

2019

A Community Health Approach to Arthritis in Utah



Engaging Patients in Self-Management Education and Physical Activity

Acknowledgements

This report was prepared by the following staff at the Utah Department of Health and Human Services:

- Stephanie George, MPH
- Celsa Bowman, MS
- Joan Connelly, BS
- Shelly Wagstaff, BS
- Nichole Shepard, MPH
- Kendra Thomas, MPH
- Rebecca Adams, MPH

Table of Contents

Partnerships..... 2

Introduction..... 3

Arthritis 101 4-5

Arthritis Management..... 6-7

Self-Management Education 8-9

Physical Activity..... 10-11

Healthcare Providers 12-15

Lifestyle Risk Factors 16-17

Arthritis Prevalence 18-19

Impact of Arthritis..... 20-21

Next Steps: What can you do?..... 22

Resources..... 23

References 24-25



Partnerships

We thank our partners for supporting us in improving the lives of people in Utah living with arthritis.

Arthritis Foundation Great West Region	Mountainlands Community Health Center, Inc.
Bear River Association of Governments	National Tongan American Society
Bear River Health Department	Salt Lake County Aging and Adult Services
Carbon Medical Services	Salt Lake County Health Department
Central Utah Public Health Department	Tooele County Health Department
Centro Hispano	Uintah Basin Medical Center
Comagine Health	University of Utah Community Clinics
Davis County Health Department and Senior Services	Utah County Health Department
Utah Division of Services for People with Disabilities	Utah Independent Living Center
Five County Association of Governments	Veteran Affairs
Healthy Environments Active Living, Utah Department of Health and Human Services	Violence and Injury Prevention Program, Utah Department of Health and Human Services
Intermountain Healthcare	Weber Human Services
	Weber-Morgan Health Department

Introduction

Who are we?

We are the **Utah Department of Health and Human Services, Healthy Aging Program**, and we:

- Promote evidence-based physical activity classes and chronic disease self-management education workshops to adults with arthritis and other chronic health conditions through local health departments, healthcare systems, parks and recreation agencies, and community and senior centers.
- Create a system of community-based programs for healthcare providers, adults with arthritis and other chronic health conditions, and caregivers.
- Conduct communications campaigns to promote physical activity and self-management education.
- Provide infrastructure and technical assistance for partners offering physical activity classes and self-management education.

What is our vision?

Our vision is to increase self-management skills and improve the quality of life for all Utahns affected by arthritis and other chronic conditions.

To find out more, contact us at:

- healthyaging@utah.gov
- Toll Free **888-222-2542**
- www.livingwell.utah.gov or www.arthritis.health.utah.gov

What is the purpose of this report?

The purpose of this report is to:

- Increase awareness of arthritis and its impact on individuals and communities.
- Identify groups most affected by arthritis.
- Recommend best practices to healthcare providers and communities.

Note: This report is not a replacement for individualized medical care. Patients should consult with their provider.

Arthritis 101

What is arthritis?

Arthritis encompasses more than 100 rheumatic diseases and conditions, including osteoarthritis (which is the most common), rheumatoid arthritis, gout, lupus, fibromyalgia, and bursitis.¹ Typically, rheumatic conditions are characterized by

inflammation, pain, and stiffness in and around one or more joints or connective tissues.² The data in this report comes from the Behavioral Risk Factor Surveillance System (BRFSS) and refers to self-reported, doctor-diagnosed arthritis.

BRFSS Question

“Has a doctor, nurse, or other health professional ever told you that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?”

How prevalent is arthritis?

In Utah, the crude rate of arthritis is **21.6%**.³ Although the prevalence of arthritis has not significantly changed in recent years, approximately one in five adults or **480,000** individuals aged 18 and older have arthritis, making it one of the most common chronic conditions in Utah.⁴



By the Numbers



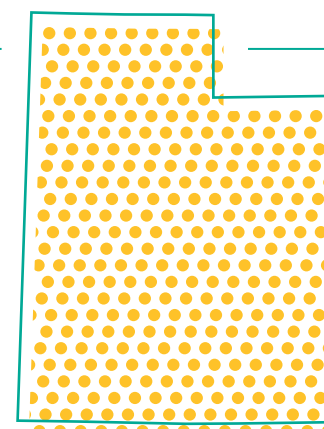
100

rheumatic diseases and conditions



1 in 5

Utah adults have arthritis



480,000

individuals aged 18 and older have arthritis in Utah



“For an old timer, it is nice to be a graduate of this class. I have three degrees and it is good to again have my mind challenged!”

Chronic Disease Self-Management Program Participant

Arthritis Management

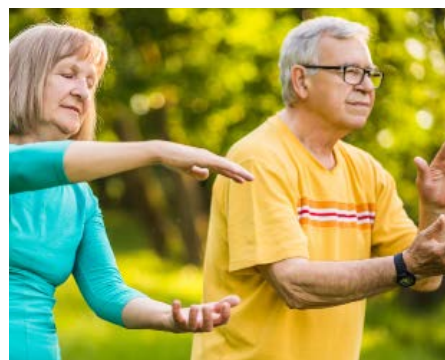
How is arthritis managed?

Although arthritis is a chronic condition, symptoms can be managed. Increasing physical activity, losing weight, and participating in self-management education programs

are recommended activities to assist adults in managing the pain and limitations of arthritis.^{5,6} However, these recommended activities are underutilized in practice.

What about pain relievers?

In general, opioids provide small effects on pain in comparison to other treatment options.^{7,8} Due to their potential side effects (e.g. nausea, dizziness, drowsiness, addiction), they should be avoided, especially for long-term use and for older adults.^{7,8} Experts suggest prescribing opioids "only for short-term use in patients with severe and disabling symptoms in whom other interventions have failed or are not appropriate."⁹



"I have reduced my opioid prescription by 40% and will work on becoming opioid free!"

