


## POSITION PAPER

# Physical activity should be the primary intervention for individuals living with chronic pain A position paper from the European Pain Federation (EFIC) ‘On the Move’ Task Force

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### Abstract

**Background:** There is clear evidence demonstrating the benefits of physical activity (PA) on pain and overall health, however, PA is challenging for many individuals living with chronic pain. Even non-exercise specialists can (cost) effectively promote PA, but many health professionals report a number of barriers in providing guidance on PA, suggesting that it is not consistently promoted. This expert position paper summarizes the evidence and provides five recommendations for health professionals to assess, advise and support individuals living with any chronic pain condition with a long life expectancy in adopting and sustaining physically active lifestyles.

**Methods:** This position paper was prepared by the ‘On The Move’ Task Force of the European Pain Federation EFIC. Final recommendations were endorsed by the European Pain Forum, Pain Alliance Europe and the Executive Board of EFIC.

**Results:** We recommend that all health professionals (1) Take a history of the persons’ PA levels, and put PA on the agenda, (2) Advise that PA is important and safe for individuals living with chronic pain, (3) Deliver a brief PA intervention and support individuals living with chronic pain in becoming physically active, (4) Discuss acceptable levels of PA-related soreness and pain and (5) Provide ongoing support in staying physically active.

**Significance:** Physical activity is safe and offers several advantages, including general health benefits, low risk of side effects, low cost and not requiring access

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to healthcare. Adoption of these recommendations can improve the quality of care and life of individuals living with chronic pain and reduce their overall health risks.

## 1 | BACKGROUND

Chronic pain represents a global health burden, contributing to disability and human suffering (Vos et al., 2012). Despite extensive research, understanding the core pathophysiology of most chronic pain syndromes remains elusive, impeding progress in diagnostic approaches and targeted treatment options. However, physical activity (PA), as defined by the World Health Organization (WHO) as any voluntary movement requiring energy expenditure (WHO, 2021), emerges as a promising generic treatment strategy across various chronic pain conditions. While reconditioning and exercise rehabilitation are often more structured approaches targeting specific objectives or addressing particular health issues, PA encompasses any movement that expends energy, aiming to maintain or improve overall health and reduce the risk of chronic diseases, and it is adaptable to all ages, fitness levels, and health conditions. PA includes everyday activities such as walking, climbing stairs, gardening and cleaning, as well as more structured exercise routines like jogging, swimming, cycling, weightlifting and playing sports. Evidence supports the efficacy of PA in alleviating pain, both in the short and long term, for a considerable portion of individuals with many different chronic pain conditions including nociceptive, nociplastic and neuropathic pain conditions (Ferro Moura Franco et al., 2021; Geneen et al., 2017; Roos et al., 2021; Vaegter & Jones, 2020; Zhang et al., 2021). The mechanisms underlying this therapeutic effect span biological, psychological and social domains, encompassing factors such as endorphin release, inflammation reduction, improved nervous system function, enhanced cardiovascular and musculoskeletal conditioning, as well as psychological benefits like stress reduction and mood improvement (Vaegter & Jones, 2020).

Unfortunately, individuals with chronic pain encounter numerous barriers to engaging in PA, including fear of exacerbating pain, preconceived beliefs about PA and pain, comorbidities and challenges in integrating PA into daily life (Boutevillain et al., 2017). It is crucial to note that most inactive individuals aspire to good health and physically active lifestyles but may lack the self-efficacy, resources or cognitive and physical skills necessary to initiate or maintain PA. This is concerning, as physical inactivity is associated with adverse health outcomes across multiple domains, including cardiovascular diseases, type 2 diabetes, metabolic syndrome, cancers and premature

mortality (Blair, 2009; Booth et al., 2012; CDC, 2022; Santos et al., 2023; Sui et al., 2013).

