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Fissazione esterna nel trattamento delle emergenze e traumi militari, tecniche di ricostruzione degli arti e trattamento degli esiti postraumatici

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Solar-Powered 3D Printing of External Fixators in Conflict Zones

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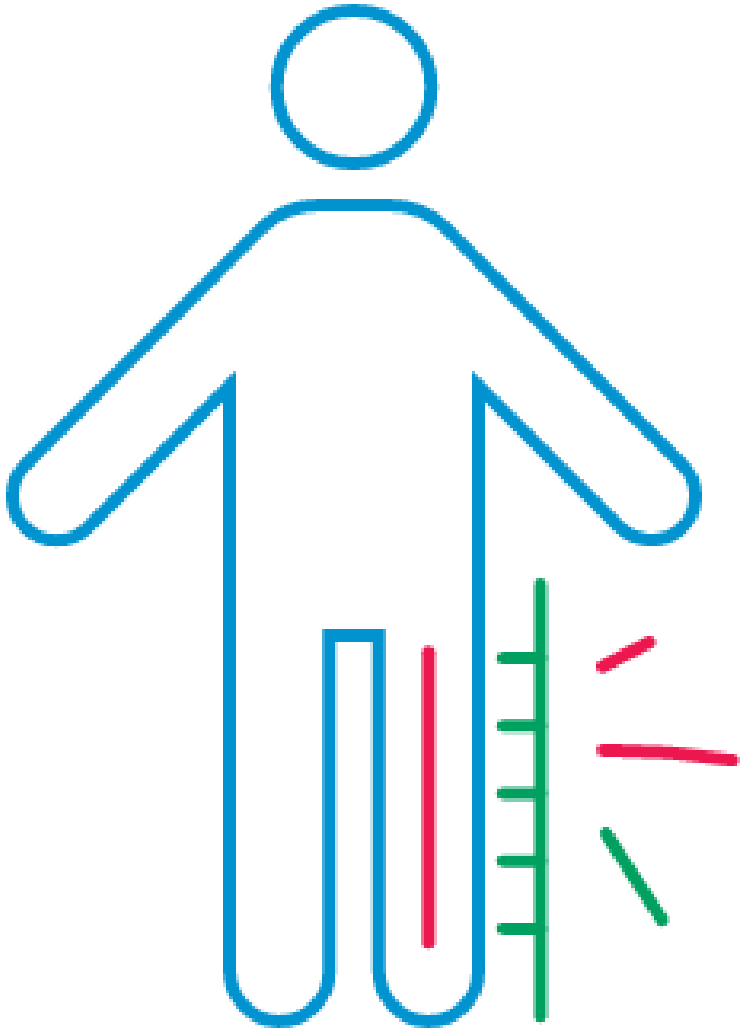
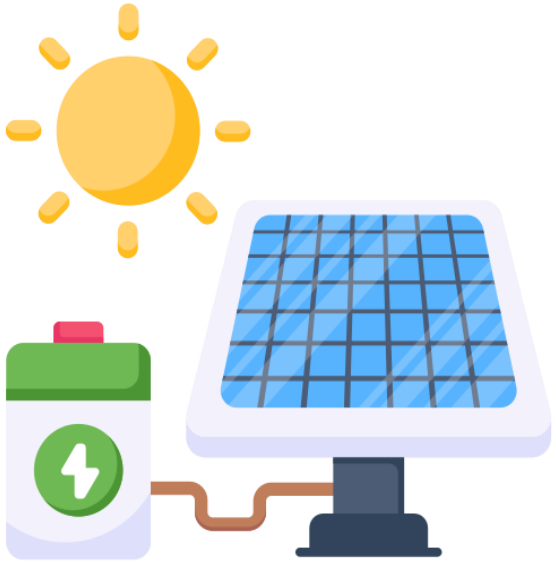
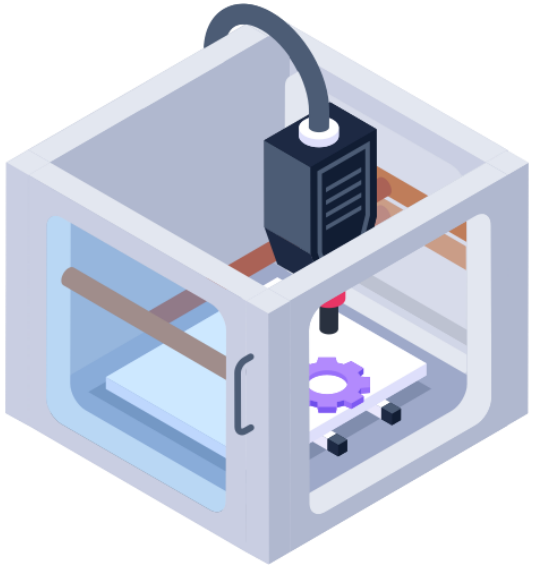
- War zones face severe shortages of medical supplies.
- Thousands of civilians suffer traumatic fractures due to blasts and gunshots.
- Disrupted supply chains.
- High amputation rates.
- Need for fast, simple treatments.