Chronic Pain Self-Management Program Participant

Manage Symptoms

"...avoid prescribing opioids due to their overall small effects on pain over placebo and potential side effects, especially for long-term use and in the older adult population."

How are we doing?

Among those with arthritis:

59.5%

were told by their doctor or other health professional to exercise.¹⁰

36.7%

reported a doctor or other health professional suggested they lose weight.¹⁰

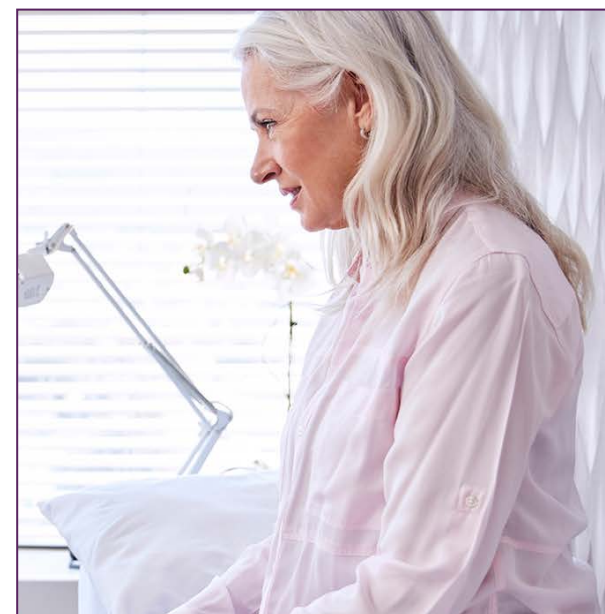
13.6%

reported attending a self-management class to learn how to deal with their arthritis.¹⁰

RECOMMENDED



NOT RECOMMENDED



42.6%

reported taking opioids to treat chronic pain.¹¹

52.6%

of those prescribed and taking opioids do not have severe joint pain.¹⁰

Self-Management Education

How can self-management education help?

Self-management education programs (SME) have been rigorously evaluated and found to effectively help those with chronic conditions. SME emphasizes problem solving, action planning, and

skill-building. Participants gain confidence in their ability to manage their symptoms, which results in less stress, more energy, and an increased capacity to do the things they want.¹²⁻¹⁴

Benefits of SME

- Decreases fatigue
- Decreases stress
- Decreases depression
- Enhances social support
- Improves quality of life
- Improves cognitive symptom management
- Fewer days hospitalized

What skills are taught in SME workshops?

- Decision making
- Goal setting
- Problem solving
- Healthy eating
- Pain management
- Weight management
- Coping techniques
- Understanding emotions
- Evaluating treatments
- Communicating with family and friends
- Communicating with healthcare providers


Available SME Workshops*

"The instructors were absolutely fantastic! This has been an awesome class for me and my husband! I hope to continue to use each thing I've learned while taking this class. I looked forward to every single session so I'm sad it has to end, but I will take away so much from this class."

Chronic Pain Self-Management Program Participant


Living Well
with Chronic Conditions

A six-week workshop for people with long-term health concerns




Living Well
with Chronic Pain

A six-week workshop for people with chronic pain




Living Well
with Diabetes

A six-week workshop for people with diabetes



Programa de Manejo Personal de la Diabetes

Una clase de seis semanas para las personas con Diabetes



Programa de Manejo Personal del Dolor Crónico

Una clase de seis semanas para las personas con dolor crónico.



Tomando Control de su Salud

Una clase de seis semanas para las personas con condiciones médicas crónicas



*Visit the Living Well website at www.LivingWell.utah.gov for information on languages classes are taught in.

Physical Activity

Why is physical activity important for arthritis management?

Arthritis symptoms often limit people from using affected joints, which can lead to loss of joint motion and muscle atrophy. This may lead to increased fatigue and decreased joint stability. It is important that patients exercise regularly in order to prevent or reverse these problems. A combination of strength training, range of motion exercises, and aerobic exercise are recommended for those with arthritis.⁶

Arthritis evidence-based physical activity classes are specifically designed for those with limited mobility and chronic pain. Certified instructors are trained to ensure the safety of all program participants and adapt movements according to their abilities. An arthritis diagnosis is not required to participate in a class.

Benefits of Physical Activity Classes¹⁵⁻¹⁹

- Decreases fatigue
-
- Improves physical function
-
- Decreases depression
-
- Protects against falls and fall injury
-
- Provides a social benefit
-
- Promotes a physically active lifestyle
-
- Reduces medical care utilization costs
-
- Decreases unplanned hospitalizations
-
- Decreases mortality rates
-
- Maintains and improves strength, flexibility, and endurance
-

Available Physical Activity Classes

Arthritis Foundation Exercise Program

A low-impact class that can be done sitting or standing



“At the beginning of the class, I could only go up one flight of stairs before having to stop and take a break. Now I can go up all three floors to get to my office.”

Program Participant

EnhanceFitness

A class that focuses on stretching, flexibility, balance, low impact aerobics, and strength training



“The presenters were amazing-good chemistry between the two. It was life changing-gave me permission to do less and energy to do more.”

Program Participant

Tai Chi

Tai Chi for Arthritis/Health is a 1-hour class led by a trained instructor. Anyone 65 and older is welcome to join!



“I have really enjoyed learning how to relax my mind and strengthen my body. I feel more confident and strong when doing the Tai Chi form. It helps me feel better about my body and self.”

Program Participant

Walk With Ease

A program that motivates you to get into shape by helping you walk safely and comfortably



“I loved this program. It helps me to stay active, it makes me feel good about myself. It really motivates me to be healthy and to take care of myself as a woman. While I walk I do my prayers and this helps me a lot spiritually. I lost weight with this program Thanks!”

