



TEXRAY.

**REDUCE
YOUR
EXPOSURE
TO SCATTER
RADIATION.**

DESIGNED
IN SWEDEN 

**PROTECT YOUR
NECK, FACE
& HEAD**

THE HEART AND SOUL OF TEXRAY™

STATE-OF-THE-ART SMART TEXTILE

Revolutionizing personal radiation protection

Personal radiation protection devices used to protect from harmful ionizing radiation are sometimes unpractical and difficult to use, resulting in unprotected body parts. Some protective garments can be uncomfortable and, heavy. The commonly used materials do not always allow a human-centered design or durable protection. With Texray we may change that.

We have invented a revolutionizing novel material platform with a woven textile technology. The essence of the textile is the attenuating capacity which protects you from potentially harmful radiation. With our innovation we enable unparalleled comfortability with pliable and breathable designs. Leaving you to stay focused, highly protected and with peace of mind in the OR.

30x

times more durable
compared to competitive
materials.²³

RADIATION - POTENTIAL RISKS

Well established is that during fluoroscopic assisted interventions, depending on factors such as patient obesity, procedural complexity and fluoroscopic time, medical practitioners are subjected to relatively high radiation exposure.¹ The current standards and practices are based on the premise that any radiation dose may result in unfavorable health effects.^{2,3,4,5,6}

Alarming, over 50% of OR staff do not feel adequately protected from radiation in the OR.⁷ However, the risk for developing radiation-induced diseases is still an ongoing debate among experts.⁸

OCCUPATIONAL HEALTH RISKS THAT MAY BE RELATED TO RADIATION EXPOSURE:

- + tumors/cancer^{12, 13}
- + cognitive impairments^{14, 15}

REPORTED ERGONOMIC ISSUES:

- + back/neck pain from using heavy and uncomfortable radiation protection devices.¹⁶

THYROID GLAND

The thyroid is highly radiosensitive, making it prone to DNA mutations, metabolic dysfunction, and increased cancer risk from radiation exposure.⁹

CAROTID ARTERY

Long-term radiation exposure may be associated with accelerated vascular aging and early atherosclerosis.¹⁰

FACIAL GLANDS

Radiation exposure has been linked to gland carcinomas up to 15 years after the event.¹¹

BRAIN

Low doses of ionizing radiation can cause significant damage to the hippocampus, critical for memory and cognitive function.^{9,10}

ARE YOU REALLY PROTECTED? LOW COVERAGE OF THYROID GLANDS

In a recent ultrasound evaluation of thyroid coverage by radiation protection collars in Interventional Radiology presented at CIRSE 2024, 20 IR department members were scanned with a linear array ultrasound. Results showed thyroids were visible in all cases with a loose collar, and in 80% (right) and 70% (left) with a slightly loose collar.¹⁷

FACE, NECK & HEAD PROTECTION.

Up to
96.7%
Additional dose
reduction.¹⁸



Texray MindPeace

MindPeace protects a broader area of your neck, face and head with a clinically proven mean radiation dose reduction of 96.7%¹⁸. It may Reduce scatter radiation towards your eyes with up to 74%.^{19*}

MindPeace is designed to be worn comfortably around the neck, allowing free movement within the protective extended panel without the chin touching the panels. Its patented, evidence-based design effectively reduces scatter radiation from oblique angles below, ensuring optimal protection.

