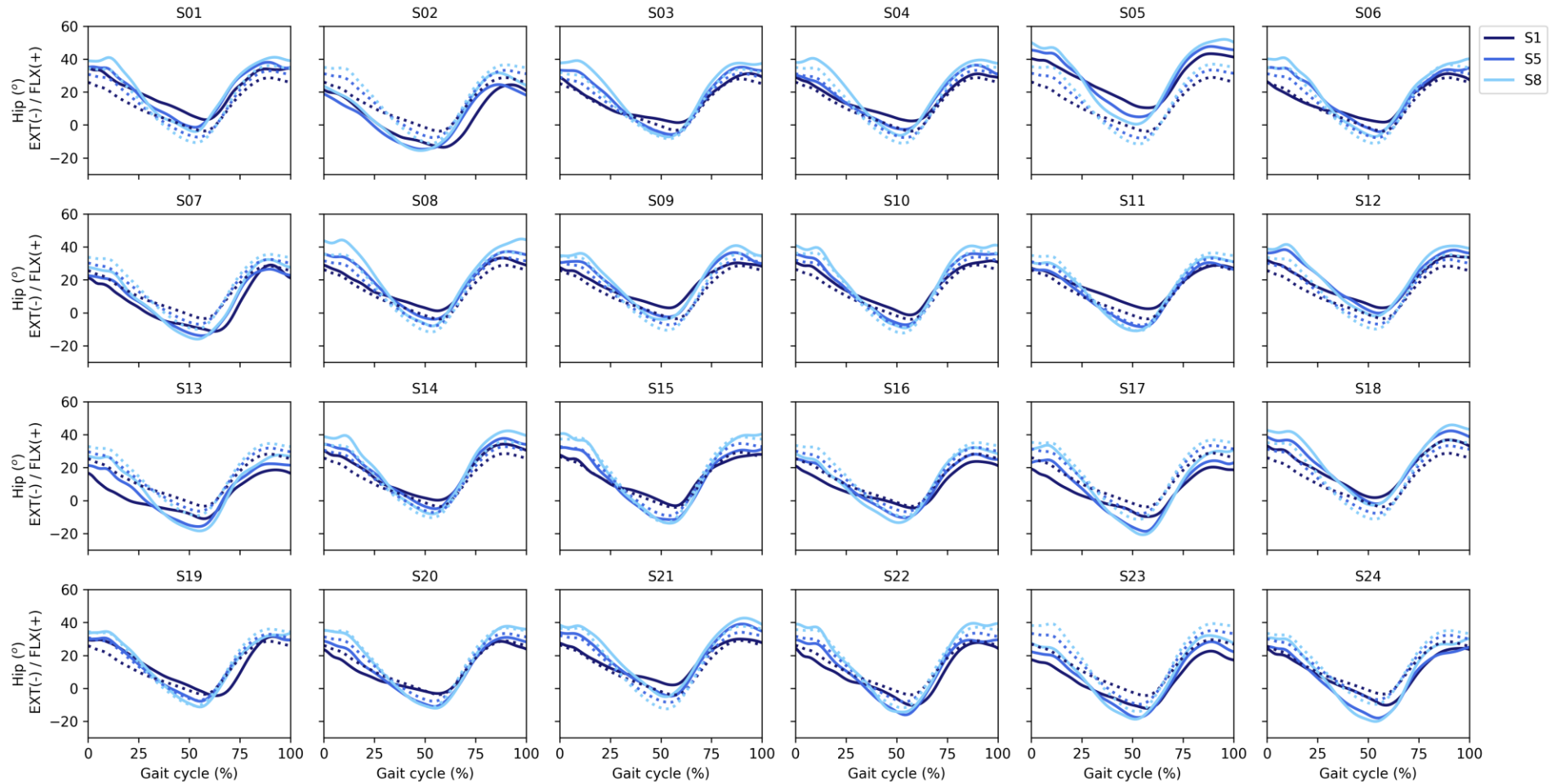# Supplementary Material

Figure 1. Individual curves of the hip joint angles of the experimental data (solid lines) and predicted data (dashed lines) based on the dataset at the slowest (S1), comfortable (S5), and fastest (S8) gait speeds.

Figure 2. Individual curves of the knee joint angles of the experimental data (solid lines) and predicted data (dashed lines) based on the dataset at the slowest (S1), comfortable (S5), and fastest (S8) gait speeds.
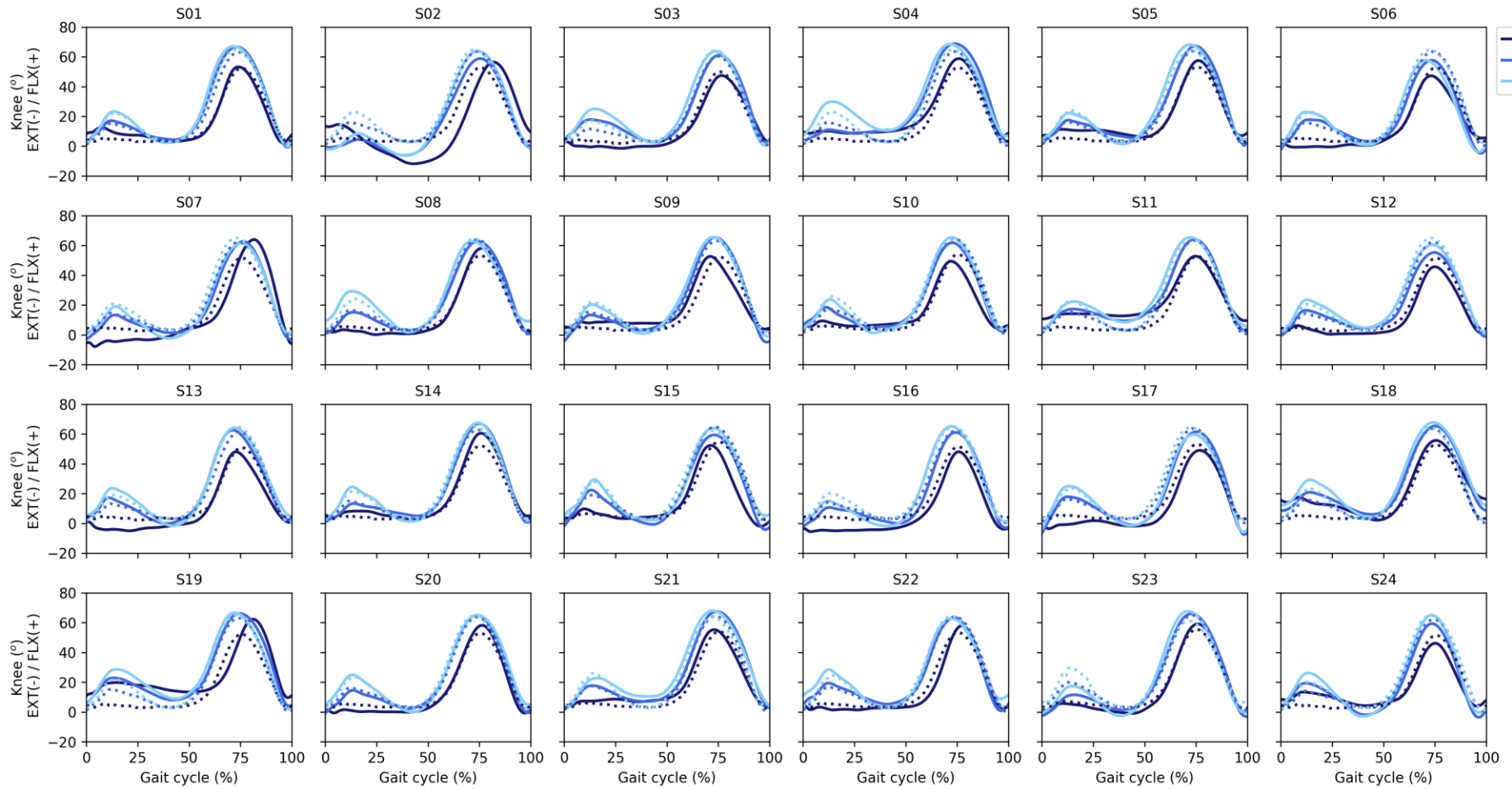
