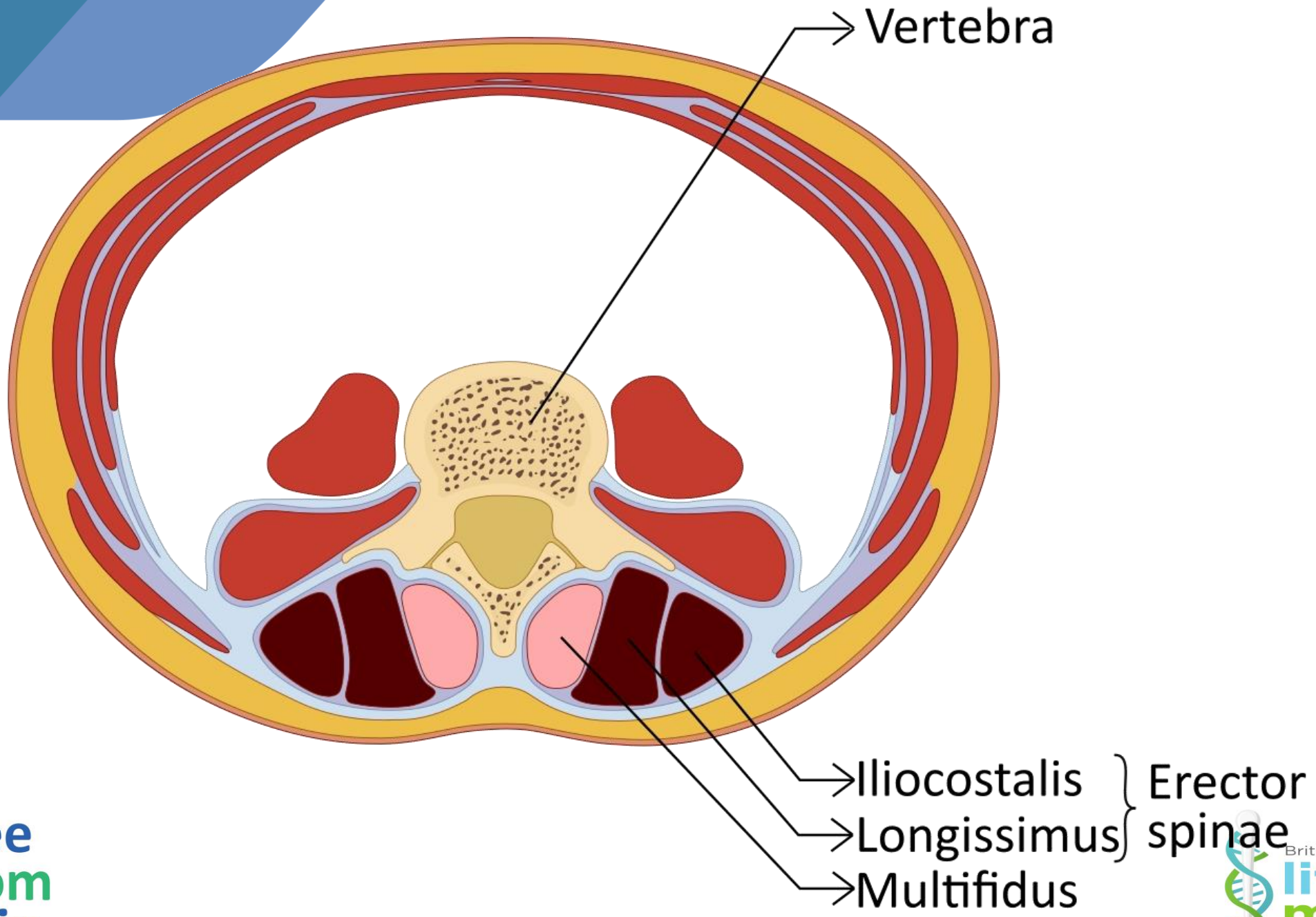