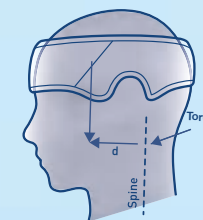
*Evaluation on the 0.35 mmPb version

Texray HeadPeace™

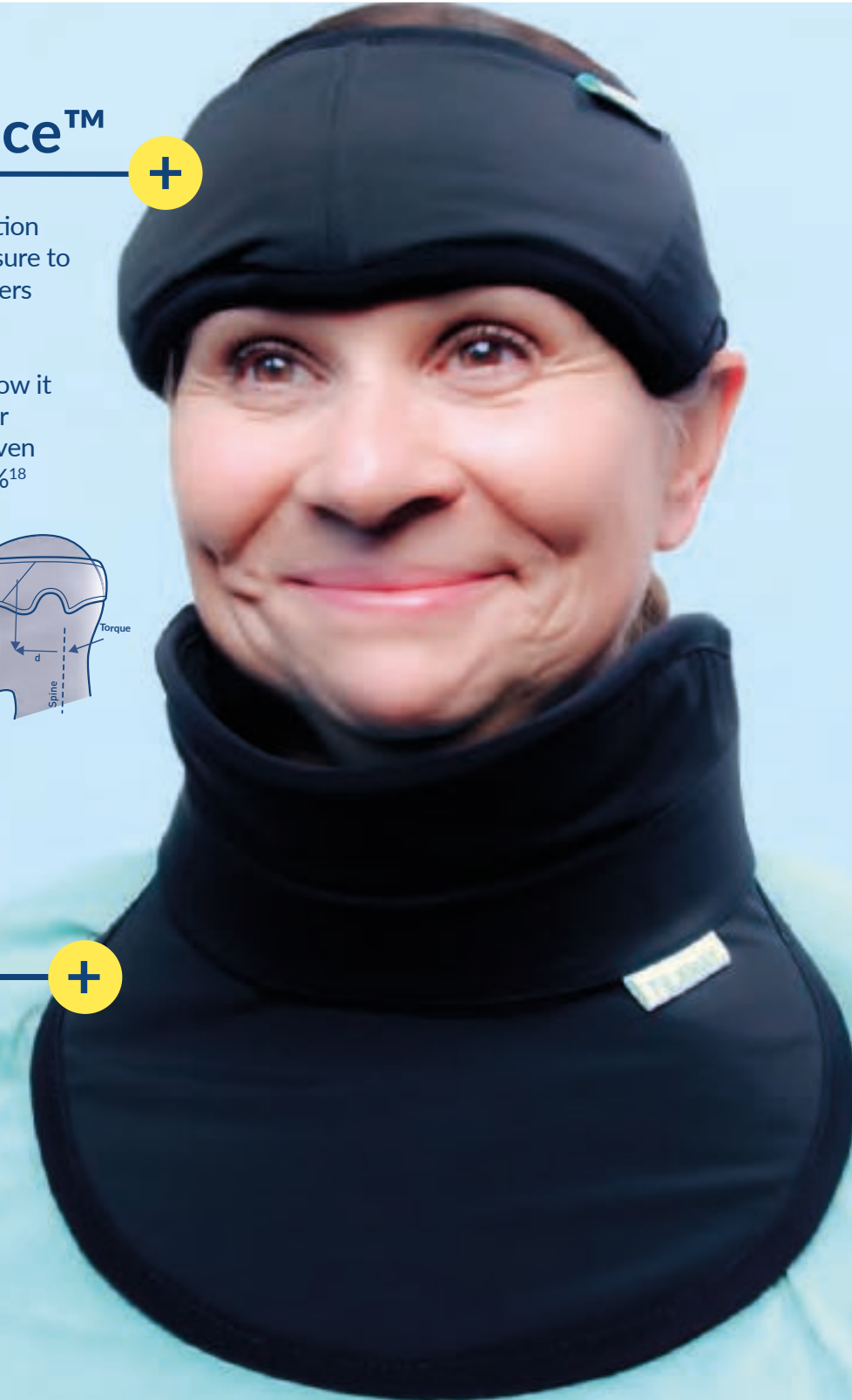
Texray HeadPeace is a personal protection device intended to reduce cranial exposure to ionizing radiation for medical practitioners during clinical interventions.

It has a patented design, and studies show it reduces radiation exposure to the upper section of the head with a clinically proven mean radiation dose reduction of 90.3%¹⁸

HeadPeace is also proven to be highly comfortable. An ergonomic evaluation revealed that the weight torque of HeadPeace is counteracted by the neck muscles, ensuring no negative impact on head or work posture.²⁰



- + Improves ergonomic parameters such as: anthropometrics, biomechanics, water vapor transport, thermal sensation.²⁰
- + Pliable design and comfortable towards your skin with soft touch high quality fabric.
- + Adjustable for perfect fit and compatible with eye-lead glasses.
- + Non-rip Velcro and Magnetic closures
- + Lead-free material eliminating highly toxic lead dust exposure with irreversible health effects on vital organs.²⁴
- + Personalization possibilities with detachable name tag, using snap button design solution.*



SCIENTIFIC EVIDENCE

PHANTOM STUDY
UP TO 90%
ADDITIONAL
DOSE REDUCTION

Texray HeadPeace and MindPeace were evaluated for reducing radiation exposure to the head and neck during clinical interventions. A standard thyroid collar and a ceiling-mounted lead glass shield were used as comparison.

