Lumbosacral transitional vertebra (LSTV) is a congenital vertebral anomaly of the L5-S1 junction in the spine. The prevalence of transitional level changes has not been well studied in the non-back pain American population. This study reviewed abdominal roentgenograms from normal subjects and categorized the transitional level changes according to the Castellvi system. 1100 abdominal films from the past 2 years (2008-2009) were reviewed, and 211 x-rays were identified as being adequate for measurement of the desired parameters. Of these 211 subjects, 107 (50.7%) were male and 104 (49.3%) female, with an average age at the time of the kidney-urinary-bladder (KUB) x-ray of 59.8 years. 93.4% of subjects (197) presented five lumbar vertebrae and only fourteen (6.6%) had six lumbar vertebrae. 75 subjects (35.55%) were identified with transitional vertebrae, the most common anatomical variant was the Castellvi type IA (14.7%), followed by type IB (8.53%), type IIA (4.3%), type IIB (3.8%), type IIIA (1.9%), type IIIB (1.4%), and type IV (0.9%). For all types, the third lumbar vertebra had the longest transverse process (TP) present in 55% of cases. The mean length of last rib for the sample was 12.11 cm and average height for TP was 15.9mm. This study establishes the rates of transitional level changes and the distribution of the various pathologic anatomical variants in a non-back pain American population.