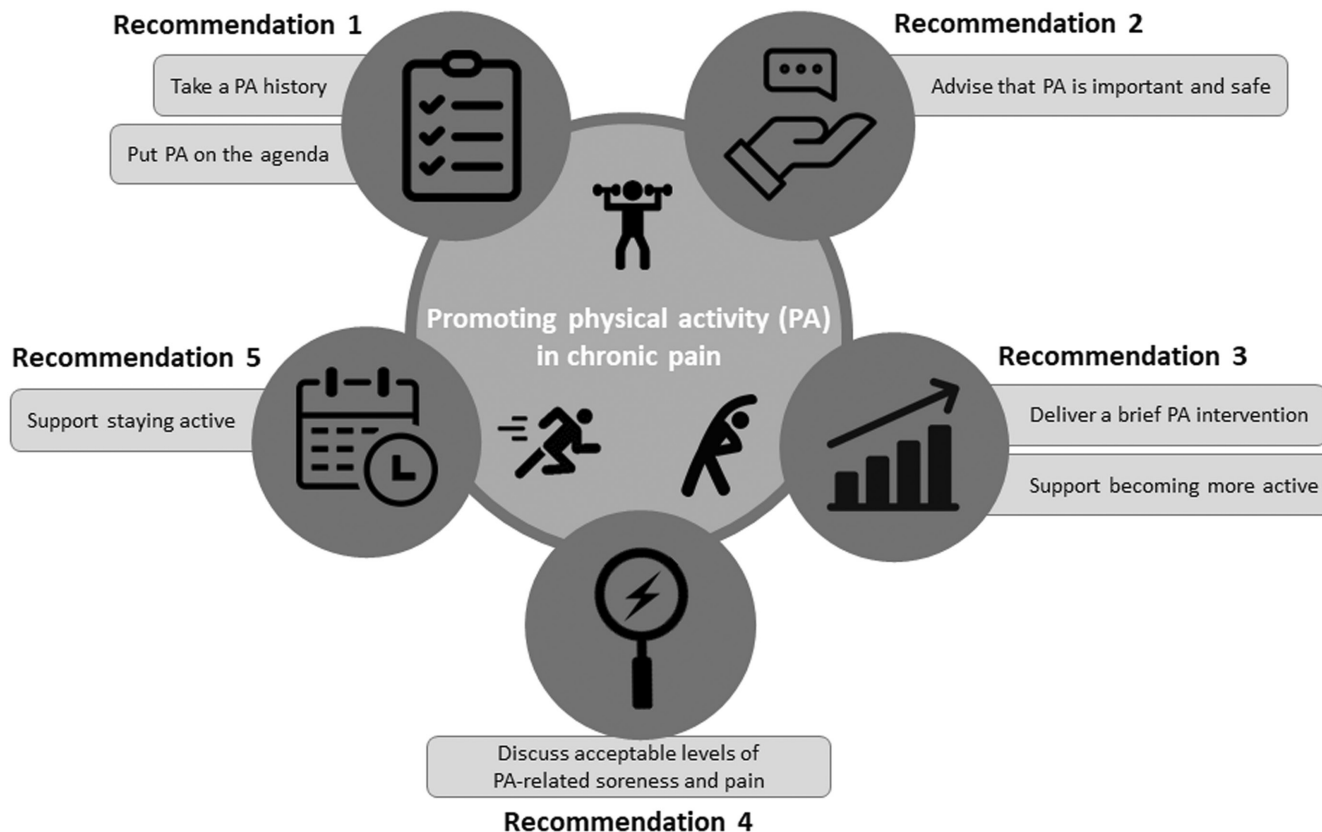
In clinical settings, exercise interventions for chronic pain often focus on short-term pain management rather than promoting sustained physical activity. Health professionals also face barriers in providing guidance on PA, such as inadequate knowledge, uncertainty about effectiveness, time constraints and reimbursement issues (Hébert et al., 2012). This indicates a gap between the potential benefits of PA and its consistent promotion in clinical practice, despite patients' expressed interest in discussing PA with their healthcare providers (Falskog et al., 2021). Nevertheless, evidence suggests that promoting PA in clinical practice is clinically relevant and cost-effective, even when delivered by non-exercise specialists (Elley et al., 2011; Petrella et al., 2010; Yaman & Atay, 2018).

Recognizing the pivotal role of healthcare professionals in promoting PA, the International Society for Physical Activity and Health (ISPAH) identifies healthcare as a key investment for promoting PA (ISPAH, 2021). The NHS's 'making every contact count' (MECC) approach to behaviour change for PA aligns well with this perspective (NHS, 2016).