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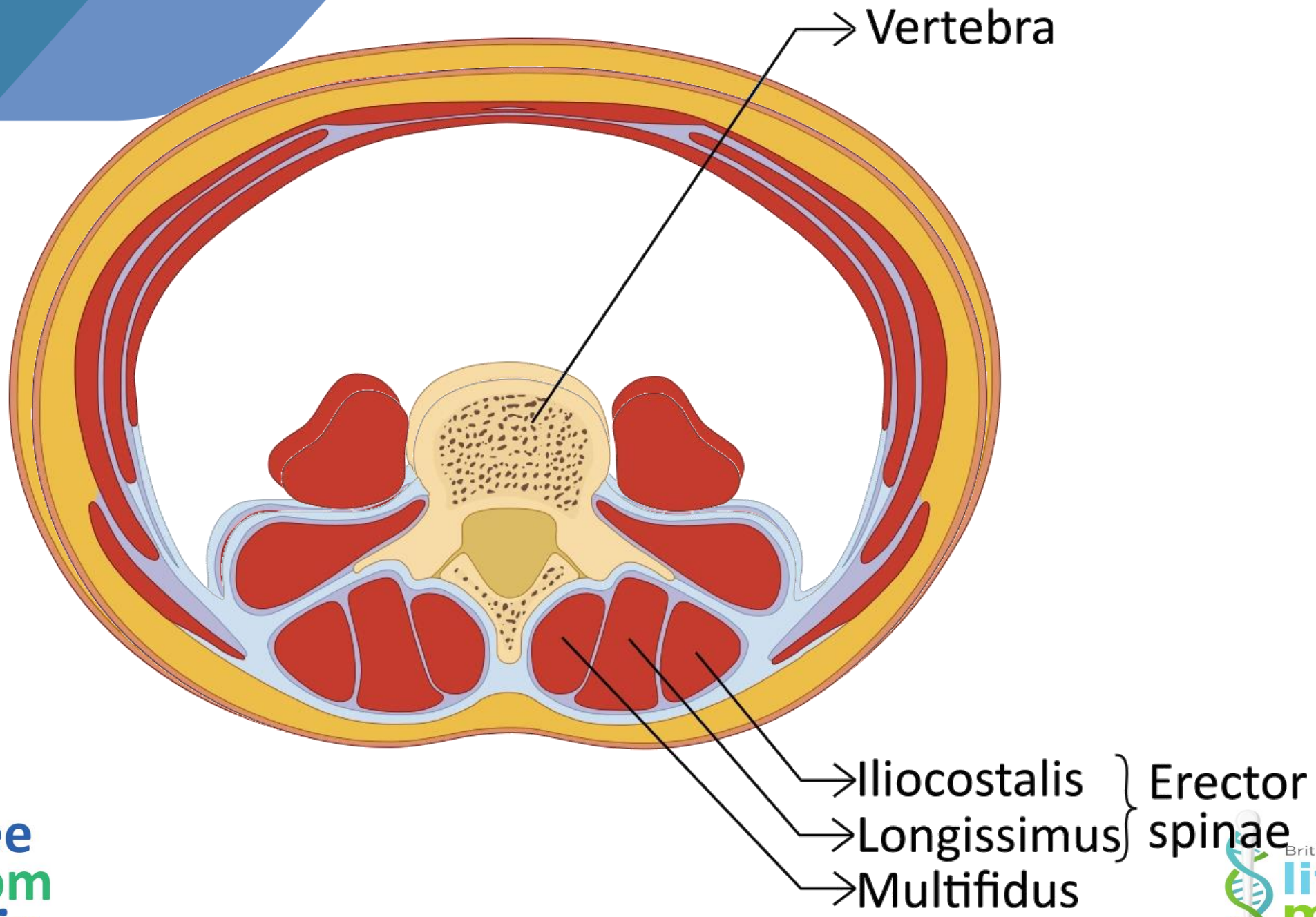

