THE RESEARCH OF AUTOMATIC DIAGNOSIS FOR PATELLAR TRACKING MECHANISM OF KNEES

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ABSTRACT

THE PURPOSE OF THIS PAPER IS AUTOMATIC DIAGNOSIS FOR PATELLAR TRACKING MECHANISM OF KNEE -S.USING THE COMPUTER PROPERTIES OF ACCURACY,HIGH SPEED AND LOW COST,AN AUTOMATIC APPROACH TO DIAGNOSE PATELLA TRACKING MECHANISM UNDER DYNAMIC CONDITION IS DEVELOPED. FOR EACH VOL -UNTEER,IMAGES CORRESPONDING TO EIGHT DIFFERENT ANGLES OF KNEES ARE TAKEN IN AXIAL AND SAG -ITTAL DIRECTIONS, RESPECTIVELY. IN THE AXIAL CASE, THE BONE POSITION RESTRICTION AND THE MAXIMUM BRIGHTNESS PROPERTY AND THE SLIDING-WINDOW DICHOTOMY SEGMENTATION ARE APPLIED SEGM -ENT IMAGES.AND,THREE PHYSIOLOGICAL ANGLES ARE CALCULATED FROM THESE SEGMENTED RESULTS.FOR THE SAGITTAL CASE,THE BONES ARE SEGMENTED BY EMPLOYING BOTH THE BONE POSITION RESTRICTION AND THE MAXIMUM BRIGHTNESS PROPERTY.THEN,THE ANGLE BETWEEN THE FEMUR AND THE TIBIA IS CALC -ULATED FROM THE SEGMENTED BONES.NEXT,THE MEANS AND THE STANDARD DEVIATIONS OF THESE ANGLE -S CORRESPONDING TO DIFFERENT BENDING ANGLES AND DIFFERENT PHYSIOLOGICAL ANGLES ARE COMPUT -ED.OUR RESEARCH COULD HELP DOCTOR TO DIAGNOSE THE FUNCTION OF PATELLA IN THE CLINICAL STU -DY.

Keywords : MRI, AUTOMATIC DIAGNOSIS, BONE POSITION RESTRICTION, MAXIMUM BRIGHTNESS PROPERTY, SLIDING-WINDOW DICHOTOMY SEGMENTATION.

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