In light of these considerations, this expert opinion and position paper aims to articulate the European Pain Federation EFIC's formal position on PA for individuals with chronic pain and develop evidence-based statements to guide all health professionals in promoting PA among their patients. Where reconditioning might occasionally require professional guidance, and exercise rehabilitation almost always involves personalized programmes designed and supervised by specific healthcare professionals like physical therapists or exercise physiologists, all health professionals should guide and support individuals living with chronic pain in becoming and staying physically active. Physical activity holds significant health benefits and offers advantages such as low cost, absence of waiting lists, flexibility to be performed at home at preferred times and minimal risk of side effects.

## 2 | METHODS

This position paper provides five recommendations (Figure 1) from patient representatives, health professionals and researchers on the importance of PA, from the



**FIGURE 1** Overview of recommendations to promote PA for individuals living with chronic pain.

principle that generic and ongoing PA should be considered as a primary component for all individuals living with any chronic pain condition with a long life expectancy. The EFIC ‘On the Move’ campaign was launched in 2017 by the then European Pain Federation EFIC President Prof. Bart Morlion. Since then a working group chaired by EFIC Immediate Past President Dr. Brona Fullen, followed by Prof. Henrik Bjarke Vaegter has been working on the scientific and educational material targeted to HCPs, patient and general public about the importance of PA. The goals of the campaign are to ensure that health professionals and stakeholders within and beyond the health-care sector advise patients about the significant benefits that come with increasing their activity levels. Support and guidance to patients is aimed at empowering them to become, and stay more active.

This position paper was drafted by the ‘On The Move’ Task Force of the European Pain Federation EFIC in collaboration with patient representatives, health professionals and researchers. Using an iterative design, the Task Force drafted recommendations informed by international best practice guidelines and consensus statements such as WHO (Bull et al., 2020), the Exercise is Medicine initiative (Sallis, 2015), the ISPAH (Milton et al., 2021), The American College of Sports Medicine (ACSM) (ACSM, 2023) and the Centers for Disease Control and

Prevention (CDC) (NCCDPHP, 2020), which were shared for input and advise with the Pain Forum Members and members of the Pain Alliance Europe, whose feedback was used to create the final recommendations for PA in individuals with chronic pain. Formal endorsement of the recommendations was received from European Pain Forum members, consisting of representatives from patient and professional organizations, The European Pain Federation EFIC’s Executive Board and the Pain Alliance Europe.

### 3 | RESULTS

The five recommendations for health professionals to assess, advise and support individuals living with chronic pain in adopting and sustaining physically active lifestyles are illustrated in Figure 1 and additional examples of ‘how to resources’ are provided in Table 1.

#### 3.1 | Recommendation 1: Take a PA history and put PA on the agenda

All health professionals should routinely assess current and previous PA levels and experiences during

**TABLE 1** Examples of 'How to' resources for the five recommendations.

Recommendation	Example 'how to' resource	Link to resource
Recommendation 1: Take a PA history and put PA on the agenda.	WHO PA guideline and conversation inspiration. Conversation tool: '1-minute', '5-minute' and 'more-minute' person-centered and co-designed templates for conversations on physical activity. Short questionnaires to assess PA. The WHO Guidelines on physical activity and sedentary behaviour. The Center for Disease Control and Prevention material on PA.	<a href="#">Move Your Way</a> <a href="#">Moving Medicine 1 min</a> <a href="#">Moving Medicine 5 min</a> <a href="#">IPAQ-S PAVS</a> <a href="#">WHO Guideline</a> <a href="#">CDC material</a>
Recommendation 2: Advise that PA is important and safe for individuals with chronic pain.	European Pain Federation EFIC physical activity campaign.	<a href="#">EFIC 'On the Move'</a>
Recommendation 3: Deliver a brief PA intervention and support individuals with chronic pain in becoming physically active.	American Academy of Family Physicians. Walking intervention with behaviour change techniques How to implement Exercise is Medicine in your practice. Exercise is Medicine (Sit Less Move More).	<a href="#">Seven tips for encouraging your patients to exercise</a> <a href="#">PACE-UP walking programme</a> <a href="#">PACE-UP walking programme</a> <a href="#">Exercise is Medicine (HC action guide)</a> <a href="#">Sit Less Move More</a>
Recommendation 4: Discuss acceptable levels of PA-related soreness and pain.	European Pain Federation EFIC physical activity campaign.	<a href="#">EFIC 'On the Move'</a>
Recommendation 5: Provide ongoing support in staying physically active.	How to implement Exercise is Medicine in your practice. Walking intervention with behaviour change techniques.	<a href="#">Exercise is Medicine (HC action guide)</a> <a href="#">PACE-UP walking programme</a> <a href="#">PACE-UP walking programme</a>