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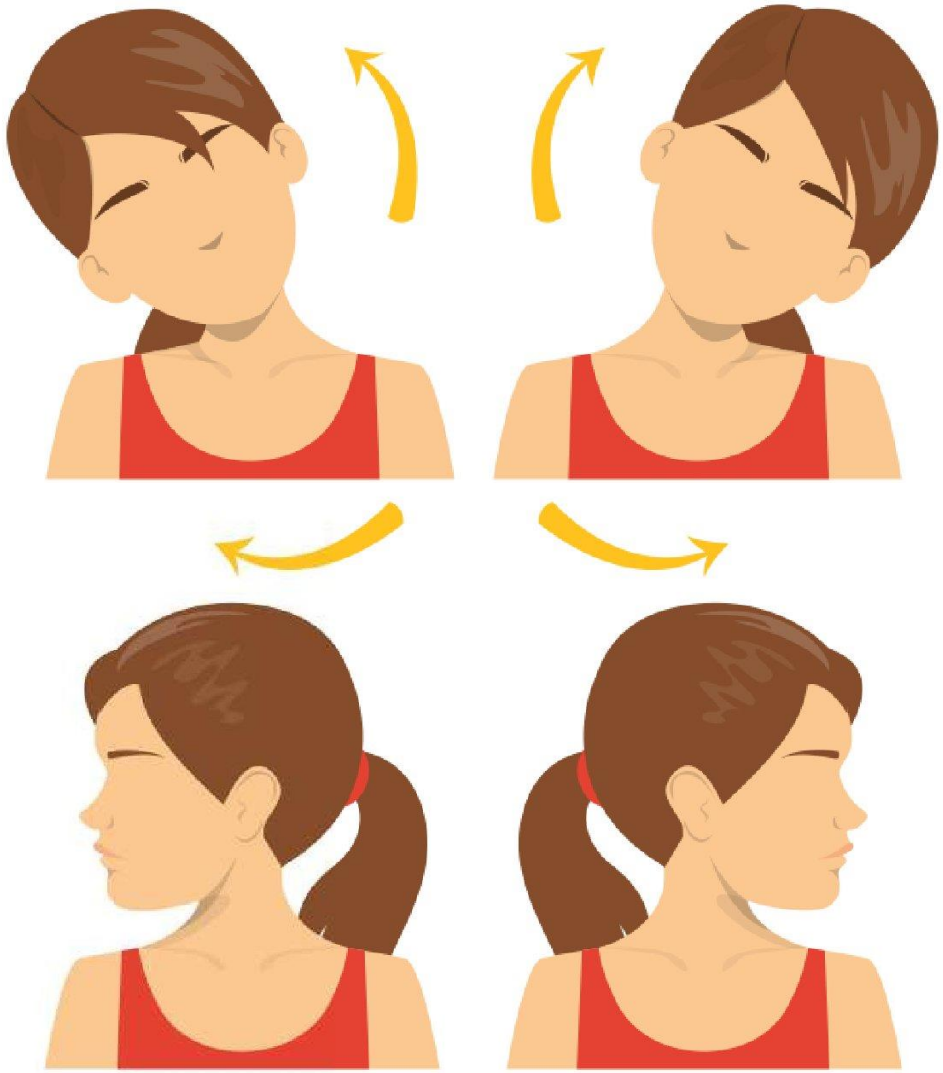
Stretching exercises for the neck



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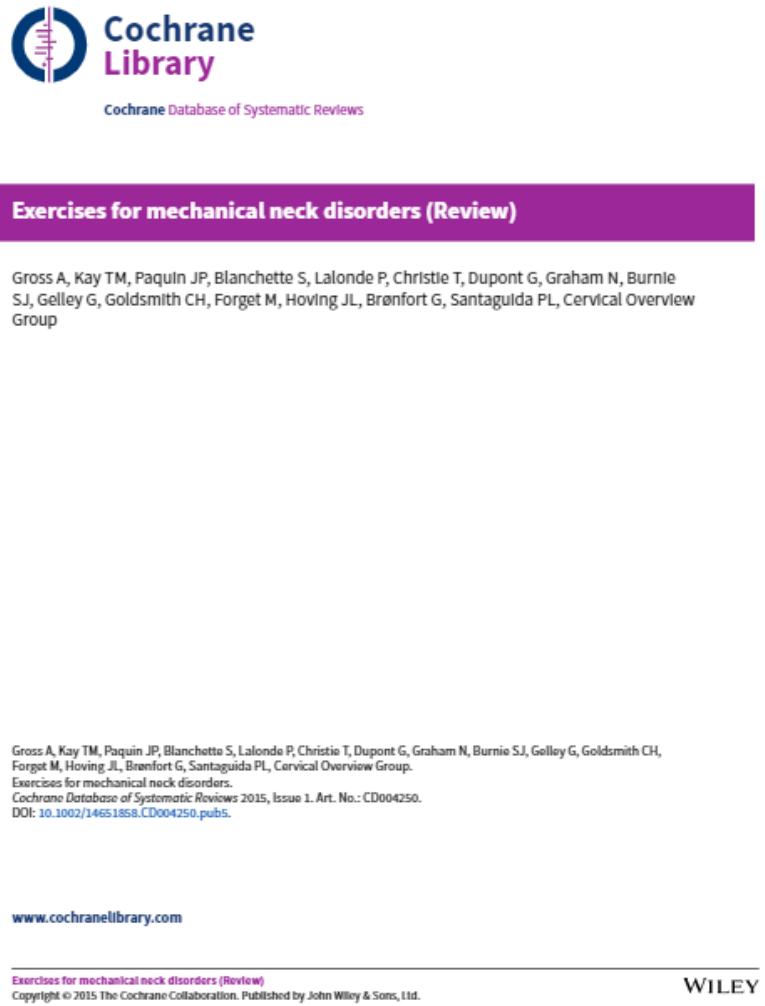

