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# Occupational Therapy Interventions to Support Aging in Place: A Rapid Systematic Review

## Key words:

- occupational therapy
- aging in place
- older adults
- quality of life
- community mobility
- occupational performance
- falls

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This rapid systematic review discusses the evidence of 30 studies for the effectiveness of occupational therapy (OT) in supporting aging in place, or safely living in one's home independently. Many older adults suffer from at least one disability, which can be a threat to both independence and safety. Further, falls and injuries raise healthcare costs, which can include nursing facility housing. The transition from living in one's home to living in a long-term care facility dramatically impacts occupational participation and performance. Supporting aging in place increases safety, quality of life, and independence in one's home environment. In order to support aging in place, we looked at the effectiveness of multiple occupational therapy interventions that targeted occupational performance and participation, quality of life, falls and hospital readmissions, and community mobility. Overall, we found strong evidence to support the effectiveness of these client centered occupational therapy interventions for improving aging in place in community dwelling older adults and preventing negative health outcomes.

## Focused Clinical Question

The purpose of this rapid systematic review was to search the literature and critically appraise and combine the applicable findings to address the following focused question: What is the effectiveness of occupational therapy (OT) intervention for older adults aging in place?

## Statement of Problem and Background

Aging leads to inevitable health decline. Nearly 40% of the thirteen million adults aged 65 and older in the US experience some type of disability, and disability is a strong predictor of

admission to nursing homes (Szanton et al., 2011). The goal of many older adults is to age in place, or to live in one's own home and community safely, independently, and comfortably (Dickson & Toto, 2018). When older adults experience declines in safety and independence due to age-related impairments, aging in place is at risk. These declines could be due to chronic health conditions, loss of balance/falls, hospitalizations, or cognitive and vision deficits.

Occupation-based interventions can be done to help older adults reduce and adapt to the changes and challenges that come with aging. The interventions can contribute to the goal of aging in place through improving occupational performance and participation, increasing quality of life, reducing falls and hospital readmissions, and increasing community mobility.

## Method for Conducting the Evidence-Based Review

This rapid systematic review examined studies that assessed the effectiveness of occupational therapy interventions for promoting aging in place among older adults. Aging in place was chosen by a research group of occupational therapy students who felt that aging in place is a critical factor of the quality of life in older adults, as well as occupational participation and performance.

During the process of selecting articles for this systematic review, reviewers initially chose articles based on the article being published within the last ten years between 2010 and 2020. Further, studies that took place in the United States and countries with healthcare systems that are predicted to transfer well to the United States such as New Zealand, Norway, Australia, Canada, UK, Sweden, and Denmark were included. Other specific inclusion criteria were as followed:

- Participants were community-dwelling, living at home in an independent setting, and older than 65 years old.
- The interventions and outcomes described in the study were embedded in the domain of occupational therapy and supported aging in place for older adults.
- The article was Level I, II, or III evidence.

The following articles were excluded: meta-analysis', systematic reviews, articles that provided Level IV and V evidence, articles not in English, studies with participants living in assisted living or skilled nursing facilities, studies not in the desired countries, and studies that do not meet outcome measure criteria.

This review used the Level of Evidence criteria from "Evidence-Based Medicine: What it is and What it isn't" (Sacket, Rosenberg, Muir Gray, Haynes & Richardson, 1996) to determine the Level of Evidence of each article.

Level I - Systematic reviews, meta-analysis, randomized controlled trials

Level II- Two groups, nonrandomized studies (e.g. cohort, case control)

Level III- One group, nonrandomized (e.g. before and after, pretest and posttest)

Level IV- Descriptive studies that include analysis of outcomes (single subject design, case series)

Level V- Case reports and expert opinion that include narrative literature reviews and consensus statements

The articles that were determined to be within the appropriate Level of evidence and which met the inclusion criteria were further categorized into four main outcomes which improve aging in place.

*Outcome 1:* Reducing falls, hospital readmissions, and fear of falling

*Outcome 2:* Improving Occupational Performance and engagement

*Outcome 3:* Health Related Quality of Life and Quality of Life

*Outcome 4:* Community Mobility

**Figure 1**

*PRISMA Diagram*



*Note.* PRISMA diagram generated from Covidence.

## Results

A total of 30 articles were included in this rapid systematic review based on their adherence to our inclusion and exclusion criteria. Of these 30 articles, 24 were Level I Evidence, one was Level II Evidence, and five were Level III Evidence. From these studies, we identified four major outcomes targeted by occupation-based interventions and aimed at promoting aging in place. The results are as follows:

### *Outcome 1: Reducing falls, hospital readmissions, and fear of falling*

Approximately one-third of adults over the age of 65 experience a fall (Chien, T., Goddard, M., Casey, J., Devitt, R., & Filinski, J., 2016). Falls have the potential to lead to an increased risk of hospital admission, decreased occupational engagement, decreased quality of life, and death. Of the studies reviewed, six Level I studies and one Level III study address the efficacy of occupation-based interventions on addressing the risk of falls, fear of falling, and risk of hospital readmissions in community-dwelling older adults.

A Level I randomized controlled trial (Johansson, E., Jonsson, H., Dahlberg, R., & Patomella, A.H., 2018) provided evidence that small group interventions provided in a primary care setting by an occupational and physical therapist focusing on education regarding potential risk factors for falls, group discussions, and balance exercises led to a decreased risk of falls and a decreased fear of falling in community-dwelling older adults.

One Level III retrospective chart review (Chien, T., Goddard, M., Casey, J., Devitt, R., & Filinski, J., 2016) provided evidence that a multidisciplinary and multifaceted falls prevention clinic, including upper and lower extremity strengthening, activities of daily living (ADL), practice, gait training, energy conservation strategies, and assistive equipment recommendations provided by physical and occupational therapists, improved mobility and decreased fear of falling in older, medically complex individuals.

A Level I randomized controlled trial (Lockwood, K. J., Harding, K. E., Boyd, J. N., & Taylor, N. F., 2019) showed evidence that care as usual in addition to a home assessment prior to discharge by a trained occupational therapist reduced hospital readmissions and had a clinically significant observed reduction of falls in older adults recovering from a hip fracture.

A Level I randomized controlled trial (Mikolaizak, A. S., Lord, S. R., Tiedemann, A., Simpson, P., Caplan, G. A., Bendall, J., ... & Lo, J., 2017) found that an individualized home modification intervention led by a physical therapist had no significant effect on the fall rates of community-dwelling older adults compared to the control group. However, those in the intervention group who adhered closest to recommendations had the least amount of falls in a year.

A Level I randomized controlled trial (Schepens, S. L., Panzer, V., & Goldberg, A., 2011) found that a multimedia-based fall prevention education intervention increased the number of fall threats identified by community-dwelling older adults.

A Level I randomized controlled trial (Pighills, C., Torgerson, D., Sheldon, T., Drummond, A., & Bland, J., 2011) assessed the effectiveness of an environmental falls prevention intervention delivered by qualified occupational therapists or unqualified trained assessors. This study found that the environmental assessment prescribed by an occupational therapist significantly reduced the number of falls in high-risk individuals whereas that prescribed by a trained assessor did not and that the environmental assessment had no effect on fear of falling.

A Level I randomized controlled trial (Szanton, S. L., Thorpe, R. J., Boyd, C., Tanner, E. K., Leff, B., Agree, E., ... & Guralnik, J. M., 2011) compared The Community Aging in Place, Advancing Better Living for Elders (CAPABLE) intervention which included coordinated visits from occupational therapy, nursing as well as home medications and repairs with a control group who received visits from a research assistant to control for face to face time. The CAPABLE intervention had a large effect for decreasing falls (0.55).

There is overall strong evidence to support the use of occupational therapy interventions to reduce rates of falls as well as the fear of falling in community-dwelling older adults. One study also reduced the rate of hospital readmissions due to falls after hip surgeries.

### *Outcome 2: Improving Occupational Performance and engagement*

Older adults are at risk for health decline that can cause a decreased performance in ADLs, Instrumental Activities of Daily Living (IADLs), and independence (Clark et al., 2012). Since disability is one of the strongest predictors of nursing home admission (Szanton et al., 2011) optimizing occupational performance is a key factor for prolonging independence and aging in place for older adults. Of the reviewed studies 13 Level I, one Level II, and one Level III examined the effectiveness of occupational therapy interventions for improving occupational performance and engagement.

A Level I randomized controlled trial (Zingmark, M., & Bernspång, B., 2011) showed evidence that occupational therapy interventions in the home showed improvement in activities of daily living, self-care, and mobility.

A Level I randomized controlled trial (Levasseur, M., Filiatrault, J., Larivière, N., Trépanier, J., Lévesque, M. H., Beaudry, M., ... & Corriveau, H., 2019) provided evidence that the Lifestyle Redesign improved interest in leisure

activities and in those who have disabilities had an improvement in social participation and leisure.

A Level I randomized controlled trial (Waldersen, B. W., Wolff, J. L., Roberts, L., Bridges, A. E., Gitlin, L. N., & Szanton, S. L., 2017) showed evidence that goal attainment was high for stair climbing, transferring, and self-care and that when the participants' readiness to change score increased by 1 point on a 4-point scale the goal attainment was 62% more likely to occur.

A Level I randomized controlled trial (Roaldsen, K., Halvarsson, A., Sahlström, T., & Ståhle, A. 2014) provided evidence that a 12-week task-specific balance training program focused on incorporating common daily activities improved overall function in community-dwelling older adults.

A Level III single-group repeated measures design (Law, L. L. F., Barnett, F., Yau, M. K., & Gray, M. A., 2013) found a 10-week functional task exercise program had a statistically significant improvement in overall function of community-dwelling older adults with mild cognitive impairment.

A Level II randomized controlled pilot study (Murphy, S. L., Janevic, M. R., Lee, P., & Williams, D. A., 2018) found evidence that cognitive-behavioral therapy delivered by an occupational therapist along with a computer program providing educational materials on important occupations such as sleep, self-care, and exercise improved physical function and occupational performance in individuals with knee osteoarthritis.

A Level I randomized controlled trial (Garvey, J., Connolly, D., Boland, F., & Smith, S. M., 2015) found OPTIMAL, a 6 week small group intervention focused on education, group discussion, and structured goal setting, led to significant improvements in the overall activity participation of community dwelling, older adults with multiple chronic conditions.