consultations with individuals living with chronic pain (Sallis, 2015), for example, using standardized tools (e.g. questionnaires or activity trackers) (Golightly et al., 2017). Additionally, health professionals should explore readiness to change and barriers to engagement in PA during the history-taking and clinical examination process. Barriers that prevent individuals living with chronic pain from engaging in PA are similar to barriers in the general population including lack of time and motivation, environmental factors, and lack of social and professional support (McPhail et al., 2014; Salmon et al., 2003). However, individuals living with chronic pain may also face unique barriers. Physical factors may include increased pain and discomfort, fatigue and tiredness, negative PA past experiences and excessive deconditioning. Psychological factors may include a lack of self-efficacy, fear avoidance or strong beliefs that exercise can be harmful. A lack of education around the nature of their pain, the benefits of exercise, or not knowing what type of PA that is right or wrong may also be barriers (Karlsson et al., 2018; McPhail et al., 2014). Health professionals must consider how both general and specific barriers for engaging in PA can be addressed and coordinate with other health professionals to develop effective

strategies to overcome these barriers. In addition, individuals' PA preferences should be identified to support PA adoption and adherence.

### 3.2 | Recommendation 2: Advise that PA is important and safe for individuals with chronic pain

All health professionals should advise individuals living with chronic pain about the high-quantity evidence supporting PA as intervention for chronic pain and physical and mental health. As such, increasing PA and reducing sedentary behaviour are essential components of overall health and reducing risk of additional health-related comorbidities and disability (Dunlop et al., 2015). In addition, the benefits of PA for their pain condition should be explained, going beyond the traditional explanation of its effect on biomechanics and corresponding changes in loading of the musculoskeletal system. It should be emphasized that exercise can retrain the brain, by providing the evidence for its positive impact, for example, strengthening of the endogenous pain modulatory system (Ellingson et al., 2016) and changing brain function

and structure (Ellingson et al., 2012; Flodin et al., 2015; McLoughlin et al., 2011). All health professionals should assure individuals living with chronic pain, many of whom may have previously experienced and/or feared PA would increase their pain further, that PA is safe. As there is no right or wrong PA, nocebo, fear-inducing language, negative information about movement, and/or recommendations to limit movement/activity should be avoided. Many individuals living with chronic pain expect exercise to increase pain (Vaegter & Jones, 2020) and health professionals should be cautious about how information about physical activity and pain is framed to avoid incongruent narratives. If negative thoughts about PA and pain are identified, health professionals should reinforce or emphasize pain science education to reduce the threat value of pain even more in combination with PA (Siddall et al., 2022), but should also be aware that beliefs and fears hold by individuals with chronic pain are often not reversed just by telling them that such beliefs are not true.

### 3.3 | Recommendation 3: Deliver a brief intervention for PA and support individuals with chronic pain in becoming physically active

All health professionals should deliver brief interventions for PA promotion (Reid et al., 2022) as this is cost-effective and can result in relevant increases in PA (Hall et al., 2022). Autonomy support (e.g. using motivational interviewing (Resnicow & McMaster, 2012)), patient-led behavioural goal setting, and action-oriented counselling (what, where, when, how, what if, what will remind me) should be adopted considering individuals (training) preferences (e.g. what would you like to try?), abilities and availability in the decisions about how to work out a way forward. The type of PA is less important than finding what works for each individual based on individual preferences, what is doable and possible to implement in daily life to facilitate adherence (e.g. is there something in your exercise routine/random actions that you like to do and could think of doing more of?). Oral and written advice in plain language regarding the health benefits should be combined with goal setting and action planning.