Gross A, Kay TM, Paquin JP, et al. Exercises for mechanical neck disorders. Cochrane Database Syst Rev. 2015;1:CD004250. Published 2015 Jan 28.

Research showed the use of strengthening and endurance exercises for the cervico-scapulothoracic and shoulder may be beneficial in reducing pain and improving function.

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Isometric exercises for the neck

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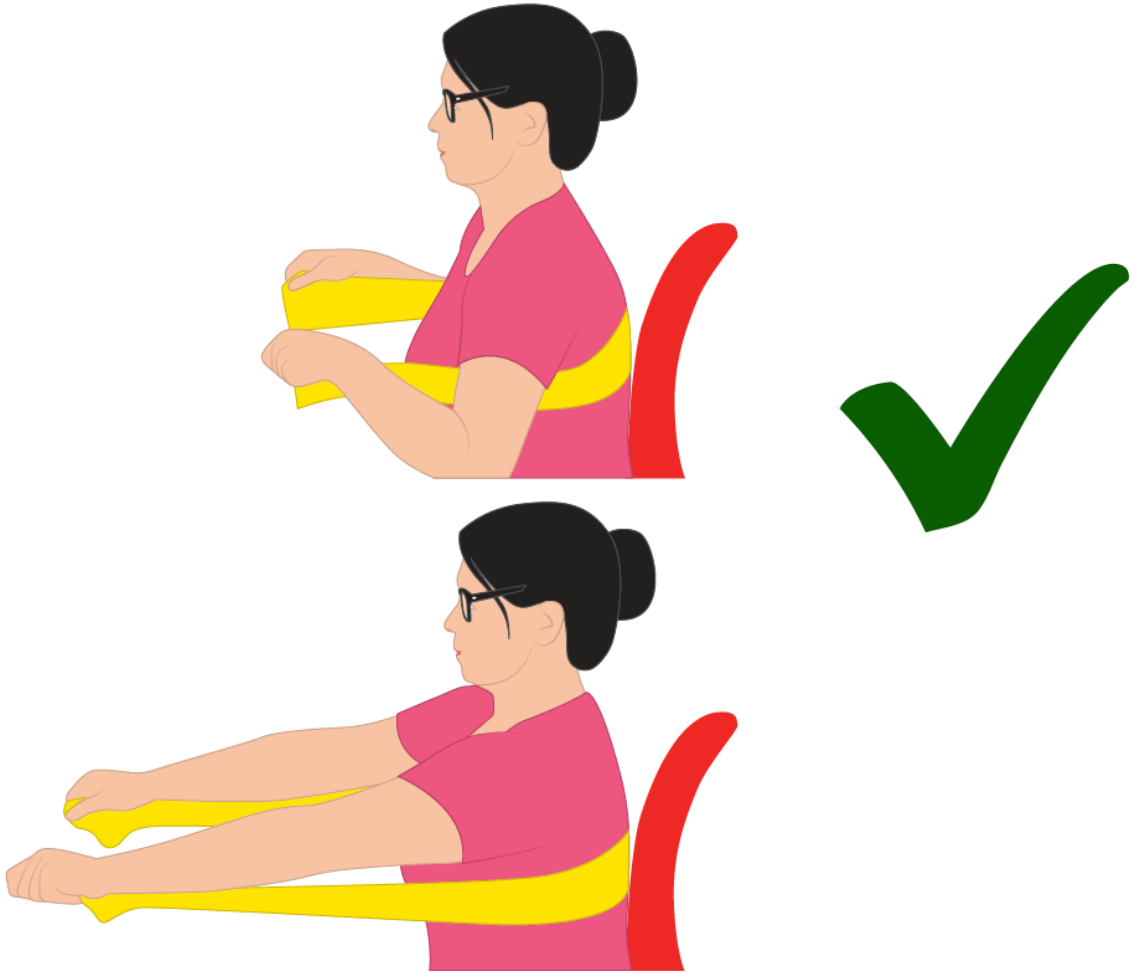
Strengthening exercises for the shoulder



