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Our Mission: Helping to prepare Iowa's health practitioners to care for our growing population of elders. *E-NEWS* is one of our methods of teaching through technology.

Each month, *E-NEWS* delivers abstracts from current multidisciplinary healthcare journal articles related to a specific geriatric topic. This month's *E-NEWS* focuses on IMPROVING MOBILITY/DISABILITY THROUGH PAIN MANAGEMENT.

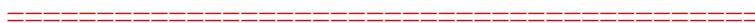
IMPROVING MOBILITY/DISABILITY THROUGH PAIN MANAGEMENT

In this issue of the *E-NEWS*, you will find abstracts for:

- An article that presents an evidence-based practice guideline for persistent pain management in older adults.
 - An article that provides consensus recommendations regarding nonpharmacological management of chronic musculoskeletal pain.
 - An article that reviews complementary and integrative therapies for persistent pain management in older adults.
 - A study that examines potential cerebral mechanisms for associations of musculoskeletal pain with mobility in older adults.
 - A study that seeks to determine pain characteristics associated with the onset of disability in older adults.
 - A study that analyzes patient-centered professional practice models for managing low back pain in older adults.
 - A study that investigates the impact of pain on incident risk of disability in older adults.
 - An article that discusses culturally responsive pain management.
 - A study that evaluates the effect of pain and mild cognitive impairment on mobility.
 - An article that explores interdisciplinary approaches to managing pain in older adults.
 - A study that assesses the impacts of persistent general and site-specific pain on activities of daily living and physical performance among older adults.
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- Arnstein P, Herr KA, Butcher HK. Evidence-Based Practice Guideline: Persistent Pain Management in Older Adults. *J Gerontol Nurs.* 2017 Jul 1;43(7):20-31.

More individuals develop and endure constant or recurring pain in older adulthood. Although 40% of these individuals receive no treatment, many evidence-based treatments are available. Accurate assessment of pain, its impact on functioning, and preventing treatment-related harms lay the foundation of safe, effective pain control. Analgesic agents are often necessary, but require a delicate balance to prevent under-treatment, the unnecessary abandonment of therapy, or exposure to potentially serious adverse effects. Nondrug therapies must be better integrated into the treatment plan to ensure overall safety. Evidence-based approaches help older adults thrive and survive longer despite living with persistent pain.



- Becker WC, DeBar LL, Heapy AA, Higgins D, Krein SL, Lisi A, Makris UE, Allen KD. A Research Agenda for Advancing Non-pharmacological Management of Chronic Musculoskeletal Pain: Findings from a VHA State-of-the-art Conference. *J Gen Intern Med.* 2018 May;33(Suppl 1):11-15.

Chronic pain is widely prevalent among Veterans and can have serious negative consequences for functional status and quality of life among other domains. The Veterans Health Administration (VHA) convened a state-of-the-art (SOTA) conference to develop research priorities for advancing the science and clinical practice of non-pharmacological management of chronic musculoskeletal pain. In this perspective article, we present the methods and consensus recommendations for research priorities emanating from the SOTA. In the months leading up to the SOTA, a core group of researchers defined four areas of focus: psychological/behavioral therapies; exercise/movement therapies; manual therapies; and models for delivering multi-modal pain care and divided into workgroups. Each workgroup, in their respective areas of focus, identified seminal studies capturing the state of the evidence. Herein, we present consensus recommendations ranging from efficacy to effectiveness to implementation/dissemination research depending on the state of the evidence as assessed by participants, including commentary on common elements across workgroups and future areas of innovation in study design, measurement, and outcome ascertainment.



- Bruckenthal P, Marino MA, Snelling L. Complementary and Integrative Therapies for Persistent Pain Management in Older Adults: A Review. *J Gerontol Nurs.* 2016 Dec 1;42(12):40-48.

Management of persistent pain in older adults is challenging given the prevalence of multiple comorbid painful conditions, polypharmacy, age-related changes restricting pharmacological options, and socioeconomic factors. The influences of these factors along with current concern for the use of opioid analgesics highlight the importance of incorporating complementary and integrative medicine approaches. Evidence suggests efficacy and satisfaction with integrating complementary pain management strategies for older adults, especially yoga, massage, and natural products. Nurses and other providers, given their emphasis on holistic care, are in a unique position to lead the transformation of pain management to a patient-centered, self-management style that integrates complementary therapies.



