

Osteoarthritis and Physical Activity Participation: A Complex Issue Requiring Multiple Inputs

Ray Marks*

Department of Health, Physical Education, Gerontological Studies and Services, School of Health Sciences & Professional Programs, City University of New York, York College, and Department of Health & Behavior Studies, Columbia University, Teachers College, New York, USA

***Corresponding Author:** Ray Marks, Department of Health, Physical Education, Gerontological Studies and Services, School of Health Sciences & Professional Programs, City University of New York, York College, and Department of Health & Behavior Studies, Columbia University, Teachers College, New York, USA.

Received: November 30, 2016; **Published:** December 07, 2016

Introduction

Physical activity participation, a universally acknowledged approach for controlling weight, preventing or alleviating depression, and for improving or maintaining health status is commonly advocated as a key self-management approach for reducing osteoarthritis disability. But in our view, simply hoping the patient diagnosed as having osteoarthritis, who is frequently an older rather than a younger adult, will be inclined to follow recommendations to participate in a regular physical activity program, given the presence of oftentimes unrelenting pain and joint dysfunction that accompanies the disease seems highly presumptive and problematic. In addition, simply recommending this form of self-management without careful assessment and progressive planning is potentially doomed to failure.

In particular, carrying out physical activity that exacerbates the magnitude or severity of the osteoarthritis condition because of poor preparation, instructions or lack of forethought, along with the failure to enlighten patients about the importance of pursuing a physically active rather than a sedentary life, may undoubtedly contribute to abysmal adherence rates in general for physical activity participation among adults with osteoarthritis.

As well, mythological views about exercise, as well as about osteoarthritis itself, along with a unique set of intrinsic disease associated challenges to participating in regular physical activity, are some of the additional challenges that may preclude ready adoption of general physical activity recommendations even if these are clearly conceived by clients to be helpful.

As outlined in the related literature [1-10], these potential problems include, but are not limited to disease associated factors such as-

- Depression and/or pain anxiety
- Embarrassment as regards being seen to be exercising if obese
- Fear of further joint destruction and/or pain increases
- Joint instability, muscle weakness, poor exercise endurance
- Joint inflammation and joint swelling
- Pain and stiffness in one or more joints
- Poor health status
- Poor body and self-perception of exercise participation if obese
- Poor balance control, leg fatigue and/or shortness of breath when walking
- Poor knowledge of recommended interventions
- Poor self-efficacy perceptions

Other factors that may preclude or hamper attempts to maintain a regular physical activity program may include uncertainty about the type or activity that is safe, as well as its dosage, intensity, and frequency, health provider[s] who have not provided careful recommendations tailored to the health status of the individual patient, patients as well as providers who lack of confidence in the outcomes of participation in regular physical activity, vague and/or complex time consuming activity recommendations, and lack of social support or provider support for continuous physical activity participation (Figure 1).