Program Participant

Healthcare Providers

Did you know?

Adults with arthritis can reduce pain and activity limitations by up to 40% by engaging in physical activity and other self-management strategies.²⁰ Still, one in four Utah

adults with arthritis are inactive and many may not be aware of available, proven community-based programs that can help manage arthritis.³

Arthritis and Inactivity



people with **arthritis** are **physically inactive**

When educating arthritis patients about programs and physical activity, there may be unique barriers to consider²¹:

PHYSICAL	PSYCHOLOGICAL	SOCIAL	ENVIRONMENTAL
<ul style="list-style-type: none"> • Pain • Fatigue • Limited mobility • Comorbid conditions 	<ul style="list-style-type: none"> • Attitudes and beliefs • Fear • Perceived negative outcomes 	<ul style="list-style-type: none"> • Lack of support • No exercise partner • Competing role responsibilities 	<ul style="list-style-type: none"> • Lack of programs or accessible facilities • Environmental conditions • Cost • Transportation

Success Stories



"The class has been very helpful. The instructors were wonderful and engaging and encouraged good discussion. I am grateful to be able to keep the book and will use it frequently as a resource to continue a healthy lifestyle. This class has had a great impact on me."

Diabetes Self-Management Program Participant



"The class is very positive. The management tools will be helpful throughout my life. The teachers made everyone feel important. We learned communication skills as well as learning to identify problems and solutions. Then evaluating and adjusting the results builds confidence."

Chronic Disease Self-Management Program Participant



"My success story is that I trust the people that taught this class and I can use the information...so I can take care of myself in my daily life."

Diabetes Self-Management Program Participant

Healthcare Providers

How do you encourage patients?

Evidence suggests that adults are more likely to attend an education program and engage in physical activity when recommended by a healthcare provider.²² Providers have frequent opportunities to counsel patients on appropriate interventions. The Exercise is Medicine: Healthcare Providers' Action Guide can assist providers

to determine a patient's readiness for physical activity. If a patient isn't ready to commit to physical activity, consider recommending a self-management education workshop. It can help patients learn the skills to identify and overcome obstacles to becoming physically active and reducing their pain.

Exercise is Medicine!

"...consider recommending a self-management education workshop. It can help patients learn the skills to identify and overcome obstacles to becoming physically active and reducing their pain."



"Excellent program, deals with the whole person helping us to be more proactive in dealing with our problems. It is good to learn from each other."

Program Participant

Here are some questions frequently asked by patients:²³

Can I exercise with arthritis?

- Yes, arthritis-friendly physical activity is good for people with arthritis.
- Regular physical activity can help relieve your pain and stiffness, give you more energy, and enhance your mood.

How much activity do I need?

- Benefits are seen when exercising as little as 1-2 times a week and do not worsen symptoms.
- Stay as active as your health allows, and change your activity level depending on your arthritis symptoms.
- Some physical activity is better than none.

How do I exercise safely?

Be S.M.A.R.T.²⁴

- Start with low intensity and slowly progress.
- Modify activity when arthritis symptoms increase, and try to stay active.
- Activities should be "joint friendly."
- Recognize safe places and ways to be active.
- Talk to a health professional or certified exercise specialist.

How can I manage pain related to exercise?

It's normal to have some pain, stiffness, and swelling after starting a new physical activity program. It may take 6-8 weeks for your joints to get used to your new activity level.

- Until your pain improves, modify your physical activity program by exercising less frequently, for shorter periods of time, or with less intensity.
- Try a different type of exercise to reduce pressure on your joints—for example, switch from walking to water aerobics.
- Do proper warm-up and cool-down before and after exercise.
- Use hot or cold packs.
- Use shoe inserts, splints, canes, or walkers.

When should I contact a doctor?

Contact your doctor if you experience:

- Pain that is sharp, stabbing, and constant.
- Pain that causes you to limp.
- Pain that lasts more than two hours after exercise or gets worse at night.
- Pain or swelling that does not get better with rest, medication, or hot or cold packs.
- Large increases in swelling or if your joints feel "hot" or are red.

The Exercise is Medicine (EIM) Action Guide can also be a helpful resource for:

- Simple tips for starting the conversation about physical activity with your patients.
- Safety screening tools and instructions.
- Physical Activity Vital Sign questionnaire.
- EIM Physical Activity Prescription Form and referral

- tools to help get your patients to qualified exercise professionals.
- Guidance on developing a network of qualified and trusted exercise professionals.
- Coding and billing tips.

www.exerciseismedicine.org

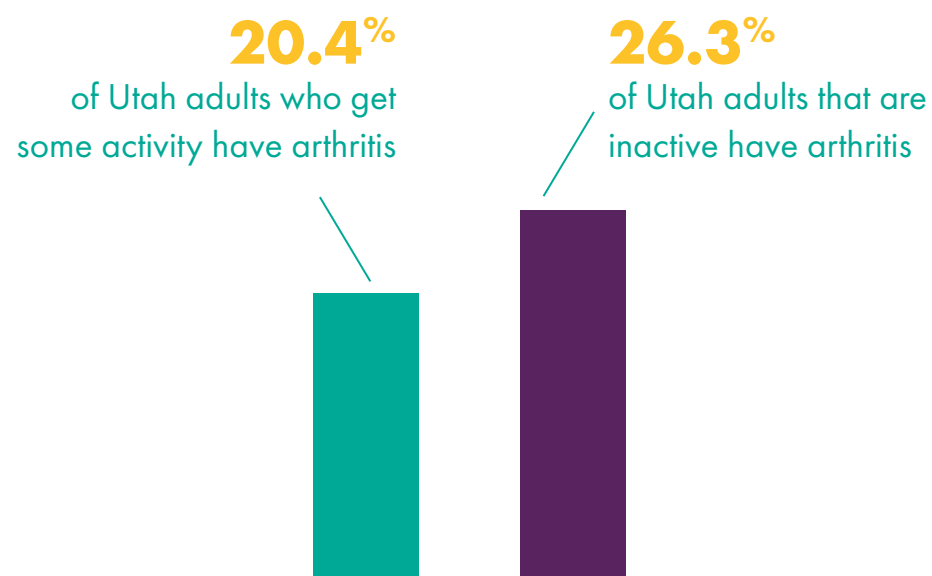
Lifestyle Risk Factors

Isn't arthritis a normal part of aging?