Although the WHO physical activity guideline (Bull et al., 2020) recommends that adults should aim for a minimum of 150–300 min per week at moderate intensity plus muscle-strengthening activities at least 2 days a week, research indicates that even low to moderate intensity PA can lead to improvements in pain, daily

function and quality of life for individuals with chronic pain (Loew et al., 2012; Mansi et al., 2014; O'Connor et al., 2015). Even a brisk walk of approximately 30 min on most days of the week will result in substantial health benefits (Stofan et al., 1998; Vanti et al., 2019). Therefore, health professionals should focus on emphasizing the life-changing benefits of small daily amounts of movement even starting from very low (also known as the Compound Effect) such as: 'it is never too late to start getting active', 'every step/amount of PA counts and adds up', 'even small amounts of movement will bring long-term benefits for your health and well-being', 'every added step is a step forward: you get up from a couch ten times a day, that's 300 times a month and 3,650 per year. You walk 200 meters a day, that's 6 kilometres in a month and 73 kilometres in a year,' In addition, interventions that target a reduction in sedentary behaviours also confer health benefits and might also be a good option for individuals living with chronic pain. Behaviour change techniques such as goal setting, self-monitoring of behaviour, providing feedback on performance, and review of behaviour goals have been associated with increased intervention effects (Michie et al., 2009). For those requiring more specific exercise prescription, or the more complex patient referral to a physical therapist or exercise specialist is recommended.

### 3.4 | Recommendation 4: Discuss acceptable levels of PA-related soreness and pain

Both health professionals and individuals living with chronic pain should be aware that the experience of pain during PA and the potential associated delayed onset muscle soreness is to be expected, usually peaking day 2 or 3 after the first session. Knowing that this will likely happen (and is a normal biological response to the PA stimulus) is important. However, how much increased pain is acceptable for the individual when the goal is to improve health should be agreed upon. Health professionals should therefore discuss expected soreness including intensity and duration and provide suggestions to start slow and guide in the progression principle (see e.g. the PACE-UP Walking Programme in Table 1). As a first step for some individuals where pain during/after exercise is a significant barrier, health professionals can also consider a workaround for the chronic pain approach with advice on movement of non-painful body areas (e.g. exercising the legs for individuals living with chronic pain in the neck and arms) if possible as well as low-intensity PA such as walking.

### 3.5 | Recommendation 5: Provide ongoing support in staying physically active

All health professionals should integrate ongoing support for PA into clinical encounters. This includes adjusting or progressing the PA plan and goals as needed, help to identify new barriers to PA and how to overcome them, and follow-up appointments for providing feedback on performance, and review of behaviour goals (e.g. How did you go?/What did you learn?/What would you like to change?/What new things can you apply to your routine?). Changing behaviour takes time, and becoming more physically active may intensify pain, especially in the initial stages. Helping individuals understand that the big payoff will come over time, although some will also enjoy their daily walk goes a very long way. Finally, health professionals should lead by example and be PA role model, as physically active health professionals are more likely to provide motivating and evidence-based information to their patients (Belfrage et al., 2018; Lobelo & de Quevedo, 2016).

## 4 | SUMMARY AND CONCLUSIONS

The current evidence supports the use of PA as an important intervention for chronic pain, both for physical and mental health promotion. It is unlikely that the quantity and quality of evidence will change in the near future. As a result, we must insist that politicians, media, society, and the health systems prioritize getting individuals living with chronic pain to be more physically active and prevent them from receiving interventions that have fewer positive benefits and greater harm. Promotion of PA in individuals with chronic pain should be included in curricula of undergraduate and graduate health professionals. We believe that adoption of the recommendations will help improve the quality of care and life of individuals with chronic pain and reduce their overall health risks. EFIC is committed to promoting the importance of PA and exercise in prevention, treatment and management of chronic pain through its education portfolio (pain schools, virtual education summits, EFIC curricula and the Academy platform) and conferences (workshops and refresher courses).

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None.

### CONFLICT OF INTEREST STATEMENT

TB reports: I am an exercise physiologist and physical therapist and may have a cognitive exercise/physical activity bias. BMF is Immediate Past President of the European Pain Federation EFIC and national pain societies have reimbursed her for travel costs only related to presentations at their annual scientific meetings. BMF previously received consultancy fee from Grunenthal and unrestricted grants from Pfizer Healthcare and Ahaki Kasei. HBV is a physical therapist and past chair of the EFIC 'On the Move' Task Force. All others report no conflicts of interest.