RESULTS

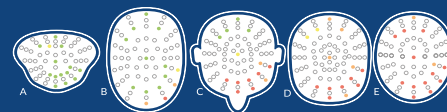
TLD data showed that MindPeace (extended thyroid collar) reduce radiation in the throat, chin, and ear slices (A, B, C). Some shielding effect using MindPeace was also seen in the brain and skull slices (D, E). For the standard thyroid collar a reduction was only seen in the throat slice (A) and partly in the chin slice (B). HeadPeace showed a shielding effect in the skull slice (E) up to 2 cm depth where HeadPeace covered the phantom head.

STANDARD THYROID COLLAR

Schematic illustration of the reduction ratios for a standard thyroid collar in phantom slices A, B, C, D, E for the investigated exposure situation.



	A	B	C	D	E
1.1	0.97	0.15	0.06	0.06	0.10
2.1	0.97	0.07	0	0.11	0.03
3.1	0.88	0.17	0.11	0.05	0.09
4.1	0.80	0.32	0.04	0.09	0.03
9.1	0.58	0.72	0.66	0.19	0.25
1.3	0.96	0.50	0.10	0	0.07
2.3	0.93	0.44	0	0.04	0
3.3	0.80	0.63	0.09	0.04	0.08
4.3	0.80	0.86	0.15	0.11	0.11
8.3	0.59	0.85	0.70	0.29	0
10.3	0.38	0.82	0.64	0.43	0
11.3	0.70	0.87	0.73	0.31	0
16.3	0.91	0.73	0.01	0.01	0
M2	0.71	0.92	0.48	0.21	0



CONCLUSION

For optimal radiation protection, devices that protect the entire operator's head against scattered radiation should be used. However, in clinical practice, this may not always be possible. Moreover, particularly during complex cases when radiation protection may be most relevant, optimal placement of lead glasses may not always be achievable. HeadPeace and MindPeace may therefore provide complimentary protection.²¹

COMBINATION OF HEADPEACE AND MINDPEACE

Schematic illustration of the expected result if MindPeace and HeadPeace reduction ratios were combined for the different phantom measurements in slices A, B, C, D and E.



	A	B	C	D	E
1.1	0.97	0.95	0.84	0.17	0.90
2.1	0.97	0.94	0.73	0.19	0.90
3.1	0.90	0.94	0.51	0.08	0.90
4.1	0.86	0.95	0.56	0.15	0.90
9.1	0.62	0.83	0.55	0.32	0.58
1.3	0.95	0.96	0.84	0.20	0.22
2.3	0.89	0.87	0.81	0.18	0.17
3.3	0.84	0.96	0.75	0.08	0.40
4.3	0.83	0.94	0.75	0.24	0.50
8.3	0.59	0.82	0.69	0.46	0.23
10.3	0.56	0.80	0.69	0.38	0.32
11.3	0.70	0.94	0.76	0.48	0.40
16.3	0.91	0.92	0.78	0.54	0.70
M2	0.01	0.94	0.86	0.53	0.35



MindPeace with attenuating material of 0.35 mmPb provides up to 3% less shielding effect in the energy interval 60-110kV when compared to the extended thyroid protector with attenuating material of 0.50 mmPb evaluated in this study.

CLINICAL STUDY
UP TO 96.7%
ADDITIONAL
DOSE REDUCTION

The dose exposure in the head area of medical practitioners during interventional radiology procedures was quantified using thermoluminescence detectors which were calibrated to Hp(3). In addition, the protective effect of the Texray products was examined.