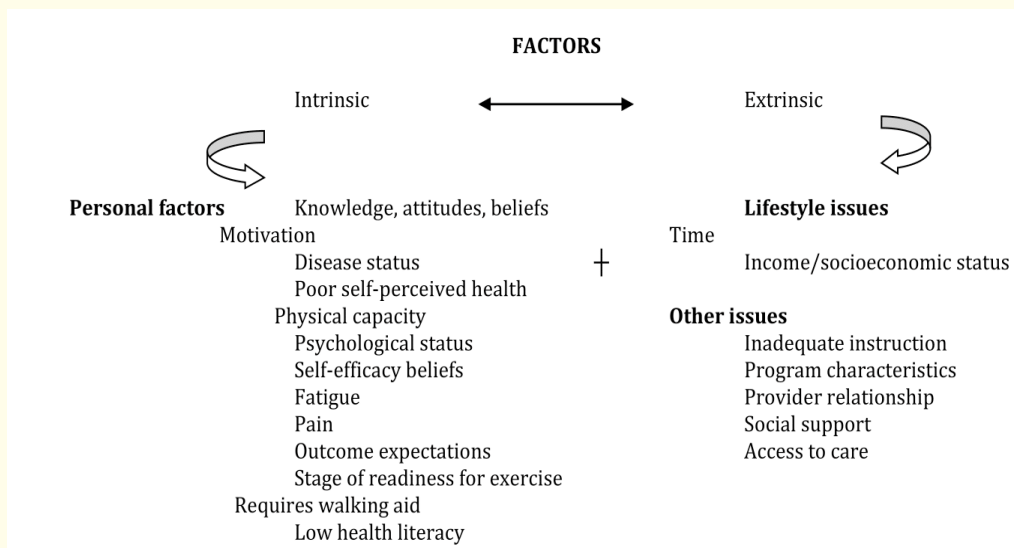


Figure 1: Selected array of interacting factors that can influence physical activity adherence among adults with osteoarthritis. Adapted from: Marks [8]; Marks and Allegrante [10] Aatolahti, et al. [11]; Picorelli, et al. [12]; Berthouze, et al. [13]; Beckwee, et al. [14]; Wasser, et al. [15].

A question thus arises as to how adherence to recommended bouts of weekly physical activity can be promoted. To examine this, question the data base PubMed was searched using the terms ‘adherence and osteoarthritis; adherence and physical activity participation’. All relevant data pertaining to this topic was deemed acceptable. These data scrutinized for potential solutions to this widespread problem are presented below. In addition, some of the writers’ experiences with cognitive approaches for advancing behavior change and the benefits of employing a multi-dimensional approach to elicit adoption and maintenance of regular physical activity are summarized below in narrative form.

Activity non-adherence and its possible solutions

In light of the many anticipated problems listed above and others including anxiety and fear of undertaking physical activity in the presence of pain, fear of worsening the condition, and/or disease problems that render physical activity a dubious treatment of choice at the time, research in this realm implies providers must be both willing and able to carefully assess their patient needs, skills, resources, as well as the uncertain nature of the osteoarthritis condition [10]. Helping the patient to manage pain-while indicating the importance of joint protection rather than blanket pain relief, which can result in too much overloading of an affected joint, along with acknowledging any misconceptions they may have about the role of rest versus exercise in the process of disease self-management is also recommended [8].

Working in collaboration with the patient, providers who are able to recommend appropriate adjunctive treatments as well as skilled personnel who may be of ongoing help to the patient, while permitting the gradual adoption of the desired physical activity goal may also

prove of considerable value in efforts to promote adherence of the patient with osteoarthritis to physical activity recommendations [16]. Concerted efforts to answer or address any questions or concerns patients may have, along with concerted efforts to monitor the patient's progress in light of the extent and progression of their biomechanical problems, their level of pain, inflammation status, muscle strength and endurance capacity, body mass indices, psychological and general health status is also strongly advocated [8]. Moreover, conveying an empathetic demeanor that acknowledges the patient's daily mobility challenges, as well as any negative past experiences with exercise, is predicted to advance the osteoarthritis patient's willingness to consider, prepare for, and to actively pursue a recommended physical activity program in the long-term, regardless of any unrelenting health issue.

Research also reveals that education concerning the specific benefits of physical activity participation, which include, but are not limited to a reduced risk of excess disability, as well a reduced risk of acquiring chronic illnesses that arise from sedentary behaviors, as well as obesity and cognitive problems such as depression, along with pain is beneficial in efforts to help the osteoarthritis patient carry out a physical activity program on a long-term basis [17]. Providers too that take note of predicted reductions in medication intake, often injurious to the patient, a reduced need for surgery, and better outcomes following surgery along with life quality [15] can help to emphasize the importance of adherence to physical activity guidelines. They may also want to refer to the science base showing the importance of exercise for reducing disability among the older adult with osteoarthritis, as well as the importance of social support [12].

