

SLIDE 1

Current Weaknesses in UOAF:

- Members of flights must be micromanaged, and although have the technical skill to perform tasks, do not take initiative
 - This isn't ARMA, in order to be effective you need to take initiative, especially when you realize something bad is about to happen
- Poor brevity and coms – the result of this is increased numbers of lost ships
 - it's not about sounding cool it's about transmitting complex information in the shortest amount of time possible
- Lack of communication during critical times
 - You should always be communicating what you are doing if you are out of formation, being engaged, or engaging
- Procedures for defending missiles and defensive techniques
 - While some of you have gotten away with it up until now, by going against really shitty SAMs and winning by luck, the more deadly air defenses in Israel are changing everything This training will address all of these things, and although we will focus on defensive techniques, all are important areas that could be improved.

SO before we dive into the technical stuff, we need to go back to the basics, because it's here where the biggest mistakes are made.

SLIDE 2

1. Composition of a flight
 - a. Each position's jobs
 - i. Element lead is not a 2ic, he is an active leader of a separate element
 - b. The importance of mutual support
 - c. Rolling into the fire
2. A wingman's duties
 - a. Maintain constant visual contact with lead
 - i. Report if no longer visual – blind
 - ii. This is perhaps the most important thing to take away from this – if you can't see eachother, or at least know what general area of sky eachother are in, you can't support eachother.
 - b. Stay in formation
 - i. In relation to the lead, NOT the formation
 - c. Watch eachother's blind spots
 - d. Support one another if engaged by a threat
3. **SLIDE 3** How do we die?
 - a. You did not respect the weapons envelope
 - b. You perform the wrong defensive technique or do not perform one
 - c. You lose visual on the missile and it hits you because you didn't break at the right time
 - d. Least common: you maintain visual contact on the missile, you perform the correct maneuver and it still intercepts you. This usually happens against advanced SAM systems.

4. **SLIDE 4** How do we avoid the death?
 - a. Stay outside weapon envelope – if an enemy radar is coming within the inner rings of the RWR, you are inside the weapon envelope
 - b. Put threats on the beam
 - i. This creates the most lateral space between you and the target and maximizes
 - ii. Anyone not know what that means?
 - c. Go fast – you do not want to get fired upon at 250 knots
 - d. **SLIDE 5** If you are fired upon:
 - i. Look for the missile with your eyes
 - ii. Perform a defensive maneuver:
 1. Always defend toward known airspace – not unknown airspace, if possible
 2. Emergency jettison your stores by holding down ctrl-j
 3. Switch stores config to category 1 so you can pull up to 9 g with shift-c
 4. Immediately perform a split S while expending chaff and burning
 - a. The split S is a maneuver which rapidly turns you around, increases your air speed and changes your aspect (aspect changes can confuse SAM radars), at the expense of altitude
 5. If you are low altitude:
 - a. Perform a maximum G break turn away from the threat while keeping the FPM on or below the artificial horizon
 - b. If possible mask behind terrain, direct line of sight obstructions to the radar emitter will render the missile harmless
 - iii. **Slide 6** the importance of the split S, link to video
5. **Slide 7** Great so I do this and I always live right?
 - a. **No.** Because a good deal of the time it won't be this clear cut. You may not have enough time to perform a split S and you may need to perform a high G break across the missile's pursuit path at a precisely timed moment.
 - i. Consider you are cruising around at 250 knots for whatever reason and a SAM turns on under you. Before you know it you are ambushed, you have about 1 second to spot the missile and then you need to start making a defensive maneuver. You don't spot it and start to turn away...
 - b. In situations like this the support of your wingman is absolutely essential. You will die if you or your wingman doesn't spot the missile when you don't see it. Your wingman simply telling you to break at the right time WILL save your ass.
 - c. **Slide 8. Thus this largely becomes a teamwork, communication and brevity problem – not a problem of technical performances! I say again, good missile defense is a thing of team, communication and brevity, not of technical performances.**
6. So next let's talk about what to do as a wingman when SAMs go in the air and how to communicate the complex environments we encounter.
 - a. Most of the brevity and comms procedures the squadron currently uses are incorrect or mostly incorrect. It has mainly not been corrected before because it's hard to have a lecture on terms when you are having missiles fired at you. Regardless let's get a few things straight:

i. IF you use improper brevity during a call, follow-up questions are required, and delays happen, or WORST yet the exact opposite is understood of what you were trying to convey, which defeats the entire point of brevity

ii. If you don't know the proper brevity just blurt out something quick and to the point – otherwise it does more harm than good. We are only going basic brevity today – and it will be simplified.

b. Slide 9. The fundamentals:

i. Informative calls – these aware the flight of threats. Your job as a member of a flight is constantly to alert everyone of detected threats. If the radios go silent, certain flight members are in danger.