- Cruz-Almeida Y, Rosso A, Marcum Z, Harris T, Newman AB, Nevitt M, Satterfield S, Yaffe K, Rosano C; Health ABC Study. Associations of Musculoskeletal Pain With Mobility in Older Adults: Potential Cerebral Mechanisms. *J Gerontol A Biol Sci Med Sci.* 2017 Sep 1;72(9):1270-1276.

Background: Musculoskeletal pain is highly prevalent and limits mobility in older adults. A potential mechanism by which pain affects mobility could be through its negative impact on the brain. We examined whether structural integrity of cerebral gray and white matter (WM) mediated the relationship between pain and mobility in community-dwelling older adults. Methods: Musculoskeletal pain, gait speed, and neuroimaging data were obtained concurrently from the Health ABC study (mean age = 83/56% female, n = 212). Microstructural gray matter integrity was measured by mean diffusivity (MD), WM microstructure and macrostructure were measured by fractional anisotropy (FA) and WM hyperintensities (WMH), respectively. Regression models were adjusted for gray matter atrophy, age, gender, medication use, and obesity. Bootstrapped mediation methods were used (1,000 bootstrapped samples, 95% confidence intervals). Results: The associations of musculoskeletal pain with WMH ($\beta = .19, p < .05$) and FA ($\beta = -.18, p < .05$) were robust to adjustment for

gender, medication use, age, body mass index (BMI), and brain atrophy. Participants who experienced both knee and back pain had a significantly slower gait speed (~0.11 m/s) than those without knee or back pain ($p < .05$) independent of gender, medication, age, and BMI. WMH and FA significantly mediated the pain-gait speed relationship. Associations between pain and MD were not significant, and MD did not modify the association between pain and gait speed. Conclusions: Cerebral WM integrity may contribute to the detrimental effects of musculoskeletal pain on mobility, although pre-existing WM integrity may also simultaneously amplify pain and decrease mobility. Future studies are needed to further understand whether successful pain management may significantly improve both brain health and mobility. © The Author.

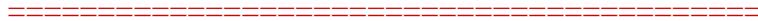
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- Eggermont LH, Leveille SG, Shi L, Kiely DK, Shmerling RH, Jones RN, Guralnik JM, Bean JF. Pain characteristics associated with the onset of disability in older adults: the maintenance of balance, independent living, intellect, and zest in the Elderly Boston Study. *J Am Geriatr Soc.* 2014 Jun;62(6):1007-16.

OBJECTIVES: To determine the effects of chronic pain on the development of disability and decline in physical performance over time in older adults. DESIGN: Longitudinal cohort study with 18 months of follow-up. SETTING: Urban and suburban communities. PARTICIPANTS: Community-dwelling older adults aged 65 and older (N = 634). MEASUREMENTS: Chronic pain assessment consisted of musculoskeletal pain locations and pain severity and pain interference according to the subscales of the Brief Pain Inventory. Disability was self-reported as any difficulty in mobility and basic and instrumental activities of daily living (ADLs, IADLs). Mobility performance was measured using the Short Physical Performance Battery (SPPB). Relationships between baseline pain and incident disability in 18 months were determined using risk ratios (RRs) from multivariable Poisson regression models. RESULTS: Almost 65% of participants reported chronic musculoskeletal pain at baseline. New onset of mobility difficulty at 18 months was strongly associated with baseline pain distribution: 7% (no sites), 18% (1 site), 24% (multisite), and 39% (widespread pain, P-value for trend $< .001$). Similar graded effects were found for other disability measures. Elderly adults with multisite or widespread pain had at a risk of onset of mobility difficulty at least three times as great as that of their peers without pain after adjusting for disability risk factors (multisite pain: risk ratio (RR) = 2.95, 95% confidence interval (CI) 1.58-5.50; widespread pain: RR = 3.57, 95% CI = 1.71-7.48). Widespread pain contributed to decline in mobility performance (1-point decline in SPPB, RR = 1.47, 95% CI = 1.08-2.01). Similar associations were found for baseline pain interference predicting subsequent mobility decline and ADL and IADL disability. Weaker and less-consistent associations were observed with pain severity. CONCLUSION: Older community-dwelling adults living with chronic pain in multiple musculoskeletal locations have a substantially greater risk for developing disability over time and for clinically meaningful decline in mobility performance than those without pain. © the Authors Journal compilation.

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- Goertz CM, Salsbury SA, Long CR, Vining RD, Andresen AA, Hondras MA, Lyons KJ, Killinger LZ, Wolinsky FD, Wallace RB. Patient-centered professional practice models for managing low back pain in older adults: a pilot randomized controlled trial. *BMC Geriatr.* 2017 Oct 13;17(1):235.