As well, based on the successes of motivational interviewing, offering patients a menu of activity options, rather than any prescriptive recommendation, plus the knowledge and resources the client needs to carry out the desired tasks may further help to foster physical activity adherence in the face of pain and dysfunction. Ascertaining the patient's stage of change for physical activity adoption, as well as the extent to which the patient is aware of the multiple benefits of regular physical activity participation, and tailoring the recommendations accordingly are also advocated as key components of such an approach [19-21], as are adequate supervision, support of family/friends, and interventions that can diminish any excess emotional overlay [14]. Stressing the fact that regular physical activity participation can reduce, rather than increase the risk of functional dependence, and that it can foster a substantive reduction in pain, improve sleep patterns, and life quality [15-16] is potentially of considerable added value in any effort to effectively attenuate the disease and its attendant disability.

In addition, mutually agreed upon realistic and achievable goals, an appropriate manageable activity routine, perhaps one that aligns with daily activities and abilities, the availability of appropriate ongoing professional and social support, and actively intervening to removing barriers to activity participation including excess unrelenting pain, joint instability, joint swelling, and fear are highly warranted [10]. Where appropriate, efforts to maximize a patient's self-efficacy for physical activity participation as well as providing directives for overcoming barriers to exercise, such as scheduling and time related issues may be especially helpful [26], as may clear instructions, formally educating patients/clients about the benefits of exercise, and how to enhance their well-being through physical activity participation. Ensuring the patient has the skill and ability to carry out an appropriate activity plan, and is aware of the risk factors for non-adherence is of similar import. Rewarding small steps towards achieving adherence, expressing a sincere belief in the client, using positive supportive statements, and providing them with successful role models is likely to be advantageous as well. Assuming a non-judgmental, respectful, and empathetic demeanor, and tailoring the recommendations to the patient's stage of readiness will predictably foster greater adherence to recommended exercise participation.

Implications

Osteoarthritis, a debilitating disease affecting a high percentage of older adults is not curable, and patients thus depend on exercise and other self-management programs to ameliorate pain and disability, often unresponsive to drug intervention and/or surgery. Yet, attempts to encourage adults with osteoarthritis to participate in regular physical activity have been shown at best to be suboptimal [18]. Hence, assisting and encouraging adults with osteoarthritis to carry out recommended bouts of physical activity participation on a consistent basis has become an important treatment goal in efforts to minimize the immense personal, social and economic costs of this widespread disabling health condition.

To this end, and in light of the many intrinsic and extrinsic factors that prevail to counter long term physical activity participation [Figure 1], including the patient's health status, beliefs and attitudes, and mental health status, thoughtful comprehensive efforts on the part of the provider are clearly necessary to harness a patient's motivation. Research also reveals that, along with effective trustworthy empathetic communications, an encouraging demeanor, and one that conveys a deep understanding of the patient's diagnosis and its implications, while imparting the belief that the recommendations for physical activity participation will prove helpful, is also likely to be extremely valuable. Other attributes that can facilitate activity adherence are shown in Box 1 below.

- Acknowledges individual's prior exercise experience
- Corrects patient's misperceptions about exercise or their physiological status
- Comports with the individual's disability status, beliefs, resources, lifestyle, personal goals and interests, perceived disability, and stage of readiness for physical activity
- Involves individual in goal setting, setting of realistic goals, while providing goal-oriented physical activity advice
- Includes feedback and scheduled follow-ups
- Utilizes clear written instructions
- Harnesses social support
- Considers optimal efforts to reduce pain before and after undertaking physical activity
- Minimizes anxiety, fear, reactive depression, and distress

Box 1: Recommended attributes of programs designed to promote physical activity.

In sum, although osteoarthritis is widespread, this incurable health condition may be improved as a result of regular physical activity participation, as outlined above and verified by Spitaels., *et al.* [25], who observed complex adherence barriers among cases with osteoarthritis including: the domains of patient as well as the health care professional, the extent of any disagreement with guideline recommendations, the role of any negative experiences with drugs, the patients' comprehension of the disease process, and the presence of poor communication by the health care provider. As well, of considerable import is "genuine interest and collaboration" by the provider as discussed by Hinman., *et al.* p. 479 [16]. Other factors of import are the interaction of pain, and associated health problems [1].