A Level I randomized controlled trial (Courtney, M. D., Edwards, H. E., Chang, A. M., Parker, A. W., Finlayson, K., Bradbury, C., & Nielsen, Z., 2012) found evidence that a 6 month intervention of individually tailored exercise programs, education of health maintenance strategies, a home visit, and regular phone calls created a clinically significant improvement in independence with ADLs and IADLs in older, community dwelling adults.

A Level I randomized controlled trial (Stark, S., Somerville, E., Conte, J., Keglovits, M., Hu, Y. L., Carpenter, C., ... & Yan, Y., 2018) found that an individualized home modification intervention delivered by OT practitioners significantly improved activity performance, as well as self-rated performance and satisfaction with performance in community-dwelling older adults.

A Level I randomized controlled trial (Borrows, A., & Holland, R., 2013) found that there was no significant difference in effects of community OT service versus independent living center OT service. Both groups showed a

10% in dependency and a slight increase in quality of life scores after 12 months of OT.

A Level I randomized controlled trial (Nielsen, T. L., Anderson, N. T., Petersen, K. S., Polatajko, H., Nielsen, C. V., 2019) found that 11 weeks of intensive client-centered occupational therapy (ICC-OT group) improved their COPM performance from baseline to the 3-month assessment statistically significantly more than the Usual-Practice (control) group. This studies' secondary outcomes showed that changes from baseline to 6 months in COPM performance, COPM satisfaction, and on the AMPS motor scale were statistically significantly larger in the ICC-OT group than in the Usual-Practice group.

A Level I randomized controlled trial (Lewin, G., De San Miguel, K., Knuiman, M., Alan, J., Boldy, D., Hendrie, D., & Vandermeulen, S., 2013) in Australia used the Home Independence Program (HIM), an early intervention program designed to optimize function, was compared with standard home health care. Fewer participants in the HIM group (21.3%) required ongoing personal care after 3 months compared with standard home health care (68.9%).

A Level I randomized controlled trial (Tuntland, Aaslund, Espehaug, Dorland, and Kjekken, 2015) focused on reablement in community dwelling older adults by comparing a client centered intervention centered around the Canadian Model of Occupational Performance and Engagement (CMOP-E) with usual care using the Canadian Occupational Performance Measure (COPM) to measure performance and satisfaction. After 3 months ( $p=0.02$ ) and 9 months ( $p=0.01$ ) there was a significant difference in performance scores in favor of the intervention group.

A Level I randomized controlled trial (Zingmark, M., Fisher, A., Rocklov, J., & Nilsson, I., 2014) compared three occupation based intervention groups (individual intervention, activity group, and one-meeting discussion group) with a control group that received no intervention. In all groups there was a decline in ADL performance, however the rate of ADL decline was reduced in all intervention groups compared with the control.

A Level I randomized controlled trial (Szanton, S. L., Thorpe, R. J., Boyd, C., Tanner, E. K., Leff, B., Agree, E., ... & Guralnik, J. M., 2011) reported that the CAPABLE intervention had a large effect in decreasing ADL difficulty (0.63) and IADL difficulty (0.62).

The studies above provided strong evidence to support the use of occupational therapy interventions to improve occupational performance and participation in community dwelling older adults. The interventions improved ADL/ activity performance, self-care skills, mobility, and overall function. This increase in independence aids in the goal of aging in place, or living in the home as long as possible.

### *Outcome 3: Health Related Quality of Life and Quality of Life*

Quality of life (QOL) is a broad concept which includes the positive and negative aspects of an individual's life. Health related quality of life (HRQOL) specifically takes those positive and negative aspects of an individual's life and observes how these aspects influence their physical and mental health (CDC, 2018). Both QOL and HRQOL are subjective to the individual. Of the reviewed studies, five Level I and two Level III studies addressed the efficacy of occupational therapy interventions on improving quality of life and health related quality of life.

A Level I randomized controlled trial (Chippendale, T., & Boltz, M., 2015) provided evidence that the intergenerational life writing review program compared to a writing workshop improved the sense of purpose and meaning in life and overall quality of life.

A Level III single-group repeated measures design (Sheffield, C., Smith, C. A., & Becker, M., 2013) used the the intervention called Aging in Place, which included home and in-home assessment of the individuals daily activities, client-family collaboration to achieve mutual goals, provision and training of the use of assistive devices, design and implementation of home modifications, removal of environmental hazards, training in medication management, and education in adaptive and compensatory strategies to improve safety and independence. This research showed a statistically significant improvement in health-related quality of life, home safety, and fear of falling, but did not support an improvement in overall function.

A Level III single-group repeated measures design (Cornelis, E., Gorus, E., Beyer, I., Van Puyvelde, K., Lieten, S., Versijpt, J., Vande Walle, N., Aerts, G., De Roover, K., & De Vriendt, P. 2018) researched the effects of a year long intervention with three phases on persons with dementia and their caregivers. The first phase includes baseline assessment and goal setting with the client and caregiver. The second phase involved teaching compensatory and environmental strategies, increasing skill of caregivers, home visit, psycho-education visit, adaptation to the living environment, and training in assistive devices. The third phase involved reassessing. This research provided evidence that the intervention had a significant improvement in health-related quality of life and improved or stabilized caregiver burden. As expected it did not have an improvement in function or cognition.

A Level I randomized controlled trial (Juang, C., Knight, B. G., Carlson, M., Schepens Niemiec, S. L., Vigen, C., & Clark, F., 2018) found that the Lifestyle Redesign Program administered by OTs significantly decreased depressive symptoms in community dwelling older adults; researchers hypothesized the indirect effect could be linked to the increased activity frequency and social connection relationship.

A Level I randomized controlled trial (Clark, F., Jackson, J., Carlson, M., Chou, C. P., Cherry, B. J., Jordan-Marsh, M., ... & Wilcox, R. R., 2012) compared health related quality of life in older adults living at home between an intervention group who received small group and individual occupational therapy sessions and a control group who received no treatment. The results showed statistically significant differences in bodily pain, vitality, social functioning, mental health, composite mental functioning, life satisfaction, and depressive symptoms ( $p < 0.05$ ) as well as a statistically significant increase in quality of life ( $p < 0.02$ ) both in favor of the intervention group.

A Level I randomized controlled trial (Johansson, A. & Bjorkland, A., 2015) compared a health promoting intervention facilitated by OTs that included biweekly visits for 4 months paired with community groups with a control group that received an OT intervention and prescription of assistive devices but no group interventions. General health and well-being was measure with the Short Form 36 (SF36) and increased in 5/8 subscales with significant increases in vitality ( $p=0 .01$ ) and mental health ( $p= 0.03$ )

A Level I randomized controlled trial (Szanton, S. L., Thorpe, R. J., Boyd, C., Tanner, E. K., Leff, B., Agree, E., ... & Guralnik, J. M., 2011) reported that the CAPABLE intervention had a large effect in increasing Health related Quality of Life (0.89).

Overall, there is strong evidence to support the use of occupational therapy interventions in improving health related quality of life in older adults. Effective interventions included writing workshops, in home assessments, compensatory strategies, adaptive equipment, and a Lifestyle redesign program.

### *Outcome 4: Driving and Community Mobility*

Community mobility is an instrumental activity of daily living (IADL) defined by the American Occupational Therapy Association (AOTA) as, "moving around in the community and using public or private transportation, such as driving, walking, bicycling, or accessing and riding buses, taxi cabs, or other transportation systems" (Schold-Davis, 2012, para. 1). Having the ability to drive throughout the community contributes to productive aging and is essential for independence, accessing health services, social participation, and quality of life. According to Anstey, Eramudugolla, Kiely, and Price (2018), "studies indicate that driving cessation in older adults is associated with increased rates of depression, social isolation, general health decline, mortality, and caregiver burden (p. 1). Of the reviewed studies, three Level I studies addressed improving safe driving in older adults to increase their participation in the community and allowing them to age in place.

A Level I randomized controlled trial (Anstey, K.J., Eramudugolla, R., Kiely, K. M., Price, K., 2018) found that

older adults reduced their critical driving errors following a road rules refresher course and individually tailored driving lessons which consisted of two, one-hour driving lessons with a driving instructor who had been trained by an occupational therapist. It is also important to note from this study that 64% of those who were “unsafe” in the intervention group, became safe, while only 25% of those “unsafe” in the control group became “safe”. However, a sensitivity analysis done in this study demonstrated that drivers with very low safety ratings at baseline did not benefit from intervention which suggests that there is an optimal range of driving safety where remediation is possible and beneficial and to which interventions should be targeted.

A Level I randomized controlled trial (Sawula, E., Polgar, J., Porter, M. M., Gagnon, S., Weaver, B., Nakagawa, S., Stinchcombe, A., & Bedard, M., 2018) consisted of a training program with three groups including a basic in-class training (BT), on-road training with individualized feedback (OR), and training on a driving simulator (S). The results indicated a significant reduction in overall number of driving errors/number of unsafe driving actions among participants in the BT + OR and the BT + OR + S groups in comparison to participants in the BT group. These results support the effectiveness of individualized driver training and suggest that on-road training with a review of on-road driving evaluation videos and individualized feedback of on-road driving performance can improve on-road safe driving performance in older adult drivers.

A Level I randomized controlled study (Ball, K., Edwards, J. D., Ross, L. A. & McGwin, G., 2010) researched the effects of cognitive training for memory, reasoning, and speed-of-processing on subsequent motor vehicle collisions (MVC) with older drivers and found that cognitive speed-of-processing and reasoning training resulted in a lower at-fault MVC rate in older drivers than in the no contact control group. There was no significant difference observed for the memory group. Therefore, this study shows that cognitive training relating to speed-of-processing and reasoning training has great potential for reduction in MVC’s and sustaining independence and quality of life in older adults.

Overall, there is strong evidence to support the use of occupational therapy interventions in promoting safety with driving to improve community mobility in older adults. Effective interventions to improve driving safety included one on one practice with driving, cognitive training, and education regarding driving rules and safe practices.

## Discussions and Implications for Practice and Research

The results from this rapid systematic review shows strong evidence supporting that occupational therapy interventions are effective for older adults aging in place. The evidence

provides interventions to reduce rates of falls and fear of falling, improve occupational performance and participation, health related quality of life, and community mobility, to improve older adults ability to maintain staying in their home as they age.

Overall there is strong evidence for the effectiveness of occupational therapy interventions for improving aging in place in community dwelling older adults. As clinicians we need to consider the psychosocial implications of a transition to a nursing home or assisted living facility late in life and do our best to keep our clients as independent as possible in order to allow them to stay in their own homes. Our research indicates that using client centered, occupation focused interventions can have positive effects on outcomes that contribute to aging in place. The outcomes of these interventions are even more effective when implemented as a preventative measure. However this may be difficult to implement in practice since insurance does not always cover therapy visits as a preventative measure and may cost the participant. Another cost barrier to these types of interventions in practice is the cost of home modifications. Most insurance companies do not cover any type of home modifications and only a few types of adaptive equipment, which could result in out of pocket expenses for clients.