BACKGROUND: Low back pain is a debilitating condition for older adults, who may seek healthcare from multiple providers. Few studies have evaluated impacts of different healthcare delivery models on back pain outcomes in this population. The purpose of this study was to compare clinical outcomes of older adults receiving back pain treatment under 3 professional practice models that included primary medical care with or without chiropractic care. METHODS: We conducted a pilot randomized controlled trial with 131 community-dwelling, ambulatory older adults with subacute or chronic low back pain. Participants were randomly allocated to 12 weeks of individualized primary medical care (Medical Care), concurrent medical and chiropractic care (Dual Care), or medical and chiropractic care with enhanced interprofessional collaboration (Shared Care). Primary outcomes were low back pain intensity rated on the numerical rating scale and back-related disability measured with the Roland-Morris Disability Questionnaire. Secondary outcomes included clinical measures, adverse events, and patient satisfaction. Statistical analyses included mixed-effects regression models and general estimating equations. RESULTS: At 12 weeks, participants in all three treatment groups reported improvements in mean average low back pain intensity [Shared Care: 1.8; 95% confidence interval (CI) 1.0 to 2.6; Dual Care: 3.0; 95% CI 2.3 to 3.8; Medical Care: 2.3; 95% CI 1.5 to 3.2] and back-related disability (Shared Care: 2.8; 95% CI 1.6 to 4.0; Dual Care: 2.5; 95% CI 1.3 to 3.7; Medical Care: 1.5; 95% CI 0.2 to 2.8). No statistically significant differences were noted between the three groups on the primary measures.

Participants in both models that included chiropractic reported significantly better perceived low back pain improvement, overall health and quality of life, and greater satisfaction with healthcare services than patients who received medical care alone. CONCLUSIONS: Professional practice models that included primary care and chiropractic care led to modest improvements in low back pain intensity and disability for older adults, with chiropractic-inclusive models resulting in better perceived improvement and patient satisfaction over the primary care model alone.



- Kaiho Y, Sugawara Y, Sugiyama K, Tomata Y, Endo Y, Toyama H, Yamauchi M, Tsuji I. Impact of Pain on Incident Risk of Disability in Elderly Japanese: Cause-specific Analysis. *Anesthesiology*. 2017 Apr;126(4):688-696.

BACKGROUND: Although several cross-sectional studies have reported that pain is associated with functional disability in the elderly, data regarding a longitudinal association between pain and disability are inconsistent. This study aimed to investigate the association of pain severity with subsequent functional disability due to all causes as well as stroke, dementia, and joint disease/fracture. METHODS: The authors conducted a prospective cohort study of 13,702 Japanese individuals aged 65 yr or older. Information regarding pain severity during the previous 4 weeks and other lifestyle factors was collected via questionnaire in 2006. Data on the incidence of functional disability were retrieved from the Long-term Care Insurance database. Cox proportional hazards regression analysis was used to estimate the multivariate-adjusted hazard ratios for incident functional disability. RESULTS: The authors documented 2,686 (19.6%) cases of incident functional disability. The multivariate hazard ratio of functional disability was 1.15 (95% CI, 1.02 to 1.31) among respondents with moderate pain and 1.31 (95% CI, 1.12 to 1.54) among respondents with severe pain in comparison with those without pain (P trend < 0.001). These positive associations were particularly remarkable for disability due to joint disease/fracture: the multivariate hazard ratio was 1.88 (95% CI, 1.37 to 2.58) for moderate pain and 2.76 (95% CI, 1.93 to 3.95) for severe pain (P trend < 0.001). There was a negative association between pain severity and disability due to dementia (P trend = 0.041) and no significant association between pain severity and disability due to stroke. CONCLUSIONS: Among elderly Japanese individuals, the authors found a significant positive association between pain severity and future incident functional disability.



- Robinson-Lane SG, Booker SQ. Culturally Responsive Pain Management for Black Older Adults. *J Gerontol Nurs*. 2017;43(8):33-41.

The management of pain for Black older adults has received inadequate attention by health care professionals despite evidence of greater pain intensity, depressive symptoms, and functional disability compared with White American older adults. Pain management for this population may be significantly improved with more careful attention to the provision of culturally responsive care. As professionals concerned with the optimization of health and reduction of suffering throughout the lifespan, nurses have an ethical, moral, and professional responsibility to provide culturally responsive care to the populations they serve—particularly when clear disparities in health exist. By considering how culture affects important health beliefs, values, preferences, and customs, and integrating this understanding into practice, quality of life is likely to be improved.