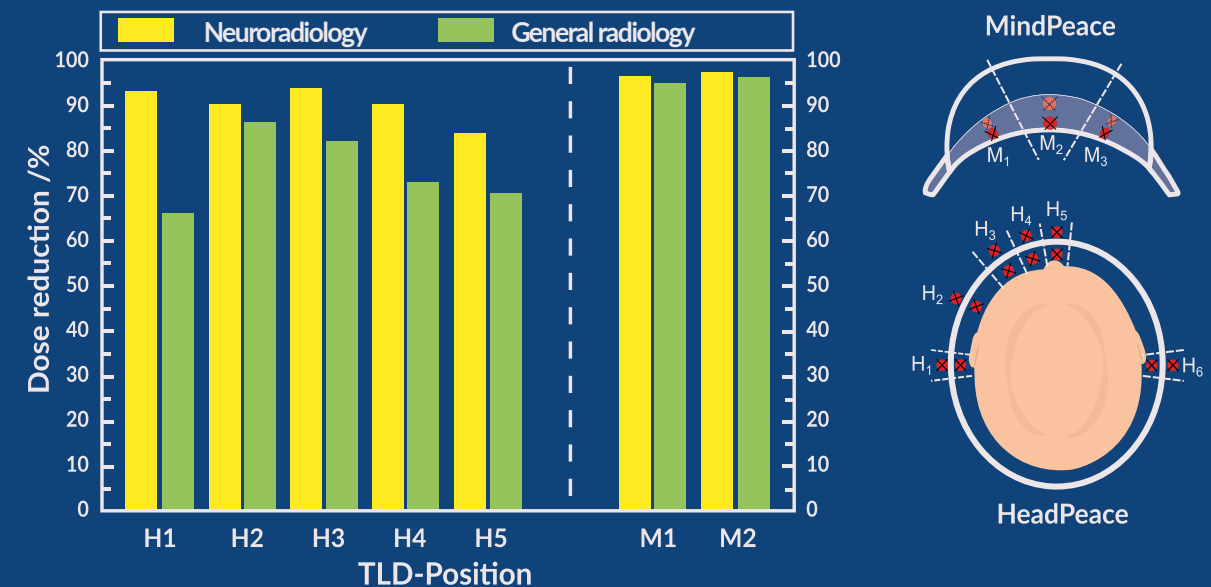
RESULTS

The study showed a significant dose exposure of the head area with dose values of up to 4.4 mSv after only 20 examinations. The protective effect was determined by evaluating the relative transmission depending on the dosimeter position. In neuroradiological interventions, the mean attenuation by HeadPeace was (90.3 ± 3.6)% and by MindPeace (96.7 ± 0.5)%. In general radiological interventions, a mean attenuation by HeadPeace was (75.5 ± 7.5)% and by MindPeace (95.5 ± 0.6)%.

Measured TLD-Values	TLD-POSITIONS									
	HeadPeace / mSv						MindPeace / mSv			
	H ₁	H ₂	H ₃	H ₄	H ₅	H ₆	M ₁	M ₂	M ₃	
Neuro-radiology	outer	0.26	0.27	0.29	0.23	0.31	0.00	0.41	0.49	0.04
	inner	0.02	0.03	0.02	0.02	0.05	0.00	0.01	0.01	0.04
General radiology	outer	1.59	1.91	1.54	1.25	1.43	0.11	2.63	4.41	1.03
	inner	0.54	0.26	0.28	0.34	0.43	0.04	0.13	0.17	0.14

CONCLUSION

The attenuation efficiency ranged from 75.5-96.7% depending on the product and operational area.¹⁸ From a radiation safety perspective, wearing HeadPeace and MindPeace is recommended during fluoroscopy- assisted interventions.²²



THINK AHEAD SAFETY FIRST.



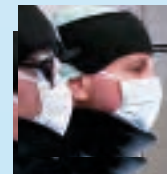
"Texray innovative protectors, are highly appreciated. I will continue doing advanced image-guided surgical procedures for many years, so radiation is definitely relevant and a issue for me and my colleagues."

Prof. J. Schmitto, Cardiothoracic, Transplantation and Vascular Surgery, Medical University Hospital Hannover, Germany



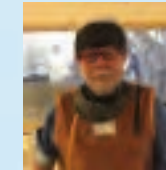
"Stay safe. Do not take risks just because data/guidelines and RCTs have not caught up yet. All your body and organs matter. Health care trusts, hospitals, and MedTech - protect your staff! Best thing to come out of Sweden after their cinnamon buns is Texray"

Dr. Bella Hausen, Endovascular IR, Lancashire Teaching Hospitals NHS Foundation Trust, United Kingdom



"Everything that reduces radiation is welcome, I think these products are very comfortable even after a few hours in the OR."

Prof. U. Schäfer, Interventional Cardiology, Bundeswehr Zentralkrankenhaus, Koblenz, Germany



"There is no cut-off point for radiation-induced DNA-damage. Learn your IR fellows not only about interventions, but also about radiation."