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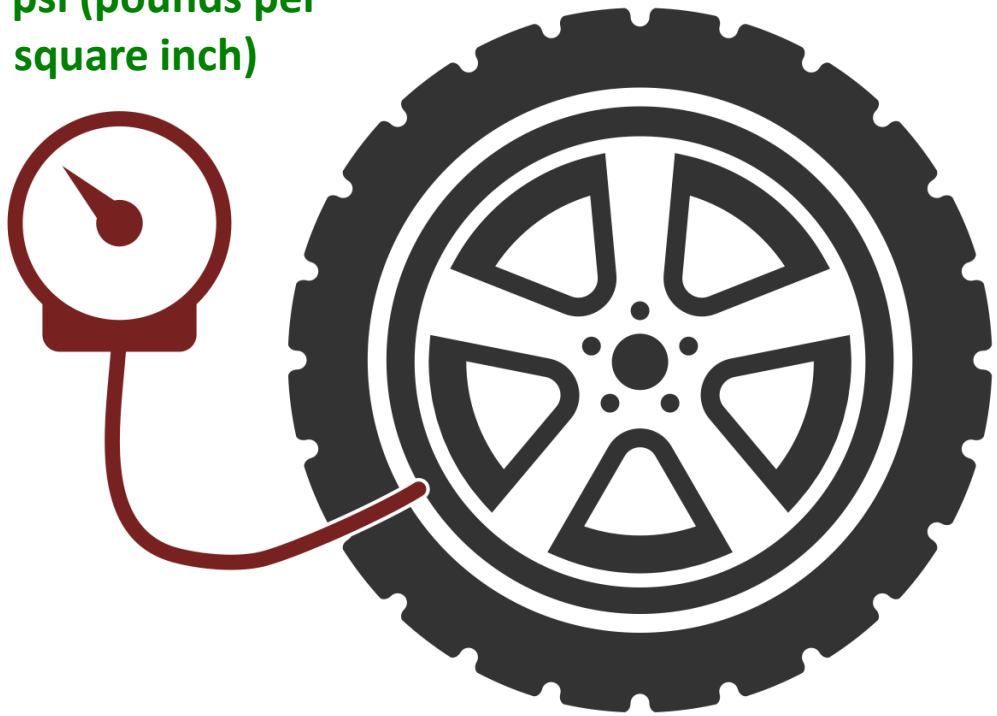
Well inflated plump tyre

40 psi (pounds per square inch)



