



# Cost Savings Associated with Preventing Falls in Older Minnesotans



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# EXECUTIVE SUMMARY

## FALL RATES AND ASSOCIATED COSTS

There is extensive literature demonstrating that falls are common among older adults and that efforts to reduce falls and fall risk produce significant cost savings. Functional decline and social isolation, common in older adults and exacerbated by COVID-19, can increase the risk of falls and fall-related costs. In addition to the immediate costs that falls incur to treat fall-related injuries, falls can impose long-term costs by impeding mobility and cognitive function.

Estimates for the percentage of adults ages 65 and older who fall each year ranges from 24-49%, with an average of 35%; as many as 3.1-11% of falls result in a hospitalization and 14-18% result in an ED/OP physician visit.

The direct costs associated with falling in this population varies by type of fall (e.g., injurious, non-injurious, fatal, non-fatal, overall, etc.), setting (e.g., community, while hospitalized, while in assisted living, etc.), and type of care provided (e.g., any medical attention, hospitalization, emergency department [ED], nursing home, outpatient/physician office, overall, etc.). In 2022 USD, estimates for the cost per fall ranged from \$1,670-\$32,426. Estimates for fall-related hospitalizations go as high as \$60,417 in 2022 USD.

The indirect costs for falls are also substantial. Given that experiencing a fall significantly increases the chances of a subsequent fall, each fall increases the risk of future fall-related costs, especially if future falls are injurious or occur in specific care settings. Those who fall while in the hospital have longer lengths of stay and incur higher hospital costs. Further, falls are associated with an increased risk of a nursing home or long-term care placement after hospital discharge. This finding is notable given that the most recent estimates for the annual cost of long-term care in Minnesota range from \$45,600 for assisted living to \$132,448 for a nursing home. Falls among older adults are the leading cause of head injuries and hip fractures (in fact, 95% of hip fractures result from a fall), impeding mobility and cognitive function, leading to restrictions in daily activities.

## FALL PREVENTION AND IMPROVED HEALTH OUTCOMES FROM JUNIPER-SUPPORTED FALL PREVENTION PROGRAMS

Fall prevention programs can improve strength and balance, while reducing the fear of falling. Additionally, they can help maintain physical functioning and provide socialization, which further reduce fall risk and generally improve patient health and well-being.

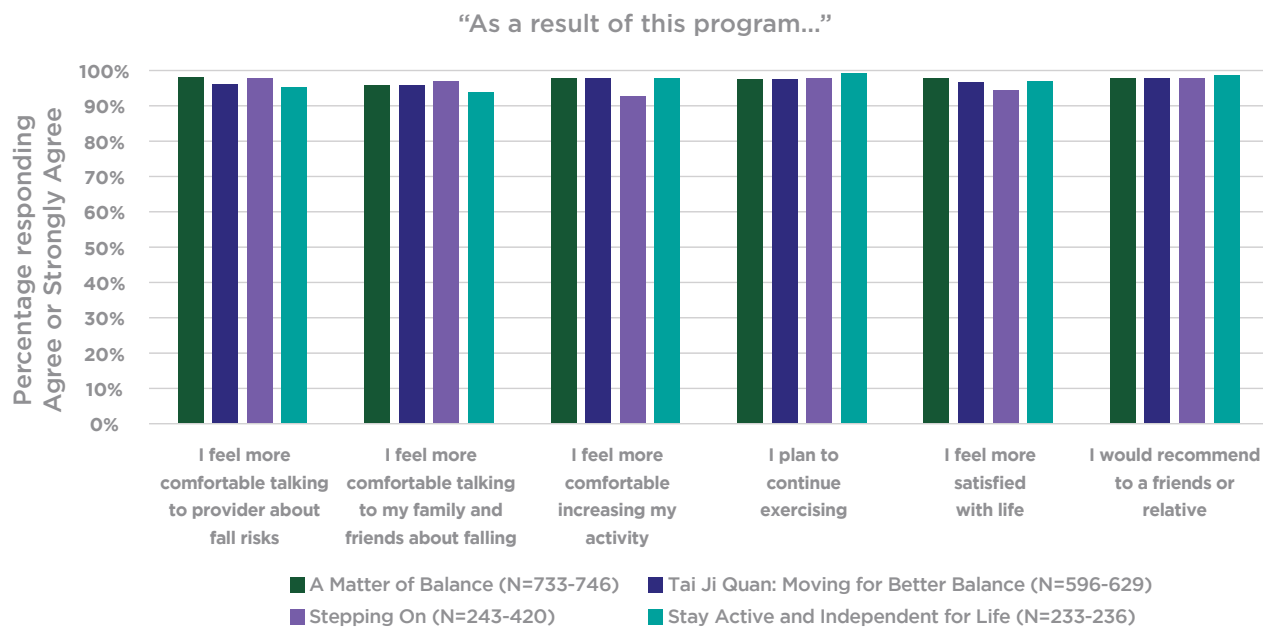
Participant-reported data from Juniper-supported fall prevention programs illustrates the impact on fall prevention, patient activation, healthy behaviors, and mental and emotional well-being. The Juniper data set includes adults (ages 18+) who live in Minnesota and participated in an evidence-based fall prevention class from a Juniper network provider. This analysis uses data from January 2019 through January 2020. Participants of A Matter of Balance (MOB), Tai Ji Quan: Moving for Better Balance (TJQMBB), Stepping On (SO), and Stay Active and Independent for Life (SAIL) experienced absolute reductions in fall rates of 19.9%, 8.8%, 18.5%, and 6.4%, respectively (see Table 1).

