PEDro Newsletter 13 January 2020

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A. PEDro update (13 January 2020)

PEDro contains 45,660 records. In the 13 January 2020 update you will find:

- 35,602 reports of randomised controlled trials (34,769 of these trials have confirmed ratings of methodological quality using the PEDro scale)
- 9,389 reports of systematic reviews, and
- 669 reports of evidence-based clinical practice guidelines.

PEDro was updated on 13 January 2020. For latest guidelines, reviews and trials in physiotherapy visit *Evidence in your inbox*.

B. DiTA update (13 January 2020)

DiTA contains 1,538 records. In the 13 January 2020 update you will find:

- 1,387 reports of primary studies, and
- 151 reports of systematic reviews.

DiTA was updated on 13 January 2020. For the latest primary studies and systematic reviews evaluating diagnostic tests in physiotherapy visit *Evidence in your inbox*.

C. Podcasts now available for the PEDro Top 5 Trials from 2014-2019

Last year we announced the PEDro Top 5 Trials from 2014-2019. The trials were nominated by PEDro users, and an independent panel of international trialists judged the nominations received.

PEDro has partnered with PT Pintcast to produce podcasts with the lead authors of the PEDro Top 5 Trials. The next podcast is now available!

Effect of inpatient rehabilitation versus a monitored home-based program on mobility in patients with total knee arthroplasty: the HIHO randomized clinical trial

Buhagiar MA, Naylor JM, Harris IA, Xuan W, Kohler F, Wright R, Fortunato R
JAMA 2017 Mar 14;317(10):1037-1046

Many thanks to Jimmy McKay and the team from PT Pintcast for producing these podcasts. We are looking forward to hearing from the authors of the SARAH and LIPPSMAck-POP trials soon.

Congratulations once again to the teams who produced the PEDro Top 5 Trials. Your contributions to physiotherapy are highly valued and appreciated.

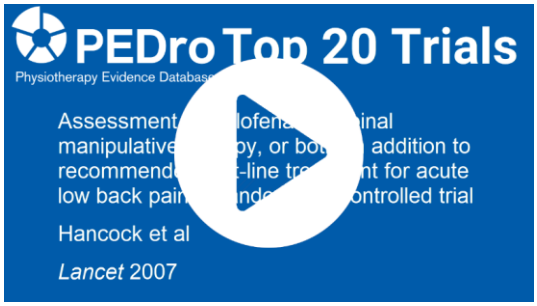
D. Revisiting the best 15 physiotherapy trials published before 2014

Back in 2014 when PEDro was celebrating its 14th anniversary we decided to identify the 15 most important physiotherapy trials. We added 5 more trials to this list to celebrate PEDro's 20th anniversary in 2019. Collectively these trials will be called the PEDro Top 20 Trials.

In 2019 we started revisiting the best 15 physiotherapy trials published before 2014. We have made short videos to summarise:

- Olsen et al (2005) that evaluated the effects of exercises to prevent lower limb injuries in youth sport
- Bø et al (1999) evaluating pelvic floor exercise for stress incontinence in women
- Machado et al (2010) evaluating McKenzie method for acute low back pain
- Mosforth et al (1958) investigating electrical stimulation for Bell's Palsy
- Beurskens et al (1995) evaluating the efficacy of traction for non-specific low back pain.

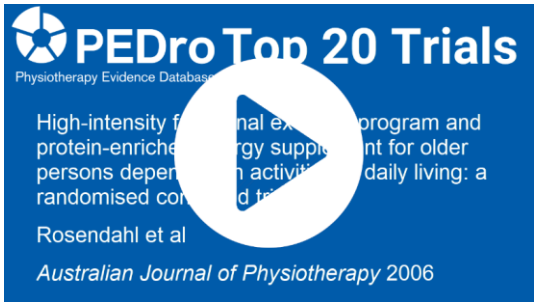
We have produced videos for four more of the best 15 physiotherapy trials published before 2014.