Figure 3. Individual curves of the ankle joint angles of the experimental data (solid lines) and predicted data (dashed lines) based on the dataset at the slowest (S1), comfortable (S5), and fastest (S8) gait speeds.

Figure 4. Individual curves of the hip joint moments of the experimental data (solid lines) and predicted data (dashed lines) based on the dataset at the slowest (S1), comfortable (S5), and fastest (S8) gait speeds.
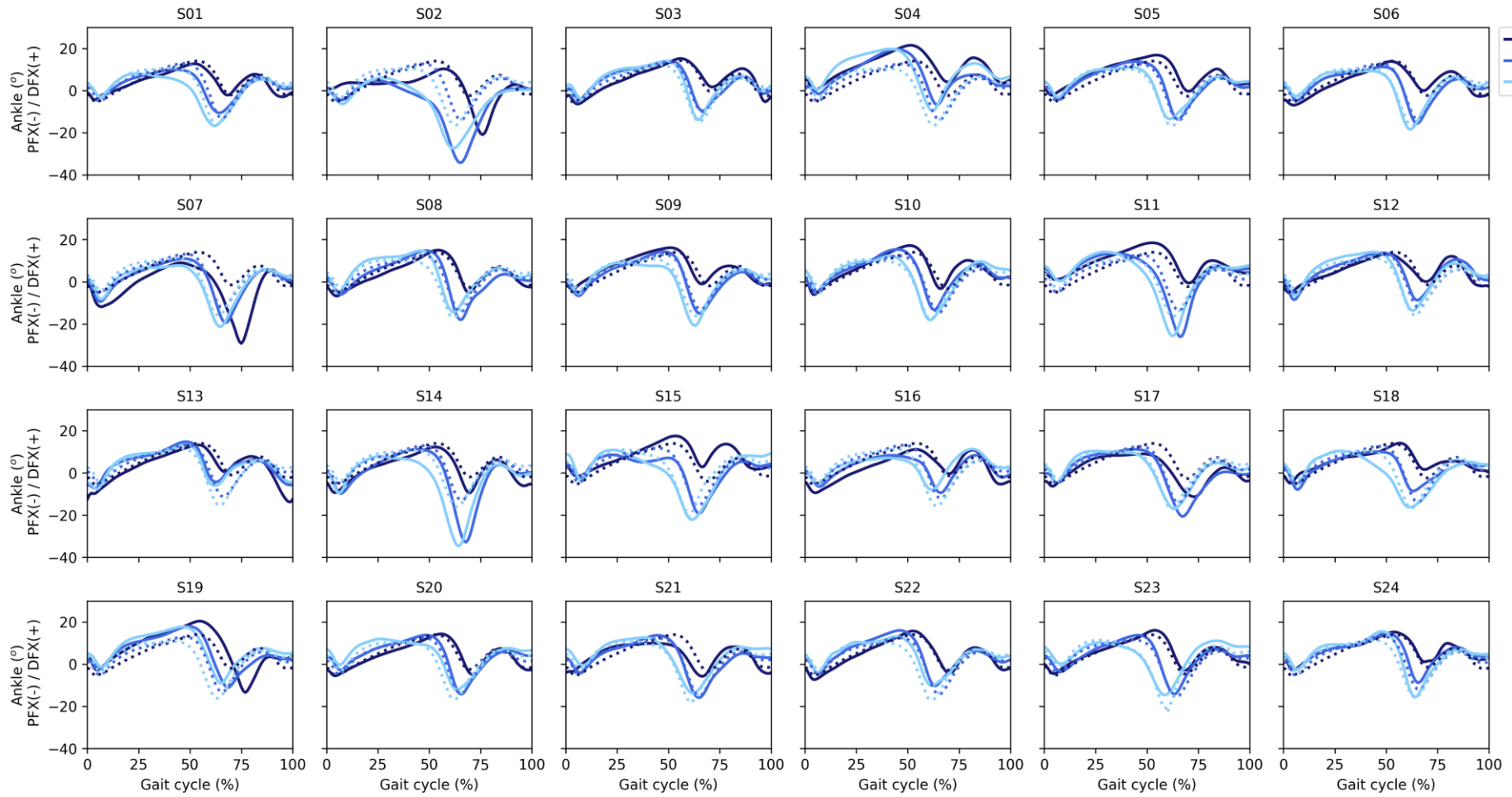
Figure 5. Individual curves of the knee joint moments of the experimental data (solid lines) and predicted data (dashed lines) based on the dataset at the slowest (S1), comfortable (S5), and fastest (S8) gait speeds.
