



CARBON FIBER JUSTIFICATION

CARBON FIBER (CF) properties are shown with their correlating clinical impairments and should be used to assist with justification. The clinician must relate the CF property to a clinical impairment or environmental need. The justification should reiterate that the CF is required for independent completion of a functional activity, ease of maneuverability, and in turn, will provide the best outcomes and QOL for the client.

CLIENT IMPAIRMENTS/ENVIRONMENTAL NEEDS

CARBON FIBER PROPERTY

- Upper extremity weakness, paralysis or paresis
- High risk of upper extremity overuse injury
- History of repetitive strain injuries
- Limited ROM in upper extremities
- Contractures of upper extremity joints
- Sitting instability due to trunk weakness or postural deformities
- Full-time user, requires wheelchair >6 hours/day
- Fatigue
- Limited energy expenditure, decreased endurance
- Lifting in & out of the vehicle (also applies to the caregiver)
- Need for maneuverability

High Strength to Weight Ratio
Exceptionally Lightweight

- High risk of upper extremity overuse injury
- History of repetitive strain injuries
- Neuropathic pain
- Musculoskeletal pain
- Limited or absent sensation, at risk for pressure injury
- Sitting instability due to trunk weakness or postural deformities
- Limited sitting tolerance when rolling over thresholds or uneven terrain
- Fatigue
- Tone
- Spasticity

Vibration Damping

- Vigorous user that requires a durable, yet responsive frame
- Live in a remote location
- Unable to maintain minor adjustments on their own
- Limited access to their supplier for maintenance
- Potential for wheelchair abandonment

Infinite Fatigue
Exceptional Durability

- Live in extreme temperatures or wet environments

Corrosion Resistant
Low Thermal Expansion

References: <https://www.resna.org/sites/default/files/legacy/resources/position-papers/UltraLightweightManualWheelchairs.pdf>