Assessment of diclofenac or spinal manipulative therapy, or both, in addition to recommended first-line treatment for acute low back pain: a randomised controlled trial

Hancock MJ, Maher CG, Latimer J, McLachlan AJ, Cooper CW, Day RO, Spindler MF, McAuley JH

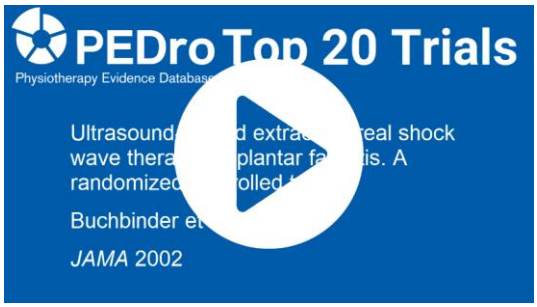
Lancet 2007;370(9599):1638-43



High-intensity functional exercise program and protein-enriched energy supplement for older persons dependent in activities of daily living: a randomised controlled trial

Rosendahl E, Lindelof N, Littbrand H, Yifter-Lindgren E, Lundin-Olsson L, Haglin L, Gustafson Y, Nyberg L

Australian Journal of Physiotherapy 2006;52(2):105-13



Ultrasound-guided extracorporeal shock wave therapy for plantar fasciitis. A randomized controlled trial

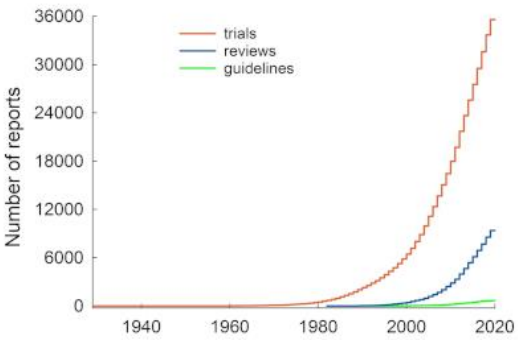
Buchbinder R, Ptasznik R, Gordon J, Buchanan J, Prabaharan V, Forbes A

JAMA 2002;288(11):1364-72

[Additional task-related practice improves mobility and upper limb function early after stroke: a randomised controlled trial]
Blennerhassett J, Dite W
Australian Journal of Physiotherapy 2004;50(4):219-24

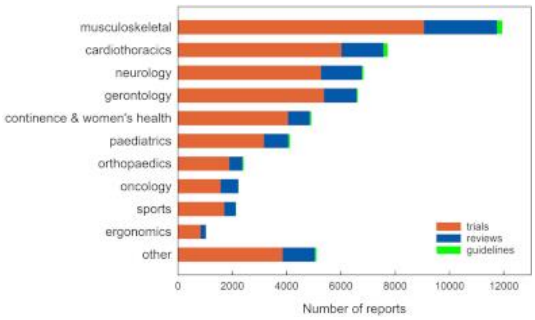
E. Who used PEDro in 2019?

An analysis of the contents of PEDro in the 13 January 2020 update is now available on the PEDro statistics page.

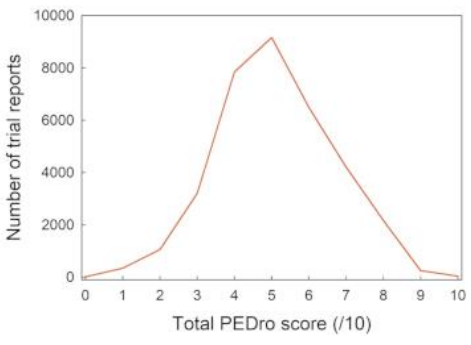


The number of reports of trials has continued to expand at an exponential rate.

