Chapter 1 – INTRODUCTION

1.1 ORIGIN OF THE TECHNICAL ACTIVITY

In 2010, a RTO Exploratory Team was organised to investigate the use of refractive surgery in military personnel within the NATO Alliance. The activity proposal was titled: "Refractive Surgery: New Techniques and Usability in Military Personnel". Follow-on work was recommended and approved to produce this Technical Report.

1.1.1 Background and Justification (Relevance to NATO)

The management of refractive errors in military personnel is an important operational issue. New surgical techniques to correct refractive errors continue to emerge. These can improve combat effectiveness and enable expansion of the military applicant pool, but they are not risk-free. A report of currently available surgical techniques is warranted, including a thorough evaluation of the risks and benefits to military personnel. Refractive surgery can be performed on the cornea, intraocular or both. Both corneal and intraocular procedures are increasingly being performed by some NATO military services on its members and are commonly performed in the civilian community. Some military services allow surface ablation, LASIK and intraocular treatments. Others allow only surface ablation, and some do not allow refractive surgery at all. The safety and efficacy of all refractive surgery procedures should be carefully assessed for the military environment within each member state.

1.1.1.1 Objectives

1) To review the clinical risks and benefits of refractive surgical procedures in military personnel.

2) To summarise the current refractive surgery policy of each NATO member Nation participating in this Technology Working Group (Watch Group).

3) To review clinical outcomes and quality of vision evaluation methods after refractive surgery.

4) To update report annually as applicable.

1.1.1.1.1 Techniques and Technologies Currently Used in Refractive Surgery

Table 1-1: Techniques and Technologies.

Corneal Surgery	Intraocular Surgery	Adjunctive Technology
Photorefractive Keratectomy (PRK)	Clear lens extraction	Wavefront measurement
Epithelial Laser-Assisted in situ Keratomileusis (Epi-LASIK)	Phakic intraocular lenses	Femtosecond laser
Laser Epithelial Keratomileusis (LASEK)	Accommodative intraocular lenses	
Laser-Assisted in situ Keratomileusis (LASIK)	Multi-focal intraocular lenses	
Thermokeratoplasty/ Conductive keratoplasty		
Intrastromal rings		
Multi-focal corneal ablations		