The feasibility to implement many of these interventions may also be affected by the environment in which the individual is living. Aging in place looks different in urban and rural areas due to accessibility to health care, public transportation, and other resources. The performance skills and demands are different in each environment. Additionally, the individual's home environment and whether they live alone or with others can affect the outcomes of these interventions. It is important to assess a client's individual environment when implementing these interventions.

For future research, it would be beneficial to study the effectiveness of these interventions in different settings and locations. There are not very many studies conducted in the United States, so future research done in the United States would give a better picture of the effectiveness of these interventions in our healthcare system. Future research measuring long term effects of interventions is needed to determine lasting effectiveness, for many studies measured short term effects. Lastly, it is important to study cost effective options for these interventions since home modifications and therapy services can be costly.

## Limitations and Conclusion

This rapid systematic review included 30 articles of which 80% of them were Level I evidence, indicating that the evidence is of high quality. However, the studies within this review also exhibited limitations: small sample sizes, short follow ups, wide variety of interventions and clinical conditions, and self-reported measures. As a result of the

targeted population being older adults, limitations such as higher dropout rates and a variety of cognitive awareness levels were present. Many participants were recruited on a volunteer basis which may have created unrepresentative samples that are less generalizable. Other limitations came from the context of the participants' home environment. This created an uncontrolled environment and it was unclear if the participants lived alone or with others leading to reduced generality. Due to the nature of rehabilitation, most studies were single blind because the occupational therapist cannot be blinded to what intervention they are providing. Lastly, although studies in countries with similar health care systems to the United States were chosen, the translation of this research to the United States can be limited by differences in health care systems, culture, and overall public health.

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Table 1. Evidence Table

**Outcome 1: Reducing falls, hospital readmissions, and fear of falling**

Author/Year	Level of Evidence/Study Design/Participation/Inclusion Criteria	Intervention and Control Groups	Outcome Measures	Results
<p>Pighills, C., Torgerson, D., Sheldon, T., Drummond, A., &amp; Bland, J. (2011).</p>	<p>This study design was a pilot three-armed randomized controlled trial making it a Level I Level of Evidence. The inclusion criteria was that the participants were community-dwelling adults, age 70 and older, and had a history of falls in the past year (one or more).</p>	<p><b>Control:</b> The control group intervention was usual care where the participants remained under the care of their general practitioner and being referred for services as required.</p> <p><b>Experimental:</b> There were two intervention groups, an OT- led environmental assessment group and a trained assessor- led environmental assessment group. The OT led group consisted of 13 trained occupational therapists who volunteered where nine of the staff were recently qualified and four were senior staff but none of them specialized in the care of older adults. The assessor-led group consisted of 13 non professionally qualified staff trained on WeHSA and were domiciliary support workers who provided personal care to enable people to remain at home. The same trainer trained 13 occupational therapists and 13 non-professionally qualified staff</p>	<p>The primary outcome was <b>fear of falling</b> and was measured using FES-I. The secondary outcomes were <b>falls, quality of life, and independence in activities of daily living</b> which were measured by using EuroQol, the SF-12, and the Barthel Index. The outcomes were measured by self-report questionnaires at baseline and then at 3, 6, and 12 months. The participants also received prepaid addressed calendars with the definition of a fall at the top and they were requested to return the calendar each month with notes on if they fell each day or not for one year. If the calendars were not returned two weeks after the deadline then a blinded interviewer called to investigate through a structured interview to see if the participant had fallen. There was also a toll free phone number participants could call and report falls to. The York</p>	<p>Fear of Falling: There was no evidence of a difference between the assessor group and control group in the results for fear of falling (P=.92) or the OT and control group (P=.90). The mean scores for the baseline were control- 36, trained assessor- 32, and OT group- 34. At 12 months, the scores were 37, 33, and 34, respectively.</p> <p>Falls: - 66% of all participants fell over 12 months. <b>The OT group’s fall rate was about half that of the control group (IRR=0.54, 95% CI= 0.36-0.83, P=.005).</b> The fall rate of the assessor group was not significantly different than the control group (IRR=0.78, 95% CI= 0.51-1.21, P=.34). For people who avoided activities as a result of fear of falling sustained more falls than those who did not (IRR=3.07, 95% CI=2.17-4.33, P &lt; .001). However, logistic regression revealed there was no correlation between activity avoidance and group allocation at 12 months (chi square=1.23, P=.49).</p>

		<p>together to get familiar with WeHSA. The intervention for both was an assessment of the participants using WeHSA to identify personal risk from environmental and behavioral perspectives in the participants' homes. The participant and either an OT or an assessor explored the home to enable functional evaluation and identified hazards together. Using WeSHA, potential fall hazards were identified and discussed, possible solutions and recommendations were communicated, then if possible the hazards were removed or repaired. Then, a written summary of recommendations and referrals to other agencies for equipment and input were given to the participants. After four weeks, the participant was contacted over phone to see if the recommendations had been followed and then again after 12 months.</p> <p>All groups were monitored and controlled for in the analysis through the 12 month follow up period.</p>	<p>Trials Unit staff inputted questionnaire data. They were blinded to group assignment and check for accuracy twice.</p>	
<p>Lockwood, K. J., Harding, K. E., Boyd, J. N., &amp; Taylor, N. F. (2019).</p>	<p>This study design was a single blind randomized control trial making it Level I Level of Evidence.</p>	<p><b>Control:</b> The control group received care as usual for hip fracture. This includes assessment and management by a</p>	<p>Both the control and experimental groups received the same outcome measures at baseline, 30 days and six months after discharge. Further,</p>	<p>There was a statistically significant difference with a p-value of 0.02 between groups favoring the intervention in the number of readmissions at 30 days follow-up with 95% confidence interval of 1.5 to 99.2.</p>

	<p>The purpose of this study was to examine whether home assessment visits completed by occupational therapists pre-discharge for patients recovering from hip fracture reduces falls and prevents hospital readmissions within the first 30 days and six months after discharge.</p>	<p>multidisciplinary team. The team included medical care, nursing care, physiotherapy, occupational therapy, and social work with access to dietetics, speech and language therapy and psychology on a referral basis. Participants received individual or group therapy with a physiotherapist and occupational therapist five to six days each week. Majority were sent to continue rehab in an inpatient rehabilitation unit before home discharge.</p> <p><b>Experimental:</b> In addition to the usual care as described with the control group, the experimental group also received a home assessment before discharge from the hospital. During the home visit the occupational therapist assessed mobility, self-care and household safety during observation of task performance in the home environment. The researchers ensured this process was standardized by giving the occupational therapists training and required forms and documentation upon completion of the home assessment.</p>	<p>they were administered by assessors who were blinded to the group allocation.</p> <p><b>Primary Outcomes:</b></p> <ul style="list-style-type: none"> <li>• One primary outcome was readmission to any publically funded hospital within the region. This was recorded as the number of people readmitted and the number of days stayed.</li> <li>• The other primary outcome included the number of falls. This was recorded using fall calendars with monthly phone calls.</li> </ul>	<p>There was also statistical significance for 30 day follow up and 6 month follow up with a p-value of 0.046 between the groups favoring the intervention in the number of days stayed in hospital after being readmitted.</p> <p>There was an observed reduction in falls for the intervention group compared to the control and it did not reach statistical significance but has clinical significance.</p>
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<p>Mikolaizak, A. S., Lord, S. R., Tiedemann, A., Simpson, P., Caplan, G. A., Bendall, J., ... &amp; Lo, J. (2017)</p>	<p>Level of Evidence: I</p> <p>Study Design: RCT</p> <p>Participation: <i>N</i>= 221 adults aged 65 and older who received an emergency response related to a fall in Sydney, Australia. These participants did not go to the emergency department.</p> <p>33% male,</p> <p>67% female</p> <p>Intervention: <i>n</i>= 111</p> <p>Control: <i>n</i>= 110</p> <p><i>M</i> age= 83.4</p>	<p><b>Intervention:</b> Participants were supported in their individualized fall prevention interventions by a physiotherapist. Some of these interventions included a home medication review, vision assessment, exercise therapy, and a home hazard assessment by an occupational therapist.</p> <p><b>Control:</b> The research physiotherapist gave written advice on how to approach identified fall concerns. Participants were encouraged to see their healthcare provider for any further assistance.</p>	<p>Rate of falls and fall related injuries</p> <p>Recorded in a journal and reported at the end of 12 months</p> <p>Likert scale of adherence to recommendation at the end of 12 months</p> <p>Health service use recorded on calendars</p> <p>EQ-5D: a quality of life measure at baseline, 6 months, and 12 months</p>	<p>There was not a significant difference between groups in the number of falls at the end of the trial, with the control group having an average of 2.72 falls per person and the intervention group having 3.25. Participants in the intervention group who adhered to home safety recommendations did have a significantly lower average number of falls per person (2.2) compared to those who did not adhere (4.1).</p>
<p>Johansson, E., Jonsson, H., Dahlberg, R., &amp; Patomella, A.H. (2018)</p>	<p>The design of this study was a randomized controlled single blind study making it Level I evidence. The population studied was community dwelling adults over the age of 65 who had experienced an accidental fall, an accidental fall</p>	<p><b>Control:</b> The control group received care as usual, which did not include any sort of falls prevention program.</p> <p><b>Intervention:</b> The intervention provided was a small group, consisting of eight members, led by one occupational and one physical therapist which met for 2 hours every other week</p>	<p>The primary outcome was the number of accidental falls experienced over the course of the study. The secondary outcome was each participant's fear of falling. Both outcomes were measured via self - report from the participants themselves.</p>	<p><b>Falls:</b> Following the intervention, the rate of falls for participants in the intervention group (12%) was lower than the rate of falls for participants in the control group (36%). These results were statistically significant (<math>p = 0.005</math>) meaning that the intervention led to a decreased risk of falls in community-dwelling older adults.</p> <p><b>Fear of Falling:</b></p>

