



## 1. Supplementary Materials

### 1.1. Slow speed

The normality test results for the dataset of slow speeds indicate that the data follows a normal distribution ( $p$ -value = 0.93). Additionally, the area under the curve is reported to be 0.9, providing further insights into the distribution characteristics.

Table S1. Average of each participant's slow walking trials during the transient-state.

Subjects	Slow Speed (m/s)
Subject 1	0.586
Subject 2	0.575
Subject 3	0.782
Subject 4	0.618
Subject 5	0.578
Subject 6	0.494
Subject 7	0.658
Subject 8	0.501
Subject 9	0.445
Subject 10	0.710
Subject 11	0.696

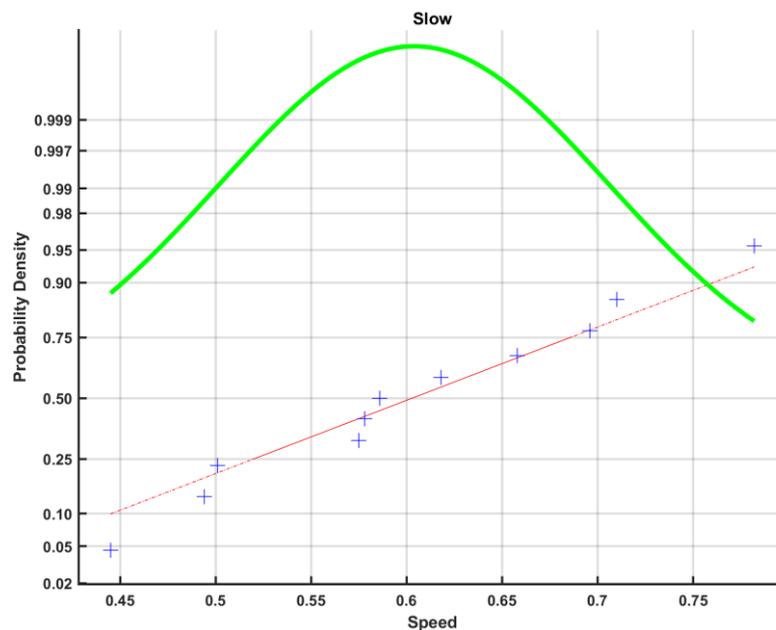


Figure S1. The probability density of TFA slow speed. Data points are indicated by + markers. The y-axis represents the probability density, while the x-axis corresponds to the speed values.

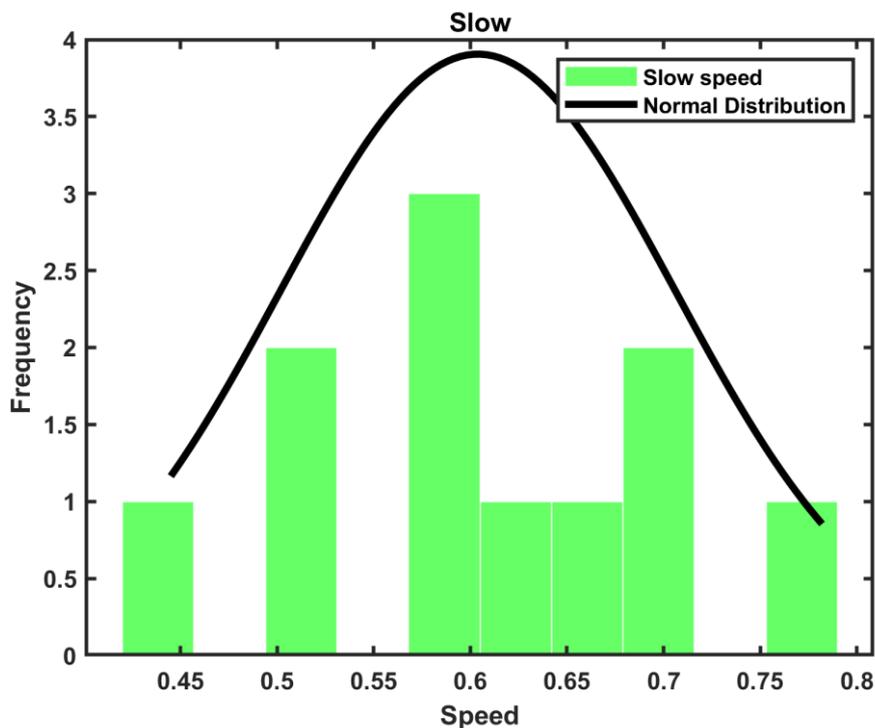


Figure S2. The green bars depict the observed distribution speed and the black curve represents the fitted normal distribution for TFA slow speed.

