

Do Psoriasis Patients Engage In Vigorous Physical Activity?

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PRACTICE POINTS

- Psoriasis is associated with comorbid disease conditions, including cardiovascular disease.
- Regular physical activity is known to decrease the risk of developing cardiovascular disease.
- Patients with psoriasis would likely benefit from regular participation in vigorous physical activity to help reduce the risk of developing cardiovascular disease.

Psoriasis is associated with cardiovascular risk factors and myocardial infarction, but regular physical activity is known to decrease the risk of coronary heart disease. We performed a systematic review of PubMed articles indexed for MEDLINE as well as articles in the Embase database and Cochrane Library using the search terms *psoriasis* and *physical activity* to determine the likelihood of psoriasis patients to engage in vigorous physical activity. A total of 353 nonduplicate articles were identified, and of 4 relevant studies, one provided sufficient data and was included in our review. Results from our review indicate that individuals with psoriasis are less likely to participate in vigorous physical activity compared to individuals without psoriasis. Further research is necessary to clarify this relationship.

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Psoriasis is a chronic inflammatory disease that affects approximately 2% to 3% of the US population.¹ Patients with psoriasis are more likely to have cardiovascular risk factors (eg, obesity, metabolic syndrome) than individuals without psoriasis.² In fact, recent

evidence has suggested that a diagnosis of psoriasis is an independent risk factor for cardiometabolic diseases including diabetes, major adverse cardiovascular events, and obesity.³ Given the well-recognized health benefits of physical activity and the associated reduction in coronary heart disease risk,⁴ patients with psoriasis specifically may benefit from regular participation in physical activity. Thus, an enhanced understanding of the relationship between psoriasis and vigorous physical activity would help determine the role of initiating and recommending interventions that implement physical activity for patients with psoriasis. A review was conducted to determine the relationship between psoriasis and vigorous physical activity.

Methods

An English-language literature search of PubMed articles indexed for MEDLINE (January 1, 1946–October 15, 2017) as well as articles in the Embase database (January 1, 1947–October 15, 2017) and Cochrane Library (January 1, 1992–October 15, 2017) using the terms *psoriasis* and *physical activity* was performed. The search strategy was established based on a prior review of vigorous physical activity in eczema.⁵ The article titles and/or abstracts were reviewed, and the studies were excluded if they did not evaluate physical activity in patients with psoriasis. Studies without a control group also were excluded. Articles on patients with psoriatic arthritis and studies that involved modification of dietary intake also were excluded.

Two reviewers (M.A. and E.B.L.) independently extracted data from the studies and compiled the results.

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The following factors were included in the data extracted: study year, location, and design; method of diagnosis of psoriasis; total number of patients included in the study; and age, gender, and level of physical activity of the study patients. Level of physical activity was the exposure, and diagnosis of psoriasis was the dependent variable. Physical activity was defined differently across the studies that were evaluated. To determine study quality, we implemented the Newcastle–Ottawa Scale (NOS), a 9-star scoring system that includes items such as selection criteria, comparability, and study outcome.⁶ Studies with an NOS score of 7 or higher were included in the meta-analysis.

Results

The literature search generated 353 nonduplicate articles. A thorough review of the articles yielded 4 studies that were incorporated in the final analysis.^{7–10} We aimed to perform a meta-analysis; however, only 1 of the studies included in the final analysis had an NOS score of 7 or higher along with adequate data to be incorporated into our study.¹⁰ As a result, the meta-analysis was converted to a regular review.

The cross-sectional study we reviewed, which had an NOS score of 7, included males and females in the United States aged 20 to 59 years.¹⁰ Data were collected using the population-based National Health and Nutrition Examination Survey from 2003 to 2006. The survey measured the likelihood of participation in leisure-time moderate to vigorous physical activity (MVPA) and metabolic equivalent task (MET) minutes of MVPA in the past 30 days. Of 6549 participants, 385 were excluded from the analysis due to missing values for 1 or more of the study variables. Of the remaining 6164 participants, 84 (1.4%) reported having a diagnosis of psoriasis with few or no psoriasis patches at the time of the survey, and 71 (1.2%) reported having a diagnosis of psoriasis with few to extensive patches at the time of the survey.¹⁰

Participants with psoriasis were less likely to participate in MVPA in the previous 30 days compared to participants without psoriasis, but the association was not statistically significant.¹⁰ The study demonstrated that, on average, participants with psoriasis spent 31% (95% confidence interval [CI], -0.57 to -0.05) fewer MET minutes on leisure-time MVPA versus participants without psoriasis; however, this association was not statistically significant. It is important to note that the diagnosis of psoriasis was self-reported, and measures of disease duration or areas of involvement were not incorporated.