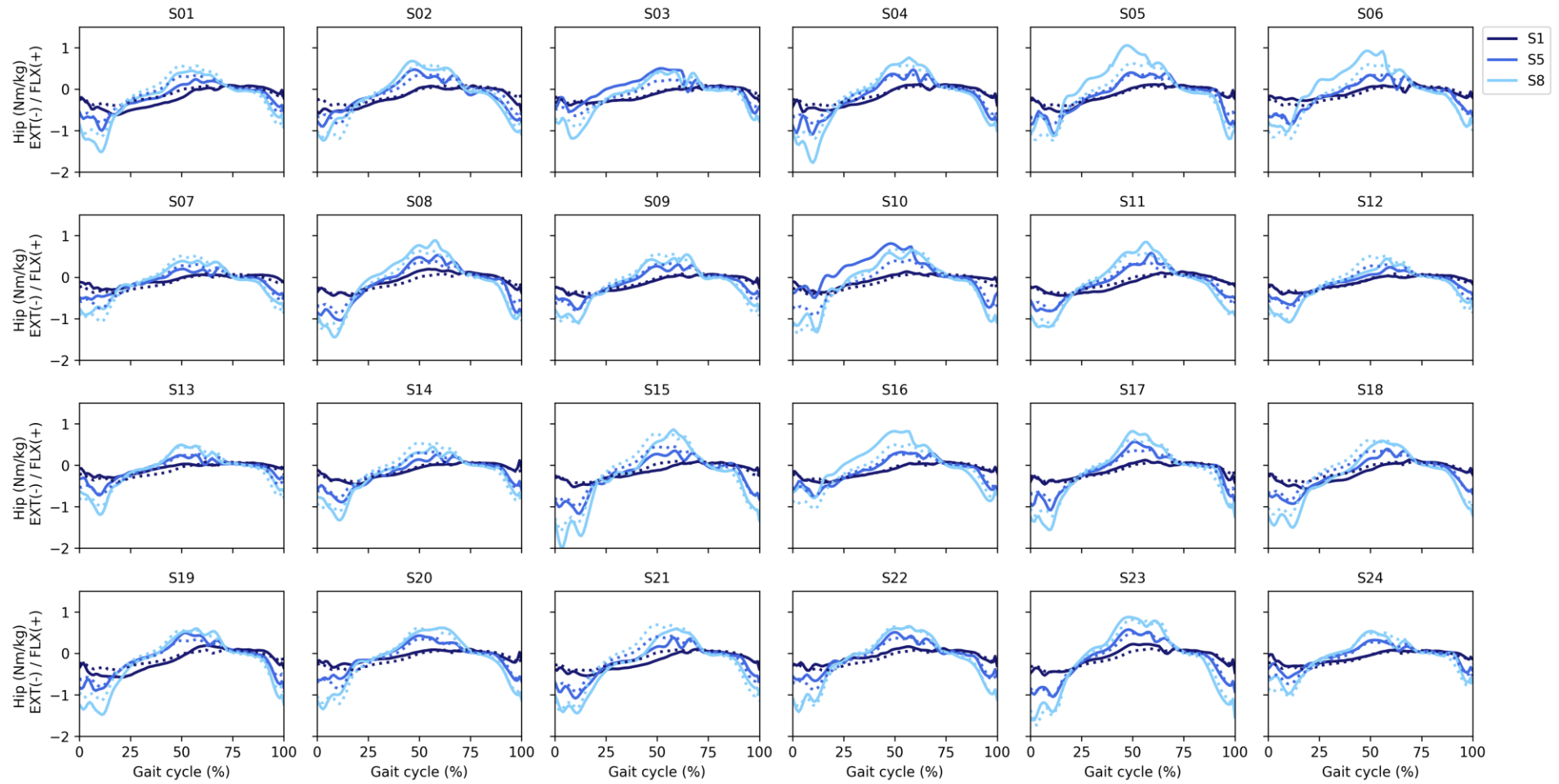
Figure 6. Individual curves of the ankle joint moments of the experimental data (solid lines) and predicted data (dashed lines) based on the dataset at the slowest (S1), comfortable (S5), and fastest (S8) gait speeds.
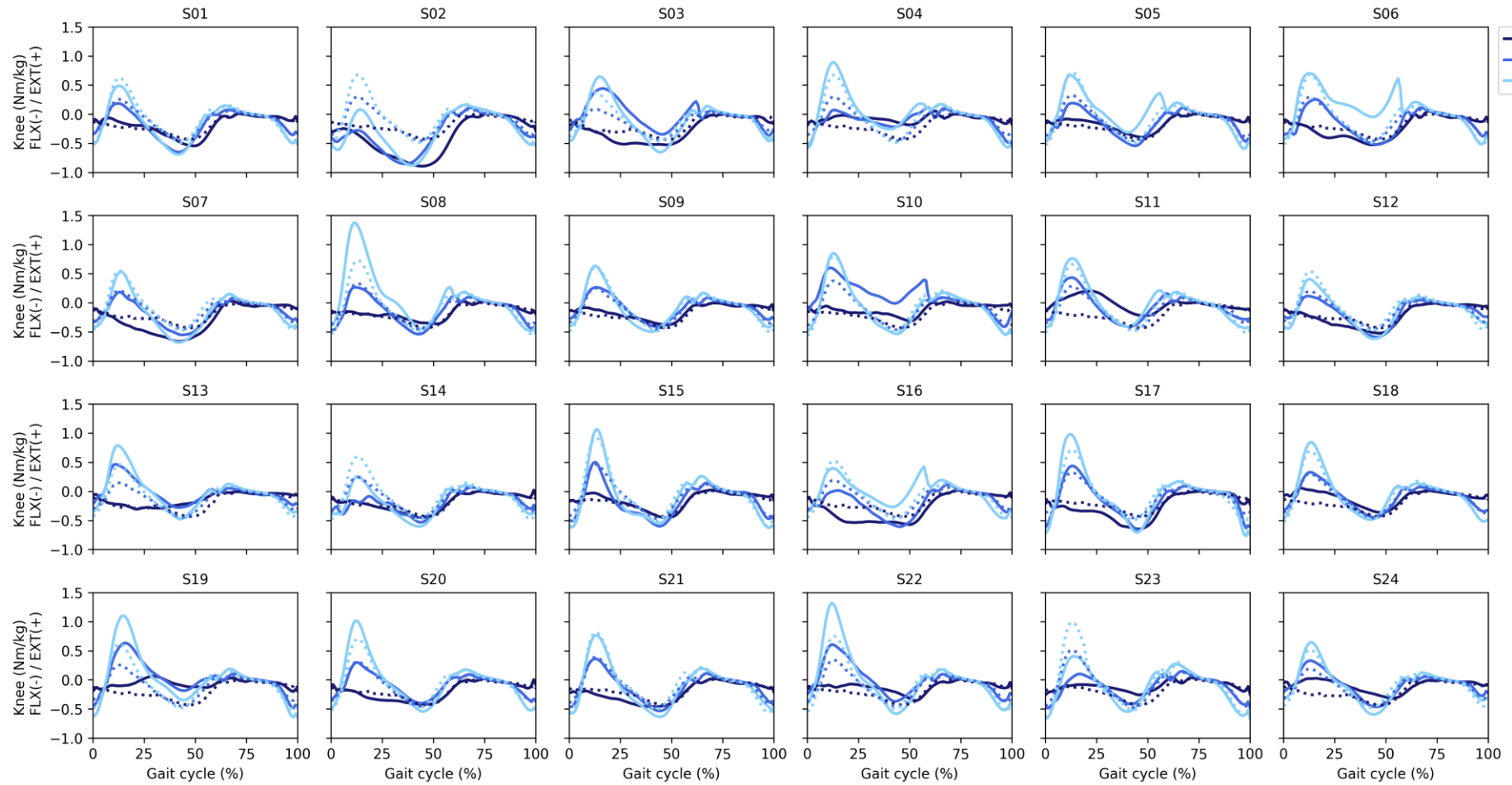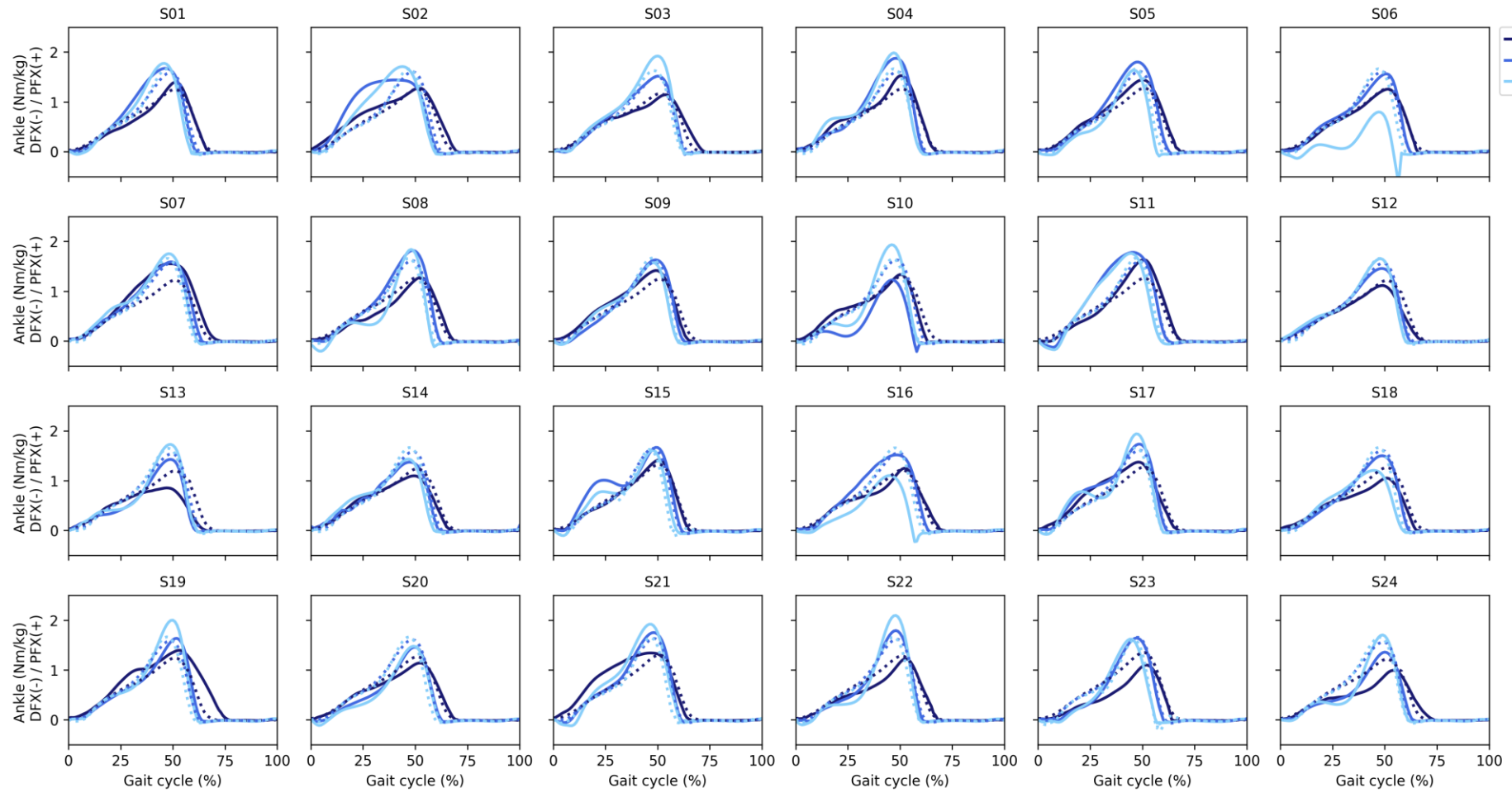
Figure 7. Individual RMSE values of the hip joint angles at the sagittal plane for the comparisons "comfortable speed versus experimental data" at different speeds (comfort-exper., circles) and "experimental versus predicted data" (exper.-predicted, squares).
