Residents at the Easton Home engage in reminiscence therapy with Jennifer Woolley (centre).

MARK MAKELA

SYMPTOMATIC TREATMENT

Treating the whole

In the absence of drugs that tackle the biological causes of Alzheimer's disease, some doctors are taking a more holistic approach.

BY LAUREN GRAVITZ

In a Victorian mansion near the centre of Easton, a small city in Pennsylvania, is the Easton Home, a residential care facility for people in their later years. Inside, its flowered wallpaper and antique furnishings, which evoke memories of earlier eras, are interrupted by flat-screen computer monitors. But after passing through a set of secure doors into the facility's 'memory-support neighbourhood', an area built expressly for the care of residents with mild-to-moderate dementia, most evidence of modernity falls away.

Posters and memorabilia from the 1930s and 1940s punctuate the fleur-de-lis-patterned walls. Murals in the dining room reflect the pastoral landscape that lies beyond the city. The living room has been tastefully appointed with furniture from the same period and soothing tunes emanate from a cabinet radio, the exterior of which belies the iPod inside. In the next room, surrounded by an old stove, a wringer washing machine and a vintage refrigerator, four women sit around a kitchen table. As one leafs through an issue of the magazine *Reminisce Extra*, the others are guided in conversation by Jennifer Woolley, a community-life coordinator at Easton, who has just asked them whether they kept any animals at home.

Dolores says she had cows. Her husband milked them, and she collected eggs from chickens. Cecelia says that she also had chickens, and a cow named Nelly. Woolley directs the women's attention to the washing machine in the corner. "What day was laundry day?" she asks. Monday, they agree. The wash was always done on Mondays.

Such chatter is uncommon in many facilities for people with dementia, where residents are more likely to retreat into themselves in the safety of their chairs. The technique of encouraging engagement and improving well-being by prompting people to remember their earlier lives is known as reminiscence therapy. As the pharmaceutical industry struggles to find drugs that can halt the progression of Alzheimer's disease, or even ease its symptoms, some researchers are turning to such behavioural approaches to help those with dementia to live as full a life as possible, for as long as possible.

Increasingly, it seems as though no single such technique will have the effect that these researchers seek. But a combination of behavioural interventions that draw on the brain's capacity to compensate for lost cognition and that keep people engaged in daily life are showing promise in relieving the effects of Alzheimer's disease and other forms of dementia.

A PRESCRIPTIVE APPROACH

Pharmaceutical companies have spent billions of dollars and the past several decades trying to slow the march of Alzheimer's disease. But findings from both the clinic and the laboratory are leading some to think that drugs might not be the answer.

So far, only two types of medication have been approved for use in dementia by regulatory agencies in the United States and Europe. Neither affects the biological mechanisms that drive the condition — no drug with that aim has ever made it through trials (see page S4). Instead, both compounds attempt to slow memory loss by targeting chemical messengers in the brain that are important for memory. Clinical trials suggest that the drugs, which include memantine and donepezil (Aricept), can delay the worsening of symptoms by 6–12 months. Many doctors, however, describe the effects as being almost negligible. "Generally, in patients with dementia due to Alzheimer's, the benefits are modest enough that the drug is inadequate as a therapy," says David Knopman, a neurologist and specialist in Alzheimer's disease at Mayo Clinic in Rochester, Minnesota. "But families want something."

Relatives often want treatments that can ease accompanying conditions that affect their loved ones, too; dealing with the anxiety, irritability and depression of people with Alzheimer's disease is difficult for patients and carers alike. Although drugs such as diazepam (Valium), olanzapine (Zyprexa) and fluoxetine (Prozac) can sometimes help, each brings unwelcome side effects and can increase feelings of lethargy.

One reason why drugs aimed at managing symptoms of Alzheimer's disease are not as effective as hoped might be that, although

such drugs target the mechanisms behind the condition's molecular hallmarks, there is often a mismatch between the physical signs of dementia in the brain and a patient's cognitive symptoms. A post-mortem study showed that about half of people with dementia did not have sufficient hallmarks of disease progression in their brains to explain their cognitive decline. Similarly, many people whose brains showed considerable evidence of Alzheimer's disease experienced few or no symptoms of dementia while alive. Researchers think this shows that the brain has a capacity to maintain memory and cognitive functions despite the presence of physical damage. Certain people might have a cognitive 'reserve' that helps to stave off the effects of Alzheimer's disease, and the reserve might be nurtured and maintained by behavioural and social, rather than pharmaceutical, interventions.

During reminiscence therapy, carers prompt social interaction by initiating conversations that focus on fond memories. Cognitive stimulation, through activities such as simple word or number puzzles, is used to strengthen the cognitive reserve of residents. An approach known as cognitive rehabilitation focuses on improving residents' quality of life by helping them to retain or regain specific skills, such as remembering to turn off the oven or using a mobile phone. And the calming effects of aromatherapy massage are used to decrease agitation and depression.