Although arthritis is increasingly common as people age, arthritis does not need to be a

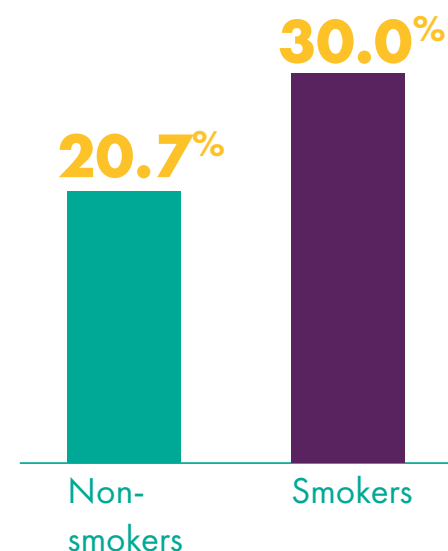
"normal" part of aging. There are many controllable factors that contribute to arthritis and one's quality of life.²⁵

Physical Inactivity

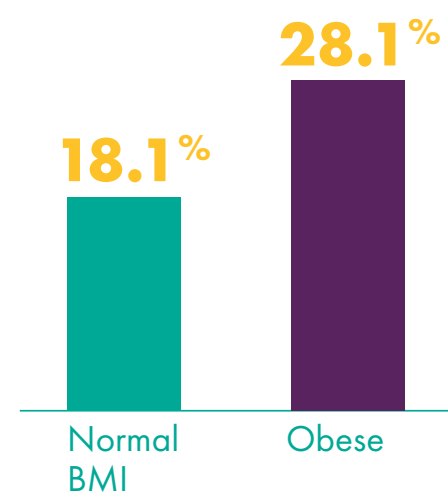


Arthritis Prevalence in Utah

Adults who smoke are much more likely to have arthritis than non-smokers.²⁵



Utah adults who are obese are significantly more likely to have arthritis than those of normal weight.²⁵



Self-Management Education Impact



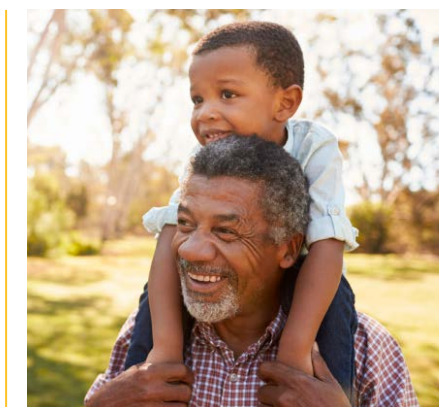
"This class helped me to see what I need to do in managing my diabetes. The action plans are great. Meeting others who have the same problem and learn from them about things I'd never thought of. Great instructors."

Diabetes Self-Management Program Participant



"Thank you...for support given to each of us. Thank you for teaching skills to problem solve ALL kinds of things I deal with. This program will help my life goals and daily activities to run smoothly and easier. I now can reach out and help others as well."

Chronic Disease Self-Management Program Participant

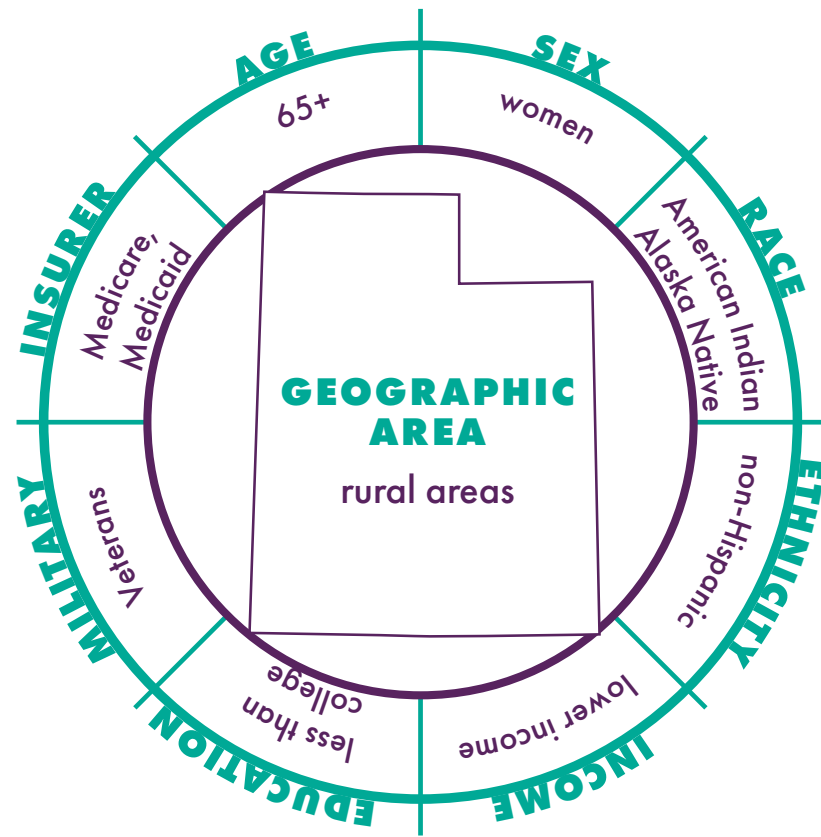


"I have chronic pain and fatigue and had stopped exercising. I have started keeping track of my steps and will continue to increase my steps weekly."