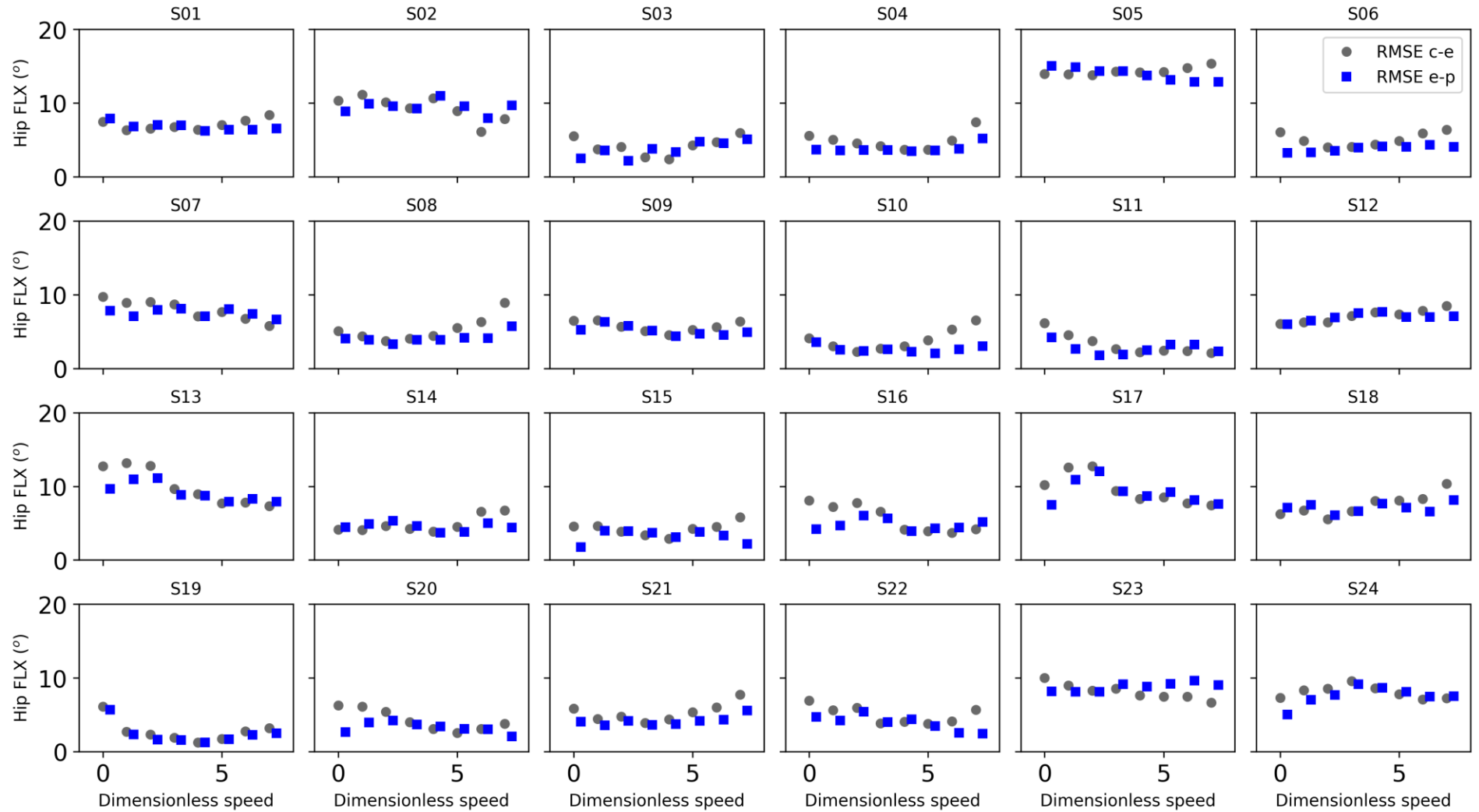
Figure 8. Individual RMSE values of the knee joint angles at the sagittal plane for the comparisons "comfortable speed versus experimental data" at different speeds (comfort-exper., circles) and "experimental versus predicted data" (exper.-predicted, squares).

Figure 9. Individual RMSE values of the ankle joint angles at the sagittal plane for the comparisons "comfortable speed versus experimental data" at different speeds (comfort-exper., circles) and "experimental versus predicted data" (exper.-predicted, squares).
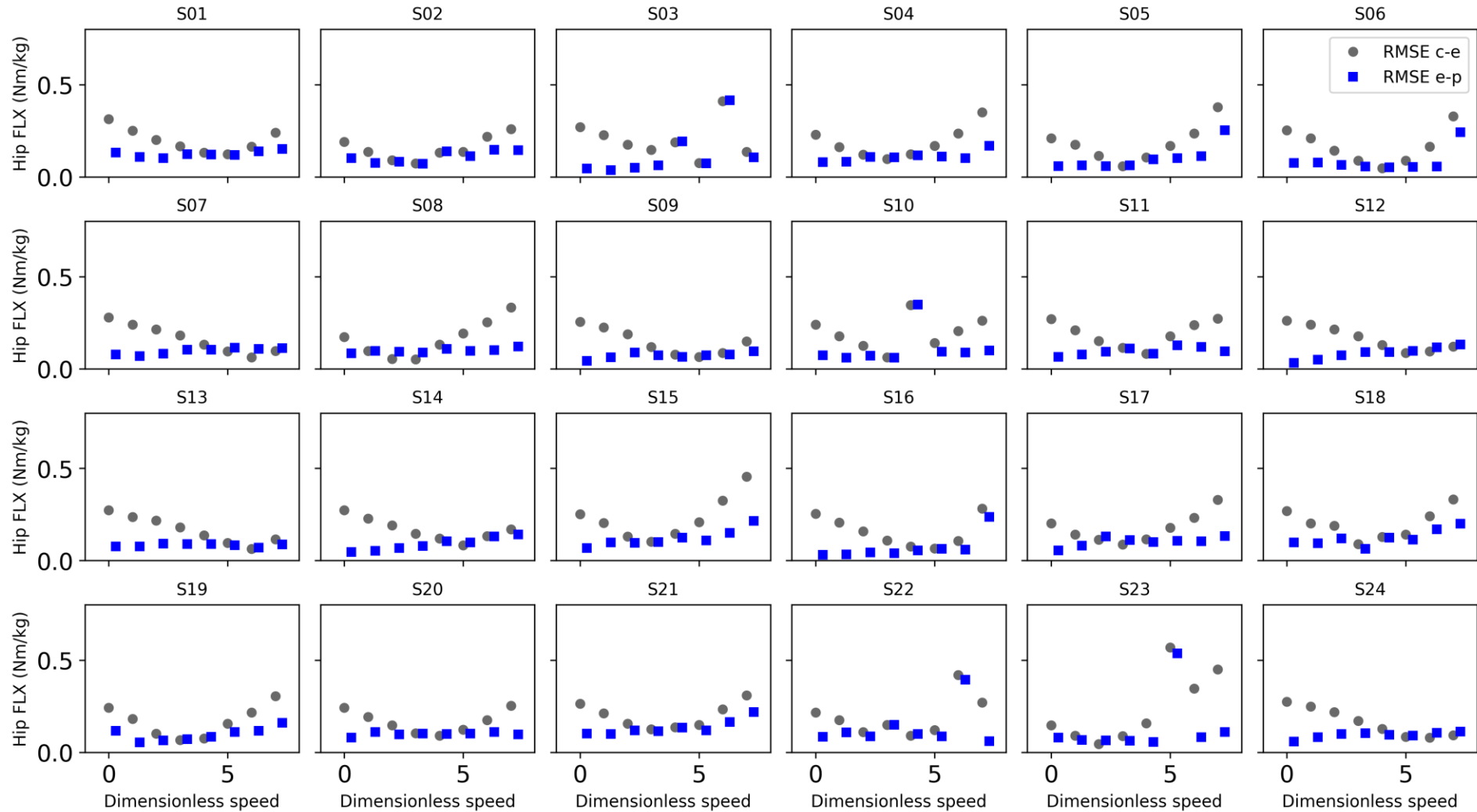
Figure 10. Individual RMSE values of the hip joint moments at the sagittal plane for the comparisons "comfortable speed versus experimental data" at different speeds (comfort-exper., circles) and "experimental versus predicted data" (exper.-predicted, squares).