Woolley speaks of reminiscence therapy in glowing terms. It works "almost like a switch", she says — with residents becoming more alert and responsive after taking part in one of her sessions. And there is research to back this up: several small studies have shown that reminiscence therapy can make a difference to participants' quality of life by decreasing the number of episodes of depression and the amount of anxiety that they experience[1]. However, other studies have found little to no measurable effects[2] — a common theme in the search for evidence to support the benefits of behavioural interventions in people with dementia. This is probably because the variety of factors that influence progression of the condition, including a person's genetic profile and their past physical and mental health, makes it difficult to test the hypothesis in controlled trials. There are indications that these behavioural approaches do have a measurable effect on cognition. Cognitive stimulation, for example, which has been shown to help people remember how to complete activities in daily living that they find meaningful and important, also leads to changes in brain activity that can be measured by functional magnetic resonance imaging[3]. And some studies have suggested that combining cognitive rehabilitation with medication such as donepezil results in better recall in recipients than either intervention alone[4,5]. Another study, however, found almost no difference in the effects of donepezil, cognitive stimulation, a combination of both, or standard care[6].

"We need to lay aside the medical model and focus our attention on the person with dementia."

FINDING PURPOSE

The focus on building evidence to support particular behavioural techniques, however, means that researchers risk losing sight of the bigger picture. The hypothesis of cognitive reserve creates a huge opportunity, says Myrra Vernooij-Dassen at Radboud University Medical Centre in Nijmegen, the Netherlands, who chairs INTERDEM — a European network of researchers who work on dementia, which focuses on early detection and intervention. "It means there is room — and an obligation — to look carefully at the disease as a multifactorial disorder with numerous opportunities for intervention," she says.

Vernooij-Dassen notes that a jumble of factors seems to contribute to Alzheimer's disease. Rather than designing specific behavioural interventions to tackle each one, she advocates enabling people who have just been diagnosed to stay as physically active and as socially engaged, and to live as independently, as they can. According to her observations and those of others, the more socially disconnected that someone with Alzheimer's disease is, the faster they will decline. Conversely, the more that those with the condition interact with other people, and the more meaningful that their lives feel, the more slowly their symptoms will progress. What people with dementia benefit from most, she says, is being allowed to remain socially engaged and to live with purpose and intention for as long as possible.

With this in mind, some care facilities are creating entire villages that enable residents with dementia to maintain routines that are similar to those they followed decades earlier. Perhaps the most well-known of these communities is Hogeweyk, part of a larger care facility in Weesp, the Netherlands. In the village, people with dementia live in small, communal homes and are free to wander in safety through the streets, gardens and even a supermarket. With assistance from vigilant staff, residents can live a life that feels familiar and full of purpose, at a time when they might otherwise feel burdensome and lonely.

Conventional facilities hew too closely to a medical model, focusing on treating the symptoms of dementia with drugs, says Richard Fleming, a psychologist at the University of Wollongong in New South Wales, Australia. "It's more useful and helpful to have a vision of a way of life," he says.

In the mid-1980s, Fleming helped to plan the deinstitutionalization of Australian dementia care. People with dementia were moved from grim hospital-style wards that fostered isolation into small, house-like facilities dubbed CADE (Confused And Disturbed Elderly) units. Rather than focusing on a few specific memory-boosting exercises, Fleming says, residents were encouraged to participate in everyday tasks such as cooking and self-care. As they settled into their new routines, people who had shown little ability to have a simple conversation became re-engaged — suggesting that the cognitive reserve can be accessed even by those who seem to have sunk beyond reach.

Although only a small number of studies have been conducted, enthusiasm for the Hogeweyk approach is growing. Similar facilities are under development worldwide — including locations in San Diego, California, and Oslo. But the built environment is only one part of the dementia-care equation. "I've seen excellent care delivered in reminiscence communities. I've also seen appalling care delivered in reminiscence communities," says Dawn Brooker, director of the Association for Dementia Studies at the University of Worcester, UK. The effectiveness of care for someone with dementia does not hinge on access to an old-fashioned kitchen; the key is the human interaction that such an environment can enable. "It's the people you meet who will make the difference to how you feel, rather than having a beautiful 1940s fridge," Brooker says.

Many researchers and physicians say that when capitalizing on the cognitive reserve, providing personalized care and engaging people in their own lives is more important than the type of behavioural therapy that is used. At the Easton Home, carers brought in wigs and mannequins for a woman who used to run a hair salon. And every morning at 3:30, they put a piece of dough into the community fridge for a man who had spent his life running a bakery. As they set about their days, other residents would walk into the kitchen to find him kneading the dough, a slice of routine that remained even as his other memories fell away.

In the absence of effective drugs, researchers and clinicians consider a holistic approach — which acknowledges that a person with Alzheimer's disease is someone with a wealth of life experience that they can draw on — to be reasonably effective at slowing dementia . "For the time being, at least, we need to lay aside the medical model and focus our attention on the person with dementia," Fleming says. "Not the disease, but the person. And by getting to know them well, and their interests as well as their problems, we can develop environments that support them." ■

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