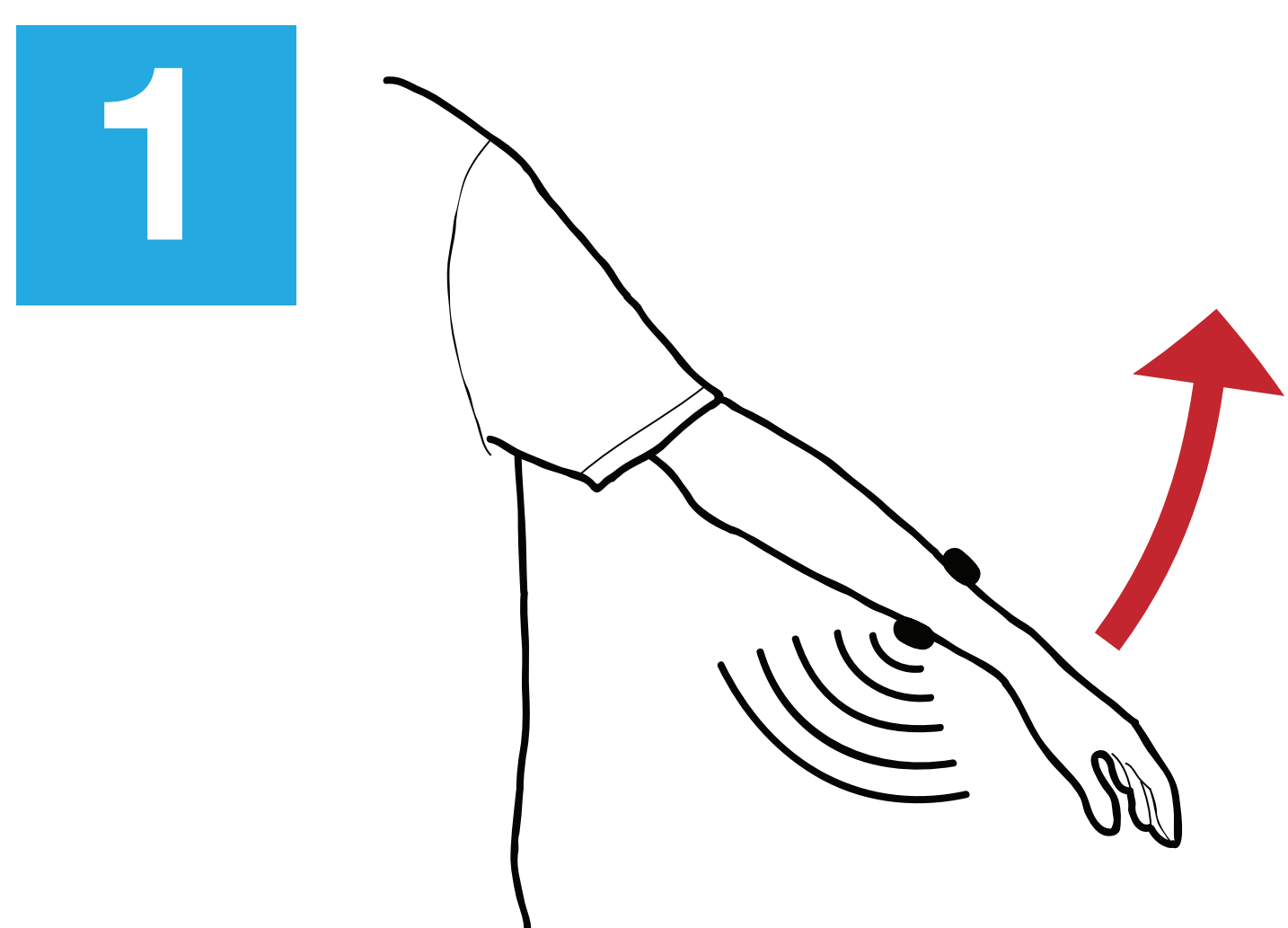


Haptics in Remote Collaborative Exercise Systems for Seniors

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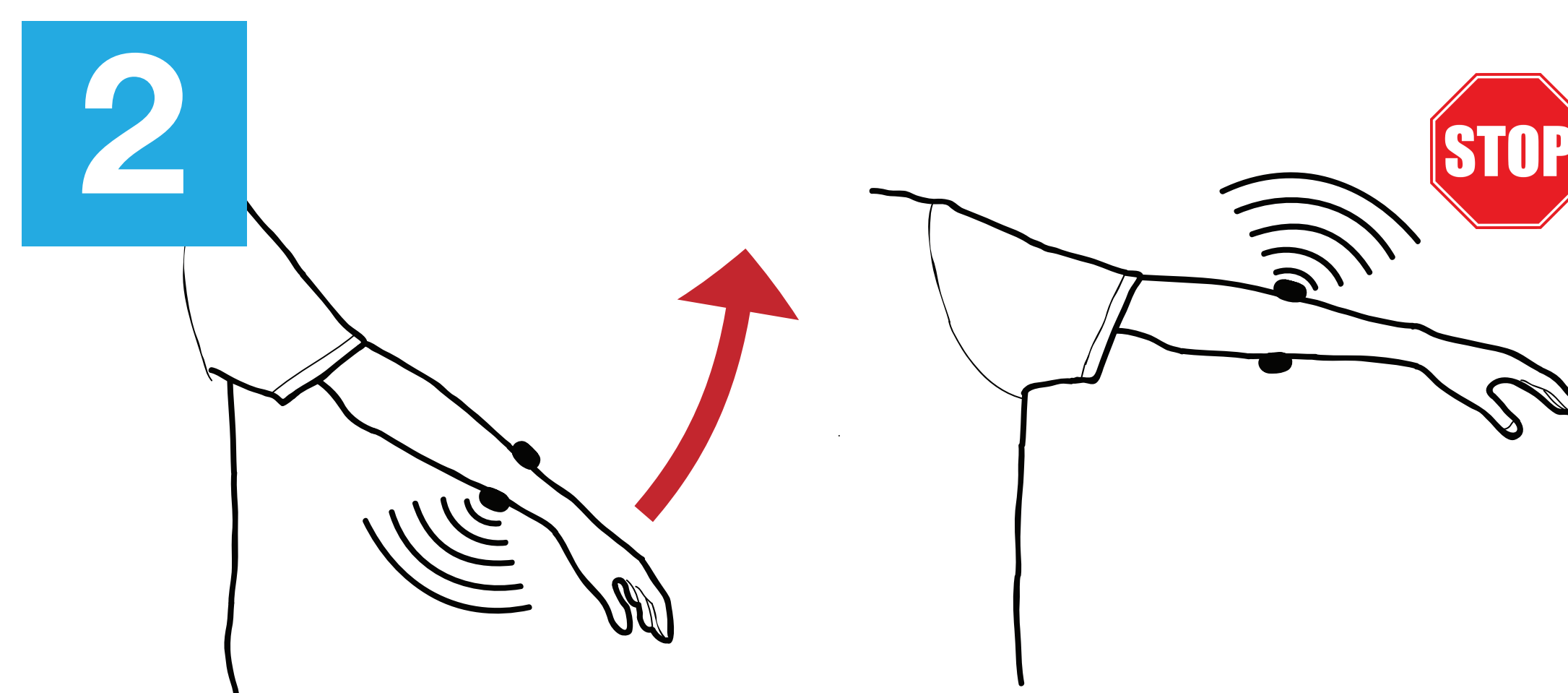


We present a remote exercise system for arm exercise. This system uses haptic feedback to simulate assistive pushing and pulling of limbs when exercising with a partner. We developed three distinct vibration metaphors – constant push/pull, corrective feedback, and notification – to convey engagement and connection between exercise partners.