### 1.2. Normal speed

The normality test results for the dataset of normal speeds indicate that the data follows a normal distribution (p-value = 0.85). Additionally, the area under the curve is reported to be 0.93, providing further insights into the distribution characteristics.

Table S2. Average of each participant’s normal walking speed during the transient-state.

Subjects	Normal Speed (m/s)
Subject 1	0.723
Subject 2	0.814
Subject 3	0.920
Subject 4	0.688
Subject 5	0.727
Subject 6	0.613
Subject 7	0.778
Subject 8	0.699
Subject 9	0.508
Subject 10	0.876
Subject 11	1.077

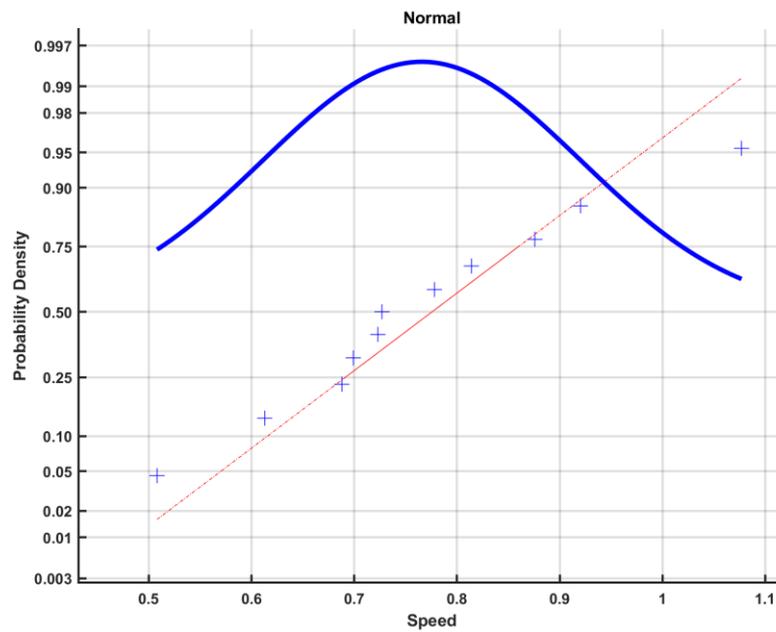


Figure S3. The probability density of TFA normal speed. Data points are indicated by + markers. The y-axis represents the probability density, while the x-axis corresponds to the speed values.

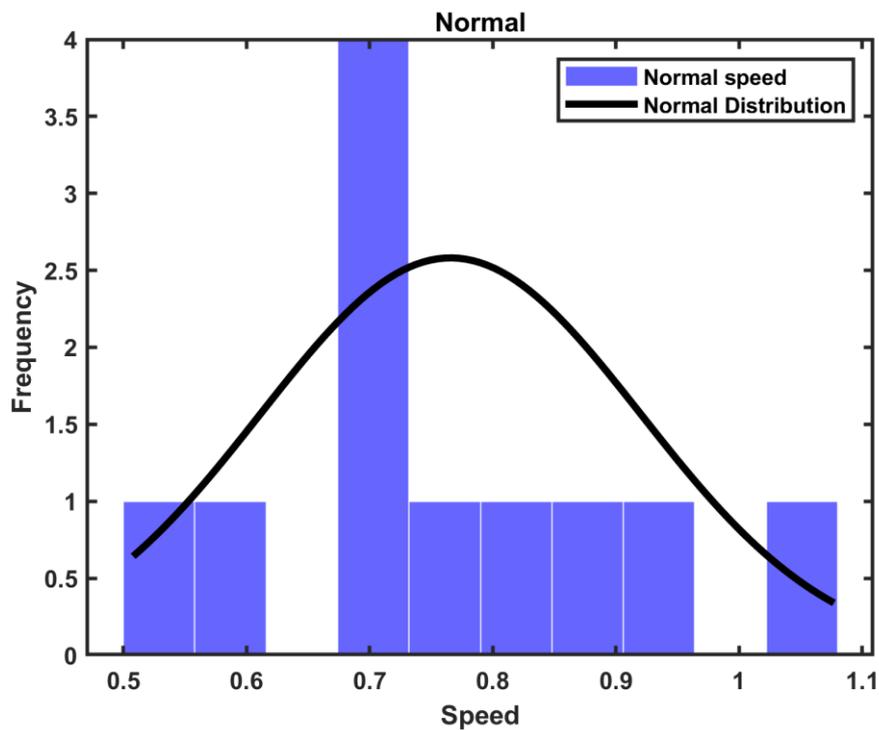


Figure S4. The blue bars depict the observed distribution speed and the black curve represents the fitted normal distribution for TFA normal speed.