To this end, research that can help practitioners to guide patients optimally over the course of their disease, and that draws on theories that explain or predict health behaviors such as the Health Belief Model, the Transtheoretical Model, the Theory of Planned Behavior, Social Support, Mindfulness and Acceptance and Commitment Therapy, Social Cognitive, Self-regulation, and Self-efficacy theory may be of special significance in our view as indicated in the related literature [13,27-32]. Additional research that employs well-designed prospective studies, a variety of well-defined samples, and that employs disease specific outcome measures will also enable a more profound set of understandings and efficacious strategies in this realm to emerge. In the interim, it is believed the recommendations cited in this work may be deemed more helpful than not. Moreover, based on the available evidence, those with erroneous or incorrect exercise perceptions, those with no pain, or symptoms of worsening pain, those presenting with signs of depression, those who are overweight or obese, as well as those with limited socioeconomic resources should be selectively targeted [15,26-34].

Bibliography

1. Vincent HK., *et al.* "Musculoskeletal pain, fear avoidance behaviors, and functional decline in obesity: potential interventions to manage pain and maintain function". *Regional Anesthesia and Pain Medicine* 38.6 (2016): 481-491.
2. Gay C., *et al.* "Educating patients about the benefits of physical activity and exercise for their hip and knee osteoarthritis systematic literature review". *Annals of Physical and Rehabilitation Medicine* 59.3 (2016): 174-183.

3. Bindawas SM. "Relationship between frequent knee pain, obesity, and gait speed in older adults: data from the Osteoarthritis Initiative". *Clinical Interventions in Aging* 11 (2016): 237-244.
4. Li H., et al. "Metabolic syndrome and components exacerbate osteoarthritis symptoms of pain, depression and reduced knee function". *Annals of Translational Medicine* 4.7 (2016): 133.
5. Tuakli-Wosornu YA., et al. "Predictors of exercise adherence in patients with meniscal tear and osteoarthritis". *Archives of Physical Medicine and Rehabilitation* 97.11 (2016): 1945-1952.
6. Quicke JG., et al. "The relationship between attitudes, beliefs and physical activity in older adults with knee pain: secondary analysis of a randomised controlled trial". *Arthritis Care and Research* (2016).
7. Marks R. "Physical and psychological correlates of disability among individuals with knee osteoarthritis". *Canadian Journal of Aging* 26.4 (2007): 367-377.
8. Marks R. "Knee osteoarthritis and exercise adherence". *Current Aging Science* 5.1 (2012): 72-83.
9. Marks R. "Depressive symptoms among community dwelling older adults with mild to moderate knee osteoarthritis: extent, inter-relationships, and predictors". *American Journal of Medical Studies* 1 (2012): 11-18.
10. Marks R and Allegrante JP. "Chronic osteoarthritis and adherence to exercise: a review of the literature". *Journal of Aging and Physical Activity* 13.4 (2005): 434-460.
11. Aartolahti E., et al. "Health condition and physical function as predictors of adherence in long-term strength and balance training among community-dwelling older adults". *Archives of Gerontology and Geriatrics* 61.3 (2015): 452-457.
12. Picorelli AM., et al. "Adherence to exercise programs for older people is influenced by program characteristics and personal factors: a systematic review". *Journal of Physiotherapy* 60.3 (2014): 151-156.
13. Berthouze SE., et al. "Fatigue and physical activity: A decisive issue in the chronic disease care pathways". *Annals of Physical and Rehabilitation Medicine* 59S (2016): e51-e52.
14. Beckwée D., et al. "Exercise in knee osteoarthritis--preliminary findings: Exercise-induced pain and health status differs between drop-outs and retainers". *Experimental Gerontology* 72 (2015): 29-37.
15. Wasser JG., et al. "Exercise benefits for chronic low back pain in overweight and obese individuals". *PM & R: The Journal of Injury, Function, and Rehabilitation* (2016).
16. Hinman RS., et al. "Physical therapists, telephone coaches, and patients with knee osteoarthritis: qualitative study about working together to promote exercise adherence". *Physical Therapy* 96.4 (2016): 479-493.
17. Svege I., et al. "Long-term effect of exercise therapy and patient education on impairments and activity limitations in people with hip osteoarthritis: secondary outcome analysis of a randomized clinical trial". *Physical Therapy* 96.6 (2016): 818-827.
18. Austin S., et al. "Association between adherence to physical activity guidelines and health-related quality of life among individuals with physician-diagnosed arthritis". *Quality of Life Research* 21.8 (2012): 1347-1357.

