



# Artemis III: Safety Concerns

NASA is returning astronauts to the Moon's surface during Artemis III (2026).

- In extravehicular activities (EVAs), astronauts will travel in pairs up to 2 kilometers from the lunar lander
- No solution exists to promptly rescue and return an incapacitated astronaut to the lunar lander
- Astronauts experience inhibited body movement and limited hand dexterity

## SOTERIA's Capabilities



( Rescues the astronaut in under 5 minutes.

Eliminates bending/kneeling movements from the rescuing astronaut

Large form factor to accommodate limited glove dexterity and improve ergonomics

Weighs 110 lbs and supports up to 750 lbs

Accelerates to 3.85 mph and navigates 20° slopes

Stores in 4×4×2.5 ft<sup>3</sup>

# Durable, Lightweight Frame

#### 6061-T6 Aluminum

Provides strength while minimizing mass. FOS = 1.5







## **Assistive Rescue Tools**



### Suit Connection

- Magnets attach the tool to custom carabiner housings
- Frees astronaut from bending over to attach rope to four built-in suit attachment points

#### **Dual-Use Hook**

- Assists with lifting astronaut's leg and extending net
- Threaded attachment provides modularity to swap to other EVA tools
- Stored on lifting arm

## Motor + Mechanical Control

**Dual-Motor Driver** Powers 350W DC motors at the front wheels.

Joystick Enables differential steering.

Display -Speedometer and system status monitor.

**Battery Switch** Toggle between main and rescue batteries.

• Motorized wheels offload 100% driving force required from healthy crewmember, enabling effortless movement and incline traversal • Enlarged interface controls account for gloved hands





	<ul> <li>Extend frame length with motor</li> </ul>
<image/>	<ul> <li>► Attach carabiners to spacesuit</li> <li>► Crank winch to lift astronaut above net</li> </ul>
<image/>	<ul> <li>Sceure</li> <li>Stretch net under life support system</li> <li>Lift and latch legs into footrests</li> </ul>
	<ul> <li>Transport</li> <li>Activate rescue mode on battery</li> <li>Drive astronaut back to lunar lander</li> </ul>
0	User Testing
Throttle Safety Key Emergency shutdown	Users timed through Lift and Secure steps. Fourteen trials were conducted. <b>Rescue Times on Earth</b> (Lift + Secure)
	gravity. Scaling factor = $\frac{3.0 \text{ mph}}{1.4 \text{ mph}}$ = 2.14

Avg. Earth rescue time: 1 min 56 secs. Avg. Moon rescue time: 3 mins 57 secs.

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