

# Return to Play After Lumbar Spine Surgery



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## KEYWORDS

- Athlete • Return to play • Lumbar spine injury • Lumbar spine surgery
- Performance outcomes

## KEY POINTS

- Surgical management of selected lumbar spine conditions can produce excellent outcomes in athletes of all sports.
- Microdiscectomy for lumbar disc herniation has been the most well-studied procedure and leads to favorable outcomes in return to play rates and statistical performance postoperatively.
- Direct pars repair has led to high rates of return to play for a variety of fixation techniques.
- There is a paucity of evidence-based return to play criteria, with the majority of literature based on expert opinion and clinical experience.

## INTRODUCTION

Low back pain (LBP) is one of the most common chief complaints encountered in medicine, affecting 80% of the general population at some point in life. Athletes are also commonly afflicted, with incidence rates approaching 30% over the course of a career, accounting for one of the most common reasons for missed playing time.<sup>1,2</sup> In fact, 38% of professional tennis players reported missing at least 1 tournament owing to LBP at some point during their career.<sup>3</sup> A survey of 272 competitive adolescent athletes involved in 31 different sports found a point prevalence (within the last 48 hours) of LBP of 14%, a 1-year prevalence of 57%, and a lifetime

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prevalence of 66%.<sup>4</sup> Additionally, a study examining the medical records of 4790 intercollegiate athletes competing in 17 varsity sports over a 10-year period revealed a spine injury rate of 7 per 100 participants.<sup>5</sup>

Spine problems can be associated with participation in sports involving repetitive hyperextension, flexion, rotation, and axial loading, such as gymnastics, wrestling, football, diving, soccer, and dance.<sup>2,5-7</sup> Overuse injuries have been found to be more common than acute ones in a young athletic population.<sup>6</sup> Furthermore, the diagnoses given to athletes differ depending on an athlete's age. One study compared adolescent athletes with adults with acute LBP and demonstrated that 47% of adolescents had stress fractures of the pars interarticularis, compared with only 5% of adults.<sup>8</sup> Conversely, discogenic back pain was diagnosed in 48% of adults compared with only 11% of adolescents.

Initial treatment for a lumbar spine injury consists of conservative management, including a brief period of rest and cessation of sporting activity for 1 to 2 days.<sup>9</sup> Medications may consist of nonsteroidal antiinflammatory drugs and muscle relaxants. Physical therapy modalities such as ice, heat, compression, and massage may bring additional pain relief. Certain injuries, such as lumbar disc herniation, may benefit from lumbar epidural corticosteroid injections. Once pain has been controlled successfully, activity may be resumed after a short course of flexibility and strengthening exercises. Return to play, in general, should be considered when an athlete is pain free, has full active range of motion with all activities, and has normal strength, endurance, and flexibility.<sup>2,6,9,10</sup> Although conservative management can often lead to pain relief in the majority of patients, those who fail this treatment may require surgery.

Outcome measures used to judge success in the general population may not be specific enough for professional athletes, who must return to play at a high level for their livelihood. Validated patient reported outcome measures such as visual analog scales, the Oswestry Disability Index, and the Short Form-36 may not be as applicable to athletes, who are interested in returning to their preinjury level of performance and on career longevity. More recently, clinical studies have focused on return to play and sport-specific performance based outcome measures after treatment for lumbar spine injury. Nonetheless, there is substantial variability in published return to play criteria, which are almost exclusively derived from author's expert opinion and experience.<sup>9,11</sup> This article summarizes the current literature that defines return to play criteria for various lumbar spine injuries.

## LUMBAR DISC HERNIATION

For athletes who fail conservative management, lumbar discectomy provides symptom relief and improved functional outcomes in the vast majority of patients.<sup>12</sup> For example, in 14 division I athletes in the National Collegiate Athletic Association from 1988 to 1995, 90% of all athletes undergoing single level microdiscectomy returned to varsity sports, with all athletes returning to at least recreational sporting activities.<sup>13</sup> Recently, a systematic review that included 10 studies found that 75% to 100% of elite athletes return to play after operative treatment for lumbar disc herniation.<sup>14</sup> The recovery period after surgery ranged from 2.8 to 8.7 months, with athletes' postoperative careers ranging from 2.6 to 4.8 years. Notably, elite athletes attained an average of 64% to 104% of preoperative baseline statistics, with variable performance based on sport. Similarly, a metaanalysis performed by Overley and colleagues<sup>15</sup> evaluated 9 studies representing 558 patients with lumbar disc herniation who underwent lumbar microdiscectomy. The pooled clinical success rate (defined as logging playing time in at least 1 regular season game or Olympic-level event) for return to play after operative treatment was 83.5%.

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