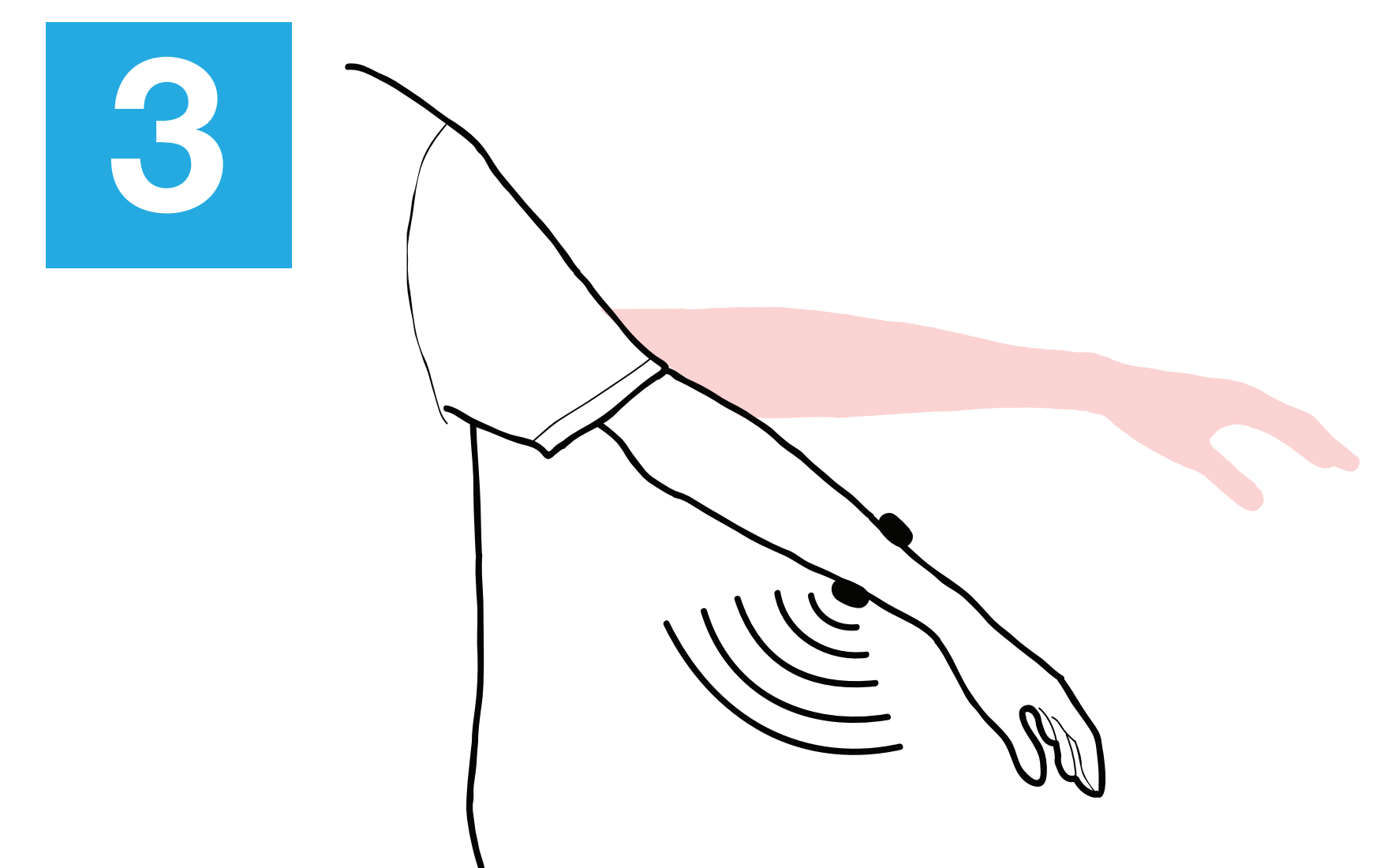
1 Constant Notification

The vibration motors are activated and left running for the duration of movement to simulate pushing.



2 Start/Stop Notification

The follower is given a single vibration at the beginning of the movement and another one signaling when to stop.



3 Corrective Feedback

The vibration motors are activated if the follower lags behind the leader in order to synchronize them.

Findings

Vibration could help people synchronize their movements, but it should be used for a short amount of time.

Vibration does not have an intuitive, natural meaning for all people, so they should be provided with an explanation as to what it means.

Richer type of haptic feedback should be used to simulate the real life experience.