- Rapid application and stabilizes fractures temporarily.
- Buys time for definitive surgery.
- Life- and limb-saving.

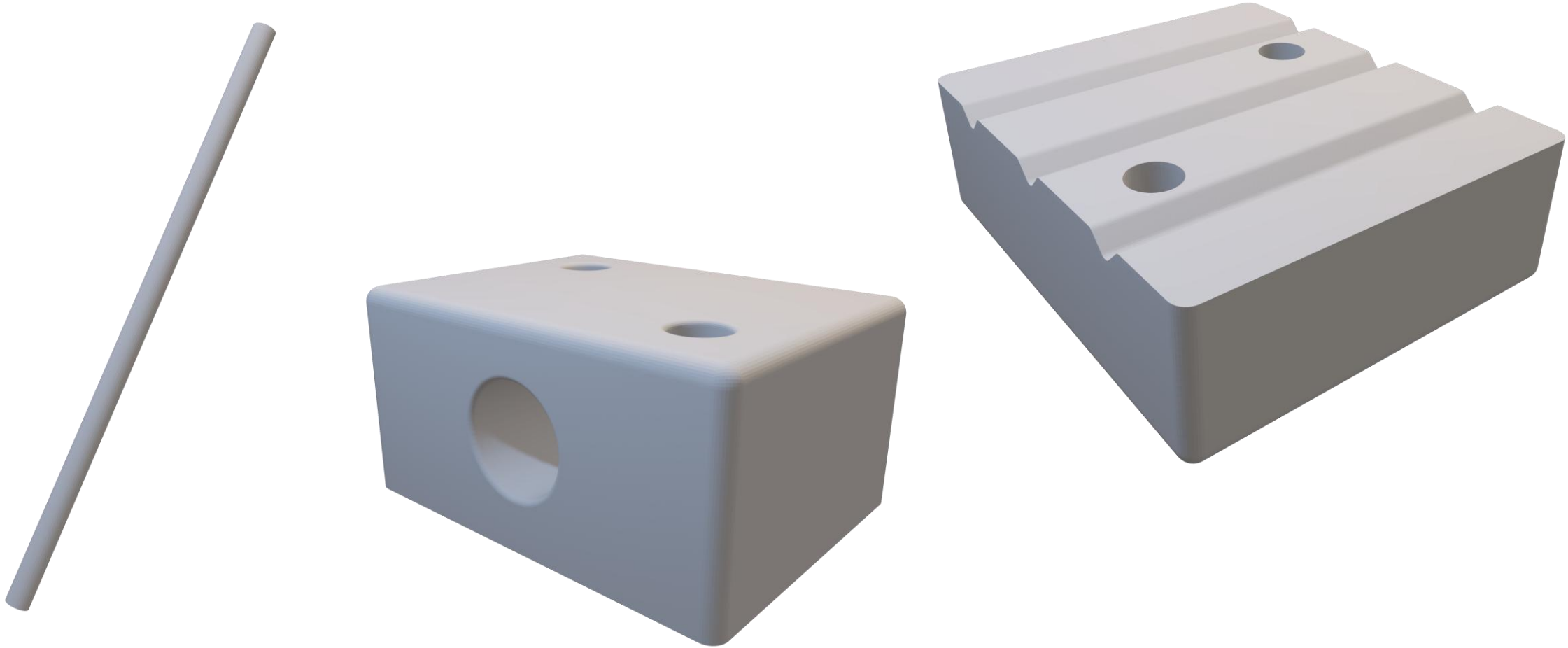






- 3D printing offers an on-demand, local production method.
- Solar-powered printers operate off-grid in crisis areas.

Material	Cost per fixator	Durability	Weight-bearing ability	Printability
PLA	15-20€	Low	Not suitable	Very Easy
ABS	20-30€	Limited	Limited	Easy
PEEK	80€	Excellent	Excellent	Difficult (high temp)
Carbon-fiber Reinforced Polymer	100€	Excellent	Excellent	Moderate



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- Further material testing and clinical validation.
- Partnerships with humanitarian organizations.
- Feasibility and usefulness.

Our project is still a work in progress. However, the potential to reshape trauma care delivery is enormous.