	<p>incident (trip or stumble), and/or had concerns about falling within the previous 6 months. The inclusion criteria</p>	<p>for 9 months. Group sessions included education regarding potential risk factors for falls, group discussions, balance exercises and were administered in a primary care setting. Discussion topics included physical exercise, engagement in occupations, physical balance, home safety, nutrition, and resources in the community. In addition to the group meetings, each participant received two individual home visits from the group leaders.</p>	<p>Each group had characteristics (such as age, gender, number of falls, fear of falling, use of a walker or other mobility device, self-rated quality of life and the Occupational Gaps Questionnaire) and outcome measures collected at baseline and then were monitored every 3 months, with outcome measures recorded each time, until the final follow-up 12 months post baseline.</p>	<p>In terms of the secondary outcome, fear of falling, participants in the intervention group showed a significant decrease (<math>p = 0.003</math>) in fear of falling from baseline measures to final measures. There were no statistically significant results for changes in the secondary outcome for the control group.</p>
<p>Chien, T., Goddard, M., Casey, J., Devitt, R., &amp; Filinski, J. (2016)</p>	<p><b>Level of Evidence:</b> III  <b>Study Design:</b>  Quantitative Retrospective Chart Review  N = 69  52.5% Female, 47.8% Male  M Age= 77.6  <b>Inclusion Criteria:</b>  The population studied was medically complex older adults who were referred to a falls prevention clinic in Ontario. The study defines a medically complex individual as</p>	<p><b>One Group:</b>  The method used in this study was a retrospective chart review with a one group pretest posttest design. Essentially, researchers chose a specific Falls Prevention Clinic in Ontario and reviewed the charts of each individual discharged from the clinic during a certain time frame. After selecting the individuals who met the study's inclusion criteria, researchers used their charts to gather an understanding of the individual's baseline measures upon admission to the clinic and outcome measures following their experience at the falls clinic. In using this</p>	<p>There were four main outcomes studied which included:  <b>30 second sit-to-stand</b>  This assessment is a valid and reliable measure of lower extremity strength.  <b>Gait Speed</b>  Gait speed has been proven to be a valid and reliable indicator of function and mobility. It also is a good predictor of morbidity, balance, falls risk, and gait stability.  <b>Timed Up and Go Test (TUG)</b>  The TUG is used to determine mobility potential as well as falls risk.</p>	<p><b>30 Second Sit-to-Stand</b>  There was a statistically significant improvement between admission and discharge for the 30 second sit-to-stand test. The number of stands increased by an average of 1.21.  <b>Gait Speed</b>  Researchers found a statistically significant improvement in gait speed, increasing by an average of 0.11s, in participants.  <b>Timed Up and Go Test</b>  There was a statistically significant difference from baseline measures (32.64s) to discharge measures (27.39s) on the timed up and go test.  <b>Falls Efficacy Scale - International</b>  Researchers found a statistically significant decrease in scores of the FES - I between admission and discharge.</p>

	<p>someone who has two or more acute, chronic, physical, and/or psychiatric medical conditions.</p>	<p>methodology, researchers were able to gather data on how the multifactorial interventions provided at the Falls Prevention Clinic impacted each individual in terms of their mobility, balance, fear of falling, and occupational performance. Therefore, there was only one group studied in this study.</p>	<p><b>Falls Efficacy Scale - International (FES - I)</b>  The FES - I is a valid and reliable questionnaire used to measure an individual's concern about falling. Fall concerns have been linked to a greater risk for falls, decreased occupational engagement, and decreased quality of life.</p> <p>Secondary outcomes measures included self - reported ability to perform Basic Activities of Daily Living and Instrumental Activities of Daily Living.</p>	
<p>Schepens, S. L., Panzer, V., &amp; Goldberg, A. (2011)</p>	<p>Level of Evidence: I  Study Design: RCT</p> <p>Participation: N=53 community dwelling adults aged 65 or older recruited by flyers or solicitation at senior community and housing facilities. Participants did not have any diagnosed mental or neurological diseases.</p> <p>19% male,</p>	<p><b>Intervention:</b> The participants completed the pretest interview followed by a 30 minute educational session. The participants watched 5 videos and afterward were asked to identify fall threats. The motivation intervention was tailored to participants by situations. They chose from a list of 20 videos different settings that they were interested in, such as an airport or grocery store. The authenticity group focused on the participant's lifestyle, such as home set up, typical walking aids, and independence level with ADLs.</p>	<p>Multimedia Fall Prevention system (MFP): pre and post tests given measuring fall threats and knowledge</p> <p>Fall diaries</p>	<p>The 2 intervention groups showed significant increases in the number of fall threats identified, though there was no significant difference between the two groups. The control group did not change. The number of fall prevention behaviors was significantly greater in the motivation group than the authenticity or control group.</p>



	81% female  Authenticity: <i>n</i> = 18  Motivation: <i>n</i> = 18  Control: <i>n</i> = 17	Participants were measured at baseline and 1 month later.  <b>Control:</b> No education was received, but measurements were taken.		
<b>Outcome 2: Improving occupational performance and engagement</b>				
A randomised controlled trial of the Home Independence Program, an Australian restorative home-care programme for older adults. Lewin, G., De San Miguel, K., Knuiman, M., Alan, J., Boldy, D., Hendrie, D., & Vandermeulen, S. (2013).	Level I - RCT  750 participants 65+, referred for personal care, no dementia or other progressive disorder  Intervention was the Home Independence Program (HIP)—an early intervention program designed to optimize function, prevent functional decline, and promote healthy aging vs. Standard HACC home care services	Intervention Group (IG): Interventions that promote active engagement in a range of ADLs using task analysis and redesign, work simplification and assistive technology when appropriate, strength, balance, and endurance programs, medication and nutrition management, falls prevention strategies and skin integrity. Participated for 12 weeks or until participants achieved their goals  Control Group (CG): ‘Standard’ HACC home care. No changes made to usual model of home care services. 3 personal care visits a week and a fortnightly visit for house cleaning and heavy laundry	Quality of life  ADL/IADL performance and participation  Measures: Modified Barthel Index Lawton and Brody scale Modified Falls Efficacy Scale Assessment of Quality of Life Scale	Fewer participants in the IG required ongoing personal care  Differences in ADL, IADL and QOL but not statistically significant

<p>Reablement in community-dwelling older adults: a randomised controlled trial</p> <p>Tuntland, Aaslund, Espehaug, Dorland, and Kjekken (2015)</p>	<p>Level I- Randomized controlled trial</p> <p>N= 61</p> <p>Intervention: n=31</p> <p>Control: n=30</p> <p>Participants were people applying for or referred to home based services</p>	<p><b>Intervention:</b> Reablement Using the Candian Model of Occupational Performance and Engagement (CMOP-E) to create a client centered reablement intervention. Used the COPM to identify the performance areas most important to the client. Individualized interventions over 3 months max. Focusing on encouraging the client to complete activities independently.</p> <p><b>Control:</b> Usual care, usually meaning a person coming to assist with ADLs and IADLs and usually completing the task for the individual</p>	<p>Activity Performance and Satisfaction: COPM</p> <p>Functional Mobility: Timed Up and Go test</p> <p>Grip Strength</p> <p>Health Related Quality of Life: COOP/Wonka</p>	<p>After 3 months: Significant difference in COPM performance scores in favor of the intervention group (p=.02). Still significant at 9 month follow up (p=.01)</p> <p>There was not a significant difference in satisfaction between groups at 3 m but at 9m there was a significant difference (p=.01)</p> <p>Health related quality of life improved however not statistically significant</p>
<p>Stark, S., Somerville, E., Conte, J., Keglovits, M., Hu, Y. L., Carpenter, C., ... &amp; Yan, Y. (2018).</p>	<p>Level of Evidence: I</p> <p>Study design: RCT</p> <p>Participation: N= 92 adults aged 65 or older with a history of falling in the last 6 months and an impairment of 2 or more daily activities.</p> <p>24% male, 76% female</p> <p>Intervention: n=45</p> <p>Control: n=47</p> <p>Age= 78</p>	<p><b>Intervention:</b></p> <p>The sham control group received adaptive equipment from a standardized kit. Participants received six 90-minute treatment sessions in their homes, which consisted of instruction on equipment use.</p> <p><b>Control:</b> The home modification group received a tailored intervention that provided environmental support to address daily activity limitations and compensate for functional impairments. The intervention also included standardized components including: assessing each participant's home environment and abilities; identifying environmental</p>	<p>Performance-Oriented Mobility Assessment</p> <p>In-Home Occupational Performance Evaluation</p> <p>Both measures were taken at baseline, 6 months, and 12 months</p>	<p>Objective activity performance scores for the home modification group significantly improved compared with the control group over time. The modification group also showed significant improvement in self-rated performance and satisfaction with performance compared to the control group.</p>

		<p>barriers and daily activity problems (prioritized by the participant); determining an optimal treatment prescription with an interventionist-generated shared decision-making tool; selecting adaptive equipment and home modifications using shared decision making with the participant (including installing chosen equipment); training and active practice with the new equipment or home modifications. The competence-pressure model is the treatment theory guiding this intervention. It suggests that changes to the environment, when matched with personal abilities, can improve activity performance. Participants received six 90-minute treatment sessions in their homes.</p>		
<p>Occupation-Focused Interventions for Well Older People: An exploratory randomized controlled trial</p> <p>Zingmark, M., Fisher, A., Rocklöv, J., &amp; Nilsson, I. (2014).</p>	<p>Level I- RCT Single-Blind, 4 group</p> <p>177 participants 77-82 years old Living alone at home without home help No cognitive or communication problems</p> <p>Goal was to evaluate the effectiveness of three different occupation focused interventions for well older people by assessing leisure</p>	<p>All interventions were occupation focused including meaningful activities and coping with age-related activity restrictions and changes in order to improve or maintain engagement in valued activities Focus on occupational engagement with healthy aging</p> <p><b>Control group (CG):</b> No intervention,</p> <p><b>Individual intervention (IG):</b> client-centered, goal-oriented approach All interventions were identified</p>	<p>Leisure Engagement was measured using the Modified NPS interest checklist (MNPS)</p> <p>ADL Ability was evaluated using the ADL Taxonomy</p>	<p>All groups showed an overall decline in leisure engagement however DG reduced the rate of decline compared to the CG and the decline in the IG was less than the other groups</p> <p>ADLs declined within all 4 group however the interventions reduced the rate of decline compared to the control group</p>

