HABIT Program Aims to Delay MCI Progression, Ease Caregiver Burden

Mayo Clinic began its Healthy Action to Benefit Independence and Thinking (HABIT) program in 2008. Since then, more than 270 couples — one person living with mild cognitive impairment (MCI) and a support partner — have completed the intensive 10-day, 50-hour intervention that aims to delay or prevent progression to dementia.

HABIT was modeled on Mayo’s system of outpatient rehabilitation for patients with acute brain injuries, according to Glenn E. Smith, Ph.D., L.P., Dona E. Locke, Ph.D., and Melanie J. Chandler, Ph.D., whose research on the transition from normal aging to early dementia contributed significantly to the program’s development.

“For years, Mayo has had a robust program of interventions for brain-injured patients, and we were looking for opportunities to do the same kind of interventions for people with early changes in cognitive functioning,” Dr. Chandler explains. “There is growing concern that by the time dementia is present, treatment may no longer be effective. But now, we can reliably diagnose mild cognitive impairment, and that has given rise to secondary strategies to delay its progression.”

Patients with mild cognitive impairment present with subjective complaints of progressive memory changes that are supported by objective impairment in some area of cognitive function on sensitive neuropsychological tests. At the same time, the population-based Mayo Clinic Study of Aging found that about 1 in 5 cognitively normal older adults has structural and functional brain changes suggestive of Alzheimer’s disease on autopsy, suggesting that cognitive reserve and resilience can sometimes offset the effects of brain pathologies.

“We are starting to recognize that there is a distinction between disease in the brain and impaired function, and that some people manage to be resilient in the face of brain disease,” Dr. Locke says. “We have studied people with MCI whose declarative memory is failing but whose procedural memory is intact and may even be better than that of people with normal declarative memory. So one of the key goals of HABIT is to help people compensate for failing declarative memory by strengthening procedural memory through the use of journals to record names, appointments, medications and other important information.”

In addition to memory compensation training, participants in HABIT engage in four other essential activities: group supportive therapy, daily yoga, brain fitness and wellness education. The intended aims are to:

- Improve independence, functional status, self-efficacy and psychological well-being
- Foster communication between patients and caregivers
- Establish supportive relationships and networks of support to decrease caregiver burden

Melanie J. Chandler, Ph.D.

Dona E. Locke, Ph.D.
The HABIT program is offered four times a year at all Mayo Clinic sites. Dr. Smith leads the program at Mayo Clinic’s campus in Minnesota, Dr. Locke at the campus in Arizona and Dr. Chandler at the campus in Florida.

As part of a research project, the HABIT program at all three Mayo campuses will be collecting information on patient and caregiver outcomes through early 2016. During the study, four of the five usual interventions will be given at random to help compare the effectiveness of each component to the others.

“So far, we know key measures all improve by the end of treatment and improvement continues at six months,” Dr. Smith says. “Anecdotally, we know that HABIT program participants continue using the journal, so it’s a powerful intervention. Whether or not it is actually delaying transfer to a nursing home or reducing caregiver burden remains to be seen — we are still collecting data. But we are certain that it’s providing some sense of agency and hope for both patients and caregivers. We also provide support groups for caregivers and that is hugely important. Although behavioral interventions appear to provide some benefit for people with MCI, some of the best outcomes may actually be for caregivers.”

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Serotonin Transporter Genotypes May Be Associated With Bone Loss

In the last few years, psychiatric research has increasingly focused on a functional polymorphism of the serotonin transporter promoter gene (5-HTTLPR). The polymorphism produces two main alleles, short (s) and long (l). Patients with one or two s alleles (s/s or s/l) have a decreased response to therapy with selective serotonin reuptake inhibitor (SSRI) antidepressants, and some evidence suggests they are at higher risk of depression, especially in the presence of past childhood abuse or stressful events. Some studies also suggest that s/s and s/l genotypes may be associated with an increased risk of bone loss.

Background
Many studies report an association between depression and reduced bone mineral density (BMD). A population-based retrospective cohort study in the January 2015 issue of Mayo Clinic Proceedings found that depressed adults were 1.3 times more likely to develop osteoporosis than those who weren’t depressed. The risk was higher for people with severe depression and for middle-aged men and women.

Maria I. Lapid, M.D., a geriatric psychiatrist and palliative care specialist at Mayo Clinic’s campus in Minnesota, says several potential factors may lead to reduced BMD in depressed patients, including ongoing inflammation, inactivity, low vitamin D levels, hypercortisolism and poor nutrition.