During 2019 PEDro was used to answer 3,078,799 questions. This means that a new search was initiated every 10 seconds, on average, during 2019. PEDro users were from 216 countries. The five countries with the highest usage in 2019 were the Brazil (26%), United States of America (8%), Spain (8%), Australia (7%), and France (5%).



Musculoskeletal and cardiothoracic physiotherapy have the largest quantity of trials, reviews and guidelines indexed on PEDro.



For all trial reports indexed on PEDro, the average total PEDro score is 5.1 (standard deviation 1.5). 38% of trial reports are of moderate to high quality, scoring 6/10 or more on the PEDro scale.

F. A recent paper provides an overview of how to use PEDro to guide physiotherapy practice

PEDro is a free, preeminent, global resource to support evidence-based practice. It provides rapid access to articles reporting the results of randomised controlled trials, systematic reviews, and clinical practice guidelines evaluating physiotherapy interventions. This paper describes the PEDro scale (methodological quality checklist), PEDro contents, who uses PEDro, searching, browsing the latest content, and developing skills in evidence-based physiotherapy. Strategies specifically developed to break down barriers for Portuguese-speaking physiotherapists were emphasised in the paper.

All trials indexed in PEDro are assessed for methodological quality and completeness of data reporting using the 10-point PEDro scale. These ratings are used to rank search results, with the highest quality trials appearing first. Users can click through to the "Detailed Search Results" to see the ratings for each of the individual items for the trial. The PEDro scale has been translated and cross-culturally adapted into Brazilian Portuguese following best practice guidelines, so that clinicians who are not proficient in English can also use the scale.

In August 2019 PEDro indexed 44,309 articles: 34,619 trials, 9,004 reviews, and 686 guidelines. The number of trials is predicted to double, and the number of reviews and guidelines to increase four-fold, by 2025. This rapid growth highlights the importance of physiotherapists having well-developed skills in evidence-based practice so they can use the best research to inform practice, policy and teaching.

Between July 2018 and June 2019, PEDro users came from 214 countries. Physiotherapists from Brazil were the largest users (23% of all searches). PEDro was used across all states in Brazil. Five states accounted for 62% of PEDro usage in Brazil: São Paulo (29%), Minas Gerais (15%), and Bahia, Ceará, and Rio de Janeiro (all 6%).

Physiotherapists are encouraged to use the PEDro advanced search to find answers for their clinical questions. Search terms can be entered into any of 13 optional fields on this page. Six fields (Therapy, Problem, Body Part, Subdiscipline, Topic, Method) have pull-down menus with options that correspond to the coding of articles in the database. The remaining fields allow free text to be entered (Title & Abstract, Title Only, Author/Association, Source, Published Since, New Records Added Since, Score of at least). The search page is intuitive, but an analysis of the terms entered by users has identified some common errors. First, Boolean operators and parentheses do not function

in any of the search fields, so should not be used in PEDro searching. Second, bibliographic details of articles are entered into PEDro using American Standard Code for Information Interchange (ASCII) characters. Therefore, users who are searching with the name “Gonçalves” in the Author/Association field or the term “esclerose múltipla” in the Title Only field would have to enter “Goncalves” or “esclerose multipla” to conduct a valid search. Automated alert messages have been added to the search page to notify users when they enter erroneous text.

When a PEDro search is conducted, the results of the search are presented in a particular order to encourage users to click on more synthesised and higher-quality research within the search results. Guidelines are shown first (sorted by year), followed by reviews (with reviews published in the Cochrane Database of Systematic Reviews appearing before reviews published in other journals, both sorted by year), and then trials (from highest quality to lowest quality). Searching PEDro is free for anyone who has access to the internet. Almost all articles in PEDro show the abstract and about half of the articles in PEDro also have links to free full text online, so even users who do not have access to a library of journals will still find it fruitful.

PEDro's *Evidence in your inbox* allows physiotherapists to browse the latest content. Users can sign up to receive free monthly updates via email that detail the most recent additions to PEDro in up to 15 areas of practice. This has been a very popular service, with over 13,600 subscribers in August 2019. Brazil has a high rate of uptake, accounting for 35% of subscribers.