Chronic Pain Self-Management Program Participant

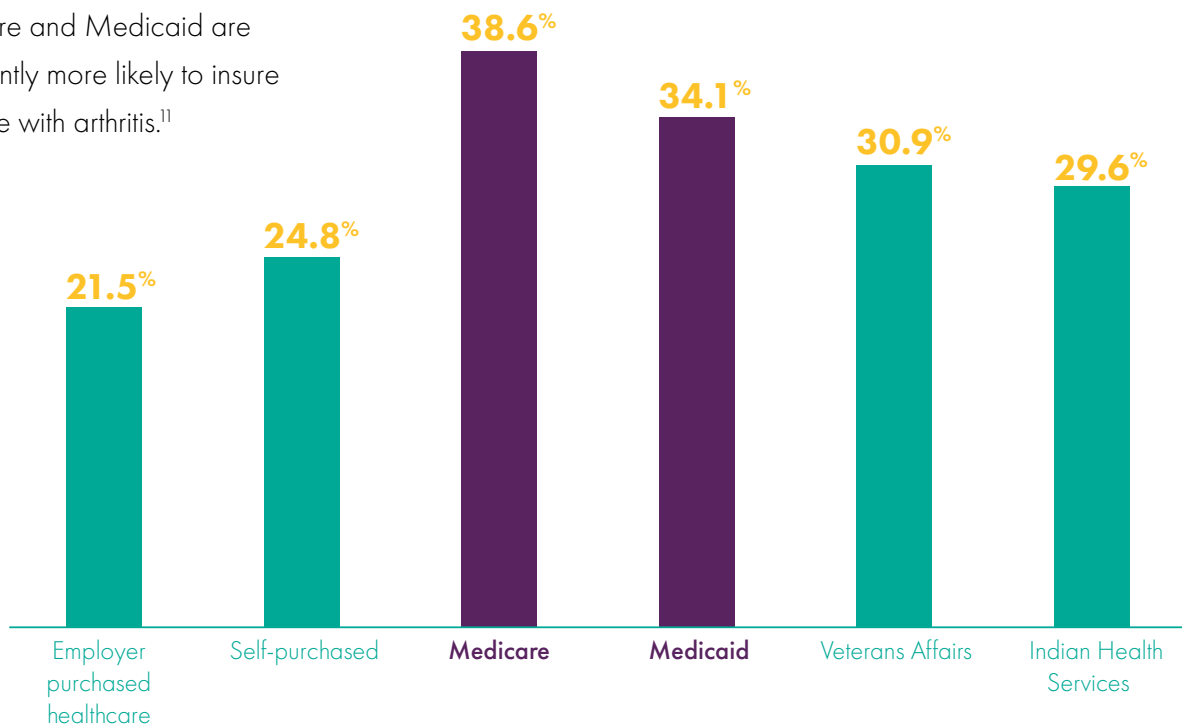
Arthritis Prevalence

Groups Most Likely to Have Arthritis



Arthritis Prevalence By Insurer

Medicare and Medicaid are significantly more likely to insure someone with arthritis.¹¹



Who is likely to have arthritis in Utah?

AGE

The burden of arthritis is projected to grow as the percentage of older adults grows in the state. More than **50%** of **adults aged 65+** have arthritis.³

SEX

Biology, genetics, and hormones all contribute to increased rates of arthritis for **women (25.9%)** when compared to men (**19.8%**). For example, women are more likely to have ACL injuries, a risk factor for arthritis, due to the shape of their knee bones.^{11,26}

RACE

Although arthritis affects all racial groups, Asians have a significantly lower prevalence of arthritis and **American Indians/Alaska Natives*** appear to have a higher prevalence of arthritis than the state rate.²⁷

ETHNICITY

Hispanics/Latinos have a significantly lower prevalence of arthritis compared to **non-Hispanic whites (17.0 vs 22.1%)**.²⁵

INCOME

Those with a **lower annual income** are more likely to have arthritis: 28.2% of those making less than \$25,000 a year have arthritis whereas 18.1% of those making \$75,000 or more a year have arthritis.²⁵

EDUCATION

Among Utah adults aged 25+, college graduates are significantly less likely to have arthritis (20.4%) than those with **less than a college degree (26.0%)**.²⁵

VETERANS

Veterans have a significantly higher prevalence of arthritis (**24.5%**) than non-Veterans (**21.7%**).²⁵

INSURER

Utah adults covered by **Medicare or Medicaid** have a significantly higher prevalence of arthritis.¹¹

GEOGRAPHIC AREA

Utah adults living in **rural areas** have a significantly higher prevalence of arthritis (**24.7%**) than those living in Urban areas (**21.0%**).²⁵

*Native Americans/Alaska Natives are often underrepresented and oversampled.

See <https://ibis.health.utah.gov/ibisph-view/topic/Arthritis.html> for regularly updated arthritis prevalence data.

Impact

How does arthritis impact an individual?

