[0061] To better simulate the dynamic environment provided by athletes' limbs during sporting manoeuvres, the conductive polymer coated fabrics were tested with an arrangement shown in **FIG. 2***a*. The polymer coated fabric **1** is held between a fixed clamp **4** and end of an oscillating arm **5** of a mechanical shaker **6**. Using the same wheatstone bridge arrangement, responses, such as that shown in **FIG. 2***b*, may be generated for various fabrics and polymerisation conditions, over a range of frequencies. Using these responses, it is possible to produce a feedback device in the form of a knee sleeve. Configuring the knee sleeve to provide feedback whenever inappropriate motion of the knee occurs, athletes can be given immediate feedback during training. For example, learning to land correctly can help to protect Australian Rules Football (ARF) players against knee injury, in particular against non-contact anterior cruciate ligament (ACL) injury. The knee sleeve form of the present invention is a simple inexpensive sleeve containing a strip or strips of elastic fabric fully or partially coated with an electrically conductive polymer and an electrical circuit configured to emit an audio signal in response to predetermined movements.

[0062] The human knee joint has a high susceptibility to injury due to its incongruent structured and the high forces imposed on the joint, particularly during dynamic activities such as landing. Although knee injuries account for only 12% of total sport injuries, in Australia they represent approximately 25% of total injury costs. It has been estimated that the direct cost of knee injuries in sport per year was as high as $11.9 million dollars for Rugby League and Rugby Union, and $8.8 million dollars for Australian Rules Football. These costs have continued to escalate over the past decade.

[0063] Of all the knee ligaments, the ACL is the most frequently injured with an injury frequency 9 times greater than that of the posterior cruciate ligament. Rupture of the ACL is also one of the most debilitating injuries ARF player's can sustain, especially the younger players. When the native ACL is ruptured, the knee joint is predisposed to episodes of "giving way", further risk of meniscal damage, loss of proprioception via damage to the mechanoreceptors in the joint and ligament itself, recurrent pain, and likely degeneration of the knee joint as a result of excessive laxity and persistent instability.

[0064] Mechanisms of ACL injury in sport can be classified into two main categories:

[0065] a) contact injury is caused when an external force is applied to the knee causing ACL rupture; and

[0066] b) non-contact injuries caused when the indirect force is applied to the knee.

[0067] Typically non-contact ACL injury involves rapid deceleration, quick changes in direction, and or abrupt landings, often accompanied by poor landing technique. It has been estimated that 66% to 78% of ACL injuries occur via non contact mechanisms.

[0068] Whereas contact injuries have mainly been attributed to chance, non contact ACL injuries are more related to characteristics of the injured individual such as the degree of muscular weakness or muscular coordination and therefore the movement pattern performed at the time of injury. Where poor landing technique is displayed, it would appear feasible to prevent non contact ACL injuries by correcting this technique. In light of this, strategies are urgently needed by which players can learn to land correctly.

[0069] It has been shown that giving verbal feedback to subjects before they performed a vertical drop jump resulted in the subjects generating less ground reaction force upon landing. Subjects were able to quickly and effectively assimilate verbal instructions so as to modify their lower limb movement patterns to generate less force upon ground impact. Based on this reduction in ground reaction forces it was suggested that subjects were able to be trained to modify their landing technique to reduce their risk of injury. The benefits of landing programs in reducing knee injuries in ARF have also been acknowledged by the implementation of landing training programs for ARF players.

[0070] Extensive biomechanical research has also shown that flexing the knees throughout the landing action can "cushion" the forces over a longer time and thereby dissipate the shock loading of landing. Increased knee flexion also lowers a player's centre of gravity which in turn enhances their stability. To reduce knee injury at landing a relatively high flexion angle should be combined with a large range or amplitude of joint motion to dissipate the energy in muscles.

[0071] The knee sleeve can be used to train players to land correctly, so that they flex their knees through a desirable range of motion throughout a landing action which in turn reduces the risk of injury. The knee sleeve would have the advantage of providing immediate individualised feedback to any player wearing the device during a training program. This improves the objectivity, frequency and speed of feedback provided to players about their landing technique.

[0072] Referring to **FIG. 3**, the active component of the conducting polymer coated lycra strain gauge **1** has been incorporated into a wearable electronics circuit. The fabric **1** is part of an electronic circuit whereby if the knee flexion angle during landing is insufficient or too great an audio signal **7** will be emitted. The range of knee flexion angles at which the audio tone is emitted can be varied. This audio signal **7** provides immediate feedback to the wearer allowing them to adjust their knee landing technique accordingly. All components, including the audio alarm **7** , are enclosed within the knee sleeve itself without the need for any external components to allow the system to function.

[0073] This arrangement is inexpensive and extremely light weight, as it is not significantly heavier than a standard elastic knee sleeve. Accordingly, the knee sleeve will not be an impediment to normal movement during landing training. As the sleeve is made from flexible fabric and containing minimal rigid components around the knee it is safe in contact situations.

[0074] In one version of the knee sleeve, the polymer coating on the fabric is a strip positioned so that it runs down the anterior aspect of the thigh, knee, and leg. This sleeve is constructed to emit an audio tone when the knee flexion angle (sagittal plane only), reaches a set threshold. Angle changes are defected by lengthening the polymer coated strip as the knee flexes and extends. The threshold at which the tone is emitted can be varied. The sleeve is a robust device for use in training sessions that can provide highly consistent and accurate feedback by the audio tone.

[0075] Athletes in sports in which non-contact ACL ruptures are caused by abrupt deceleration without tibial rota-