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### REFERENCES

- ACSM. (2023). Physical activity guidelines. <https://www.acsm.org/education-resources/trending-topics-resources/physical-activity-guidelines>
- Belfrage, A. S. V., Grotmol, K. S., Tyssen, R., Moum, T., Finset, A., Isaksson Rø, K., & Lien, L. (2018). Factors influencing doctors'

- counselling on patients' lifestyle habits: A cohort study. *BJGP Open*, 2(3), bjpgopen18X101607.
- Blair, S. N. (2009). Physical inactivity: The biggest public health problem of the 21st century. *British Journal of Sports Medicine*, 43(1), 1–2.
- Booth, F. W., Roberts, C. K., & Laye, M. J. (2012). Lack of exercise is a major cause of chronic diseases. *Comprehensive Physiology*, 2(2), 1143–1211.
- Boutevillain, L., Dupeyron, A., Rouch, C., Richard, E., & Coudeyre, E. (2017). Facilitators and barriers to physical activity in people with chronic low back pain: A qualitative study. *PLoS One*, 12(7), e0179826.
- Bull, F. C., al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., Carty, C., Chaput, J. P., Chastin, S., Chou, R., Dempsey, P. C., DiPietro, L., Ekelund, U., Firth, J., Friedenreich, C. M., Garcia, L., Gichu, M., Jago, R., Katzmarzyk, P. T., ... Willumsen, J. F. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, 54(24), 1451–1462.
- CDC. (2022). Benefits of Physical Activity. <https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>
- Dunlop, D. D., Song, J., Arntson, E. K., Semanik, P. A., Lee, J., Chang, R. W., & Hootman, J. M. (2015). Sedentary time in US older adults associated with disability in activities of daily living independent of physical activity. *Journal of Physical Activity & Health*, 12(1), 93–101.
- Elley, C. R., Garrett, S., Rose, S. B., O'Dea, D., Lawton, B. A., Moyes, S. A., & Dowell, A. C. (2011). Cost-effectiveness of exercise on prescription with telephone support among women in general practice over 2 years. *British Journal of Sports Medicine*, 45(15), 1223–1229.
- Ellingson, L. D., Shields, M. R., Stegner, A. J., & Cook, D. B. (2012). Physical activity, sustained sedentary behavior, and pain modulation in women with fibromyalgia. *The Journal of Pain*, 13(2), 195–206.
- Ellingson, L. D., Stegner, A. J., Schwabacher, I. J., Koltyn, K. F., & Cook, D. B. (2016). Exercise strengthens central nervous system modulation of pain in fibromyalgia. *Brain Sciences*, 6(1), 8.
- Falskog, F., Landsem, A. M., Meland, E., Bjorvatn, B., Hjelle, O. P., & Mildestvedt, T. (2021). Patients want their doctors' help to increase physical activity: A cross sectional study in general practice. *Scandinavian Journal of Primary Health Care*, 39(2), 131–138.
- Ferro Moura Franco, K., Lenoir, D., dos Santos Franco, Y. R., Jandre Reis, F. J., Nunes Cabral, C. M., & Meeus, M. (2021). Prescription of exercises for the treatment of chronic pain along the continuum of nociplastic pain: A systematic review with meta-analysis. *European Journal of Pain*, 25(1), 51–70.
- Flodin, P., Martinsen, S., Mannerkorpi, K., Löfgren, M., Bileviciute-Ljungar, I., Kosek, E., & Fransson, P. (2015). Normalization of aberrant resting state functional connectivity in fibromyalgia patients following a three month physical exercise therapy. *NeuroImage: Clinical*, 9, 134–139.
- Geneen, L. J., Moore, R. A., Clarke, C., Martin, D., Colvin, L. A., & Smith, B. H. (2017). Physical activity and exercise for chronic pain in adults: An overview of Cochrane reviews. *Cochrane Database of Systematic Reviews*, 4, Cd011279.