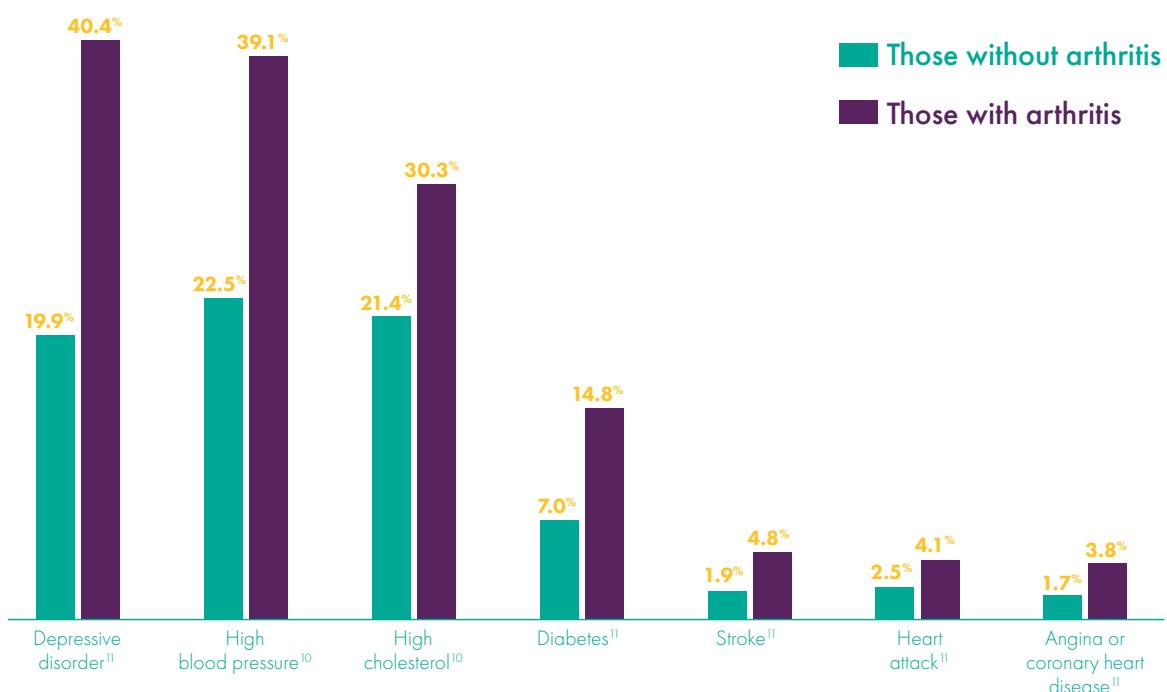
Significant Impact on Health

“Arthritis is significant, not just because of its negative impact on function, physical activity, and quality of life, but because it is associated with leading causes of death, such as heart disease and diabetes.”

More than half of Utah adults with arthritis (52.0%) are limited in their daily activities because of their joint symptoms, and 43.8% are limited in their social activities.¹⁰ Arthritis is a leading cause of work disability and

affects **36.7% of Utah adults ability to work.** Additionally, about one in every five adults (22.7%) with arthritis have severe joint pain due to their arthritis.¹⁰

Utah adults with arthritis are significantly more likely to have the following conditions when compared to those without arthritis:



Additional Impacts

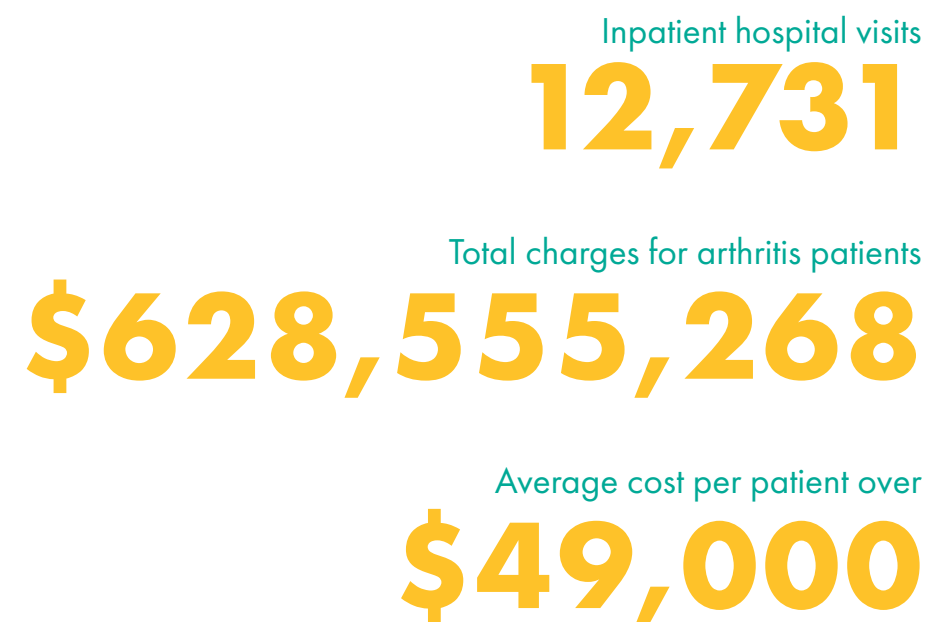
What about disparities?

Similar to the likelihood of having arthritis, the likelihood of experiencing limitations due to arthritis also varies for different groups of people and according to lifestyle factors. According to BRFSS data, **women**, those with **lower educational attainment**, and **those who have not exercised in the past thirty days** have higher rates of arthritis-attributable limitations.²⁵



What is the financial impact of arthritis in Utah?

There were **12,731** inpatient hospital visits with a primary diagnosis of arthritis in 2018. Of these, **87%** were due to knee and hip replacements. The total inpatient hospital charges for arthritis patients were **\$628,555,268** with an average cost of more than **\$49,000**.^{28*}



*Notes:

Data was pulled from the Utah All Payers Claim Database (APCD). This contains pharmacy and medical claims data from health insurance carriers, Medicaid, and third party administrators in Utah. However, it does not cover the entire population. Plans that may be excluded include traditional Medicare, smaller carriers, some self-funded plans, self-pay, and charity care.

