

車輛保險桿對行人腿部損傷之影響研究

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摘要

每年有數以千計的行人在交通事故中傷亡，在這些行人與車輛撞擊事故中，腿部是行人受傷統計中最常發生的身體部位，這些腿部受傷的主因是遭受汽車前保險桿撞擊所造成；因此，探討保險桿對行人損傷之影響在行人安全研究中有著重要意義。本研究首先探討保險桿形狀對行人腿部損傷之影響，使用行人腿部衝擊器模型針對不同形狀保險桿的車輛模型進行衝擊測試模擬；透過腿部衝擊器與車輛保險桿衝擊模擬探討在保險桿不同位置對行人腿部碰撞損傷之影響；然後依據可降低行人腿部損傷的保險桿形狀特性建立保險桿設計準則。由於保險桿材料對結構硬度有著很大的影響，故保險桿材料的選擇對降低行人腿部損傷有著重要的作用。因此，本研究的第二個目的在探討保險桿材料對行人損傷之影響；以上述保險桿結構在改變不同的材料下進行對行人腿部損傷分析，透過腿部衝擊器與車輛保險桿衝擊模擬選擇合適的保險桿材料。最後本研究依據保險桿形狀與材料對行人腿部損傷影響的分析結果來設計一款對行人腿部安全之保險桿；且此新型保險桿可滿足EEVC/WG17 對行人腿部損傷的要求標準。

關鍵詞：行人，腿部損傷，保險桿，腿部衝擊器

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