SURFACE RESEARCH

Shoe-Surface Testing

The Technical Centre is increasingly interested in studying the interaction between tennis shoes and the various court surfaces. The shoe-surface tester (SST) is another custom-built device, designed to simulate a foot strike using a real shoe on a real surface. It is able to produce combinations of vertical, horizontal and twisting movements to measure friction and shock absorption.

Since its acquisition, a load cell has been added above the foot coupling to measure torque, while another load cell has been moved to above the leg hinge to measure pure vertical load. An ankle joint has been added to allow the foot to address the ground at a variety of angles. A torsiometer has been added to allow analysis of the forces and angles of movements during medial and lateral rotation. A two-axis goniometer has also been added to provide information about the angles of movement involved during plantarflexion, dorsiflexion, eversion and inversion movements.

The SST is capable of measuring vertical forces and displacements, horizontal forces and displacements, torsional forces, inversion and eversion movements, dorsiflexion and plantarflexion movements, and rotational movements about the ankle.

The SST is currently under development to verify the accuracy of the tester before testing begins.