### 1.3. Fast speed

The normality test results for the dataset of fast speeds indicate that the data follows a normal distribution ( $p$ -value = 0.99). Additionally, the area under the curve is reported to be 0.91, providing further insights into the distribution characteristics.

Table S3. Average of each participant’s fast walking speed during the transient-state.

Subjects	Fast Speed (m/s)
Subject 1	0.982
Subject 2	1.029
Subject 3	1.159
Subject 4	0.885
Subject 5	0.942
Subject 6	0.748
Subject 7	0.888
Subject 8	1.011
Subject 9	0.820
Subject 10	1.065
Subject 11	1.236

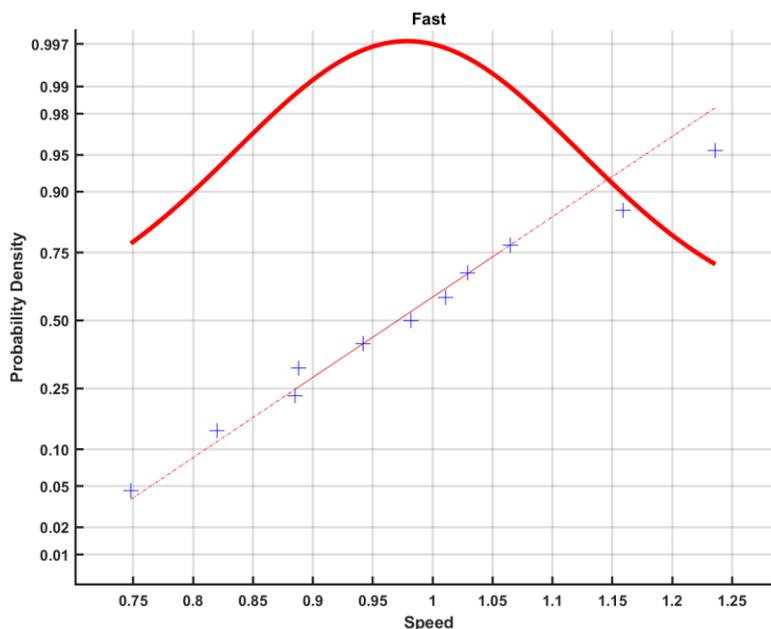


Figure S5. The probability density of TFA fast speed. Data points are indicated by + markers. The y-axis represents the probability density, while the x-axis corresponds to the speed values.

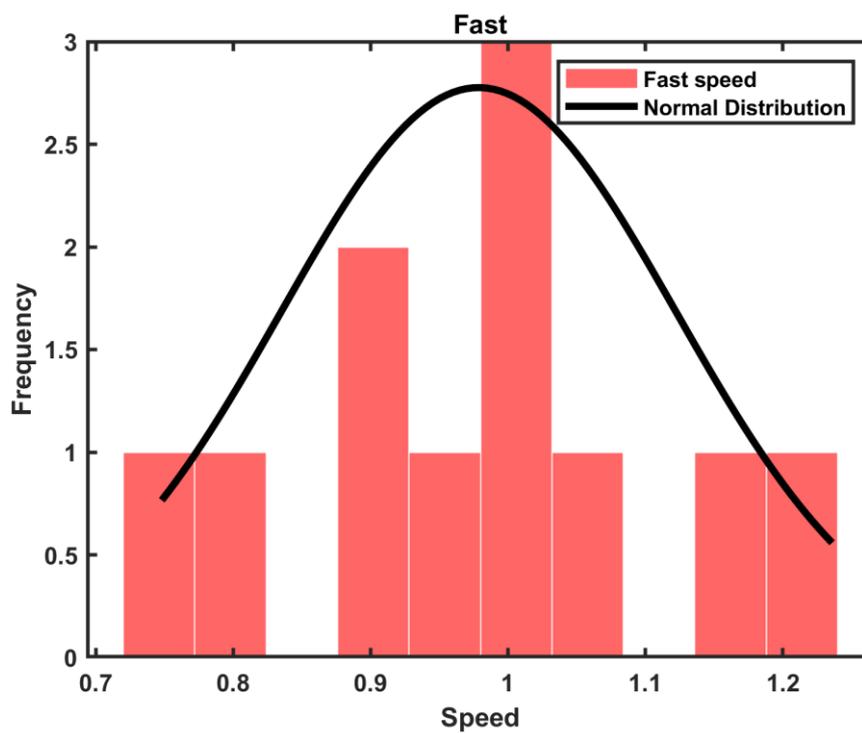


Figure S6. The red bars depict the observed distribution speed and the black curve represents the fitted normal distribution for TFA fast speed.