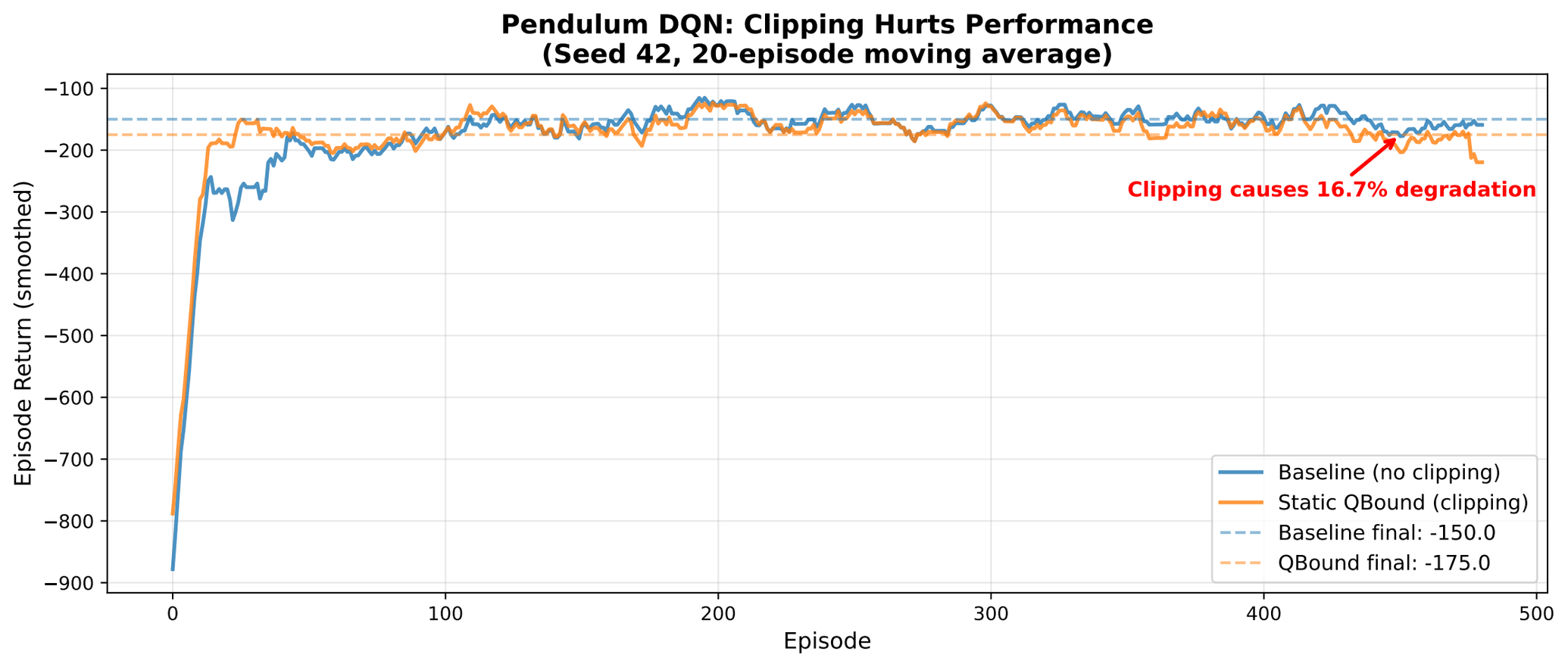
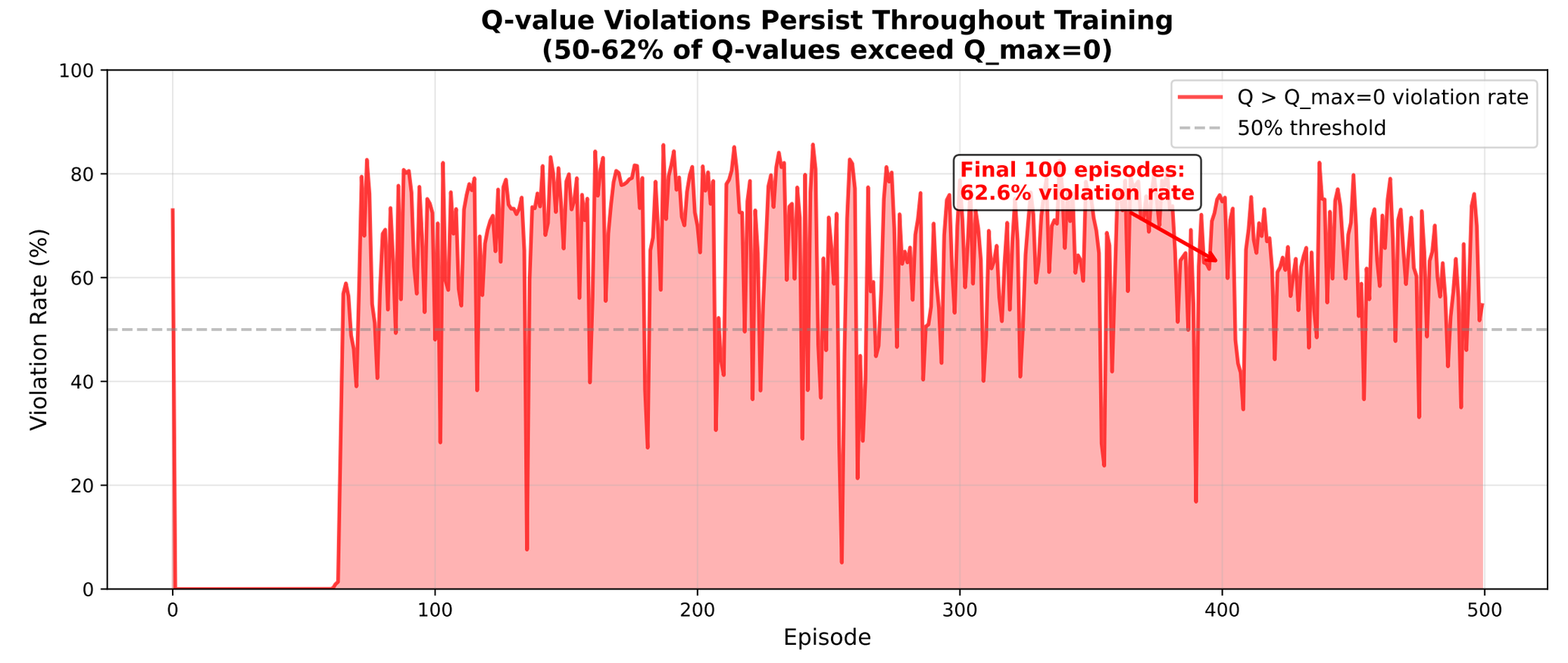

Pendulum DQN: Clipping Hurts Performance
(Seed 42, 20-episode moving average)
Episode Return (smoothed)
Episode
Clipping causes 16.7% degradation
Baseline (no clipping)
Static QBound (clipping)
Baseline final: -150.0
QBound final: -175.0


Q-value Violations Persist Throughout Training
(50-62% of Q-values exceed Q_max=0)
Violation Rate (%)
Episode
Q > Q_max=0 violation rate
50% threshold
Final 100 episodes:
62.6% violation rate