

# Meditation

Charles Elder, MD, received his BA, MD, and MPH degrees at Boston University and completed his internship and residency at the University of Michigan in 1990. He joined the Northwest Permanente Medical Group as a primary care internist in 1991. He has offered a natural medicine consultative group clinic for six years and established the KP Northwest Integrative Medicine Service last year. He organizes the Northwest Permanente Complementary and Alternative Medicine Journal Club, is cochair of the regional natural products committee, and is clinical lead for the interregional CAM domain. He is a clinical investigator at the Center for Health Research, is principal investigator for two NCCAM NIH-funded clinical trials, and has published several papers on the topics of integrative and Ayurvedic medicine.

**Dr Elder:** The glaring discrepancy between our patients' needs and what we are capable of offering them within the confines of allopathic care represents an underrecognized root cause of chronic dissatisfaction among adult primary care clinicians. Complementary and alternative medicine (CAM), including the spirituality, prayer, and spiritual healing discussion that we're having today, can offer us practical tools to help bridge this chasm. The following discussion focuses on meditation: the mechanics of meditation, the evidence base to support its use, and the practical recommendations we can offer to patients.

We can understand "science" as denoting any branch or department of systematized knowledge considered as a distinct field of investigation or object of study. That "science" connotes empiricism is not an a priori truth but rather a provincialism of our age. An authentic meditation technique, then, can be properly understood as a scientific pursuit, with the object of systematic study being consciousness or the self. Meditation does not represent a mood-making or counterculture phenomenon but instead a specific set of simple but sophisticated techniques having definable physiologic markers and clinical results. Mantra meditation represents one technique, where the meditator sits comfortably with eyes closed and focuses his or her attention on a specific mantra or sound. This procedure serves to guide the mind from active awareness to a more tranquil state rooted in pure consciousness. Once this restful state is achieved, however, thoughts may fre-

quently "bubble up," diverting attention back toward the external world. The meditator responds by gently returning focus to the mantra and so on, back and forth. The technique thus represents a simple yet specifically directed procedure.

The physiology of meditation has been exhaustively studied. When meditating, patients exhibit decreases in heart rate, respiratory rate, blood pressure, and cortisol levels, as well as increased serotonin availability and reduced free radical burden. In one classic study published by Keith Wallace, MD, in the journal *Science*,<sup>1</sup> subjects demonstrated reduced O<sub>2</sub> consumption, reduced respiratory rate, and increased galvanic skin resistance during meditation practice. In another paper published in *American Psychologist*,<sup>2</sup> meta-analysis data comparing meditation with simple eyes-closed rest suggested increased basal skin resistance, reduced respiratory rate, and reduction in plasma lactate in the meditating groups. Thus, the literature clearly describes distinct physiologic changes that occur during meditation.

Let's next consider some of the clinical trials data. A paper published about ten years ago in *Hypertension*<sup>3</sup> compared patients with mild hypertension, randomized into three groups: an attention control group receiving standard patient education, a physical stress reduction group receiving training in the progressive relaxation technique, and a meditation group receiving instruction in Transcendental Meditation. At three months, this single-blinded study showed statistically and clinically significant reductions in systolic and diastolic blood pressure in the meditating group compared with control.

In another study published in the *American Journal of Cardiology*,<sup>4</sup> 21 patients with documented coronary artery disease were tested at baseline by exercise tolerance testing and were assigned either to meditation instruction or to a wait-list control. After eight months, the meditation group had a 14.7% increase in exercise tolerance, an 11.7% increase in maximal workload, an 18% delay in onset of ST-segment depression, and significant reductions in rate-pressure product at three and six minutes and at maximal exercise compared with the control group.

In addition to cardiovascular disease, studies have suggested beneficial clinical effects for meditation in numerous other clinical conditions, including anxiety



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disorders and substance abuse. For example, meta-analysis data have shown a significant effect size for meditation compared with other standard behavioral interventions in the context of both alcohol and tobacco abuse. Finally, numerous studies in the literature suggest that regular meditators use less health care. One study,<sup>5</sup> for example, compared five years of medical insurance utilization statistics of approximately 2000 regular meditators with a normative database of approximately 600,000 members of the same insurance carrier, showing the meditating group to have lower medical utilization rates in all categories.

At a practical level, what can we offer our patients? Some KP Regions offer training in various stress management protocols through the Health Education Department, and most larger cities offer additional community resources. In Portland, I sometimes refer my patients to the Portland Transcendental Meditation Center for meditation instruction or to the Oregon College of Oriental Medicine for classes in Qigong.

In summary, meditation represents a sophisticated mental technique that is associated with a definable physi-

ology and can render significant positive clinical effects. Through the use of meditation and other evidence-based CAM modalities, as adjuncts to usual care, primary care clinicians may be able to affect a sizeable number of patients we might otherwise be unable to reach. ❖

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#### References

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### All The Answers

It is reasonable to expect the doctor to recognize that science may not have all the answers to problems of health and healing.

— Norman Cousins, 1915-1990, writer, editor, citizen-diplomat