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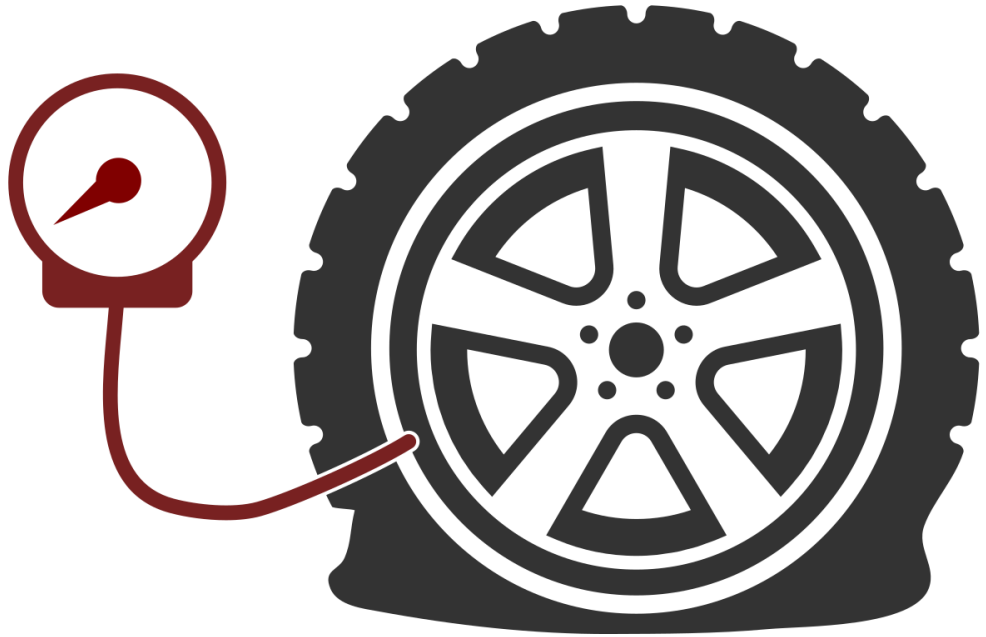
Under inflated soft tyre

20 psi (pounds per square inch)



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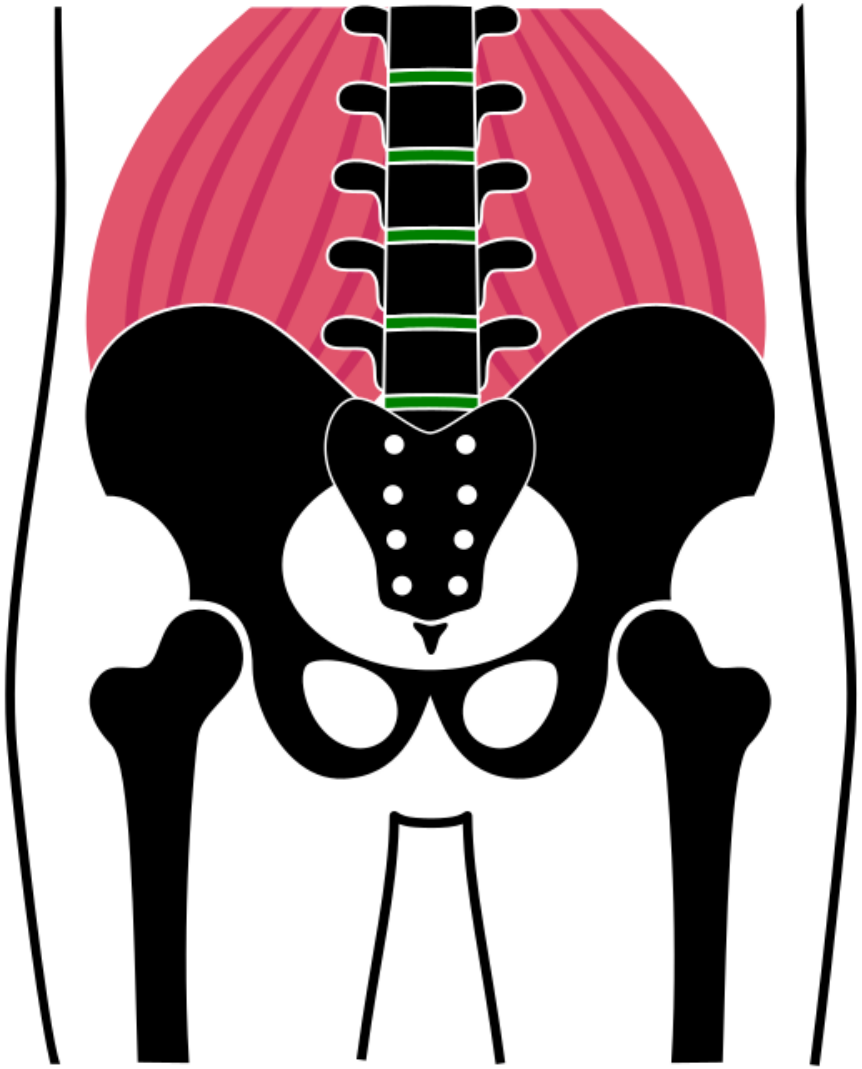
Strong muscles protect the disc