	<p>engagement and ability in ADLs and determine the most effect intervention</p> <p>Data was collected by blinded research assistants at baseline, three, and 12 months</p>	<p>through client collaboration</p> <p><b>Activity group (AG):</b> Peer exchange in a OT led therapy group Interventions were active and included walking with a pedometer, cooking, and visiting a coffee shop</p> <p><b>One-Meeting Discussion Group (DG):</b> Short lecture concerning occupational engagement and healthy aging followed by group discussions and exchange of experiences among participants</p>		
<p>Therapy and Lifestyle Interventions on Older Persons' Health, Well-being, and occupational adaptation: A mixed design study</p> <p>Johansson, A. &amp; Bjorkland, A. (2015)</p>	<p>Level I-RCT Additionally conducted semi-structured interviews with the intervention group</p> <p>Participants has a mean age of 81 in CG and 82 in IG but were all 65+ Living in community dwelling w/o homecare</p>	<p><b>Intervention Group (IG):</b> Given health-promoting interventions for 2 hours/week for 4 months as well as 4 hours max of individual interventions. Facilitated by OTs. Home visit with needs assessment in the form of an interview in order to develop the program based on participant's needs and meaningful occupations. Attended community groups focused on occupations and then a follow up home visit in which the OT supported the participants in adapting the knowledge from the group sessions into their daily life</p> <p><b>Control Group (CG):</b> Occasional OT interventions and prescription of assistive devices but no group interventions</p>	<p>Short Form 36(SF-36) – Self experienced general health</p> <p>Life Satisfaction Index-Z (LSIZ)—psychological well being</p> <p>Meaningful Activity Participation Assessment (MAPA)—participation</p> <p>Semi Structured interview—impact of the program on their daily activities</p>	<p>General health and well-being: increased in 5/8 subscales of the SF-36 and significantly in vitality (.01) and mental health (.03)</p> <p>Meaningful activities: positive change in the IG and a negative change in the CG, clinically significant but not statistically significant</p> <p>Themes in the interviews: independence, belonging to a group, self-esteem, change in occupational behavior, change in occupational approach</p>

<p>Community aging in place, advancing better living for elders: A bio-behavioral-environmental intervention to improve function and health-related quality of life in disabled older adults</p> <p>Szanton, S. L., Thorpe, R. J., Boyd, C., Tanner, E. K., Leff, B., Agree, E., ... &amp; Guralnik, J. M. (2011).</p>	<p>Level I- RCT</p> <p>40 participants</p> <p>Inclusion Criteria: 65+. intact cognition (24+ on MMSE), report difficulty with at least 1 ADL and at least 2 IADLs, low income, and be able to stand without assistance, not receiving in home therapy, hospitalized &lt; 3 in the past year</p> <p>The Community Aging in Place, Advancing Better Living for Elders (CAPABLE)</p>	<p>Intervention Group (IG): CAPABLE: coordinated occupational therapy, nursing, and handyman visits along with home modifications and repairs</p> <p>Control Group (CG): Received ten 60 minute sessions with a trained research assistant to control for face to face time</p>	<p>Reduction in ADL and IADL difficulty</p> <p>Health related quality of life</p> <p>Falls</p>	<p>ADL Difficulty (.63) IADL Difficulty (.62) Health related Quality of Life (.89) Falls (.55)</p> <p>All had large effect size</p>
<p>Roaldsen, K., Halvarsson, A., Sahlström, T., &amp; Ståhle, A. (2014).</p>	<p>The design is a randomized control trial, which is considered a Level I on the evidence hierarchy.</p> <p>The purpose of this study is to identify the effects of a 12-week progressive, individualized, and task-specific group balance training program of community dwelling older adults in Stockholm, Sweden with</p>	<p><b>Intervention Group:</b></p> <p>The intervention was a balance training program that includes both upper and lower extremity engagement and dual tasks that involve a level of function required for common activities of daily living. The training program was progressive and individualized based on how each participant was doing and appropriate levels of challenge were given accordingly. Some examples provided about the nature of task-specific activities are like walking while carrying a</p>	<p>The LLFDI is used to measure both function and disability components. The function component includes outcomes of overall function, upper extremity function, basic lower extremity function, and advanced lower extremity function. It comprises 32 questions that rate task difficulty on a scale of no difficulty with a score of 5 and cannot do with a score of 1. The disability component includes outcomes of overall limitation and overall frequency. It consists of 16</p>	<p>-The research shows there was a significant change in overall function with the intervention group that had a p-value of 0.016 and an effect size of 0.69.</p> <p>-Basic lower extremity function had a significant change in the intervention group with a p-value of 0.044 and an effect size of 0.57.</p> <p>-Further advanced lower extremity function for the intervention group had statistically significance with a p-value of 0.025 and an effect size of 0.64.</p> <p>The mean increases seen for the intervention group with these components exceeded the measurement error as well as the effect size, thus, showing clinical significance. This shows that task-specific</p>

	<p>balance deficits or fear of falling.</p> <p>Participants had to be at least 65 years old with either a fear of falling or history of falls within the past 12 months. Additionally, participants had to be able to walk indoors without assistance and a score of a least 24 on the Mini-Mental State Examination.</p> <p>N= 59 Male= 28.8% Female= 71.2% There were 38 participants in the intervention group. There were more participants in the intervention group because they were randomly allocated at a 2:1 ratio in favor of the intervention group.</p>	<p>tray filled with glasses, closing buttons, and climbing over obstacles. Further, the balance training program was geared towards improving body functions and structures.</p> <p><b>Control Group:</b> The control group was encouraged to continue living as before and not change much in terms of activity levels. The group was offered a chance to participate in the training program after the study was finished.</p>	<p>questions that ask how limited one feels doing certain tasks and is on a scale where 5 means no limitations and 1 is very often limited.</p>	<p>balance training programs show usefulness in improving overall function and basic and advanced lower extremity function for community dwelling older adults with little to know disability. The results show there was no statistically significant change in upper extremity function for the intervention group.</p>
<p>Law, L. L. F., Barnett, F., Yau, M. K., &amp; Gray, M. A. (2013).</p>	<p>Level of Evidence: III</p>	<p>The focus of the study was to examine the feasibility of application and the effects of a functional task exercise program on cognitive functions of older adults</p>	<p>Outcomes includes:</p>	<p>-In the performance of general cognitive functions, the FcTSim group had a medium to large effect size (Cohen's d = 0.79) for the Neurobehavioral Cognitive Status Examination.</p>

	<p>Study Design: Single-group repeated-measures design</p> <p>Participation: N=11 M age= 71.8 81.8% Female, 18.2% Male</p> <p>Inclusion Criteria: -Subjective memory/cognitive complaint -Objective cognitive impairment revealed by neuropsychological assessment -Objective cognitive impairment but with intact person self-care functions, and absence of diagnosed dementia.</p>	<p>with a mild cognitive impairment (MCI). The intervention was a 10-week program with three sessions per week for one hour. The sessions were center-based the first 4 weeks for 2 sessions and one at home session. It then moved to once weekly center-based sessions with twice weekly home practice sessions for the next 4 weeks. The last two weeks were biweekly center-based sessions. The functional tasks were tailored to each individual but included bimanual coordination tasks, switching tasks (shifting rapidly from one task to another), body midline crossing task, and interference.</p>	<p>-Functional status measures like the Lawton IADL and Problems in Everyday Living Test (PEDL)</p> <p>-Other outcomes looked at the effect on memory with the Neurobehavioral Cognitive Status Examination, verbal fluency test, and the Chinese version of the verbal learning test.</p>	<p>-In the tests of memory and executive function, the FcTSim group also had a medium effect size (Cohen's d = 0.76) for CVVLT total free recall, a small effect size (Cohen's d = 0.40) for the CVVLT 10-minute Delayed Free Recall and a small effect size (Cohen's d = 0.45) in the Verbal Fluency Test.</p> <p>-In the functional status measures, the FcTSim group showed a medium effect size (Cohen's d = 0.60) for Lawton IADL and a very large effect size (Cohen's d = 1.37) for PEDL.</p> <p>-All the effects sustained during the follow-up at 6 months from start of the program.</p>
<p>Nielsen, T. L., Anderson, N. T., Petersen, K. S., Polatajko, H., Nielsen, C. V. (2019)</p>	<p>Level I: Randomized controlled trial</p> <p>Participants: N= 119 at baseline N= 99 at 3 months</p> <p>Inclusion Criteria: -older men and women aged 60+ who have</p>	<p><b>Intervention group:</b> The intervention group was the ICC- OT group where one research OT was assigned to each participant. IT consisted of 11 weeks of ICC-OT (Week 2 to 12) with two sessions per week and a maximum of 22 sessions. The aim of the ICC-OT was to improve occupational performance. Goal-setting based off</p>	<p><b>Primary outcome:</b> self-rated occupational performance assessed with the Canadian Occupational Performance Measure (COPM)</p> <p>- <b>occupational performance and health-related quality of life</b> were measured at baseline, at the 3 month assessment and at the 6 month assessment.</p>	<p>The ICC- OT group improved their COPM performance from baseline to the 3-month assessment statistically significantly more than the Usual-Practice group (p=0.001).</p> <p>At 3 months, there was no between-group differences in change found concerning any of the secondary outcomes. At 6 months, the changes in COPM performance, COPM satisfaction, and the AMPS</p>