- Golightly, Y. M., Allen, K. D., Ambrose, K. R., Stiller, J. L., Evenson, K. R., Voisin, C., Hootman, J. M., & Callahan, L. F. (2017). Physical activity as a vital sign: A systematic review. *Preventing Chronic Disease*, 14, E123.
- Hall, L. H., Thorneloe, R., Rodriguez-Lopez, R., Grice, A., Thorat, M. A., Bradbury, K., Kamble, M. W., Okoli, G. N., Powell, D., & Beeken, R. J. (2022). Delivering brief physical activity interventions in primary care: A systematic review. *The British Journal of General Practice*, 72(716), e209–e216.
- Hébert, E. T., Caughy, M. O., & Shuval, K. (2012). Primary care providers' perceptions of physical activity counselling in a clinical setting: A systematic review. *British Journal of Sports Medicine*, 46(9), 625–631.
- ISPAH. (2021). Infographic. ISPAH's eight investments that work for physical activity: Infographic, animation and call to action. *British Journal of Sports Medicine*, 55(13), 759–760.
- Karlsson, L., Gerdle, B., Takala, E. P., Andersson, G., & Larsson, B. (2018). Experiences and attitudes about physical activity and exercise in patients with chronic pain: A qualitative interview study. *Journal of Pain Research*, 11, 133–144.
- Lobelo, F., & de Quevedo, I. G. (2016). The evidence in support of physicians and health care providers as physical activity role models. *American Journal of Lifestyle Medicine*, 10(1), 36–52.
- Loew, L., Brosseau, L., Wells, G. A., Tugwell, P., Kenny, G. P., Reid, R., Maetzel, A., Huijbregts, M., McCullough, C., de Angelis, G., Coyle, D., & Ottawa Panel. (2012). Ottawa panel evidence-based clinical practice guidelines for aerobic walking programs in the management of osteoarthritis. *Archives of Physical Medicine and Rehabilitation*, 93(7), 1269–1285.
- Mansi, S., Milosavljevic, S., Baxter, G. D., Tumilty, S., & Hendrick, P. (2014). A systematic review of studies using pedometers as an intervention for musculoskeletal diseases. *BMC Musculoskeletal Disorders*, 15, 231.
- McLoughlin, M. J., Stegner, A. J., & Cook, D. B. (2011). The relationship between physical activity and brain responses to pain in fibromyalgia. *The Journal of Pain*, 12(6), 640–651.
- McPhail, S. M., Schippers, M., Marshall, A. L., Waite, M., & Kuipers, P. (2014). Perceived barriers and facilitators to increasing physical activity among people with musculoskeletal disorders: A qualitative investigation to inform intervention development. *Clinical Interventions in Aging*, 9, 2113–2122.
- Michie, S., Abraham, C., Whittington, C., McAteer, J., & Gupta, S. (2009). Effective techniques in healthy eating and physical activity interventions: A meta-regression. *Health Psychology*, 28(6), 690–701.
- Milton, K., Cavill, N., Chalkley, A., Foster, C., Gomersall, S., Hagstromer, M., Kelly, P., Kolbe-Alexander, T., Mair, J., McLaughlin, M., Nobles, J., Reece, L., Shilton, T., Smith, B. J., & Schipperijn, J. (2021). Eight investments that work for physical activity. *Journal of Physical Activity & Health*, 18(6), 625–630.
- NCCDPHP. (2020). Physical activity prevents CHronic Disease. <https://www.cdc.gov/chronicdisease/resources/infographic/physical-activity.htm>
- NHS. (2016). Making Every Contact Count (MECC): Consensus statement. <https://www.england.nhs.uk/wp-content/uploads/2016/04/making-every-contact-count.pdf>
- O'Connor, S. R., Tully, M. A., Ryan, B., Bleakley, C. M., Baxter, G. D., Bradley, J. M., & McDonough, S. M. (2015). Walking exercise for chronic musculoskeletal pain: Systematic review and meta-analysis. *Archives of Physical Medicine and Rehabilitation*, 96(4), 724–734.e723.

