

## Treatment decisions for acute Achilles tendon ruptures



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Acute ruptures of the Achilles tendon are common. They result in major impairment to mobility, persisting even a decade after the tear,<sup>1</sup> and a return to regular activity or sport can be compromised.<sup>2</sup> Any form of clinical management should restore and maximise function, and minimise complications. Recent research efforts have mostly tried to identify optimal methods of either surgical or non-surgical treatment in randomised controlled trials, with prevention of re-ruptures as the primary outcome. In *The Lancet*, Matthew Costa and colleagues<sup>3</sup> report findings from UKSTAR, a randomised superiority trial performed in 39 hospitals in the UK. 540 physically active patients (mean age 48.7 years, 79% men) who were being managed non-surgically for an acute (<14 days) Achilles tendon rupture were randomly assigned to receive a plaster cast (n=266) or functional bracing (n=274). The primary outcome was Achilles tendon Rupture Score (ATRS),<sup>4</sup> a well validated patient-reported outcome score, at 9 months, and the main safety outcome was the incidence of re-rupture.<sup>3</sup> There was no difference between groups in terms of ATRS (plaster cast group: n=244, mean score 74.4 [SD 19.8]; functional brace group: n=259, mean 72.8 [20.4]; adjusted mean difference -1.38 [95% CI -4.9 to 2.1]) or in the incidence of re-rupture of the tendon.

By including sites from across the UK, the authors have done a large and rigorous study. The recent randomised controlled trials comparing non-surgical and surgical treatment of patients with acute tears of the Achilles tendon found no evidence of difference in functional outcome or re-rupture rate;<sup>5</sup> hence, in some countries, including the UK, non-surgical management is quickly becoming the default. Of note, the risk of a re-tear is low nowadays, regardless of whether surgical or non-surgical treatment is used.<sup>5</sup> The rate of postoperative complications is also low, and the clinically relevant difference between surgical and non-surgical management is remarkably small, especially if, instead of an open technique, percutaneous or minimally invasive repair of the Achilles tendon is done.<sup>6,7</sup> Because the majority of patients with acute ruptures of the Achilles tendon are not professional athletes, from a societal perspective and to appropriately allocate limited state-funded resources, non-surgical management is a logical

option. If non-surgical management has been chosen, the next step is to decide on the best regimen. Costa and colleagues<sup>3</sup> showed that, within the timeframe of their study, traditional plaster casting was not superior to early weight-bearing in a functional brace as measured by ATRS, that functional bracing did not result in a greater incidence of re-ruptures, and that functional bracing is cost-effective. The rate of agreement to participate in the study was high and loss to follow-up was low, probably reflecting the fact that the study included only patients who had already elected to undergo conservative management.

Have we found the best strategy for treating acute Achilles tendon ruptures? A major issue is that most trials, although accurately planned and executed, do not take into account that patients undergoing non-surgical treatment take longer to return to sport, are less strong, and are less confident in their Achilles tendon than patients who underwent surgery.<sup>6</sup> As such, future studies should probably be powered for functional recovery of



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the gastroc-soleus complex and a return to high-level physical activities; the incidence of re-rupture should not be considered as the main outcome.<sup>8</sup>

In clinical practice, an increasing number of patients managed non-surgically have no re-rupture, but the healed Achilles tendon has elongated, thus altering its relationship with the gastroc-soleus muscle complex.<sup>9</sup> These patients present with a more acute Achilles tendon resting angle,<sup>9</sup> are not able to push off properly, and behave similarly to patients with chronic Achilles tendon rupture. Reconstructive surgery to correct this condition is possible,<sup>10</sup> but it is more technically demanding than primary repair procedures, and probably much more expensive.

The musculoskeletal system thrives under load and motion, not immobilisation. Weight-bearing with functional bracing, which was originally developed for use after surgical management of acute Achilles tendon tears<sup>11</sup> and has been used in more than 1000 patients in the past 20 years, is at least as good as plaster cast immobilisation for patients being managed conservatively, and, as shown by the UKSTAR trial, probably cheaper. At this point, we should explore whether the application of other strategies could improve outcomes. For example, electrical stimulation of the gastroc-soleus complex could be introduced in the early phase of management of Achilles tendon rupture, together with isometric contractions of the same muscle group. Eccentric exercises might also be beneficial. Communication between orthopaedic surgeons, muscle physiologists, and rehabilitation specialists would greatly benefit patients with acute Achilles tendon ruptures.

We declare no competing interests.

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## The UK as a global centre for health and health science

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In 2015, the UK's All-Party Parliamentary Group on Global Health (APPG) mapped the UK's contribution to health globally, showing that it had world-class universities and research, was a global leader in health policy and international development, had strong life sciences and biomedical and biotech industries, and had a vibrant and diverse not-for-profit sector.<sup>1</sup>

In 2019, the APPG looked at what had changed in the intervening time and in the context of understanding the likely impact of Brexit on the UK's global role in health. We gathered data from published and

unpublished sources and interviewed 78 health and academic leaders—half from the UK and half from other countries—about their perceptions of the UK's current and potential future role. On Feb 6, 2020, the APPG publishes its new report, *The UK as a Global Centre for Health and Health Science*.<sup>2</sup>

There have been considerable improvements in the past 5 years with, for example, big increases in funding for research, new regional collaborations between universities and National Health Service (NHS) bodies, and increased foreign investment in UK life sciences.