**Table 1. Fall reduction rates after participation in Juniper-supported fall prevention programs.**

Class	% Who Fell Before Class	% Who Fell After Class	Difference
A Matter of Balance	37.1%	17.1%	19.9%
Tai Ji Quan Moving For Better Balance	23.5%	14.7%	8.8%
Stepping On	34.7%	16.2%	18.5%
Stay Active and Independent for Life	27.0%	20.6%	6.4%

Additionally, participants consistently reported improvements in their fear of falling, their level of physical activity, satisfaction with life, stress level, ability to perform daily activities, and general well-being. As shown in Figures 1 and 2, participants’ responses regarding each fall prevention program’s impact were overwhelmingly positive.

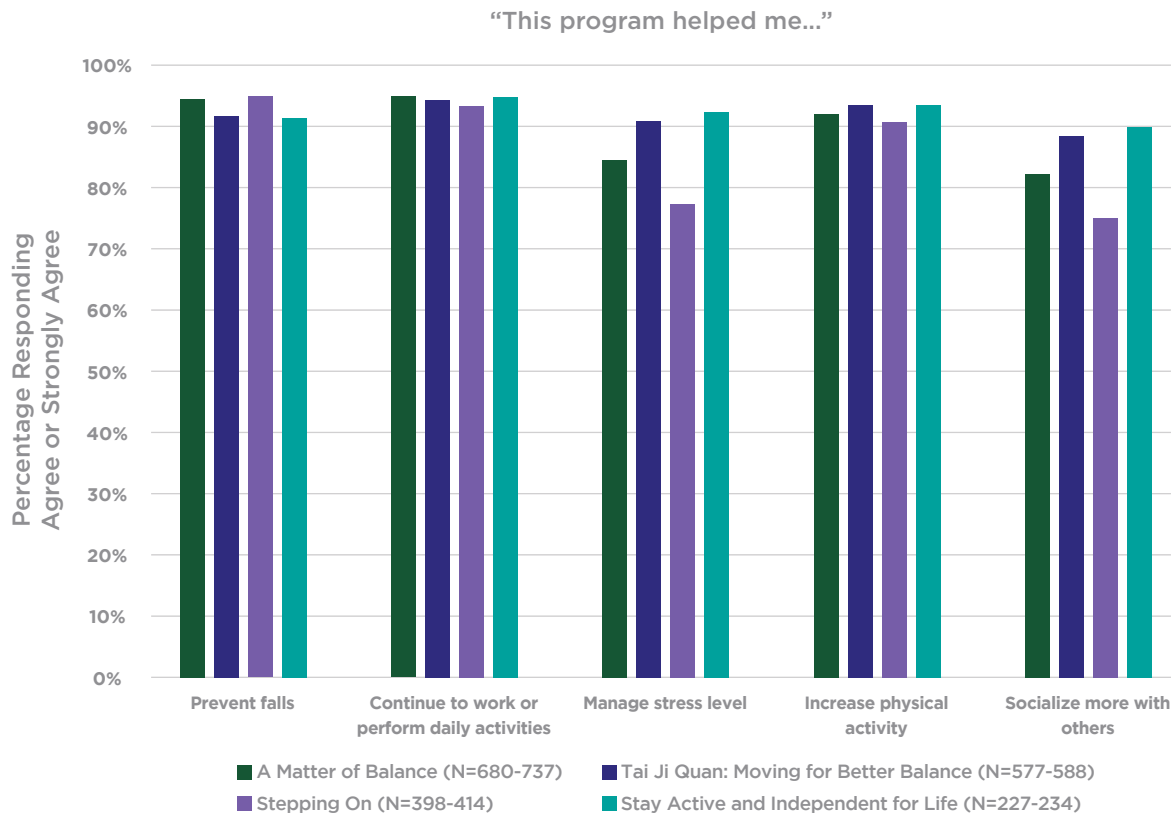
**Figure 1. Juniper-supported fall prevention programs’ impact on falls-efficacy.**