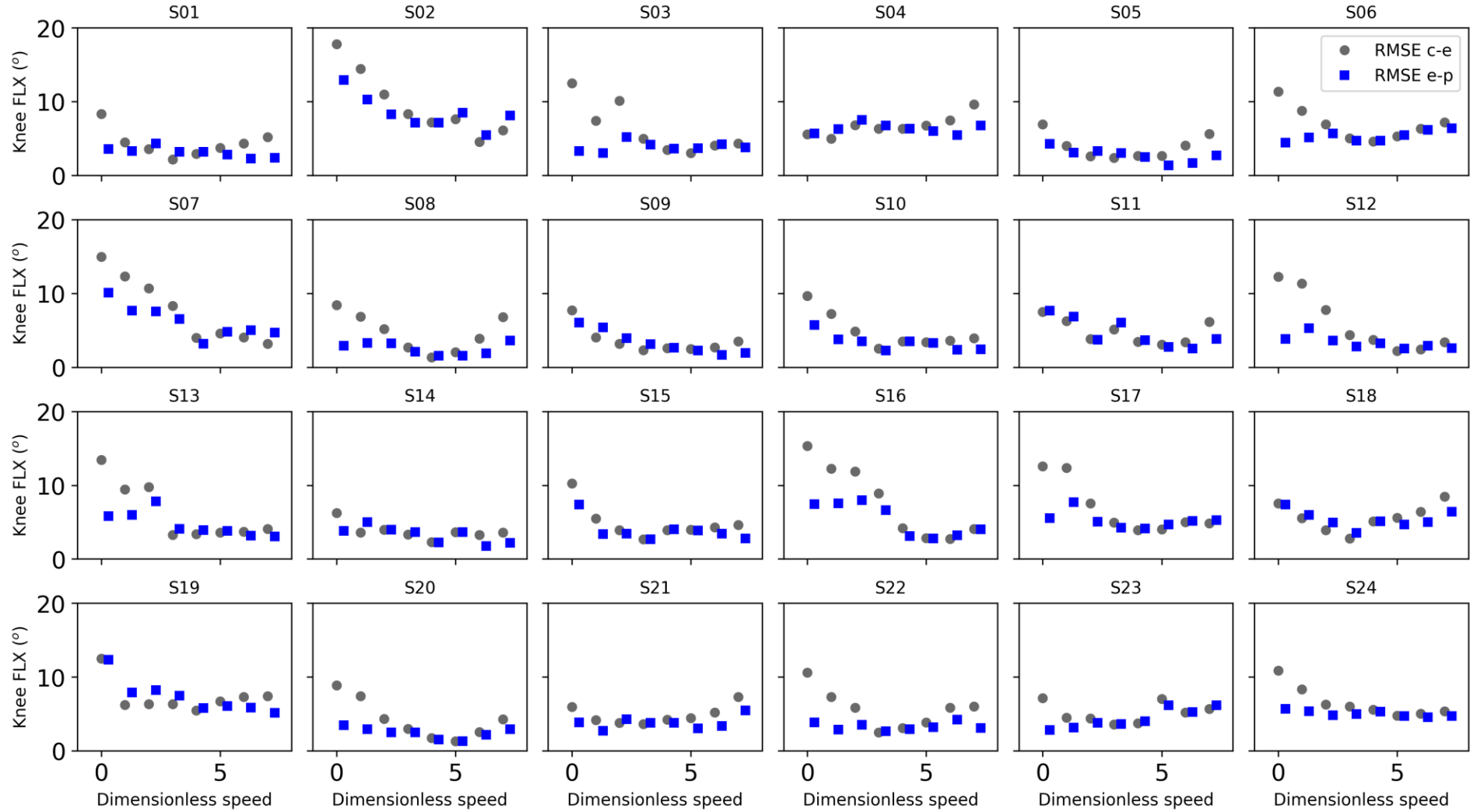
Figure 11. Individual RMSE values of the knee joint moments at the sagittal plane for the comparisons "comfortable speed versus experimental data" at different speeds (comfort-exper., circles) and "experimental versus predicted data" (exper.-predicted, squares).
