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# *HELICOPTER FACTS*

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## **8 Ways to Enhance Helicopter Training and Reduce Fatal Accidents**

**WASHINGTON DC** – Many fatal helicopter accidents involve causes from actions or non-actions that may have occurred months or years before during initial or recurrent instruction sessions. The U.S. Helicopter Safety Team ([www.USHST.org](http://www.USHST.org)) has determined that these training initiatives could improve safety and potentially save lives.

**Promote the Teaching of Threat and Error Management** – Traditional decision-making models focus largely on reactive and proactive means of flight crew situation management. Threat and Error Management (TEM), however, focuses on a predictive process to eliminate threats and errors before, during, and after each flight. Since its inception and introduction to airline operations, TEM has, as part of larger safety efforts, drastically reduced total accidents within the worldwide airline community. Although TEM generally is taught in conjunction with Cockpit Resources Management (CRM), TEM is actually the latest evolution/iteration of the CRM concept: It is defined as “the process of detecting and responding to threats and errors to ensure that the ensuing outcome is inconsequential, i.e., the outcome is not an error, further error, or an undesired aircraft state.”

**Incorporate Progressive Approaches to Autorotation Training** – To help prevent fatal rotorcraft accidents due to improper or poor training techniques, the rotorcraft community needs improved training techniques encouraging the use of a progressive approach during flight training operations. As applied to autorotations, the intended meaning of “progressive approach” is that the maneuver is introduced over a number of flight lessons. The initial lessons introduce the basic concepts and the maneuver is entered and recovered at higher altitudes. In subsequent flights, as the student develops the necessary skills, the level of difficulty is gradually increased when both the entry and the recovery are performed at lower altitudes.

**Develop Standard Training on Autorotations and Emergency Aircraft Handling** - Autorotation training occupies a significant portion of any flight-training curriculum. The USHST identified an apparent disconnect between autorotation training conducted at flight schools, guidance provided in official FAA publications, and the practical application of the maneuver in flight during either a real or simulated engine failure. Therefore, a team of training industry experts will develop a consensus on how autorotation training should be conducted for the Certified Flight Instructor-Rotorcraft/Helicopter. This guidance should be general in nature and center around principles of energy management to account for aircraft-specific differences. This single-source reference should be created to facilitate flight schools incorporating the recommendations into their existing Flight Instructor training programs.

**Improve Make & Model Transition Training** - Transition training in the helicopter community is not uniformly applied, leading to accidents resulting from unfamiliarity with airframe and/or equipment. An update to existing documentation related to helicopter transition training should commence and include a review of guidance related to transition training from organizations such as AOPA, EAA, FAA, GAJSC, and HAI. These recommended practices could be combined into a new, unified guide of recommendations and a toolkit to support standardized use.

**Develop Recommended Practices for Students Regarding Pre-Flight Risk Assessments** – To prevent fatal helicopter training accidents resulting from inadequate preflight risk assessments, recommended practices should be developed specific to the training environment. The guidance should provide both flight instructors and new pilots with information on the accepted best practices to conduct a full and comprehensive risk assessment prior to a training flight, identifying inherent risks and therefore allowing mitigation to be implemented to reduce the risk as low as reasonably possible prior to and during the training flight.

**Improve Simulator Scenarios for Outside-the-Envelope Flight Conditions** – Provide recommendations for developing better mathematical/physics-based models for helicopter flight dynamics in order to achieve more realistic, higher-fidelity simulations of outside-the-envelope flight conditions. Current models are not accurate at edge-of-the-envelope and outside-of-the-envelope flight regimes. This may lead to unrealistic training of maneuvers such as loss of tail rotor effectiveness, vortex ring state/settling with power, and autorotations, and also may lead to a negative transfer of training when similar situations are encountered during actual flight.

**Increase Simulator Training Regarding Spatial Disorientation** – To help prevent fatal helicopter accidents resulting from spatial disorientation, the helicopter community should promote the wider use of available spatial disorientation simulation technology and training scenarios to create further awareness of impairment and how to recover from such an event.

**Increase the Wider Use of Simulation That Rehearses At-Risk Scenarios** – The helicopter community should promote the wider use of all available simulation to create increased awareness and educate all pilots during both ab initio training and front line operational recurrent training regarding at-risk situations. This effort would apply to the full spectrum of simulation, to include both high and low fidelity as well as full motion and non-motion devices.

**Safety is Our 1<sup>st</sup> Priority**