### FOLLOW-UP ANALYSIS

- A follow-up survey given an average of 207 days after the end of the class demonstrated that reductions in falls were maintained over time, with respondents reporting a **69% reduction in fall rate since the end of class**, as compared to prior to the start of class.

• **Figure 2. Juniper-supported falls prevention programs’ impact on healthy behaviors.**



## ESTIMATED COST SAVINGS AMONG JUNIPER PARTICIPANTS

The cost savings through avoided expenditures from reducing falls were evaluated using Juniper participant data by using fall incidence and estimates of fall-related healthcare costs. Depending on the inputs chosen, the aggregated savings across these programs range from several hundred thousand dollars to several million dollars.

### ***A Matter of Balance (MOB)***

A total of 978 participants in the MOB program during the study period provided self-reported data. Approximately 37% ( $n=239/645$ ) reported falling three months before the pre-survey questionnaire, completed at the first session of the program (Time 1); at the last session (Time 2), 17% ( $n=81/473$ ) indicated a fall, a reduction of 19.9 percentage points, and a relative risk rate of 0.46. The total number of falls was reduced from 408 to 111, a decrease of 297 falls. When the 111 falls reported at Time 2 are extrapolated to the number of anticipated falls for a sample size equal to that at Time 1, it would equal 151 falls, which would still have resulted in a reduction of 257 falls. When limiting the analysis to 418 participants who had falls data at both time points, the reduction in total falls was 134, with 28% of participants reporting fewer falls at Time 2 than at Time 1. Using these data and fall-related cost estimates calculated from previously published studies, the estimated cost savings for MOB range from \$223,780 to \$3,960,495. This methodology produces \$75-\$956 of savings per session attended and \$546-\$7,227 of savings per participant who completed the program (defined as attending at least 66% of total sessions) (see Table 2).

**Table 2. MOB cost savings for Juniper participants.**

Class					Benefits (Cost Avoidance)			
Sample Size	Falls Avoided	Total # Sessions	Total Completers	Savings Per Fall Avoided	Total Savings	Savings Per Patient	Savings Per Completer	Savings Per Session Attended
645	297	4,143	548	\$13,335	\$3,960,495	\$6,140	\$7,227	\$956
645	257	4,143	548	\$13,335	\$3,427,095	\$5,313	\$6,254	\$827
645	257	4,143	548	\$1,670	\$429,190	\$665	\$783	\$104
418	134	2,983	410	\$13,335	\$1,786,890	\$4,275	\$4,358	\$599
418	134	2,983	410	1,670	\$223,780	\$535	\$546	\$75

**Other Juniper-Supported Fall Prevention Programs**

The same methods were applied to the other Juniper-supported fall prevention programs to obtain estimated total cost savings, savings per session attended, and savings per completer.