	<p>experienced occupational performance problems and were therefore applying for, or already receiving, homecare services. They lived in private homes or in sheltered housing and were able to communicate in Danish.</p>	<p>the participants COPM took place Week 3; the goals addressed improving occupational performance within the self-care, productivity and leisure domains. The therapeutic phase (Week 3 to 12) to a large degree involved practising the necessary tasks and activities to achieve the goals. The ICC-OT was tailored to the individual and built on acquisitional, adaptive and restorative models. In Week 13, the participants went through the 3-month assessment. They then received usual practice for the last 3 months of their participation in the study, until the 6-month assessment.</p> <p><b>Control Group:</b> The control group was usual practice which received no input from the research OTs. From Week 2, it was possible (though not mandatory) for the participants to be referred to homecare rehabilitation. This was a part of the usual practice of the municipality and was initiated when the homecare officers considered that the participants had potential for improvement in tasks or activities for which they would otherwise require help. Homecare</p>	<p><b>Secondary outcomes:</b> self-rated performance satisfaction, observer-rated performance quality, and health-related quality of life</p>	<p>motor scale were statistically significantly larger in the ICC-OT group than in the Usual-Practice group.</p> <p>The primary hypothesis regarding the effectiveness of ICC-OT in the home was confirmed: ICC-OT significantly improved the participants' own perceptions of their occupational performance compared to usual practice.</p>
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		<p>re-ablement took place in the home and lasted up to 3 weeks. It could include three visits by a municipal occupational therapist but was mainly performed by homecare assistants and the tasks worked on could only be related to self-care and household management. Thirteen weeks (3 months) after baseline, the participants went through the 3- month assessment and continued receiving usual practice for the last 3 months of their participation in the study, until the 6-month assessment.</p>		
<p>Murphy, S. L., Janevic, M. R., Lee, P., &amp; Williams, D. A. (2018)</p>	<p><b>Level of Evidence:</b> II  <b>Study Design:</b> Randomized Controlled Pilot Study  N = 46  76.1% female, 23.9% male  <b>Intervention:</b> n=31  <b>Control:</b> n=15  <i>M Age= 63.5</i>  <b>Inclusion Criteria:</b>  The population studied was community dwelling adults aged 50 or older who met the clinical criteria for knee osteoarthritis.</p>	<p><b>Intervention Group:</b>  The intervention provided was called Engage, and involved 8 weekly, 1 hour in-person sessions, focusing on cognitive behavioral therapy, with an occupational therapist. Additionally, participants were given access to an online program that provided education materials on a variety of topics including exercise, sleep hygiene, activity pacing, etc.  <b>Control Group:</b>  The control group, received care as usual and were instructed not to initiate any new behavioral program during the course of the study.</p>	<p>The primary outcome measured was physical function, as measured by the Western Ontario Osteoarthritis Index (WOMAC - PF). Participants rated the difficulty of 17 activities which included using stairs, rising from bed, shopping, etc.)   The secondary outcomes measured were pain, fatigue, physical activity, and patient impression of change.</p>	<p><b>Physical Function:</b>  Following the intervention, the percent of individuals who demonstrated a clinically important difference on the WOMAC - PF was greater in the intervention group (58%) than in the control group (47%). These results were statistically significant, although the power was low with an effect size of 0.01.  <b>Secondary Outcomes:</b>  On secondary outcomes of pain, fatigue, and patient impression of change, the intervention group showed greater improvement than the control group; however, again, the effect size was small. There were no clinically significant results regarding physical activity.</p>

			For both groups, outcome measures were collected at baseline and again 6 months later.	
Garvey, J., Connolly, D., Boland, F., & Smith, S. M. (2015)	<p><b>Level of Evidence:</b> I  <b>Study Design:</b> RCT  N = 50  36.1% Male, 63.9% Female  <b>Intervention:</b> n = 26  <b>Control:</b> n = 24  M Age = 66.3  <b>Inclusion Criteria:</b> The population studied was community dwelling adults with multimorbidity, which was defined as having two or more chronic conditions and a minimum of four repeat medications.</p>	<p><b>Intervention Group:</b>  The intervention provided was labeled OPTIMAL and involved small groups of 6 to 10 members which met in a primary care setting once a week for 6 weeks, with meetings lasting 3 hours each. Group meetings were led by 2 occupational therapists and involved education, group discussion, and structured goal setting.  <b>Control Group:</b>  The control group, received care as usual and was placed on the waitlist to receive the OPTIMAL intervention following the conclusion of the study.</p>	<p>The primary outcome measured was frequency of activity participation as measured by the Frechay Activities Index (FAI). The FAI is a valid and reliable tool for community dwelling populations with a variety of health conditions. The goal of the intervention was to increase participation in productive and leisure activities.</p> <p>Secondary outcomes measured included the COPM, health related quality of life, anxiety and depression, ADLs completion, and Goal Attainment Scaling.</p>	<p><b>Occupational Participation:</b>  Researchers found a significant difference in the total FAI scores between the intervention and control groups at follow-up, with the intervention group having a higher average score (24.9 in comparison to 19.8 in the control group) indicating a higher frequency of activity participation.  <b>Secondary Outcomes:</b>  On the secondary measures, researchers found significant differences between the intervention and control groups on scores on the COPM, ADL participation, health related quality of life (EQ-5D), and the Goal Attainment Scaling. With each of these measures, the intervention group showed greater improvement than the control group. No significant differences were found on the measurements of anxiety and depression.</p>
Courtney, M. D., Edwards, H. E., Chang, A. M., Parker, A. W., Finlayson, K., Bradbury, C., & Nielsen, Z. (2012)	<p><b>Level of Evidence:</b> I  <b>Study Design:</b> RCT  N = 128  62% Female, 38% Male  <b>Intervention:</b> n = 64  <b>Control:</b> n = 64  M Age = 78  <b>Inclusion Criteria:</b> The population studied was community - dwelling</p>	<p><b>Intervention Group:</b>  The intervention provided lasted 6 months and involved an individually tailored exercise program, education of health maintenance strategies, a home visit, and regular phone calls. The exercise program addressed balance, muscular strength and flexibility, stretching, and walking endurance with the aim of</p>	<p>The primary outcomes are clearly outlined with the 3 primary outcomes being: scores on the Index of ADL, scores on the index of IADL, and scores on the Walking Impairment Questionnaire (WIQ). These outcomes measure functional ability of older adults in categories such as self - care skills, toileting,</p>	<p><b>Index of ADL:</b>  Researchers found a significant difference in the total Index of ADL scores in the intervention group from baseline to 24 weeks following discharge.  <b>Index of IADL:</b>  Researchers found a significant improvement in the total Index of IADL scores in the intervention group from baseline to 24 weeks following discharge.  <b>Walking Impairment Questionnaire:</b></p>

	<p>older individuals (65 years and older) who had been admitted to the hospital and had at least one risk factor for readmission. The risk factors for readmission included older than 75 years of age, history of multiple hospital readmissions in the past 6 months, multiple comorbidities, lived alone, had a poor - self rating of health, had a functional impairment, and/or depression.</p>	<p>improving overall strength and mobility to facilitate occupational participation</p> <p><b>Control Group:</b> The control group received care as usual. This included routine discharge planning, follow - up care, and rehabilitation advice that is normally provided.</p>	<p>travelling, shopping, preparing meals, housework, managing medications, telephone use, and financial management.</p> <p>For both treatment groups, baseline data and outcome measures were collected at the start of the trial and then outcome measures were collected again at 4, 12, and 24 weeks following each participants' discharge from the hospital.</p>	<p>Researchers found that there was a significant improvement in WIQ scores in the intervention group on the variables of distance, speed, and ability to use stairs.</p>
<p>Zingmark, M., &amp; Bernspång, B. (2011).</p>	<p>Level I RCT N= 74 community dwelling older adults 0% male 100 %female M age=82.2 years old  Intervention group n=46 Control group n=28</p>	<p><b>Intervention:</b> The discharge of elderly patient from the hospital was followed by a pre-discharge planning meeting that included the client, personnel on the ward, and a team of a care manager, a nurse, and occupational therapist and a physiotherapist. Those who were requesting help with bathing met with an OT at home where they were assessed and received interventions to support safety and independence in</p>	<p>ADLs-ADL-taxonomy  Health related quality of life-EQ-5D</p>	<p>Both the control group and the intervention group showed statistically significant improvement in self-care and usual activities. The intervention group showed statistically significant improvement in mobility and pain/discomfort. There was no significance in improvement in anxiety/ depression.</p>

		<p>performance in bathing. Interventions ended when the client became independent or that no other interventions would be of benefit. If clients still needed help a home help was allocated.</p> <p><b>Control:</b> The discharge of elderly patient from the hospital was followed by a pre-discharge planning meeting that included the client, personnel on the ward, and a team of a care manager. Clients that were requesting help with bathing were allocated home-help services and received no occupational therapy.</p>		
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<p>Levasseur, M., Filiatrault, J., Larivière, N., Trépanier, J., Lévesque, M. H., Beaudry, M., ... &amp; Corriveau, H. (2019). 7305205030p1-73 05205030p18.</p>	<p>Level I RCT N=16 community dwelling older adults 37.5% male 62.5%female M age=76.4 years old  Intervention group n=6 Control group n=10</p>	<p><b>Intervention:</b> weekly 2 hours group over a 6 month period, based on 12 modules of the Lifestyle Redesign Manual. Every month one group outing and individual meetings with the OT were planned. The meetings aimed to help participants integrate the group session content and engage in meaningful activities <b>Control:</b> weekly 2 hours group sessions over a 6 month period.</p>	<p>Health Social Participation Leisure Mobility</p>	<p>The results were that the French-Canadian Lifestyle Redesign had a beneficial effect on the study participants' mental health <math>p=.02</math> and interest in leisure at <math>p=.02</math> and those who have disabilities social participation was <math>p=.03</math> and attitudes towards leisure was <math>p=.04</math>.  There was a power based on social participation between T1 and T2 at 35.5% and between T1 and T4 there was 10.5%.</p>
<p>Borrows, A., &amp; Holland, R. (2013)</p>	<p>Level of Evidence: I Study Design: RCT</p>	<p><b>Intervention:</b> Participants received OT from an independent living center (ILC) that provided</p>	<p>Community Dependence Index (CDI)</p>	<p>No clear difference was detected between the OT services given by the ILC or community OT, but the study did have low statistical power with</p>

