

Generation and transmission of pressure pulses in an elastic tubular system impacted by a falling steel weight. Acta Soc. Med. Upsal. 70, 135-151 (1965). - Pressures were recorded by means of piezoelectric transducers in plastic and latex tubes placed on compressible material and subjected to impulsive force by freely falling spherical weights of 290, 540 or 900 g and with an impact velocity of up to 10 m/s. The inner diameters of the tubes used were between 8 and 15 mm and the wall thicknesses were between 1 and 2 mm.

The main purpose of the investigation was to correlate the pressures in the tubes to the impact velocity of the falling weight and to the deformation at the point of impact, which was recorded by a mechano-electric motion transducer.

It was demonstrated that the impact velocity, when a certain amount of energy was delivered to the system, was of great importance as far as pressure pulses in the tube and deformation at the point of impact were concerned. An increment of the impact velocity caused higher pressure amplitudes and steeper pulse fronts in the tube and at the same time less deformation at the point of impact. The generation and transmission of the pressure pulses were also studied in a number of modified systems with varied physical constants.