Comment

Our review revealed that vigorous physical activity may be reduced in patients with psoriasis compared to those without psoriasis. Initially, we aimed to perform a systematic review of the literature; however, only 1 study met the criteria for the systematic review, highlighting the need for more robust studies evaluating this subject.

Do et al¹⁰ demonstrated that psoriasis patients were less likely to participate in MVPA, but the findings were not statistically significant. Of those who participated in MVPA, MET minutes were fewer among patients with few to extensive skin lesions compared to those without psoriasis. The investigators suggested that psoriasis patients with more severe disease tend to exercise less and ultimately would benefit from regular vigorous physical activity.

Frankel et al⁷ performed a prospective cohort study in US women to evaluate the role of physical activity in preventing psoriasis. The investigators reported that the most physically active quintile had a lower multivariate relative risk of psoriasis (0.72; 95% CI, 0.59–0.89; $P < .001$ for trend) compared to the least active quintile.⁷ Additionally, vigorous physical activity, which was defined as 6 or more MET minutes, was associated with a significantly lower risk of incident psoriasis (0.66; 95% CI, 0.54–0.81; $P < .001$ for trend), which maintained significance after adjusting for body mass index (BMI). The investigators suggested that, by decreasing chronic inflammation and lowering levels of proinflammatory cytokines, vigorous physical activity may reduce the risk of psoriasis development in women.⁷ It is plausible that vigorous physical activity modifies the state of chronic inflammation, which could subsequently reduce the risk of developing psoriasis; however, further long-term, randomized, prospective studies are needed to verify the relationship between physical activity and development of psoriasis.

Torres et al⁸ performed a cross-sectional questionnaire study to assess physical activity in patients with severe psoriasis (defined as $>10\%$ body surface area involvement and/or disease requiring systemic therapy or phototherapy) versus healthy controls. Physical activity level was measured using the International Physical Activity Questionnaire. The odds ratio of low-level physical activity compared to non-low-level physical activity among psoriasis patients versus controls was 3.42 (95% CI, 1.47–7.91; $P = .002$). Additionally, the average total MET minutes of psoriasis patients were significantly reduced compared to those of the healthy controls ($P = .001$). Thus, the investigators suggested that vigorous physical activity is less likely in psoriasis patients, which may contribute to the increased risk of cardiovascular disease in this population.⁸ Vigorous physical activity would benefit patients with psoriasis to help lower the chronic state of inflammation and cardiometabolic comorbidities.

Demirel et al⁹ performed a study to compare aerobic exercise capacity and daily physical activity level in psoriasis patients ($n=30$) compared to controls ($n=30$). Daily physical activity, measured with an accelerometer, was significantly higher in male patients with psoriasis compared to controls ($P = .021$). No significant difference was reported in maximal aerobic capacity in both male and female psoriasis patients versus controls. The investigators suggested that the level of daily physical activity is

not limited in psoriasis patients, yet the small sample size may limit the generalizability of the study.

The ability to dissipate heat during exercise seems to be diminished in patients with psoriasis. Specifically, it has been suggested that psoriasis lesions interfere with normal perspiration.¹¹ Moreover, joint involvement in patients with psoriatic arthritis may lead to physical functional disabilities that can interfere with the ability of these patients to participate in regular physical activity.¹²⁻¹⁴ For this reason, our review excluded articles that evaluated patients with psoriatic arthritis. Despite this exclusion, it is important to consider that comorbid psoriatic arthritis in clinical practice may impede patients with psoriasis from participating in physical activity. Additionally, various social aspects also may limit physical activity in psoriasis patients; for instance, psoriasis patients often avoid activities that involve increased exposure of the skin (eg, communal showers, wearing sports attire).¹⁵

Furthermore, obese psoriasis patients are less likely to exercise compared to obese individuals without psoriasis.¹⁶ In patients with higher BMI, the risk of psoriasis is increased.¹⁷ A systematic review suggested that weight loss may improve psoriasis severity.¹⁸ Bariatric surgery also may improve psoriasis.¹⁹ Moreover, obesity may interfere with response to biologic therapies for psoriasis. Specifically, higher BMI is linked with lower response to fixed-dose biologic therapies compared to weight-based biologic options (eg, infliximab).^{20,21}

Conclusion

Given the increased risk of myocardial infarction in patients with psoriasis, it is important to recognize the barriers to physical activity that psoriasis patients face.²² Due to the considerable health benefits associated with regular physical activity, physicians should encourage patients with psoriasis to participate in physical activity as tolerated. Of note, the studies included in this review varied in their definitions of psoriasis disease severity and measures of physical activity level. Long-term, randomized, prospective studies are needed to clarify the relationship between psoriasis and physical activity. Evidence from these studies would help guide clinical recommendations regarding the role of physical activity for patients with psoriasis.

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