	<p>Participation: <i>N</i>= 36 adults in the UK referred to Great Yarmouth Borough Community OT service. These patients were deemed a lower priority, such as someone who has trouble with stairs. No urgent patients were included in the study.</p> <p>31% male, 69% female</p> <p>Intervention: <i>n</i>= 18</p> <p>Control: <i>n</i>= 18</p> <p>Mean age= 70.45</p>	<p>information on independent living. OTs could give out information on finance issues, equipment, social services, local organizations, and practical solutions. Transportation to the ILC was provided by the Red Cross. The original assessment included an interview, which the control group also received. Following sessions were conducted in showcase rooms where participants were encouraged to try out equipment in bathroom and kitchen setups.</p> <p><b>Control:</b> Routine community-based OT, which usually takes place in participants' homes. The original assessment took 0.5-2 hours, and OTs were available for ongoing support and could provide adaptations or equipment.</p>	<p>EQ-5D measures quality of life</p>	<p>only 36 participants. At 3 months, both groups saw a 2-3 point increase in the CDI measure, and the difference between the groups was not significant. At 12 months, both groups gained 5-6 points in the CDI measure compared to their baseline scores. This is equated with about a 10% decrease in dependency. Again, there was no significant difference between the 2 groups. At 12 months, both groups' EQ-5D scores improved slightly with no difference between groups.</p>
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<p>Waldersen, B. W., Wolff, J. L., Roberts, L., Bridges, A. E., Gitlin, L. N., &amp; Szanton, S. L. (2017).</p>	<p>Level I RCT N=226 community dwelling older adults  13.3% male 86.7%female M age=75.1 years old  Intervention group n=84 Control group n=142</p>	<p>Intervention: One was the treatment arm of a National Institutes of Health funded randomized trial with 84 participants. Control: The other one being a Centers for Medicare and Medicaid Services demonstration study with 142 participants.</p>	<p>Goal Attainment Readiness to change</p>	<p>Participants attained 73.5% of goals. Goal attainment was highest for stair climbing (86.3%), Transferring (85.6%), and self-care (84.6%), and walking goals were less at (54.0%). When participants' readiness to change score increases by 1 point on a 4-point scale, goal attainment was 62% more likely with a 95% confidence interval of 1.14-2.29.</p>
<p><b>Outcome 3: Health related quality of life and quality of life</b></p>				
<p>Juang, C., Knight, B. G., Carlson, M., Schepens Niemiec, S. L., Vigen, C., &amp; Clark, F. (2018)</p>	<p>Level of Evidence: I Study Design: RCT Participation: N= 460 older adults ages 60-95 and community dwelling.  34.1% male, 65.9% female  Intervention: n= 232  Control: n= 228  M age= 74.9</p>	<p><b>Intervention:</b> The Lifestyle Redesign program was given to participants by OTs who were trained in how to lead the program. Sessions consisted of peer exchanges, presentations, self-reflection, and direct experiences that allowed participants to explore activities relating to wellness and healthy habit formation. The average participant took part in 12.11 group sessions and 2.42 individual ones. Some module examples include The Power of Activity, Transportation, and Social Relationships.  <b>Control:</b> No treatment.</p>	<p>The Center for Epidemiologic Studies Depression Scale (CESD)  Meaningful Activity Participation Assessment-Frequency (MAPA-f)  The Activity Significance and Perception of Engagement assessment (ASPEn)  The Lubben Social Network Scale LSNS  8 item perceived control measurement  All were measured at baseline and 6 months.</p>	<p>The intervention had a significant indirect effect on depressive symptoms in the experimental group. It was suggested that activity frequency led to more social connections which decreased depressive symptoms. It was also suggested perceived control was linked to activity significance. Effect sizes (Cohen's d) are as follows: depression 0.22, activity frequency 0.44, and activity significance 0.23.</p>
<p>Effectiveness of a lifestyle intervention in</p>	<p>Level I- RCT 460 participants</p>	<p>Intervention Group (IG): Small group and individual sessions by a licensed occupational therapist</p>	<p>Health Related Quality of Life Life satisfaction Depression</p>	<p>Statistically significant differences in bodily pain, vitality, social functioning, mental health, composite mental functioning, life satisfaction, and depressives</p>

<p>promoting the well-being of independently living older people: results of the Well Elderly 2 Randomised Controlled Trial Clark, F., Jackson, J., Carlson, M., Chou, C. P., Cherry, B. J., Jordan-Marsh, M., ... &amp; Wilcox, R. R. (2012)</p>	<p>60-95 years old Living at home</p> <p>6-month intervention generally following the original Well Elderly Lifestyle Redesign study intervention</p>	<p>Monthly outings to facilitate direct experience with public transportation</p> <p>Control Group (CG): No treatment</p>	<p>SF-36, Center for Epidemiologic Studies for Depression (CES-D), Life Satisfaction Index- Z (LSI-Z)</p>	<p>symptoms (p &lt; 0.05)</p> <p>Statistically significant increase in quality of life (p &lt; 0.02)</p>
<p>Sheffield, C., Smith, C. A., &amp; Becker, M. (2013).</p>	<p>Level of Evidence: III</p> <p>Study Design: Single-group repeated-measures design</p> <p>Participation:  N=11  M age= 71.8  81.8% Female, 18.2% Male</p> <p>Inclusion Criteria: -Subjective memory/cognitive complaint</p>	<p>The intervention focuses on a community-based occupational therapy service known as Aging in Place. The specific intervention included home and in-home assessment of the individuals daily activities, client-family collaboration to achieve mutual goals, provision and training of the use of assistive devices, design and implementation of home modifications, removal of environmental hazards, training in medication management, and education in adaptive and compensatory strategies to improve safety and independence. The comparison was a delayed intervention group.</p>	<p>-Home Safety using the Safety Assessment of Function and the Environment for Rehabilitation Health Outcome Measurement and Evaluation (SAFER-HOME).</p> <p>-Functional independence Measure (FIM)</p> <p>-Fear of falling using the Short Falls Efficacy Scale International (FES-I)</p> <p>-Health-related quality of life using a health status index value (EQ5D)</p>	<p>-Home safety had the largest effect in which the coefficient of treatment was -15.87, indicating substantial reductions in home hazards following the intervention. Home safety had a 1.44 SD, was <b>very large</b> and was consistent with the premise of intervention.</p> <p>- There was <b>no statistical difference</b> found regarding functional independence.</p> <p>-Fear of falling had a coefficient of treatment that was -2.22 meaning that individuals in the intervention group reported less fear of following at follow-up relative to the control group. The effect size was 0.31 standard deviations, representing a <b>small effect</b>.</p> <p>- Lastly, health-related quality of life had a coefficient of treatment that was 0.08 representing an 8% improvement in HRQoL relative to the control group. The effect size was 0.35 which is considered a <b>small effect</b>.</p>



	<p>-Objective cognitive impairment revealed by neuropsychological assessment</p> <p>-Objective cognitive impairment but with intact person self-care functions, and absence of diagnosed dementia.</p>			
<p>Cornelis, E., Gorus, E., Beyer, I., Van Puyvelde, K., Lieten, S., Versijpt, J., Vande Walle, N., Aerts, G., De Roover, K., &amp; De Vriendt, P. (2018).</p>	<p>Level of Evidence: III</p> <p>Study Design: Single-group repeated-measures design</p> <p>Participation: N=11</p> <p>Age= 71.8</p> <p>81.8% Female, 18.2% Male</p>	<p>The goal of this study was to determine if there are any improvements or stabilization in function, cognition, quality of life, emotional and behavioral disturbances, and caregiver burden of individuals with dementia who received the intervention. The intervention consists of 3 phases that equate to a year. The first phase includes baseline assessment and goal setting with the client and caregiver. The second phase involved teaching compensatory and environmental strategies, increasing skill of caregivers, home visit, psycho-education visit, adaptation to the living environment, and training in assistive devices. The third phase involved reassessing.</p>	<p>-BADL using the Katz Index  -IADL using the Lawton Scale  -ADL using the AADL tool  -Mini Mental State Examination (MMSE)  -Geriatric Depression Scale (GDS-15)  -Neuropsychiatric Inventory Questionnaire (NPI-Q)  -QOL-AD for QOL and Alzheimer's Disease  -Caregiver burden using Zarit Burden Interview (ZARIT-BI)</p>	<p>-The cognitive performance according to the MMSE showed a <b>significant decline</b> (<math>Z = -1.9</math>, <math>p = 0.046</math>, 95% CI (.043-.051))</p> <p>-Everyday functioning on BADL, IADL, and AADL in numerous outcomes (Katz index, Lawton scale, AADL-CDI, GDS-15) showed <b>significantly more limitations and declines</b> at the end of the program.</p> <p>-The QoL-AD, on the other hand, showed a <b>significant improvement with a moderate size effect</b> (<math>Z = -2.7</math>, <math>p = 0.006</math>, 95% CI (.003-.005))</p> <p>-The results also showed that the behavioral disturbances of the PwDs did <b>not significantly deteriorate but remained stable or improved</b> after one year for nearly 60% of the participants.</p>

				-The mild to moderate caregiver burden at the beginning of the program did not significantly deteriorate but <b>remained stable or got better for 63.6%</b> of the caregivers after participating in the program.
Chippendale, T., & Boltz, M. (2015). 6904270010p1-69 04270010p11.	Level I RCT N=39 community dwelling older adults  10.3 % male 89.7 % female M age=76.83 years old  Intervention group n=23 Control group n=16	Intervention:  All participants took part in an 8 week "share your life story" writing workshop. The participants wrote about how their life experiences have shaped who they are. The program met weekly and attended 8 weeks of the writing workshop. The treatment group had the intergenerational program that began 2 weeks after the writing workshop, and they met once a week for 4 weeks.  Control:  All participants took part in an 8 week "share your life story" writing workshop. The participants wrote about how their life experiences have shaped who they are. The program met weekly and attended 8 weeks of the writing workshop.	Sense of purpose and meaning in life- MLQ-Presence	There was a statistically significant increase in the sense of purpose and meaning in life for the treatment group. p< .0001
<b>Outcome 4: Community Mobility</b>				