“People who are depressed are also more likely to smoke and drink, which can also affect bone mineral density,” she explains, adding that the link between depression and bone loss is serious because “depression is common in older adults, who are already more prone to fractures and who experience more morbidity and mortality from falls.”

Dr. Lapid says current thinking is that antidepressants, too, may directly or indirectly affect bone formation and resorption, independent of depression. She points to a 2014 study published in The World Journal of Biological Psychiatry that reported reduced bone formation in older adults taking venlafaxine who had high-expressing 5-HTTLPR and low-expressing serotonin receptor (HTR1B) genotypes.

To further explore the relationship between serotonin transporter genotype (U/L, s/l, s/s) and bone loss, Dr. Lapid, Simon Kung, M.D., and colleagues conducted a retrospective analysis of 289 patients with diagnosed depression or anxiety. The patients, mainly women, had undergone bone mineral studies and genotype testing. They were then stratified according to age, gender and genotype. BMD T-scores were used for patients 50 and older and Z-scores for those younger than 50.

The researchers found that the s allele was associated with lower bone density at the hip and spine in younger adults, especially women, and that bone loss increased with an additive s allele. Surprisingly, Dr. Kung says, there was no statistically significant association between genotype and BMD in patients over 50 (Figure, page 3).

He notes limitations of the study, including selection bias; patients already had depression.
Women with the s allele had lower hip Z-scores (-0.68182/n = 33 vs. -0.08788/n = 33, p = 0.0146).

Women with the s allele had lower spine Z-scores (-1.02500/n = 32 vs. -0.05860/n = 29, p = 0.0020).

Wellness Coaching Improves Quality of Life, Depression, Perceived Stress

Wellness coaching is an increasingly popular strategy for improving health and well-being, yet it remains relatively unstudied. Most published research has looked at outcomes for specific medical problems such as cardiovascular disease and weight management, even though people often seek wellness coaching for general lifestyle improvements.

“At Mayo Clinic, the wellness coaches are in the employee healthy living center, which is dedicated to physical activity, so people come in with the idea that we’re going to weigh them and encourage them to walk more. But people’s goals often change during the wellness coaching process, which can transform it into being about so much more, including stress management, healthy sleep and relationships,” explains Matthew M. Clark, Ph.D., L.P., a clinical psychologist at Mayo Clinic’s campus in Minnesota.

To discover the potential psychosocial benefits of wellness coaching, Dr. Clark and colleagues undertook a single-arm cohort study of 100 Mayo employees who completed a 12-week, in-person wellness coaching program.

The primary aims of the study were to examine potential improvements in quality of life (QOL), including physical, social, emotional, cognitive and spiritual functioning, as well as in depressive symptoms and perceived stress levels. The secondary aim was to examine the maintenance of potential improvements over time.

For more information


The wellness coaching program consisted of an initial 60- to 120-minute session to discuss participants’ strengths, challenges and personal goals and the strategies needed to achieve those goals. In 11 follow-up sessions lasting 30 to 60 minutes each, participants and coaches discussed actions taken toward the goals and methods for successfully continuing them.

**Improvement at 12 and 24 weeks**
Study results, which appeared in *Mayo Clinic Proceedings* in 2014, demonstrated significant improvements at 12 weeks in all areas—overall quality of life, the five domains of QOL, depressive symptoms and perceived stress levels.

At baseline, mean QOL measures ranged from 6 to 7.6 on a 10-point scale. The effect size at 12 weeks was highest for physical well-being (0.8) and lowest for spiritual well-being (0.4). The perceived stress level decreased from a mean of 14.3 at baseline to 11.0, and depressive symptoms scores decreased by half. The number of participants who reported having at least one troubling symptom on the Patient Health Questionnaire-9 at baseline was also reduced by half at 12 weeks. As important, the improvements were maintained at 24-week follow-up.

Dr. Clark says the study results are notable for several reasons. One is the statistically significant and clinically meaningful improvement in all five domains of QOL. Another is the potential for wellness coaching to play a role in an integrated approach to depression management and in formal stress-reduction programs.

He points out that as the popularity of wellness coaching continues to grow, the need for certification and training for coaches increases, too. All wellness coaches at Mayo Clinic received training and certification from the Mayo Clinic Wellness Coaching Training Program, which prepares wellness coaches to build trusting relationships, identify client values and desires, and transform goals into actions that create lasting change.

**For more information**