PEDro web-site and YouTube channel is available in 13 languages, including English and Portuguese. We also provide newsletters, blogs, Facebook and Twitter in both English and Portuguese. To assist physiotherapists to develop skills in evidence-based practice, PEDro includes a series of 'how to' videos and tutorials. The videos can be accessed via the PEDro search help pages and YouTube channel and include: how to ask a clinical question, and how to perform a PEDro simple or advanced search. The PEDro scale training program is currently available in English and Portuguese. The training is online through a 3-month subscription for a small fee.

PEDro facilitates the use of high-quality clinical research by physiotherapy clinicians, educators, students, and researchers. In 2019 PEDro celebrated its twentieth anniversary. Enhancements to mark this milestone included launching a new database called DiTA (Diagnostic Test Accuracy) that focuses on the accuracy of diagnostic tests used by physiotherapists.

Moseley AM, et al. Using research to guide practice: the Physiotherapy Evidence Database (PEDro). *Braz J Phys Ther* 2019 Nov 30:Epub ahead of print

G. Physiotherapist-led and telephone-delivered exercise advice and support improves physical function at 6 months in people with knee osteoarthritis – results from the TELECARE trial

Back in November 2019 we announced that Rana Hinman, from the University of Melbourne, won the PEDro prize for the best randomised controlled trial at the TRANSFORM2019 Physiotherapy Conference for her presentation titled "Telephone-delivered exercise advice and behaviour change support by physiotherapists for people with knee osteoarthritis: the TELECARE pragmatic randomised controlled trial". The prize recognises the achievements of researchers who conduct high quality, clinically important randomised controlled trials.

We are pleased to let you know that the results of Rana's award winning trial have now been published. The trial is included in PEDro's *Evidence in your inbox* feeds for gerontology, musculoskeletal and chronic pain for January 2020.

The trial investigated the benefit of a telephone-delivered exercise advice and support service provided by a physiotherapist, in addition to an existing nurse-led telephone-service, for self-management of knee osteoarthritis. 175 people with chronic knee pain due to osteoarthritis were recruited from across Australia. The main inclusion criteria were the clinical criteria for osteoarthritis (aged 45 years or over, activity-related knee pain, morning knee stiffness for < 30 minutes), knee pain of 4 or higher on a 10-point numerical rating scale in the previous week, and having pain for at least 3 months.

A concealed and random process was used to allocate participants to an existing nurse-led telephone service (n = 88) or additional exercise advice and support from a physiotherapist via telephone (n = 87). The existing service group received one telephone consultation with a nurse for self-management advice. The exercise advice and support group additionally received 5-10 telephone consultations with a physiotherapist trained in behaviour change for a personalised strengthening program and physical activity plan.

Primary outcomes were the change in overall average knee pain (numerical rating scale, range 0-10) and difficulty with physical function (Western Ontario and McMaster Universities Osteoarthritis Index, range 0-68) from baseline to 6 months (primary time-point) and from baseline to 12 months (secondary time-point). Cost-effectiveness from a societal perspective was also calculated. Outcome assessors were blinded to group

allocation and analysis was by intention-to-treat. Follow up was high, with 94% of participants completing the 6-month assessment and 90% at 12 months.

At 6 months, the exercise advice and support group reported greater improvement in function (mean difference 4.7 units (95% confidence interval 1.0 to 8.4)) and overall pain (0.7 units (0.0 to 1.4)) than the existing service group. The between-group difference for function was considered to be clinically worthwhile, while the between-group difference for pain was not. By 12 months, the change in function (3.1 (-0.6 to 6.7)) and pain (0.3 (-0.4 to 1.0)) were similar for both groups.

The additional cost of providing the exercise support and advice from a physiotherapist was $AUD514 per participant. This additional service did not save other health service resources.

