

We investigate the ballistic diffusion of two hard-core interacting particles in one dimension. The model is motivated by chemotaxis of bacteria in narrow pores. We derive the exact evolution equation for the probability density function of particles positions. The equation is solved analytically in diffusion limit for two different geometries. First, we investigate the diffusion on an infinite line. The mean inter-particle distance and the variance of this distance are calculated. Three qualitatively different regimes as dependent on the drift velocities of individual particles are found. Second, the semi-infinite interval with absorbing boundary is considered. The marginal probability densities, the mean positions, the survival probabilities and the mean times to absorption for individual interacting particles are derived and compared to the corresponding quantities in the case without interaction.