

# Risk Factors for Unintended Flying Objects (UFO's) in the Home Shop

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Here is an abbreviated checklist for causes of UFO's. I'll venture to say that close to 100% of these can be prevented.

## 1. Not using your tailstock

2. Too small a diameter or too skimpy depth of a tenon for the size of the blank. Any irregularity generates torque on a small nubbin of wood which shears off...leaving a "biscuit" in the chuck, the blank airborne, and a "mark" on something.
  - UFO:  
[scwoodturners.org/uploads/4/8/2/3/4823810/unintended\\_flying\\_objects\\_in\\_the\\_shop\\_12-20.pdf](https://scwoodturners.org/uploads/4/8/2/3/4823810/unintended_flying_objects_in_the_shop_12-20.pdf)
  - Chucking [scwoodturners.org/uploads/4/8/2/3/4823810/chucking\\_feb\\_2023.pdf](https://scwoodturners.org/uploads/4/8/2/3/4823810/chucking_feb_2023.pdf) (esp slides #30-47)
  - [Chucking afterthoughts--Feb 23, 2023.docx \(scwoodturners.org\)](https://scwoodturners.org/uploads/4/8/2/3/4823810/chucking_afterthoughts--Feb_23_2023.docx)
3. Using a mortise as primary chucking strategy for an unbalanced blank.
  - Weaker than a tenon
  - Tailstock imperative
  - Ask a veteran turner for advice before pushing your luck
4. Using a green wood blank with the tenon in the very youngest (and weakest) layers of the log. (Pith up orientation means the tenon lies in younger, peripheral wood.)
  - They shear easily when wet and especially when they fail to incorporate at least 4 growth rings.
  - Some wood species are worse than others for adherence between growth rings
  - See diagrams in the chucking demo deck (slides 55-61, esp #58)

5. Using a flimsy waste block of weak or "splitty" wood (e.g. pine, redwood), and especially with flat/tangential grain as opposed to quartersawn. See chucking deck, slides #110-115.
  - That waste block needs to be premium quality and proper grain...don't try to get away with junk wood, despite the nomenclature
  - Poorly cut flat-to-flat mechanical fit...meaning that thing is held on by narrow rings of contact, not full face adhesion. This takes some skill!
  - Using inadequate glue (hot glue is inadequate)
  - Don't rush into this...if you're using regular wood glue or even epoxy, let it mature overnight
6. Trying to grip insect-damaged, rotted, spalted wood, or wood with voids in the tenon itself.
  - Tenon crushes, loosens, and the blank takes wing.
7. Don't do outboard turning just because your headstock can rotate 90 degrees.
  - Control and safety are *dramatically* worse.
  - If you have a blank that won't fit over your ways on your lathe...use your club connection and try it on a bigger lathe in a friendly member's shop
8. Failure to make that 77 degree dovetail angle accurately on the tenon. Egad, that is common!
  - See diagrams in chucking deck, #30-47
  - If you're using a cylindrical grip jaws, grip the max your jaws will allow...7/16 or 1/2". Don't try to conserve depth of the bowl by skimping on the height of the tenon!
9. Inadvertently bumping your speed control so the blank starts off way over the intended RPMs
  - Bigger problem with EVS speed control with a vulnerable placement of a low friction potentiometer knob. (My Powermatic).
  - Older, belt drive speed changes take extra time and hassle, but that step avoids this oopsie hazard
  - Never turn on your lathe without checking that the speed is set where you want it
  - When you're done for the day or finished with a piece, turn the speed way down

## 10. Catches, oh golly...

- The most perfectly balanced and well gripped blank will misbehave with a serious catch. Every honest turner has seen this "up close and personal"
- A dull tool--true for both gouges and scrapers--is asking for trouble. Stay sharp
- An aggressively thrust tool (no rush!)
- Inattention (happens sooner or later to everybody) and distraction
- Beginning turners, **please take a lesson from a person**, not a video, not just a book, to learn proper tool placement, get coaching with hands on, cement that into muscle memory, and reduce catch frequency dramatically.
- Don't turn when you're tired, angry, or when you are in a perceived rush. Honestly, a bowl is never that important. Wood will wait. (If you wind up in the ER lobby, you'll have to wait.)
- Beer is for after the turning session

## 11. The heavier and larger diameter the blank, the more any small perturbation creates destructive torque on the attachment.

- That formula  $\text{RPM} \times \text{Diameter in inches} = 6000 \text{ to } 9000$  is reliable. Stay at the low end of that until it's running true.
- Don't push RPMs with wood with rot, voids, spalting, or insect damage.
- Take small cuts so that the jolting when you hit denser wood doesn't over-stress your attachment

## 12. Using too small a chuck because that's all you have.

- Most of us started with a chuck that grips a 2 - 2.5" tenon. Adequate for up to 10-12" if the blank is sound and balanced.
- A bigger chuck (3 - 4") may cost you a couple hundred dollars. That's just the co-pay at the ER. Buy the bigger one, or borrow one, but don't take foolish chances.

13. Tackling an irregular gnarly blank when you haven't done that before.  
(Driftwood, root balls, Manzanita burls)

- This is awfully common, possibly a side effect of seeing such marvelous objects at show and tell...by turners with 10-20-30 years experience
- There's no merit badge for going over your head in technical skills, but the ER will receive you graciously
- Our club is full of experienced turners who can help you do that more safely
- Get proficient with the regular blanks first...and save that adventuresome piece until you have a few more stripes on your shoulder. It will wait!

Our club is insured for limited liability at our meeting site. The other 29-30 days of the month, you're on your own. Health insurance is a rip...try to avoid using it.

Wells