1. Just for reference/clarity, for airborne contacts:

NAILS (type/direction) - RWR indication of air radar in search.

SPIKE/SPIKED (type/direction) - RWR indication of an air threat in track or launch.

“Lobo 11, nails 29, north” - mig-29 scanning you

“Lobo 11, spike 29, 090” – mig-29 launching on you

2. Air to ground:

MUD (type with direction/range if able) - RWR ground threat displayed with no launch indication.

SINGER (type/direction) - RWR indication of SAM launch.

SAM (direction) - Visual acquisition of a SAM in flight or a SAM launch (should include position).

“Lobo11 mud 6, right 2 o'clock”

“Lobo11 singer 6, south”

“Lobo 11, SAM left 11 o'clock!”

3. As you can see there are a variety of ways to refer to directions – use whatever is best in the circumstance. You can use cardinal directions, visual references, magnetic bearing, clock bearings and bullseye.

ii. **Slide 10.** Responses – an informative call should always be answered so the leads know that everyone is aware of the situation and their current status. These calls can also be made as informatives when a BRAA or bearing, range, altitude or aspect is attached.

1. Visual: Visual contact with a friendly

2. Blind: No visual with a friendly

3. Tally: Visual contact with enemy

4. No joy: No visual contact with enemy

5. Contact: See a contact on a sensor such as radar or TGP

6. Naked: No RWR indications

iii. **Slide 11.** Defensive calls – used to inform the rest of the flight that you are being attacked and need immediate support. Unsupported wingmen die! I know it may be difficult to make a precise defensive call when being attacked but

at least blurt out “engaged defensive” or “Defending.”

7. Slide 12. Procedures for defense – working as an element. So far we’ve gone over a bunch of technical stuff. First, we went over how to technically perform a defensive maneuver, followed by what to say when, and how to say it. But now we are going to focus on arguably the most important part: actions as members of a flight to ensure your wingman comes home alive.

a. Here is the basic premise: Ideally only 1 element should be committed to an attack at a time, and within the individual element, only 1 ship should be committed while the other supports.

b. How this plays out is like this: the flight leads spots a contact and reports he is engaging.

i. Element 2’s job is to separate and support element 1. 3 should be managing element 2 and not waiting for orders from the lead – this goes back to personal initiative. Element 2 is looking for launches, pop-up groups and other threats. Element 2 engages these threats if they pose an immediate threat, without waiting for orders.

ii. Within element 1 the lead is sorting and assigning targets while 2 stays in visual formation. If 1 is attacking, 2 is scanning for threats.

iii. If 1 gets attacked by air defenses, 2 strips out of formation, beams the threat, avoids the weapon envelope and visually acquires the launch and the lead aircraft. 2 should be doing NOTHING except looking for the missile and it’s relation to the lead aircraft. This is also where communication comes in:

1. If 1 says he is engaged defensive, if the wingman is unable to see the lead, he should report that he is blind.

2. He should then look for the SAM and if he can’t see it in a few seconds report he has no joy. If he does see it, he should call out SAM (direction), watch it, and then make sure the lead defends it. Most important here is that he tell the lead when to break if the missile is still tracking and going to intercept.

3. The entire flight should be looking for the launch if able.

4. The padlock key can be used to quickly find contacts in a general area of the sky in which you know there should be contacts.

iv. The role of the element leader is very important in situations like this. Element 1 will be tumbleweed and busy. The element leader becomes the flight leader when the flight leader is occupied and cannot lead the flight. The element leader is not a 2nd in command, waiting for the flight leader to die so he can take over. HE should be commanding leadership at all times in which the flight leader is occupied.

c. This is the general schema for how good defensive works: constant communication and support. When either breaks down, people die.

d. Slide 13 whiteboard and examples

8. Lastly before we get in game we are going to go over target recognition and awareness. Going to go over a few SAMs which you are likely to encounter in Israel that are highly deadly, and a few of you may have been shot down by them before. It’s important you be familiar with their capabilities and be able to visually recognize them.

a. Last slides