19. Bennell KL, et al. "Exercise in osteoarthritis: moving from prescription to adherence". *Best Practices in Research and Clinical Rheumatology* 28.1 (2014): 93-117.
20. Lee FI, et al. "Effects of a tailor-made exercise program on exercise adherence and health outcomes in patients with knee osteoarthritis: a mixed-methods pilot study". *Clinical Interventions in Aging* 11 (2016): 1391-1402.
21. Dobson F, et al. "Barriers and facilitators to exercise participation in people with hip and/or knee osteoarthritis: synthesis of the literature using behavior change theory". *American Journal of Physical Medicine and Rehabilitation* 95.5 (2016): 372-389.
22. Loew L, et al. "Factors influencing adherence among older people with osteoarthritis". *Clinical Rheumatology* 35.9 (2016): 2283-2291.
23. Cheung C, et al. "Adherence to a yoga program in older women with knee osteoarthritis". *Journal of Aging and Physical Activity* 24.2 (2016): 181-188.
24. Cheung C, et al. "Yoga adherence in older women six months post-osteoarthritis intervention". *Global Advances in Health and Medicine* 4.3 (2015): 16-23.
25. Spitaels D, et al. "Barriers for guideline adherence in knee osteoarthritis care: a qualitative study from the patients' perspective". *Journal of Evaluation and Clinical Practice* (2016).
26. Marszalek J, et al. "Outcome expectations and osteoarthritis: perceived benefits of exercise are associated with self-efficacy and depression". *Arthritis Care and Research* (2016).
27. Mirotznik J, et al. "The Health Belief Model and adherence with a community center-based, supervised coronary heart disease exercise program". *Journal of Community Health* 20.3 (1995): 233-247.
28. Courneya KS and McAuley E. "Cognitive mediators of the social influence-exercise adherence relationship: a test of the theory of planned behavior". *Journal of Behavioral Medicine* 18.5 (1995): 499-515.
29. Won MH and Son YJ. "Perceived social support and physical activity among patients with coronary artery disease". *Western Journal of Nursing Research* (2016).
30. Selzler AM, et al. "The importance of exercise self-efficacy for clinical outcomes in pulmonary rehabilitation". *Rehabilitation Psychology* 61.4 (2016): 380-388.
31. Stonerock GL and Blumenthal JA. "Role of counseling to promote adherence in healthy lifestyle medicine: strategies to improve exercise adherence and enhance physical activity". *Progress in Cardiovascular Disease* (2016).
32. Martin EC, et al. "Pilot testing of a mindfulness- and acceptance-based intervention for increasing cardiorespiratory fitness in sedentary adults: a feasibility study". *Journal of Contextual and Behavioral Science* 4.4 (2015): 237-245.
33. Flora PK, et al. "Illness perceptions and adherence to exercise therapy in cardiac rehabilitation participants". *Rehabilitation and Psychology* 60.2 (2015): 179-186.

34. Sessford JD., *et al.* "Examination of self-regulatory efficacy and pain among individuals challenged by arthritis flares". *Rehabilitation Psychology* 60.1 (2015): 43-50.

Volume 4 Issue 6 December 2016

© All rights reserved by Ray Marks.