**Table 3. Total cost savings, savings per completer, and savings per session attended for other Juniper-supported falls-prevention programs.**

Program Name	Total Savings	Savings Per Session Attended	Savings Per Completer
Tai Ji Quan: Moving for Better Balance	\$70,140-\$1,933,575	\$11-\$212	\$249-\$5,075
Stepping On	\$111,890-\$2,200,275	\$74-\$1,079	\$486-\$7,359
Stay Active and Independent for Life	\$8,350-\$213,360	\$3-\$83	\$94-\$2,425

These estimates include only direct costs associated with falls and ignore indirect cost savings that stem from the reduced likelihood of future falls, increased physical activity and mobility, reduced fear of falling, and the long-term effects of falls on physical and cognitive functioning. Further, greater patient activation is associated with less healthcare utilization and costs and a greater likelihood of making healthy choices and/or preventive health measures (e.g., getting check-ups and screenings, better diet, increased exercise, and avoiding smoking and/or drugs). In addition, each program addresses multiple components of the star-rating system created by the Centers for Medicare and Medicaid Services (CMS), which adds value for health plans and health systems in value-based program arrangements.

**CONCLUSION AND RECOMMENDATIONS**

Evidence from Juniper participants suggests that these fall prevention programs produce significant cost savings, even when conservative estimates are used. These results are consistent with previous research and economic studies that have consistently concluded that fall prevention results in healthcare cost savings for older adults. While evidence of the effectiveness of these programs is clear, they have rarely been widely scaled. Juniper is the nation’s largest network of these kinds of evidence-based health promotion programs, and a health plan or other risk-bearing entity who maximizes this opportunity will likely be a leader in this field. Given the increased focus on fall-prevention and wellness programs from The Joint Commission, NCQA, and CMS, these programs may fill a significant need for care delivery systems and health plans alike. Additionally, self-reported data from Juniper course participants provides insights into patient perspectives and perceptions, and yields information unavailable in claims data. There is potentially significant value to be gained from Juniper fall-prevention programs and associated data.

## KEY FACTS

- Over 25,000 Minnesotans have participated in Juniper programming since 2018
- More than half of participants are from rural areas
- Four evidence-based fall prevention classes offered: A Matter of Balance, Staying Active and Independent for Life (SAIL), Stepping On, Tai Ji Quan
- There are 85 partner provider organizations across the state who help facilitate the programs

## JUNIPER PROGRAMS DELIVER RESULTS



**Participants in Juniper classes report up to 20% fewer falls**



**More than 90% of Juniper class participants report feeling less afraid of falling and more confident in increasing their physical activity**

**9**  
out of  
**10**

**9 out of 10 Juniper class participants would recommend the class to friends and family**



**Over 90% of Juniper participants report the program helped them to prevent falls and continue performing their daily activities**



**Participants report that Juniper programs helped them socialize more with others**

***An average of 6 months after class ended, the fall rate was 69% lower than before class started.\****



**\$7,227**

**A Matter of Balance Class Savings Per Participant**



**\$7,359**

**Stepping On Class Savings Per Participant**



**\$5,075**

**Tai Ji Quan Class Savings Per Participant**



**\$2,425**

**Stay Active and Independent for Life (SAIL) Class Savings Per Participant**

*Data from January 2019 through January 2020, based on self-reported falls; assumes program completion, and using an estimate of cost-savings per fall avoided. Values represent the upper limit of a range of estimates produced by an internal analysis.*

*\*Data from participants who responded to a follow-up survey 2-12 months after the end of their class - 44% response rate.*