

Editorial

Understanding some of the risks for soft tissue injury - a Malcolm Blight legacy?

For all the collective clinical experience in managing soft tissue injuries such as muscle strains, there is little understanding of the real reasons why these injuries occur. The plan to remedy this situation is that the scientific community should undertake high quality risk factor studies followed by randomised control trials and eventually this will lead to identification of effective injury prevention strategies. Sometimes in science the discoveries are made according to the plan, and at other times they are made almost by accident, such as Alexander Fleming noticing that a stray growth of the mould *penicillium notatum* was destroying some of his bacterial cultures.

In a medium size city of a small country (Melbourne, Australia) one of the biggest sports stories of 2001, which went unnoticed by the 99.9% of the planet, was that Malcolm Blight was sacked as coach of the St. Kilda AFL (Australian Football League) team. For the benefit of the 99.9% of the world that doesn't live in the southern parts of Australia, Malcolm Blight's place in the history of Australian football is similar to Greg Norman's in the history of golf. Blight was, many years ago, a legendary superstar player, was recently a legendary coach and continues to be a highly respected media figure. He has not only been very successful in every sphere of Australian football in which he operated, but he has done it by following his own rules rather than any orthodoxy. Malcolm Blight's many football achievements will be detailed in many more appropriate places, such as the Australian Football Hall of Fame. This piece would like to focus on a perhaps semi-accidental discovery that has been observed in Australian football in recent years, which might help us understand how soft tissue injuries occur.

According to reliable sources (many of his support staff over the years, and media reports), Blight the coach conducted a simple but non-conventional pre-season training regime. Its focus was on a fundamental development of aerobic fitness. Time trials over distances such as 1.5km, 3km and 5km were commonly held. Footballs were not permitted in pre-season training sessions prior to Christmas (the AFL pre-competition training period runs from late October to late January). According to the Blight philosophy, the team needed to first have an aerobic fitness base, and should work on skill and speed only once the desired level of aerobic fitness had been achieved. In many other sports, this would be a conservative philosophy, but the 'average' AFL training regime involves sports-specific activities (i.e. the major focus on football training) throughout the pre-season. This plan would not have lasted if Blight had not achieved success with it, and his lifetime coaching record shows that he was most definitely a successful coach. Blight's career winning percentage was 56%, which makes him historically a very good, but perhaps not outstanding, coach. His career winning percentage in finals is 65% (15 wins, 8 losses), which is an outstanding percentage, as finals matches are much harder to win than regular season matches. His teams' conversion rate of finals appearances into Grand Final appearances may never be surpassed (6 seasons coaching in the finals, 5 Grand Final appearances). The most remarkable success of Blight-coached teams was that they almost always improved their performance over the course (from start to finish) of the season. In 1994, after his Geelong team had been thrashed in the opening round of the

season, Blight remarked that he was not worried about the loss because “the bloke who leads the marathon out of the stadium normally isn’t still in front at the end of the race”.

If the great strength of Blight-coached teams was their end of season form, their great weakness was slow starts. The Geelong team of 1993 ended the regular season on a 5-0 winning run, of which the last 4 matches were comprehensive victories against teams that played in the finals. Even though they had the best recent form of any team at the start of the 1993 finals series, their season win-loss record was only 12-8, which was not good enough to actually qualify for the finals. In Blight’s two seasons as the Premiership coach, his Adelaide teams of 1997 and 1998 both started the season with a 2-4 win-loss record. There was apparently no tactical reason why Blight-coached teams did not perform well early in the season, and the likely cause, according to various support staff at his teams, was a higher than expected rate of early-season injuries. This included a high rate of hamstring strains, which are common early-season injuries for many AFL teams (Orchard and Seward, 2002). By the time Blight arrived at St. Kilda, he was apparently aware that this was an inevitable side effect of his pre-season training program, but one that he felt was a necessary means to the end of better performance later in the season.