- Schepker CA, Leveille SG, Pedersen MM, Ward RE, Kurlinski LA, Grande L, Kiely DK, Bean JF. Effect of Pain and Mild Cognitive Impairment on Mobility. *J Am Geriatr Soc*. 2016 Jan;64(1):138-43.

OBJECTIVES: To examine the effect of pain and mild cognitive impairment (MCI)-together and separately-on performance-based and self-reported mobility outcomes in older adults in primary care with mild to moderate self-reported mobility limitations. DESIGN: Cross-sectional analysis. SETTING: Academic community outpatient clinic. PARTICIPANTS: Individuals aged 65 and older in primary care enrolled in the Boston Rehabilitative Impairment Study in the Elderly who were at risk of mobility decline (N=430). MEASUREMENTS: Participants with an average score greater than three on the Brief Pain Inventory (BPI) were defined as having pain. MCI was defined using age-adjusted scores on a neuropsychological battery. Multivariable linear regression models assessed associations between pain and MCI, together and separately, and mobility performance (habitual gait speed, Short Physical Performance Battery), and self-reports of function and disability in various day-to-day activities (Late Life Function and Disability Instrument). RESULTS:

The prevalence of pain was 34% and of MCI was 42%; 17% had pain only, 25% had MCI only, 17% had pain and MCI, and 41% had neither. Participants with pain and MCI performed significantly worse than all others on all mobility outcomes ($P < .001$). Participants with MCI only or pain only also performed significantly worse on all mobility outcomes than those with neither ($P < .001$). CONCLUSION: Mild to moderate pain and MCI were independently associated with poor mobility, and the presence of both comorbidities was associated with the poorest status. Primary care practitioners who encounter older adults in need of mobility rehabilitation should consider screening them for pain and MCI to better inform subsequent therapeutic interventions. © the Authors Journal compilation..



- Wickson-Griffiths A, Kaasalainen S, Herr K. Interdisciplinary Approaches to Managing Pain in Older Adults. *Clin Geriatr Med*. 2016 Nov;32(4):693-704.

An interdisciplinary approach to managing pain has been widely used in managing specific pain conditions (e.g., lower back and fibromyalgia) but not reviewed specifically for older adults. Interdisciplinary approaches have been used in primary, residential long-term, and acute care settings, where a variety of health care professionals work on pain teams to manage pain in older adults. Given the multidimensional nature of pain in older adults, interdisciplinary approaches to managing pain are recommended in practice. This article reviews the rationale supporting an interdisciplinary approach to managing pain in older adults and summarizes studies that have evaluated this approach.



- Yiengprugsawan V, Steptoe A. Impacts of persistent general and site-specific pain on activities of daily living and physical performance: A prospective analysis of the English Longitudinal Study of Ageing. *Geriatr Gerontol Int*. 2018 Mar 23. doi: 10.1111/ggi.13304. [Epub ahead of print]

AIM: Pain is an increasingly common phenomenon as people age; pain over a long period can result in limited functioning. The present study investigated the impacts of general and multisite-specific pain on activities of daily living and physical performance among older adults. METHODS: Data were analyzed from the English Longitudinal Study of Ageing, a representative sample of the population aged ≥ 50 years. Face-to-face interview and nurse records were used from waves 2-6 (2004-2012) for analyses. General and site-specific pain (back, hip and knee) were measured biennially between 2004 and 2008 ($n = 5010$). Impaired activity of daily living and physical performance measures (chair rise and grip strength) between 2008 and 2012 were aggregated across assessments as outcomes. Multinomial logistic regressions were used for the former and linear regression for the latter, adjusting for potential covariates. RESULTS: General pain (moderate-to-severe) was prevalent, with close to one-quarter of participants reporting pain at least twice during the follow-up period. Multisite pain reports were strong predictors of subsequent limited activities of daily living (adjusted odds ratio range 1.86-3.97 for back and hip, 2.04-4.19 for back and knee, and 2.08-5.16 for hip and knee). Persistent pain was also strongly associated with worse physical performance outcomes. CONCLUSIONS: Our data confirm the longitudinal impacts of persistent pain among older adults. The findings highlight the value of monitoring and management of both general and site-specific pain in order to promote sustained independence at older ages. © Japan Geriatrics Society.



Next Month's Issue:

Medication-Related Falls in Dementia

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