INTRODUCTION
The meniscus serves a variety of functions and one of these is to aid in knee stability as a secondary soft tissue restraint to ligaments in preventing anterior tibial translation (ATT) and rotation [1]. Some investigators have noted that internal-external rotational laxity increased in the ACL-intact knee in response to axial moments applied to tibia after medial meniscectomy [2]. The meniscus has been classically described in three segments: the anterior horn, the body, and the posterior horn, with most meniscal tears occurring within the body of the meniscus [3]. Little is known about the role of different segments of medial meniscus in maintaining the knee rotational stability. The aim of this study is to investigate the effect of different segments of medial meniscus on rotational stability of the knee. It is hypothesized that the effect of the body of medial meniscus is more important than the anterior and posterior horns on rotational stability of the knee.

METHODS
Ten fresh-frozen porcine cadaver knees were divided into two groups. Knees in the first group (n = 5) were measured in four states: intact medial meniscus (IMM), posterior horn of medial meniscus resection (PHMMR), PHMMR + body of medial meniscus resection (BMMR), and medial meniscectomy (MME). Knees in the second group (n = 5) were measured in the states: IMM, anterior horn of medial meniscus resection (AHMMR), AHMMR + BMMR, and MME. All operations were performed under arthroscopy and segments of medial meniscus were generally divided as shown in Fig. 1. All the knees were subjected to an anterior tibial load of 89 N for testing of ATT at 30º (full extension), 60º, and 90º of knee flexion, and to 4 N-m for testing internal rotation (IR) and external rotation (ER) at 30º and 60º of knee flexion using a robotic/UFS testing system (Fig. 2) [4].

RESULTS
There were no differences in ATT between every state in two groups. There were no significant differences between states of IMM and PHMMR, PHMMR + BMMR and MME, and there was significant difference between states of PHMMR and PHMMR + BMMR at 30º and 60º of knee flexion in IR and at 30º of knee flexion in ER in the first group (Fig. 3). There were no significant differences between states of IMM and AHMMR, AHMMR + BMMR and MME, and there was significant difference between states of AHMMR and AHMMR + BMMR at 30º and 60º of knee flexion in IR and at 30º of knee flexion in ER in the second group (Fig. 4). There were no significant differences between four states at 60º of knee flexion in ER in two groups (Fig. 3, 4).

CONCLUSION
The results of this study supported the hypothesis that medial meniscectomy with ACL intact did not result in an increase in ATT but lead to an increase in internal-external rotational laxity. For the rotational stability of the knee, especially for internal rotation, the body of medial meniscus was more important than posterior and anterior horn. This may also indicate that rotational injuries may be the cause of tears occurring within the body of the meniscus.

REFERENCES