de Dios et al., 2012; Kristeller et al., 2006). Just 15 minutes of daily mindfulness meditation is enough to improve decision-making performance (Hafenbrack et al., 2014).

So, what's going on in the brain as we practice mindfulness? Correlational and experimental studies offer three explanations.

Mindfulness

• strengthens connections among regions in our brain. The affected regions are those associated with focusing our attention, processing what we see and hear, and being reflective and aware (Ives-Deliperi et al., 2011; Kilpatrick et al., 2011).

• activates brain regions associated with more reflective awareness (Davidson et al., 2003; Way et al., 2010). When labeling emotions, "mindful people" show less activation in the amygdala, a brain region associated with fear, and more activation in the prefrontal cortex, which aids emotion regulation (Creswell et al., 2007).

• calms brain activation in emotional situations. This lower activation was clear in one study in which participants watched two movies—one sad, one neutral. Those in the control group, who were not trained in mindfulness, showed strong differences in brain activation when watching the two movies. Those who had received mindfulness training showed little change in brain response to the two movies (Farb et al., 2010). Emotionally unpleasant images also trigger weaker electrical brain responses in mindful people than in their less mindful counterparts (Brown et al., 2013). A mindful brain is strong, reflective, and calm.

Exercise and meditation are not the only routes to healthy relaxation. Massage helps relax both premature infants and those suffering pain. An analysis of 17 experiments revealed another benefit: Massage therapy relaxes muscles and helps reduce depression (Hou et al., 2010).

Faith Communities and Health

What is the faith factor, and what are some possible explanations for the link between faith and health?

A wealth of studies—some 1800 of them in the twenty-first century’s first decade alone—has revealed another curious correlation, called the faith factor (Koenig et al., 2011). Religiously active people tend to live longer than those who are not religiously active.
One such study compared the death rates for 3900 people living in two Israeli communities. The first community contained 11 religiously orthodox collective settlements; the second contained 11 matched, nonreligious collective settlements (Kark et al., 1996). Over a 16-year period, “belonging to a religious collective was associated with a strong protective effect” not explained by age or economic differences. In every age group, religious community members were about half as likely to have died as were their nonreligious counterparts. This difference is roughly comparable to the gender difference in mortality.

How should we interpret such findings? Correlations are not cause-effect statements, and they leave many factors uncontrolled (Sloan et al., 1999, 2000, 2002, 2005). Here is another possible interpretation: Women are more religiously active than men, and women outlive men. Might religious involvement merely reflect this gender-longevity link? Apparently not. One 8-year National Institutes of Health study followed 92,395 women, ages 50 to 79. After controlling for many factors, researchers found that women attending religious services weekly (or more) experienced an approximately 20 percent reduced risk of death during the study period (Schnall et al., 2010). Moreover, the association between religious involvement and life expectancy is also found among men (Benjamins et al., 2010; McCullough et al., 2000, 2005, 2009). A 28-year study that followed 5286 Californians found that, after controlling for age, gender, ethnicity, and education, frequent religious attenders were 36 percent less likely to have died in any year (FIGURE 12.32). In another 8-year controlled study of more than 20,000 people (Hummer et al., 1999), this effect translated into a life expectancy at age 20 of 83 years for frequent attenders at religious services and 75 years for nonattendees.

These correlational findings do not indicate that nonattendees can suddenly add 8 years to their life if they start attending services and change nothing. Nevertheless, the findings do indicate that religious involvement, like nonsmoking and exercise, is a predictor of health and longevity. Can you imagine what intervening variables might account for the correlation? Research points to three possible sets of influences (FIGURE 12.33):

- **Healthy behaviors:** Religion promotes self-control (McCullough & Willoughby, 2009), and religiously active people tend to smoke and drink much less and to have healthier lifestyles (Islam & Johnson, 2003; Koenig & Vaillant, 2009; Masters & Hooker, 2013; Park, 2007). In one Gallup survey of 550,000 Americans, 15 percent of the very religious were smokers, as were 28 percent of those nonreligious
But such lifestyle differences are not great enough to explain the dramatically reduced mortality in the Israeli religious settlements. In American studies, too, about 75 percent of the longevity difference remained when researchers controlled for unhealthy behaviors, such as inactivity and smoking (Musick et al., 1999).

- **Social support:** Could social support explain the faith factor (Ai et al., 2007; Kim-Yeary et al., 2012)? In Judaic, Christian, and Islamic religions, faith is a communal experience. To belong to one of these faith communities is to have access to a support network. Religiously active people are there for one another when misfortune strikes. Moreover, religion encourages marriage, another predictor of health and longevity. In the Israeli religious settlements, for example, divorce has been almost nonexistent.

- **Positive emotions:** Even after controlling for social support, gender, unhealthy behaviors, preexisting health problems, and social support, the mortality studies have found that religiously engaged people tend to live longer (Chida et al., 2009). Researchers therefore speculate that religiously active people may benefit from a stable, coherent worldview, a sense of hope for the long-term future, feelings of ultimate acceptance, and the relaxed meditation of prayer or Sabbath observance. These intervening variables may also help to explain why the religiously active have had healthier immune functioning, fewer hospital admissions, and, for AIDS patients, fewer stress hormones and longer survival (Ironson et al., 2002; Koenig & Larson, 1998; Lutgendorf et al., 2004).

**Retrieval Practice**

- What are some of the tactics we can use to manage successfully the stress we cannot avoid?

**Answer:** Aerobic exercise, relaxation procedures, mindfulness meditation, and religious engagement.