

SWL Ramping Card

Step-by-Step Guide for Safe and Effective Energy Escalation

Purpose

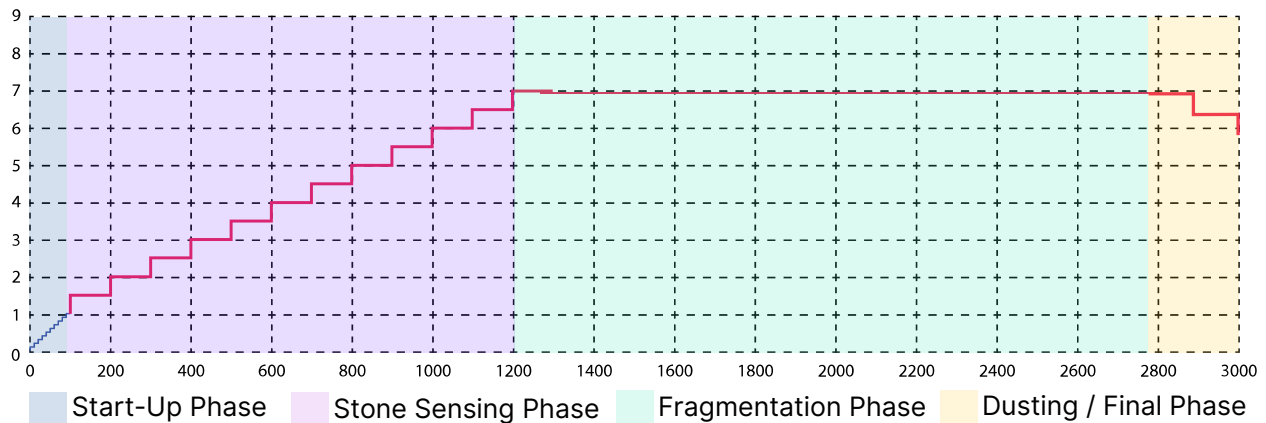
To ensure smooth, renal-protective energy escalation during Shock Wave Lithotripsy (SWL) while maintaining optimal stone fragmentation efficiency.

1. Initial Setup

- Confirm correct patient positioning and stone targeting using inline or ultrasound guidance.
- Ensure proper coupling with no visible air bubbles.
- Check vital parameters and patient comfort before initiating shocks.

2. Ramping Protocol

Phase	Energy level	Number of shockwave	Frequency	Goal / Remarks
Start-Up Phase	0.1 → 1.0 (gradual)	300	60/min	Allow tissue adaptation and vasoconstriction to minimize renal injury.
Stone Sensing Phase	1.0 → 5.0	300-1200	60/min	Observe real-time fragmentation and adjust focusing if necessary.
Fragmentation Phase	5.0 or level at which fragmentation has achieved. Should not exceed recommended energy level	1500-2000	60/min	Continue until stone shows visible fragmentation. Avoid over-treating
Dusting / Final Phase	Maintain same energy or decrease one level of energy	500	90/min	Short high-frequency series to smooth residual fragments.



3. Key Safety Tips

- Pause briefly after every 500 shocks to re-evaluate focus and check patient comfort.
- Reduce frequency to 60/min in pediatric, obese, or renal-compromised patients.
- Do not exceed total of 2500–3000 shocks in a single session.
- Always review post-SWL ultrasound for renal edema or hematoma.

4. Recommended Adjuncts

- Adequate hydration before and after procedure.
- Alpha-blockers may assist in fragment clearance.
- Avoid NSAIDs before treatment in patients with bleeding risk.

5. Reference

Protocol adapted from:

- Parmar S. Personalizing SWL Treatment – A Structured Approach. LinkedIn Article, 2024.
- EAU Guidelines on Urolithiasis, 2025.

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