- Petrella, R. J., Lattanzio, C. N., Shapiro, S., & Overend, T. (2010). Improving aerobic fitness in older adults: Effects of a physician-based exercise counseling and prescription program. *Canadian Family Physician*, 56(5), e191–e200.
- Reid, H., Caterson, J., Smith, R., Baldock, J., Jones, N., & Copeland, R. (2022). What do healthcare professionals want from a resource to support person-centred conversations on physical activity? A mixed-methods, user-centric approach to developing educational resources. *BMJ Open Sport & Exercise Medicine*, 8(2), e001280.
- Resnicow, K., & McMaster, F. (2012). Motivational interviewing: Moving from why to how with autonomy support. *International Journal of Behavioral Nutrition and Physical Activity*, 9, 19.
- Roos, E. M., Grønne, D. T., Skou, S. T., Zywił, M. G., McGlasson, R., Barton, C. J., Kemp, J. L., Crossley, K. M., & Davis, A. M. (2021). Immediate outcomes following the GLA:D® program in Denmark, Canada and Australia. A longitudinal analysis including 28,370 patients with symptomatic knee or hip osteoarthritis. *Osteoarthritis and Cartilage*, 29(4), 502–506.
- Sallis, R. (2015). Exercise is medicine: A call to action for physicians to assess and prescribe exercise. *The Physician and Sportsmedicine*, 43(1), 22–26.
- Salmon, J., Owen, N., Crawford, D., Bauman, A., & Sallis, J. F. (2003). Physical activity and sedentary behavior: A population-based study of barriers, enjoyment, and preference. *Health Psychology*, 22(2), 178–188.
- Santos, A. C., Willumsen, J., Meheus, F., Ilbawi, A., & Bull, F. C. (2023). The cost of inaction on physical inactivity to public health-care systems: A population-attributable fraction analysis. *The Lancet Global Health*, 11(1), e32–e39.
- Siddall, B., Ram, A., Jones, M. D., Booth, J., Perriman, D., & Summers, S. J. (2022). Short-term impact of combining pain neuroscience education with exercise for chronic musculoskeletal pain: A systematic review and meta-analysis. *Pain*, 163(1), e20–e30.
- Stofan, J. R., DiPietro, L., Davis, D., Kohl, H. W., 3rd, & Blair, S. N. (1998). Physical activity patterns associated with cardiorespiratory fitness and reduced mortality: The aerobics center longitudinal study. *American Journal of Public Health*, 88(12), 1807–1813.
- Sui, X., Li, H., Zhang, J., Chen, L., Zhu, L., & Blair, S. N. (2013). Percentage of deaths attributable to poor cardiovascular health lifestyle factors: Findings from the aerobics center longitudinal study. *Epidemiology Research International*, 2013, 1–9.
- Vaegter, H. B., & Jones, M. D. (2020). Exercise-induced hypoalgesia after acute and regular exercise: Experimental and clinical manifestations and possible mechanisms in individuals with and without pain. *Pain Reports*, 5(5), e823.
- Vanti, C., Andreatta, S., Borghi, S., Guccione, A. A., Pillastrini, P., & Bertozzi, L. (2019). The effectiveness of walking versus exercise on pain and function in chronic low back pain: A systematic review and meta-analysis of randomized trials. *Disability and Rehabilitation*, 41(6), 622–632.
- Vos, T., Flaxman, A. D., Naghavi, M., Lozano, R., Michaud, C., Ezzati, M., Shibuya, K., Salomon, J. A., Abdalla, S., Aboyans, V., Abraham, J., Ackerman, I., Aggarwal, R., Ahn, S. Y., Ali, M. K., AlMazroa, M. A., Alvarado, M., Anderson, H. R., Anderson, L. M., ... Murray, C. J. L. (2012). Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: A systematic analysis for the global burden of disease study 2010. *Lancet*, 380(9859), 2163–2196.
- WHO. (2021). Physical activity fact sheet. <https://www.who.int/publications/i/item/WHO-HEP-HPR-RUN-2021.2>
- Yaman, H., & Atay, E. (2018). The effect of exercise prescription of primary care physician on the quality of life in patients. *London Journal of Primary Care (Abingdon)*, 10(4), 93–98.
- Zhang, Y. H., Hu, H. Y., Xiong, Y. C., Peng, C., Hu, L., Kong, Y. Z., Wang, Y. L., Guo, J. B., Bi, S., Li, T. S., Ao, L. J., Wang, C. H., Bai, Y. L., Fang, L., Ma, C., Liao, L. R., Liu, H., Zhu, Y., Zhang, Z. J., ... Wang, X. Q. (2021). Exercise for neuropathic pain: A systematic review and expert consensus. *Frontiers in Medicine*, 8, 756940.

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