The trial concluded that incorporating a physiotherapist-led exercise advice and support into an existing telephone service resulted in modest improvements in physical function at 6 months but not the co-primary outcome of knee pain at 6 months. The results are encouraging for the many Australians with knee osteoarthritis who may be unable to access face to face physiotherapy because they live in rural or remote settings, or have difficulty with accessing a physiotherapist due to mobility limitations.

Hinman RS, et al. Does telephone-delivered exercise advice and support by physiotherapists improve pain and/or function in people with knee osteoarthritis? Telecare randomised controlled trial. *Br J Sports Med* 2019 Nov 20:Epub ahead of print.

Read more on PEDro.

H. Infographic for systematic review that found that supervised, multifaceted lifestyle interventions reduce metabolic syndrome prevalence and risk factors in people with metabolic syndrome

Last month we summarised the van Namen et al systematic review. The review concluded that supervised, multifaceted lifestyle interventions reduce metabolic syndrome prevalence and risk factors in people with metabolic syndrome.

Some suggestions for diet and exercise for people with metabolic syndrome are in this infographic.

van Namen M, et al. Supervised lifestyle intervention for people with metabolic syndrome improves outcomes and reduces individual risk factors of metabolic syndrome: a systematic review and meta-analysis. *Metabolism* 2019 Dec;101:153988.

Read more on PEDro. .

I. Systematic review found that aerobic and/or resistance exercise reduces cardiovascular risk factors in people with stroke or transient ischaemic attack

People who have had a stroke or transient ischaemic attack (TIA) have an increased risk of a second cardiovascular event (eg, stroke, heart attack) and commonly exhibit cardiovascular risk factors (eg, hypertension, diabetes, dyslipidemia). To-date, research on prevention of cardiovascular events and risk factors has focused on drug interventions. The evidence-base of non-drug treatments, particularly exercise, is less clear. The aim of this systematic review was to estimate the average effect of exercise interventions on reducing secondary cardiovascular events or risk factors in people with stroke or TIA.

The inclusion criteria were: recruiting adults who had sustained a stroke or TIA; evaluating exercise interventions; compared to usual care or control conditions; reporting the outcomes of cardiovascular events (including cardiovascular death) and/or cardiovascular risk factors; and, a randomised controlled trial design. Exercise interventions included aerobic, resistance, or a mixture of both aerobic and resistance. Motor training interventions aimed at improving function were only included if they had a substantive aerobic or resistance component. The cardiovascular risk factors evaluated were blood pressure (systolic and diastolic), lipid profile (total, low-density, and high-density cholesterol), fasting plasma glucose, and body mass index. Sensitive searches were performed in 11 databases (including PubMed and China National Knowledge Infrastructure). Two reviewers independently selected the included trials and extracted data, with any disagreements resolved by consensus discussions or arbitration by a third reviewer. The Consensus on Exercise Reporting Template (CERT) was used to evaluate completeness of reporting of the interventions. The Grading of Recommendations, Assessment, Development and Evaluations (GRADE) approach (that included trial methodological quality evaluated using the Cochrane risk of bias tool) was used to categorise the overall quality of the evidence for each outcome. Meta-analysis was used to calculate the mean effect and 95% confidence interval (CI) for each outcome. Pre-specified subgroup analyses were used to estimate the effects of early (< 6 months) versus late (> 6 months) exercise initiation; incorporation of health education in the intervention; and, participant type (TIA or non-disabling stroke versus severe stroke).

Twenty trials (n = 1,031 participants) were included in the review. Most trials only recruited people with stroke (16 trials; three exclusively recruited people with disabling stroke), initiated the intervention within 6 months of the primary stroke or TIA (11 trials), and compared exercise to usual care (12 trials). Ten trials used aerobic exercise, two used resistance exercise, and eight used a combination of aerobic and resistance exercise. Four trials incorporated health education with the exercise intervention.