David Parkin was another highly successful and highly influential AFL coach of the late 20th Century. At the *Football Australasia* conference in Melbourne in July 1998, he told the audience that the AFL premiership team was not usually the most talented team for that season but was instead the “good team that suffered the least injuries”. The injury statistics from the years 1990-2001 strongly support his argument except for 2 seasons: 1997 and 1998 (premiership team - Adelaide, coach - M. Blight). In both of these years, Adelaide was neither the best-performed team for the year nor the least injured, but was the best-performed team in the finals, which was all that mattered. It is also worth noting that Adelaide in those years fortuitously managed to have their best run with injuries for the year during the finals. Therefore, the Parkin logic may have therefore still applied to a certain extent, in that Adelaide were not able to win all that many games during times of the season when they had many injuries, yet with a stronger team on deck in the finals they performed far better.

With the benefit of hindsight, Australian football experts can proffer the theory that the Adelaide Crows of 1997 and 1998 and Malcolm Blight the coach were the perfect match. This was a team that may have been slightly short on superstar quality as far as premiership teams are measured, but had excellent depth. It was able to win 2 premierships by maximising the performance of its playing list during the finals, and was able to survive bad runs with injury during the season due to good depth in the playing list. The same experts can mount a similar explanation as to possibly why St. Kilda of 2001 and Malcolm Blight the coach were a bad mix. This team relied heavily on a small number of superstar players and, as soon as some of the superstars were injured, the team capitulated. Even with all of the insight that history can give us (and presuming the assumptions made by this editorial), one can’t predict whether a Blight-style pre-season training for a team next year would necessarily help it win the Premiership because of superior late-season fitness, or miss the finals because of a high early-season injury rate.

Was there any reason why Blight-coached teams tended to suffer more than their expected share of early-season injuries, particularly hamstring strains? The

exact explanation of this phenomenon may be addressed by future AFL-funded research grants on hamstring injuries. A hypothesis can be generated that teams which emphasis aerobic training over football-specific training in the pre-season are less able to withstand the early-season stress that playing AFL football places on the hamstring muscle group. Conditioning experts who believe that their field is as much 'art' as 'science' will claim that they have understood this phenomenon for years. The science may just be starting to catch up. Good overall results have been demonstrated in amateurs, who can reduce their risk of injury during the season by having a pre-season training supervised by qualified professional (Stevenson et al., 2001). A recent study in Canadian ice hockey showed that players who had done less sport-specific training sessions in the pre-season suffered more groin strains once the season started (Emery and Meeuwisse, 2001). The hamstring muscle group is tighter in long-distance runners (who undertake mainly aerobic training) (Wang et al., 1993), but eccentric exercise can 'teach' the hamstrings to increase the length at which they have maximum strength (Brockett et al., 2001). Aerobic endurance training has been shown to improve performance in soccer (Helgerud et al., 2001), which leaves football coaches in a difficult quandary about how much to emphasise this form of training.

Football team fitness advisers would be aware that it is easy in theory to devise a program that balances aerobic training with eccentric sprint and football-specific training, but far more difficult to achieve this in practice. This is partially because muscle groups like the hamstrings can either be tight and economical in their motion, or flexible and powerful, but perhaps not both at the same time. The practical way to apply the knowledge that has been discovered over recent years is to treat individuals differently. Those players who have a history of hamstring and other muscle strain injuries perhaps should concentrate on sport-specific drills in the pre-season as an injury-prevention measure. Those players with more resilient bodies but who struggle to maintain their performance over a long season perhaps should concentrate on building a greater aerobic base. These hypotheses need to be further tested as a priority research area, as training and conditioning changes may be amongst our best methods of future injury prevention. For our current state of knowledge regarding prevention of muscle strain injuries and team performance in the AFL, we have many scientists to thank, and also now, in an observational less scientific sense, an eccentric AFL coaching legend by the name of Malcolm Blight.

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