The data above includes hospital visits with a primary diagnosis of arthritis using ICD-10 Codes M05, M06, and M15-M19.

The charges shown differ from "costs", "reimbursements", "price", and "payment." Different payers have different arrangements with each hospital for payment. Many factors affect the cost for a hospital stay, including a patient's health insurance, the type of insurance, and the billing procedures at the hospital.

Next Steps

So what can you do?

Healthcare providers can use evidence-based practices to counsel patients to be more physically active and refer patients to educational classes found on www.LivingWell.utah.gov.

Healthcare payers can

- Influence systematic changes to provide incentives for effective arthritis management.
- Identify and refer patients in need of self-management programs.
- Support the ongoing offering of community-based classes by providing funding or reimbursement.

Adults with arthritis can

- Attend self-management education programs to learn proven actions to deal with pain, fatigue, anxiety, and depression.
- Be physically active (walking, swimming, or biking) to help maintain and improve strength, flexibility, and endurance.
- Adopt healthy eating habits and lose weight, if necessary.
- Take medications as prescribed and check-in regularly with a healthcare provider.

Community Leaders

“Support improvements for more walkable community areas to increase opportunities for physical activity.”

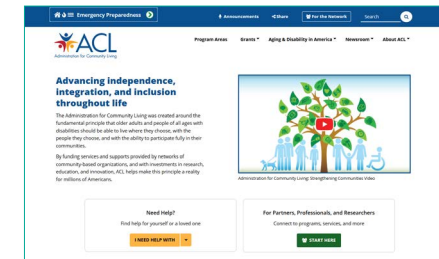
State officials and community leaders can

- Support improvements for more walkable community areas to increase opportunities for physical activity.
- Provide environmental support, including transportation to evidence-based programs.
- Offer funding stability.
- Improve organizational capacity to deliver or support evidence-based programs.
- Support evaluation.

Resources

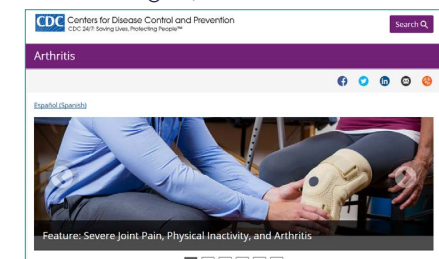
Administration for Community Living (ACL)

www.acl.gov



Centers for Disease Control & Prevention (CDC)

www.cdc.gov/arthritis



Exercise Is Medicine (ACSM)

www.exerciseismedicine.org



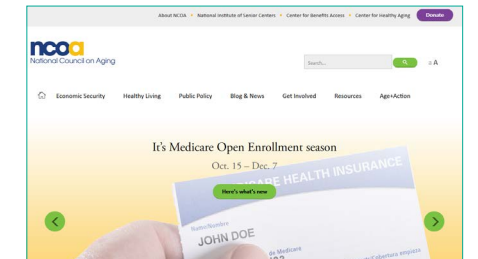
Living Well (Utah Department of Health)

www.livingwell.utah.gov



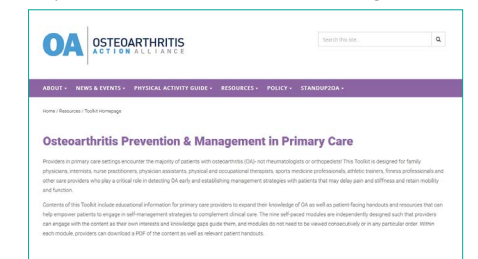
National Council on Aging (NCOA)

www.ncoa.org



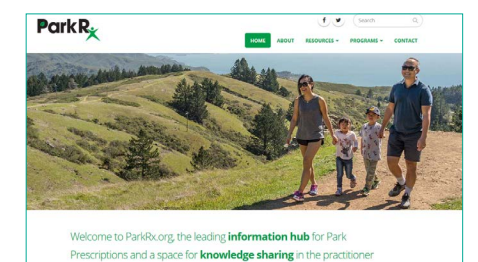
Osteoarthritis Prevention Toolkit (Osteoarthritis Action Alliance)

<https://www.oacaretools.org>



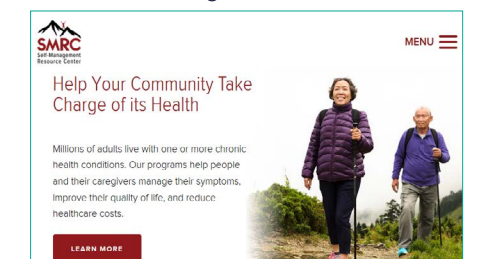
Park Rx (National Recreation & Parks)

www.parkrx.org



Self-Management Resource Center (SMRC)