Only one small trial (70 participants) reported the cardiovascular events outcome. In this trial exercise reduced the risk of hospitalisation or death due to stroke, myocardial infarction or peripheral arterial disease (adjusted hazard ratio 0.194, 95% CI 0.121 to 0.737) compared to the control group. There was moderate quality evidence that exercise reduced systolic blood pressure (-4 mmHg, 95% CI -7 to -2, 12 trials, 606 participants) but had no effect on fasting glucose (-0.14 mmol/L, 95% CI -0.29 to 0.01, 7 trials, 364 participants) and body mass index (0.00 kg/m2, 95% CI -0.26 to 0.25, 8 trials, 446 participants) compared to control interventions. There was low quality evidence that exercise reduced diastolic blood pressure (-3 mmHg, 95% CI -5 to -1, 12 trials, 606 participants) and total cholesterol (-0.27 mmol/L, 95% CI -0.54 to 0.00, 9 trials, 370 participants) compared to control interventions. There was very low quality evidence that

exercise had no effect on low-density (-0.28 mmol/L, 95% CI -0.63 to 0.07, 7 trials, 303 participants) and high-density (0.08 mmol/L, 95% CI -0.02 to 0.17, 9 trials, 394 participants) cholesterol compared to control interventions.

Data from the subgroup analyses were reported for the outcomes of systolic and diastolic blood pressure only. The reduction in systolic blood pressure was most pronounced in trials that initiated the exercise intervention within 6 months of stroke or TIA (< 6 months -8 mmHg, 95% CI -12 to -5, 6 trials, 298 participants; > 6 months -2 mmHg, 95% CI -4 to -1, 6 trials, 308 participants), incorporated an educational component (exercise + education -8 mmHg, 95% CI -14 to -1, 4 trials, 200 participants; exercise only -3 mmHg, 95% CI -4 to -1, 8 trials, 406 participants), and recruited participants with TIA or non-disabling stroke (TIA or non-disabling stroke -5 mmHg, 95% CI -9 to -2, 9 trials 428 participants; disabling stroke -3 mmHg, 95% CI -4 to -1, 3 trials, 178 participants). The reduction in diastolic blood pressure was also more pronounced in trials that initiated the exercise intervention within 6 months of stroke or TIA (< 6 months -3 mmHg, 95% CI -6 to -1, 6 trials, 297 participants; > 6 months -2 mmHg, 95% CI -5 to 1, 6 trials, 309 participants) and recruited participants with TIA or non-disabling stroke (TIA or non-disabling stroke -4 mmHg, 95% CI -5 to -2, 9 trials 428 participants; disabling stroke 1 mmHg, 95% CI 0 to 2, 3 trials, 178 participants). In contrast, the effects on diastolic blood pressure were less pronounced in trials that incorporated an education component (exercise + education -2 mmHg, 95% CI -5 to 1, 4 trials, 200 participants; exercise only -3 mmHg, 95% CI -6 to 0, 8 trials, 406 participants).

Aerobic and/or exercise can result in reductions in some cardiovascular risk factors (systolic and diastolic blood pressure, total cholesterol) in people with stroke or TIA, particularly if initiated early, provided alongside education, and targeting people with TIA and non-disabling stroke. Investigating the effects of exercise on preventing cardiovascular events is a future research priority.

Wang C, et al. Aerobic exercise interventions reduce blood pressure in patients after stroke or transient ischaemic attack: a systematic review and meta-analysis. *Br J Sports Med* 2019;53(24):1515-25.

Read more on PEDro.

J. Support for PEDro comes from the Chartered Society of Physiotherapy and Namibian Society of Physiotherapy

We thank Chartered Society of Physiotherapy and the Namibian Society of Physiotherapy who have just renewed their partnership with PEDro for another year.

K. Next PEDro and DiTA updates (February 2020)

The next PEDro and DiTA updates are on Monday 3 February 2020.

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