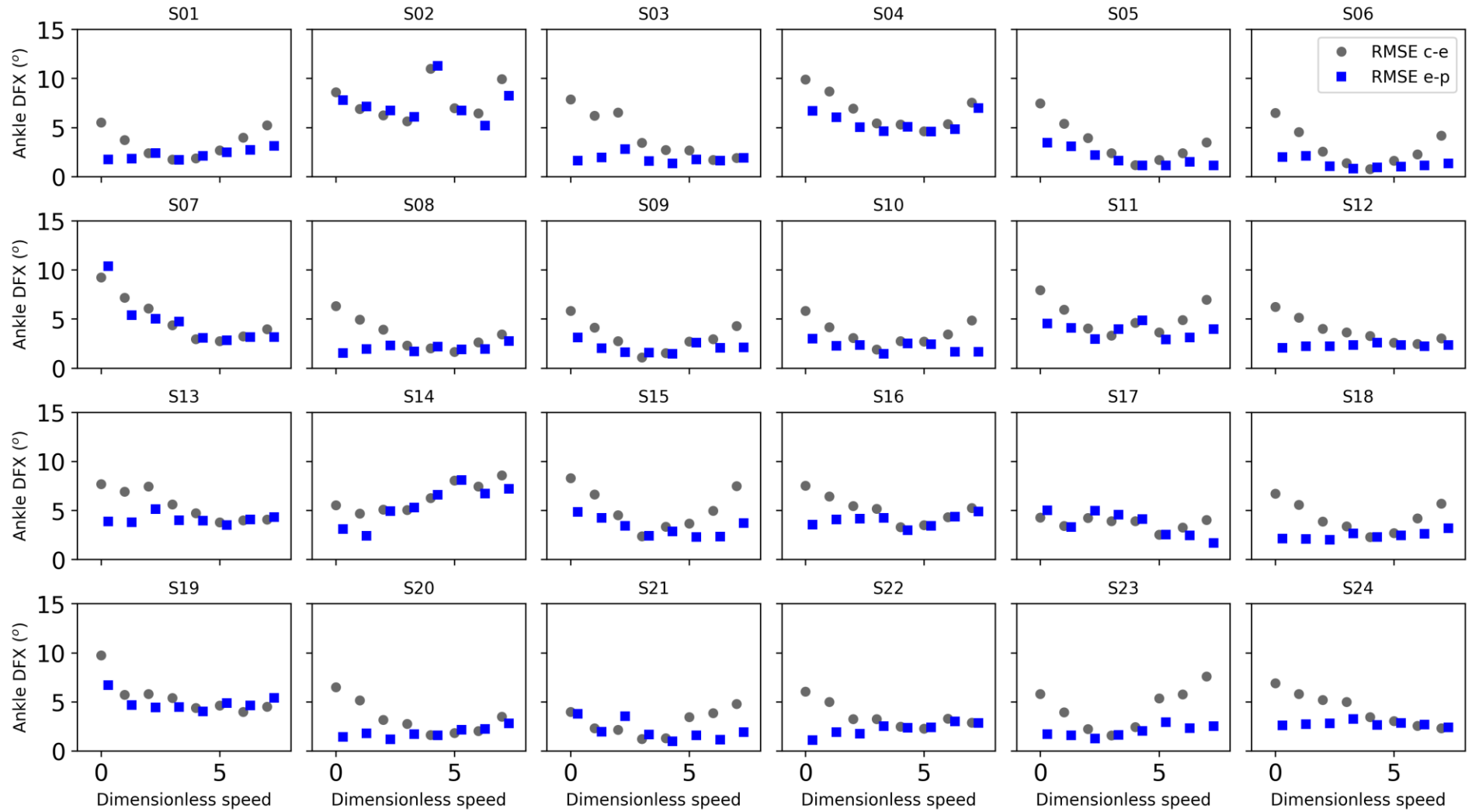
Figure 12. Individual RMSE values of the ankle joint moments at the sagittal plane for the comparisons "comfortable speed versus experimental data" at different speeds (comfort-exper., circles) and "experimental versus predicted data" (exper.-predicted, squares).
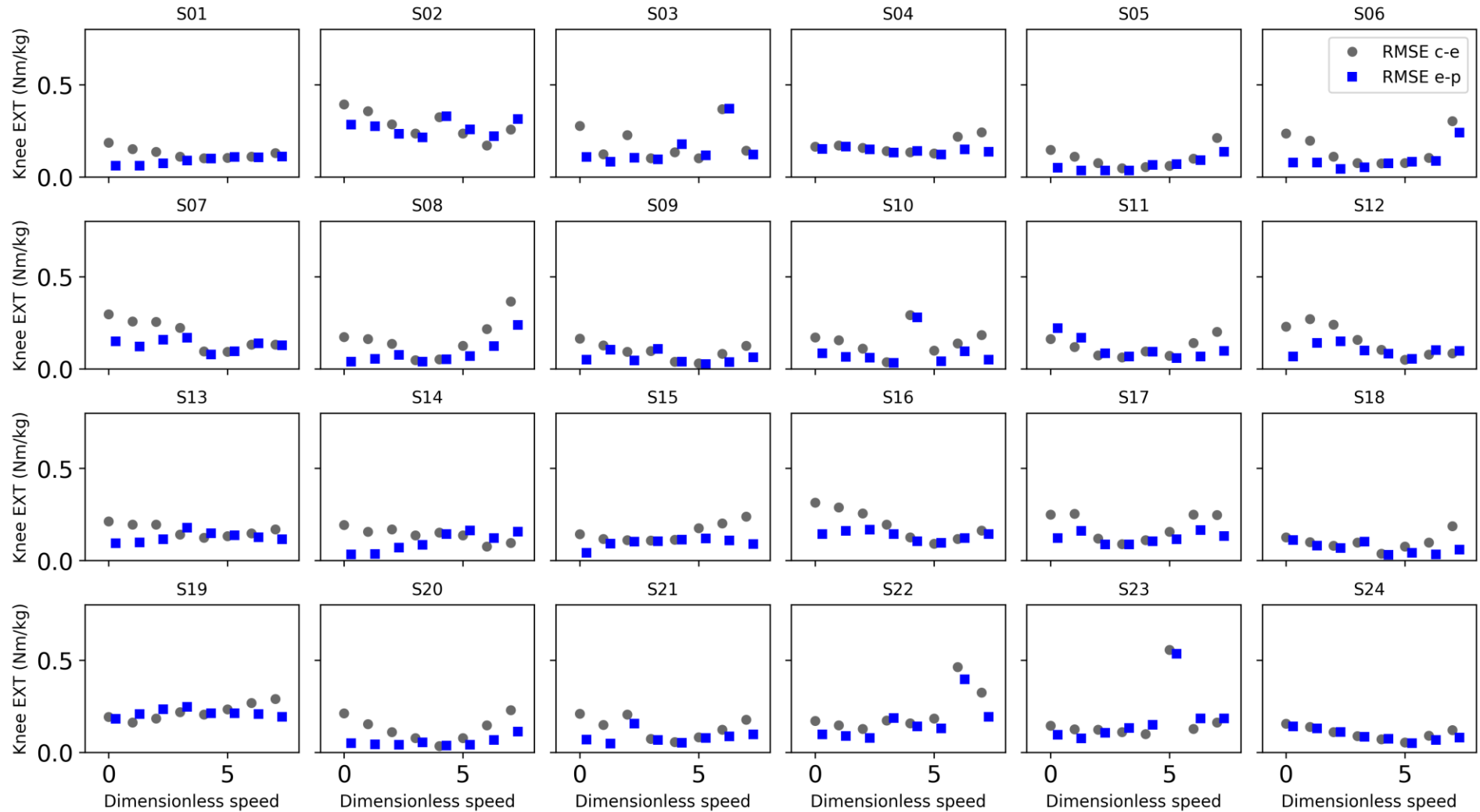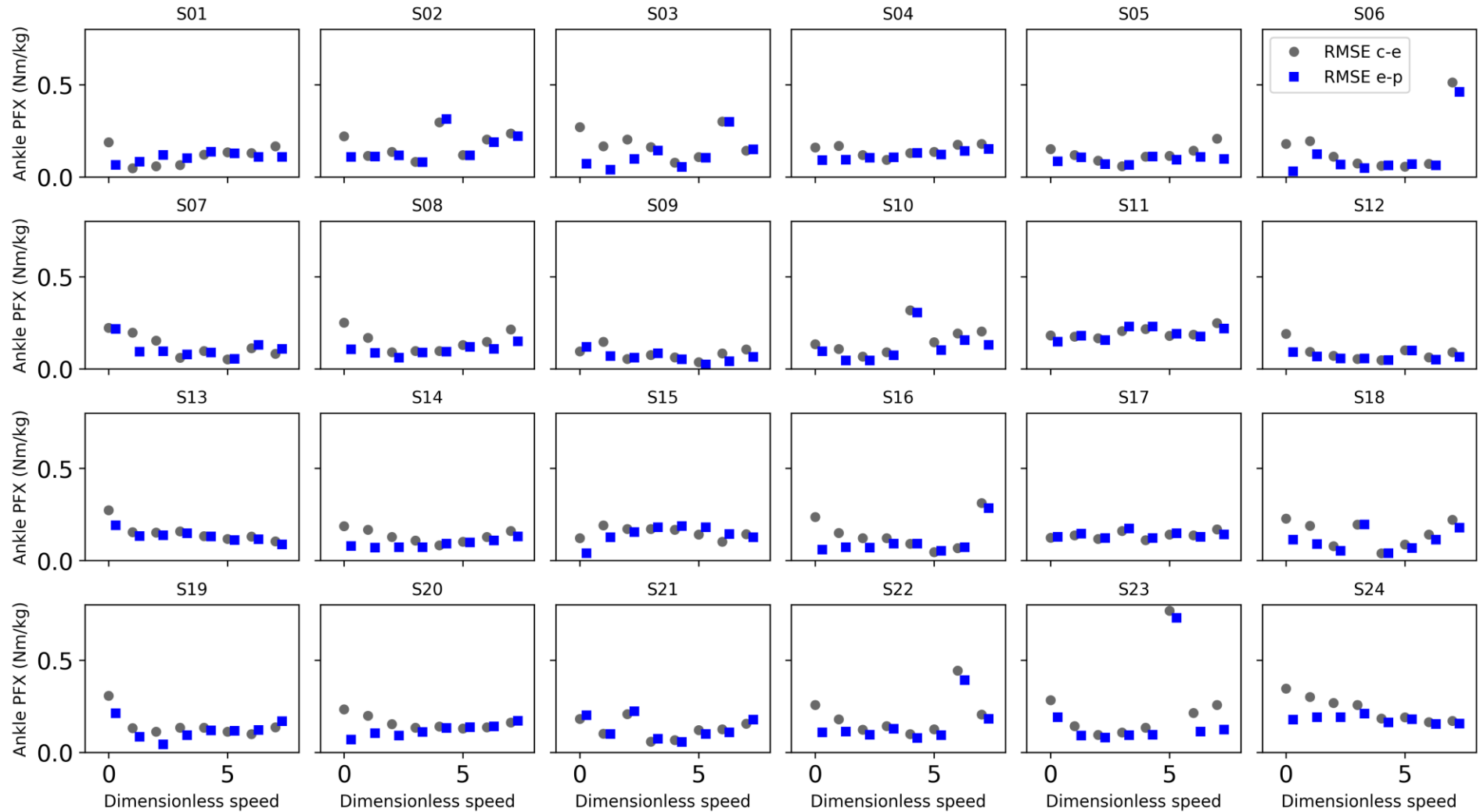
Table 1. Gait dimensionless speed, RMSE c-e (Comfortable - Experimental), and RMSE e-p (Experimental – Predicted) mean values across individuals for the joint angles and joint moments at each gait speed (S1 – S8). *Statistical significance difference ($p<0.05$) between RMSE c-e and RMSE e-p.

	S1		S2		S3		S4	
Gait speed [dimensionless speed]	0.17		0.23		0.30		0.36	
Joint Angles [°]	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**
Hip Flexion	7.29	5.70*	6.80	5.96	6.51	5.99	5.96	5.87
Knee Flexion	10.18	5.82*	7.45	5.16*	6.19	5.01	4.39	4.24