Emeritus of Radiology, Prof, Md, PhD, EBlr, FCIRSE
J. A. Reekers, Amsterdam, The Netherlands.
Editor-in-Chief CVIR Endovascular Journal



"I believe these novel shields are a great innovation for extended protection and optimized comfort. I find it personally very important to minimize my radiation exposure during endovascular procedures, for my own safety and health."

Dr. A. Schmidt, Interventional Cardiology, University Hospital Leipzig, Germany



"I recently had the chance to get Texray products. I may be the first, or the only interventionist, in this side of the World using them, I think they are great extended protection for my brain. MindPeace and HeadPeace, have proven to be comfortable during long procedures. Be aware radiation is a powerful tool. Use protection. I hope more colleagues, here and there, have the chance of trying Texray into their lives."

Dr. Hugo Arguedas-Jiménez, M.D., FESC
Cardiac Electrophysiologist -European Heart Rhythm Specialist,
Hospital Rafael Ángel Calderón Guardia, Costa Rica

In an Ergonomic Assesment (2021) >90% of assessed medical staff (n=70, vascular, orthopaedic, urology, anaesthetics, cardiology and gastroenterology) found Texray HeadPeace and MindPeace comfortable and would utilize it if available.⁷

UNIQUE SWEDISH DESIGN.

MAKE IT TRULY YOURS

Personalize your Texray products with your Name tag!* visit Texray.shop to learn more or speak to your Distributor

NAME TAG

Peter Kane

TECNICAL INFORMATION

CHOOSE YOUR SIZE

HeadPeace

	size	cm	in
A Measure your heads circumference	S	53-55	20.9"-21.7"
	M	56-57	21.8"-22.5"
	L/XL	58-63	22.6"-24.8"

Please note: Your head shape and protection requirements also play a role in your choice of size. Make sure to adjust your HeadPeace with the Velcro closure, to make it fit perfectly.

MindPeace

	size	cm	ft/in
A Your height	S	up to 170	up to 5'5"
	M	170-185	5'6" - 6'1"
	L/XL	185 & up	6'2" & up

	size	cm	in
B Your collar size or measure your lower neck circumference	S	36-38	14-15
	M	39-41	15.5-16"
	L	42-44	16.5-17.5"
	XL	45-47	18-18.5"

Please note: your neck measurements and height are not the only measurements for size determination. Your neck length, your body weight and protection requirements also play a role in your choice of size. Use the size chart as a guide and recommendation.

*Available only for the Texray HeadPeace and Texray MindPeace Button Products, which comes with a *blank* Name tag per default. The personalized Name tag is ordered separately from Texray webshop www.texray.shop. Talk to your Sales representative or contact Texray directly for further support.

PROTECTION: Texray™
LEAD EQUIVALENCE: HeadPeace: 0.25mm Pb
 MindPeace: 0.35mm Pb, 0.50 mm Pb

EC CERTIFIED ACCORDING TO: EU Regulation 2016/425 on PPE

TESTED ACCORDING TO: IEC 61331- 1/3 2014

CLEANING: Lukewarm water and detergent

CLOSING: HeadPeace: Elastic soft Velcro
 MindPeace: 3-step magnet (XL 4-step)

COVER TEXTILE: Breathable high-quality polyester

SIZE: HeadPeace: S | M | L/XL
 MindPeace: S | M | L | XL

WEIGHT IN GRAM HeadPeace 0.25: S: 225, M: 235, L: 245
 MindPeace 0.35: S: 480, M: 500, L: 520g XL:525
 MindPeace 0.50: ± 50g

COLOR: Black (standard) Blue on request

ARTICLES

HeadPeace Original Product (Black)

S: PHP1025SA01
 M: PHP1025MA01
 L: PHP1025LA01

HeadPeace Button Product (Black)

S: PHP1125SA01
 M: PHP1125MA01
 L: PHP1125LA01

MindPeace Original Product (Black)

S: PMP3035SA01 | PMP3050SA01
 M: PMP3035MA01 | PMP3050MA01
 L: PMP3035LA01 | PMP3050LA01
 XL: PMP3035XLA01 | PMP3050XLA01

MindPeace Button Product (Black)

S: PMP3135SA01 | PMP3150SA01
 M: PMP3135MA01 | PMP3150MA01
 L: PMP3135LA01 | PMP3150LA01
 XL: PMP3135XLA01 | PMP3150XLA01

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