E
vidence-based medicine has per-
meated all aspects of health care, including
athletic therapy. Many clinicians, however,
find the prospect of evidence-based ath-
letic therapy daunting. For example, incorpo-
rating the best evidence into everyday clinical
practice, given time constraints and lim-
ited critical-appraisal skills, is not easy.1,2
Evidence-based prac-
tice is defined as the
conscientious, explicit,
and judicious integra-
tion of individual
clinical expertise with
the best research evi-
dence available.3 Such evidence should be
incorporated into clinical decision making
after taking into account patient values
and expectations, clinical state and circum-
stances, cultural issues, cost, risk aversion,
and quality of life.3,4,5

Why is evidence-based athletic therapy
necessary? It is necessary primarily to opti-
mize care provided by athletic therapists
to individual patients. In general, wide
variations in quality of care across different
fields in medicine have been attributed to
deterioration in knowledge over time, fail-
ure to seek knowledge when required, and
use of outdated sources of information.6
The implication is that evidence-based ath-
etic therapists have to “stay on their toes”
to achieve a high level of clinical skill and
judgment coupled with the application of
best available evidence to their patients. In
addition, research evidence and clinical care
are dynamic and evolving entities.3,6

This article provides the conceptual
background and methodologic approaches
required to practice evidence-based sports
medicine. It does not provide the answer
to a particular clinical question but, rather,
describes a process that athletic therapists
can use to address clinically important ques-
tions.1 Key aspects involve asking clinically
relevant questions, synthesizing relevant
information from the literature, and evalu-
ating the quality and applicability of the
evidence.

Case Scenario

Over the course of the summer, you vol-
unteer at a series of fund-raising events to
provide athletic therapy to participants of all
ages who bicycle to raise money for charity.
You become aware of a disturbing pattern of
head and facial injuries sustained by partici-
pants who bicycle without helmets. On one
occasion, you assess a 14-year-old boy who crashed into a median and suffered facial lacerations and a concussion requiring hospitalization. You wonder what your role as an athletic therapist is in preventing head injuries in bicyclists?

**Step 1: Ask Answerable Clinical Questions**

The first step in evidence-based practice is to ask an answerable clinical question. A well-structured question provides the clarity required to identify information needs and guide the search for valid and clinically useful information. Most clinical questions require information directly related to patient care, such as questions about prevalence, diagnosis, therapy, prognosis, and harm. Such questions are typically structured according to the mnemonic PICO (population, intervention, comparison, outcome). For example, in elite distance runners with iliotibial-band syndrome (population), does treatment with icing and nonsteroidal anti-inflammatory medications (intervention) rather than icing alone (comparison) result in a more rapid resolution of pain (outcome)? Structuring the question also helps identify the most appropriate study design to answer the question.

**Clinical Question**

Are bicycle helmets (intervention) effective in reducing head, brain, and facial injuries (outcome) among bicyclists involved in a bicycle crash (population)?

**Example of a Generic Systematic Review Process**

1. A clinical question was structured.
2. A panel of experts was established: injury prevention, athletic therapy, epidemiology, and sports medicine.
3. A broad search strategy was developed using a series of key words to extract potentially relevant journal articles, chapters, and abstracts from electronic bibliographic databases. Duplicates were deleted. No language restrictions were applied. Databases searched included the Cochrane Systematic Review database and Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, Psychinfo, ERIC, CINAHL, Occupational Safety and Health, Current Contents, HealthSTAR, and SPORTDiscus.
4. Hand searches of bibliographies from published reviews, review articles, sports-injury textbooks, sports-injury systematic reviews, and athletic therapy and sports-medicine journals were conducted.
5. Presentation abstracts from World Conferences on Injury Prevention and Control were reviewed.
6. Key authors of relevant studies and members of national and international injury-prevention organizations were contacted, such as World Injury Network and the International Society for Child and Adolescent Injury Prevention.
7. Two independent reviewers assessed the titles and abstracts of potential studies and included them in the systematic review if:
   - The intervention was designed to prevent unintentional injuries.
   - The effectiveness of an injury-prevention strategy was evaluated, such as an educational program, an environmental modification, a parent or community initiative, or a rule or policy change.
   - Outcomes measured were injury incidence, injury severity, reduction of risky behavior, or compliance/adherence with injury-prevention measures.
   - Participants were assigned randomly to the intervention and control groups.
8. Two independent researchers extracted data on year of publication, study design, participants, interventions, outcomes, and conclusions.