Ankle Dorsiflexion	6.93	3.65*	5.35	3.11*	4.37	3.18*	3.39	2.94
Joint Moments [Nm/kg]	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**
Hip Flexion	0.24	0.08*	0.19	0.08*	0.15	0.09*	0.11	0.09*
Knee Extension	0.21	0.11*	0.17	0.11*	0.15	0.11*	0.12	0.11
Ankle Plantarflexion	0.21	0.13*	0.16	0.10*	0.13	0.10	0.12	0.12

	S5		S6		S7		S8	
Gait speed [dimensionless speed]	0.43		0.49		0.55		0.62	
Joint Angles [°]	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**
Hip Flexion	5.78	5.65	5.97	5.69	6.17	5.57	6.90	5.75
Knee Flexion	3.89	3.80	3.99	3.87	4.26	3.70	5.09	4.18*
Ankle Dorsiflexion	3.48	3.12	3.60	2.99	4.11	2.90*	5.03	3.40*
Joint Moments [Nm/kg]	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**	**RMSE c-e**	**RMSE e-p**
Hip Flexion	0.13	0.11*	0.15	0.12*	0.21	0.14*	0.26	0.15*
Knee Extension	0.12	0.12	0.13	0.12	0.17	0.14	0.20	0.14*
Ankle Plantarflexion	0.13	0.13	0.14	0.14	0.15	0.13	0.19	0.16