www.selfmanagementresource.com



References

1. **Arthritis.** Centers for Disease Control and Prevention website. <https://www.cdc.gov/arthritis/basics/types.html>. Reviewed February 20, 2019. Accessed August 16, 2019.
2. **Arthritis Foundation.** The Primer on Rheumatic Diseases. 12th ed. New York, New York: Springer; 2001.
3. **Utah Department of Health.** Behavioral Risk Factor Surveillance System (BRFSS) 2018 crude data. Salt Lake City: Utah Department of Health, Center for Health Data.
4. **Utah Department of Health.** IBIS Version 2018 Population Estimates from the National Center for Health Statistics through a collaborative agreement with the U.S. Census Bureau.
5. **Arthritis Risk Factors.** Centers for Disease Control and Prevention website. www.cdc.gov/arthritis/basics/risk-factors.htm. Updated July 2, 2018. Accessed August 10, 2019.
6. Schur P and Gibofsky A. **Nonpharmacologic Therapies and Preventive Measures for Patients with Rheumatoid Arthritis.** UpToDate website. www.uptodate.com/contents/nonpharmacologic-therapies-and-preventive-measures-for-patients-with-rheumatoid-arthritis?topicRef=7516&source=see_link. Updated June 17, 2019. Accessed August 16, 2019.
7. McAlindon TE, Bannuru RR, Sullivan MC, et al. **OARSI guidelines for the non-surgical management of knee osteoarthritis.** *Osteoarthritis Cartilage* 2014; 22:363. In: UpToDate, Waltham, MA. Accessed August 10, 2019.
8. Hochberg MC, Altman RD, April KT, et al. **American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee.** *Arthritis Care Res (Hoboken)* 2012; 64:465. In: UpToDate, Waltham, MA. Accessed August 10, 2019.
9. **Overview of the Management of Osteoarthritis.** Deveza LA. In: Hunter D & Curtis MR, ed. UpToDate. Waltham, Mass.: UpToDate; 2019. www.uptodate.com. Accessed August 10, 2019.
10. **Utah Department of Health.** Behavioral Risk Factor Surveillance System (BRFSS) 2017 data, Age-adjusted to the 2000 standard population using five age groups, 18-24, 25-34, 35-44, 45-64, 65+. Salt Lake City: Utah Department of Health, Center for Health Data.
11. **Utah Department of Health.** Behavioral Risk Factor Surveillance System (BRFSS) 2018 data, Age-adjusted to the 2000 standard population using five age groups, 18-24, 25-34, 35-44, 45-64, 65+. Salt Lake City: Utah Department of Health, Center for Health Data.
12. Lorig K. **Patient education: treatment or nice extra.** *Br J Rheumatol* 1995; 34:703.
13. Singh JA, Saag KG, Bridges SL Jr, et al. 2015 **American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis.** *Arthritis Rheumatol* 2016; 68:1.
14. Kroon FP, van der Burg LR, Buchbinder R, et al. **Self-management education programmes for osteoarthritis.** *Cochrane Database Syst Rev* 2014; :CD008963.
15. Belza B, Snyder S, Thompson M, LoGerfo J (2010). **From Research to Practice: EnhanceFitness, an Innovative Community-Based Senior Exercise Program,** *Topics in Geriatric Rehabilitation*, Vol. 26, No. 4, pp 299-309.
16. Ackermann RT, et al. (2008). **Healthcare cost differences with participation in a community-based group physical activity benefit for medicare managed care health plan members.** *The Journal of The American Geriatrics Society*, 56: 1459-1465, 2008.
17. Belza B., Shumway-Cook A, Phelan E.A., Williams B, Snyder S.J. (2006). **The effects of a community-based exercise program on function and health in older adults: the EnhanceFitness Program.** *The Journal of Applied Gerontology*, 25(4): 291-306.
18. Snyder S, Belza B. (2005). **Eliminating disparities in communities of color through the Lifetime Fitness Program** [abstract]. *Preventing Chronic Disease* [serial online] Apr. http://www.cdc.gov/pcd/issues/2005/apr/04_0142j.htm.
19. Wallace JI, et al. (1998). **Implementation and effectiveness of a community-based health promotion program for older adults.** *Journal of Gerontology: Medical Sciences*, 53a(4): M301-M306.
20. Barbour KE, Helmick CG, Boring M, Brady TJ. **Vital Signs: Prevalence of Doctor-Diagnosed Arthritis and Arthritis-Attributable Activity Limitation – United States, 2013–2015.** *MMWR Morb Mortal Wkly Rep* 2017;66:246–253. DOI: <http://dx.doi.org/10.15585/mmwr.mm6609e1> External.
21. Osteoarthritis Action Alliance. **Origin of Guide [Physical Activity Implementation Guide]: So Why Is This Recommended Intervention—Physical Activity—So Underutilized By Adults With Arthritis?.** <https://oaaction.unc.edu/background/#barriers>. Accessed August 16, 2019.
22. Orrow G, Kinmonth A-L, Sanderson S, et al. **Effectiveness of physical activity promotion based in primary care: systematic review and meta-analysis of randomised controlled trials.** *BMJ* 2012;344 10.1136/bmj.e1389.
23. **Frequently Asked Questions (FAQs).** Centers for Disease Control and Prevention website. <https://www.cdc.gov/arthritis/basics/faqs.htm>. Reviewed January 10, 2019. Accessed August 16, 2019.
24. **Physical Activity for Arthritis.** Centers for Disease Control and Prevention website. <https://www.cdc.gov/arthritis/basics/physical-activity-overview.html>. Reviewed November 8, 2018. Accessed August 16, 2019.
25. **Utah Department of Health.** Behavioral Risk Factor Surveillance System (BRFSS) 2016-2018 combined data, Age-adjusted to the 2000 standard population using five age groups; 18-24, 25-34, 35-44, 45-64, 65+. Salt Lake City: Utah Department of Health, Center for Health Data.
26. Hardin J., Crow MK, & Diamond B. (2012). **Get the facts: Women and Arthritis.** Arthritis Foundation. Retrieved from <http://www.arthritis.org/New-York/-Files/Documents/Spotlight-on-Research/Get-the-Facts-Women-and-Arthritis.pdf>.
27. **Utah Department of Health.** Behavioral Risk Factor Surveillance System (BRFSS) 2014-2018 combined data, Age-adjusted to the 2000 standard population using three age groups; 18-34, 35-49, and 50+. Salt Lake City: Utah Department of Health, Center for Health Data.
28. **All Payer Claims Database,** 2018 Arthritis Inpatient Claims Data. Salt Lake City, UT: Center for Health Data and Informatics, Utah Department of Health; 2018. Accessed August 20, 2019.



Utah Department of
Health & Human Services
Population Health