<p>Anstey, K.J., Eramudugolla, R., Kiely, K. M., Price, J. (2018)</p>	<p><b>Study Design:</b> Randomised controlled Trial, Level I</p> <p><b>Participants:</b> Current drivers aged 65 and older (Mean age 72.0, 47.4% male) residing in Canberra, Australia.</p> <p>N=55 drivers completed the trial ( intervention group: 27, control group: 28)</p>	<p>Prior to random allocation, all participants attended a 2 hour Road Rules refresher course and received a copy of the 2015 ACT Road Rules Handbook.</p> <p><b>Intervention Group:</b> These 29 participants received tailored driving instruction which consisted of two, one hour driving lessons with a driving instructor (DI) who had not taken part in the baseline assessment. The driving instructor was trained to administer the intervention by an occupational therapist. Prior to the first lesson, a detailed report of the baseline assessment conducted by an OT, who was blind to allocation, was made available to the DI, highlighting the skills most in need of remediation – and as a ‘prescription’ for intervention. The report was accompanied by video clips of the errors obtained from dashboard camera footage taken during the baseline on-road assessment of each participant, and which were clipped and saved by the OT as part of preparing the baseline report. The DI was provided the video clips on a tablet PC to use as feedback during the lessons.</p> <ul style="list-style-type: none"> <li>- Lesson 1: conducted in a dual-brake vehicle and included three parts: a) viewing the baseline on-road assessment video clips with the instructor and receiving</li> </ul>	<p><b>Primary Outcome:</b> The primary outcome was the <b>Driver Safety Rating (DSR) score</b> based on an on-road assessment conducted on a standard route by a driver-trained OT. The on-road test was conducted in a dual-brake vehicle with a driving instructor in the front passenger seat to maintain safety and give directions, and the OT located in the rear passenger seat to observe and rate performance. For each maneuver during the test, the OT noted errors in observation, indication, lane positioning, speed control, gap selection and approach, and rated each error in terms of its severity from 1 to 3, with 1 indicating minor or self-corrected errors and 3 representing errors requiring the DI to intervene in order to avoid a collision. The number of Critical Errors made during the on-road was also recorded. Critical Errors constitute unsafe manoeuvres that are either a) ‘dangerous errors’ (requiring driving instructor intervention) or b) ‘instant fail driving errors’ that would result in an instant fail during an on-road license test.</p> <p><b>Secondary Outcomes:</b> laboratory based or off-road, validated older driver screening measures.</p> <ul style="list-style-type: none"> <li>- The Useful field of view (UFOV)- a PC-based test</li> </ul>	<p>Both groups showed reduction in dangerous/hazardous driver errors that required instructor intervention. From baseline to follow-up there was a greater reduction in the number of critical errors made by the intervention group relative to the control group (IRR = 0.53, SE = 0.1, p = .008). The intervention group improved on the DSR more than the control group.</p> <p>Tailored driving lessons reduced the critical driving errors made by older adults. Longer term followup and larger trials are required.</p>
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		<p>specific feedback that prioritised the more severe/critical driving errors and which were a safety risk</p> <ul style="list-style-type: none"> <li>- Lesson 2: conducted in the participant's own vehicle. It involved DI-guided on-road training and review of specific skills (identified in the baseline assessment) using routes within or near the participant's usual driving range, and then further application of those refreshed skills in unfamiliar areas.</li> </ul> <p><b>Control Group:</b> The 2 hour Road Rules refresher course was the only intervention presented to the active control group.</p>	<p>of visual processing speed and divided attention, with high reliability and validity demonstrated in other large studies to predict crash risk</p> <ul style="list-style-type: none"> <li>- The Multi-D test battery- a Colour Choice Reaction Time test was administered on a computer requiring response to a car that appears in a quadrant of the screen. The Dot motion test is a computer-based measure of central motion sensitivity (Dmin) using random dot stimuli presented a working distance of 3.2 m.</li> <li>- Driving Diaries- following their baseline off-road (laboratory based) assessment, all participants completed monthly "Driving Diaries" for a period of 6 months. Each Diary required an estimated number of kilometres travelled for that month, any crashes and descriptions (i.e., situation, police attendance, injuries), significant incidents (or</li> </ul>	
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			near misses) and a description, regardless of the drivers' fault.	
<p>Sawula, E., Polgar, J., Porter, M. M., Gagnon, S., Weaver, B., Nakagawa, S., Stinchcombe, A., &amp; Bedard, M. (2018)</p>	<p>Level of Evidence: Level I</p> <p>Study Design: Randomized controlled trial</p> <p>Participants: There were 78 participants that were recruited from Thunder Bay, Ontario (Canada)</p> <p>Inclusion Criteria:</p> <ul style="list-style-type: none"> <li>- Aged 65 years and older</li> <li>- Possess a valid general-class driver's license</li> <li>- Drive at least 3 times per week</li> <li>- Able to speak and read English fluently</li> </ul>	<p>All participants received the in-class education component together then were randomized to the BT group, the BT + OR group, or the BT + OR + S groups</p> <ul style="list-style-type: none"> <li>- BT= basic training- in class driving education- completed postassessment measures 4 to 8 weeks after completion of the in-class education component and were given the opportunity to receive the on-road practice sessions 3 months after they completed their post assessment measures</li> <li>- BT + OR= on road training &amp; in class- further received 2 45-min on-road practice sessions</li> <li>- BT + OR + S= in class, on road, &amp; simulator training- also received 2 45-min on-road practice sessions and one 45-min simulator training session</li> </ul>	<p>Outcome measures:</p> <ul style="list-style-type: none"> <li>- <b>On-road driving evaluation-</b> used to assess participants' on-road driving performance before and after receiving their assigned intervention. The score consists of vehicle control, procedural, observation, compliance errors, and a total score. The on-road driving evaluation was conducted in each participant's vehicle. IT used an in-vehicle recording device and video technology. The on-road driving evaluations lasted approximately 30 min and consisted of a set of maneuvers mimicking a standard on-road evaluation, the G2 Exit Road Test, which assesses advanced knowledge and skills that are generally gained through driving experience; this type of road test contains most of the elements typically</li> </ul>	<p>The results indicated a significant reduction of approximately 30% in overall number of driving errors/omissions among participants in the BT + OR and the BT + OR + S groups in comparison to participants in the BT group. This study adds to the mounting evidence demonstrating the effectiveness of individualized driver training in improving safe driving among older adults.</p> <p>There was a significant effect of intervention group on total post intervention on-road driving scores (<math>P &lt; .001</math>), vehicle control post intervention subscores (<math>P = .010</math>), and observation post intervention subscores (<math>P &lt; .001</math>). There was no significant effect of intervention group on procedural post intervention subscores (<math>P = .082</math>) or compliance error post intervention subscores (<math>P = .296</math>).</p>

			<p>used for licensing purposes (e.g., ability to make right turns, change lanes, use signals, and drive through intersections). An independent rater scored video output using a scoring method similar to others utilized reliably in the past.</p> <ul style="list-style-type: none"> <li>- Driving knowledge evaluation questionnaire- 8 multiple-choice questions about the rules of the road and was based on content from the in-class training component</li> </ul>	<p>The results of the in-class training component on knowledge revealed a significant improvement after the in-class training (P&lt;.001)</p> <table border="1"> <thead> <tr> <th>Outcome measure</th> <th>Group</th> <th>Pearson correlation (r)</th> <th>95% Confidence Interval</th> <th>P value</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Driving knowledge</td> <td>BT</td> <td>-0.312</td> <td>-0.618, 0.078</td> <td>.113</td> </tr> <tr> <td>BT + OR</td> <td>-0.051</td> <td>-0.437, 0.351</td> <td>.810</td> </tr> <tr> <td>BT + OR + S</td> <td>-0.060</td> <td>-0.437, 0.335</td> <td>.769</td> </tr> <tr> <td rowspan="3">Baseline on-road driving evaluation score</td> <td>Overall</td> <td>-0.190</td> <td>-0.396, 0.034</td> <td>.095</td> </tr> <tr> <td>BT</td> <td>-0.162</td> <td>-0.510, 0.232</td> <td>.418</td> </tr> <tr> <td>BT + OR</td> <td>-0.482</td> <td>-0.737, -0.107</td> <td>.015</td> </tr> <tr> <td></td> <td>BT + OR + S</td> <td>-0.460</td> <td>-0.719, -0.088</td> <td>.018</td> </tr> <tr> <td></td> <td>Overall</td> <td>-0.287</td> <td>-0.479, -0.069</td> <td>.011</td> </tr> </tbody> </table>	Outcome measure	Group	Pearson correlation (r)	95% Confidence Interval	P value	Driving knowledge	BT	-0.312	-0.618, 0.078	.113	BT + OR	-0.051	-0.437, 0.351	.810	BT + OR + S	-0.060	-0.437, 0.335	.769	Baseline on-road driving evaluation score	Overall	-0.190	-0.396, 0.034	.095	BT	-0.162	-0.510, 0.232	.418	BT + OR	-0.482	-0.737, -0.107	.015		BT + OR + S	-0.460	-0.719, -0.088	.018		Overall	-0.287	-0.479, -0.069	.011
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<p>Ball, K., Edwards, J. D., Ross, L. A. &amp; McGwin, G. (2010)</p>	<p>Level of Evidence: Level I</p> <p>Study Design: Randomized controlled trial</p> <p>Participants: N= 908 older drivers (mean age 73.1; 18.6% African American)</p> <p>Inclusion criteria:</p> <ul style="list-style-type: none"> <li>- aged 65 and</li> </ul>	<p>Participants were randomized to one of four conditions: a no-contact control or one of three intervention conditions (memory, reasoning, or speed-of-processing training). Trainers led interventions, which were conducted in small groups of two to four participants at the study sites during approximately 70-minute sessions over a period of 5 to 6 weeks. In each intervention condition, 10 initial training sessions were administered and occurred twice a week over a 5-week period. Memory training involved teaching mnemonic</p>	<p><b>Primary Outcome:</b> The primary outcome of interest for this analysis was a <b>state-recorded MVC</b>. Information regarding such outcomes was obtained from the Departments of Motor Vehicles in the states of Alabama, Indiana, Maryland, and Pennsylvania.</p> <p>Other measures: demographics, self-rated health, vision, mental status, mileage, and depressive symptoms</p>	<p>Speed-of-processing and reasoning training resulted in lower rates of at-fault collision involvement over the subsequent approximately 6-year period than controls. After adjusting for age, sex, race, education, mental status, health, vision, depressive symptoms, and testing site, participants randomized to the speed-of-processing and reasoning interventions had an approximately 50% lower rate (per person-mile) of at-fault MVCs than the control group (rate ratio (RR) 0.57, 95% confidence interval (CI) 0.34–0.96 for speed of processing), and (RR 0.50, 95% CI 0.27–0.92 for reasoning). There was no significant difference observed for the memory group.</p> <p>Cognitive speed-of-processing and reasoning training</p>																																									

	<p>older</p> <ul style="list-style-type: none"> <li>- no evidence of substantial functional (o2 activities of daily living (ADL) disabilities) or cognitive decline (Mini-Mental State Examination (MMSE) score423)</li> <li>- no self-reported diagnosis of Alzheimer’s disease or any other health conditions with potential concomitant functional decline or higher mortality risk.</li> </ul>	<p>strategies (organization, visualization, associa- tion) for remembering verbal material (e.g., word lists, texts), reasoning training involved teaching strategies for finding the pattern in a letter or word series and identifying the next item in the series, and speed-of-processing training involved practice of visual attention skills and the ability to identify and locate visual information quickly in increasingly demanding visual displays. Each intervention involved a maximum of 10 sessions. On average, participants in each of the three training conditions completed nine training sessions (range 0–10). The intervention was up to 10 sessions of cognitive train- ing for memory, reasoning, or speed of processing.</p>		<p>resulted in a lower at-fault MVC rate in older drivers than in controls. Considering the importance of driving cognitive training, these interventions have great potential to sustain independence and quality of life of older adults. More research is needed to understand the effects of different types and quantities of training.</p> <p>There was no significant association with memory training. Participants randomized to speed-of-processing training expe- rienced a significantly lower rate of at-fault MVCs per year of driving exposure (RR 5 0.55, 95% CI 5 0.33–0.92) or per person mile driven (RR 5 0.58, 95% CI 5 0.35–0.97). Participants randomized to reasoning training had a significantly lower rate of at-fault MVCs per year of driving exposure (RR 5 0.44, 95% CI 5 0.24–0.82) or per- son-miles driven (RR 5 0.50, 95% CI 5 0.27–0.92)</p>
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