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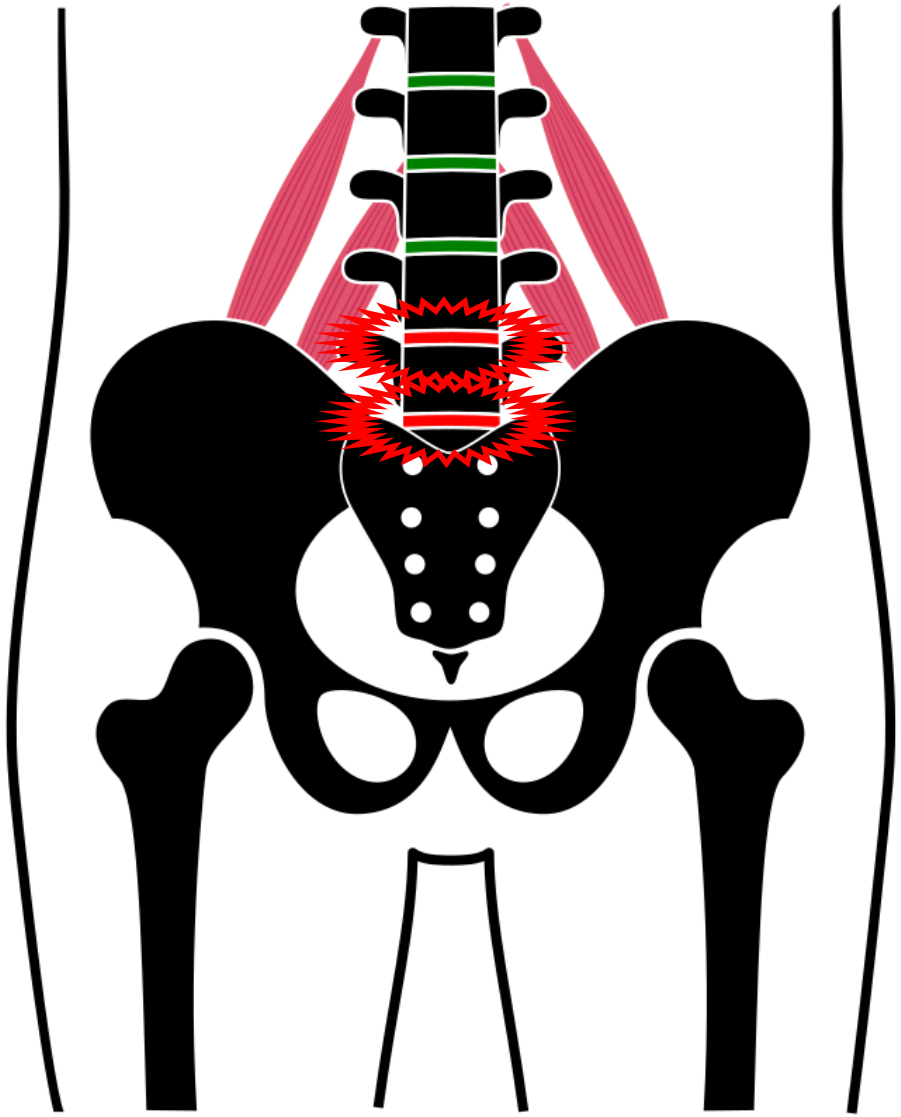
Weak muscles cause damage to discs



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FREE FROM PAIN™

- **A BASIC INTRODUCTION**
- WHO IS THIS PROGRAMME FOR?
- WHY IS THIS PROGRAMME IMPORTANT?
- HOW DOES THIS PROGRAMME WORK?
- WHAT EVIDENCE IS THIS BASED ON?
- **ONGOING EVALUATION**

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ONGOING EVALUATION

- Standard outcome questionnaires at base, 3 months, 6 months and 12 months.
- Numerical Pain rating scales at base, 3 months, 6 months and 12 months
- Physical activity at base, 3 months, 6 months and 12 months
- Fear of fall at base, 3 months, 6 months and 12 months

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Thank you