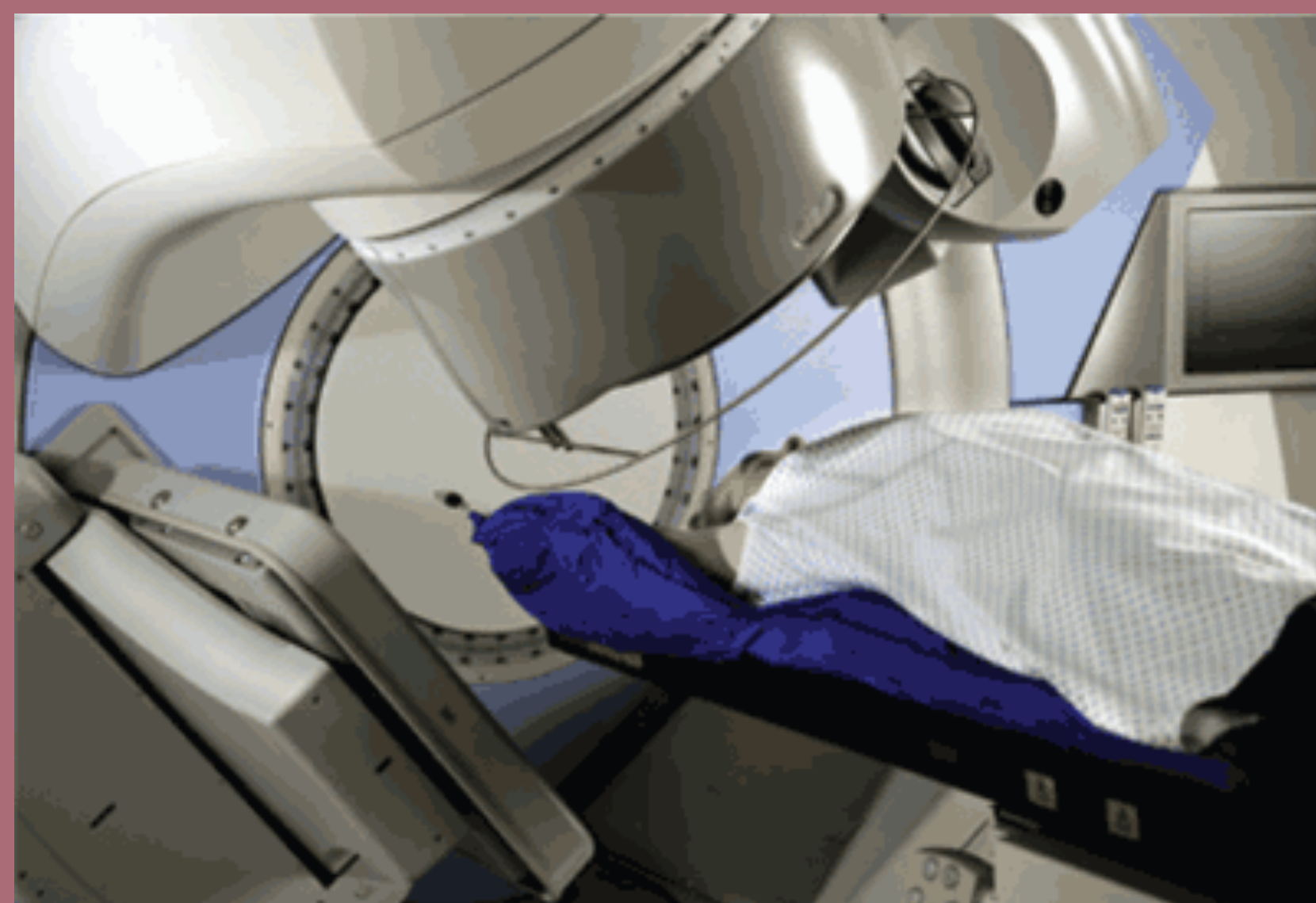


# Precision in Radiation Therapy

## Introduction [1]

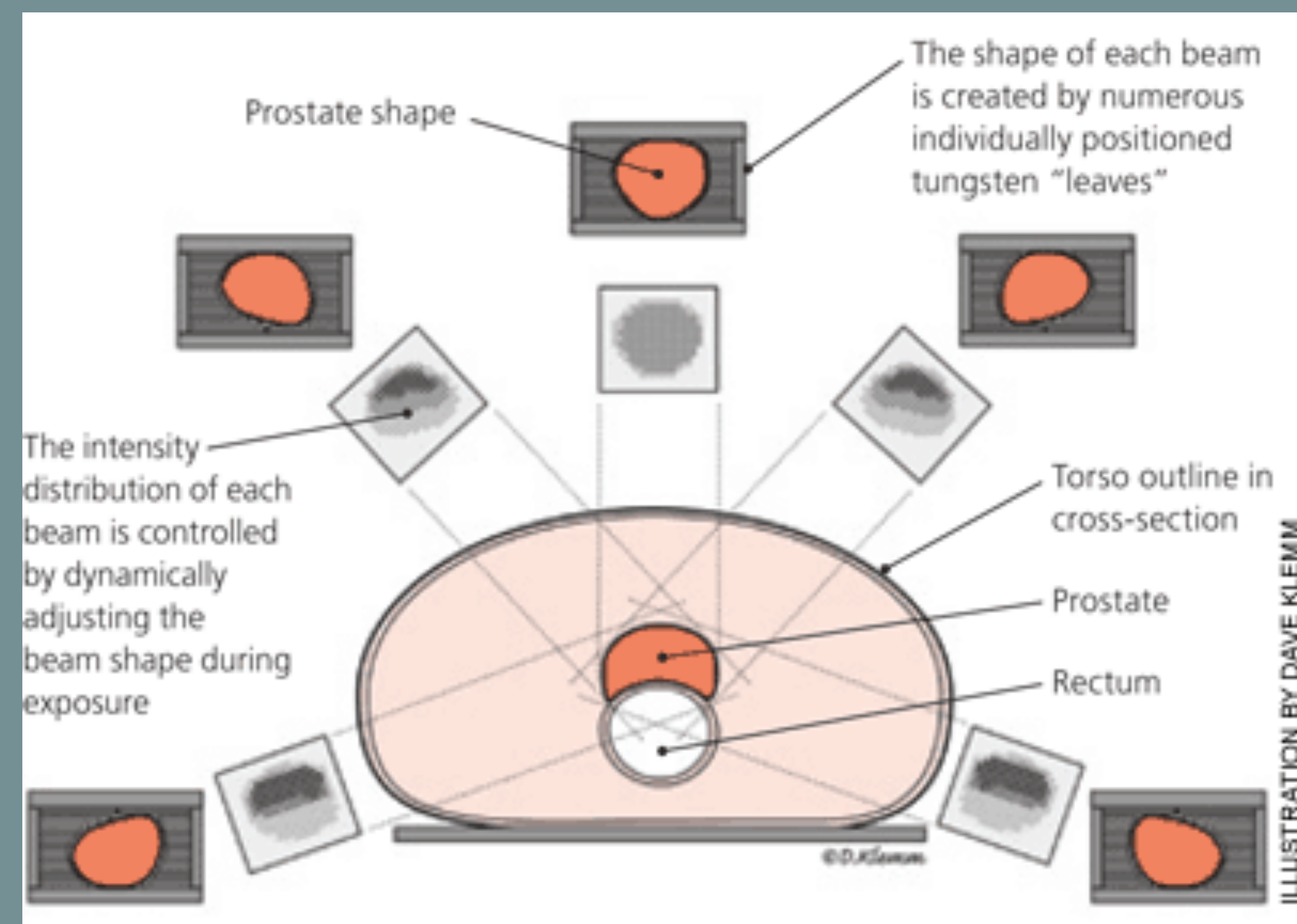
The purpose of radiation therapy is to treat malignant tumors. When targeting a tumor it is inevitable that surrounding tissue will get affected in treatment. Though recent advances in technology have allowed the radiation treatment to be highly precise, radiating little healthy tissue.



## New Technology:

One of the main technological advances is Intensity-Modulated Radiation Therapy. This technology uses tungsten “leaves” that move within the x-ray tube to create a beam that is directed only at the targeted tumor. The leaves move dynamically while the tube moves around the patient, this protects healthy tissue, while targeting the tumor from all sides. Each patient has a highly specific treatment plan that is unique to them and the location of their tumor. [2]

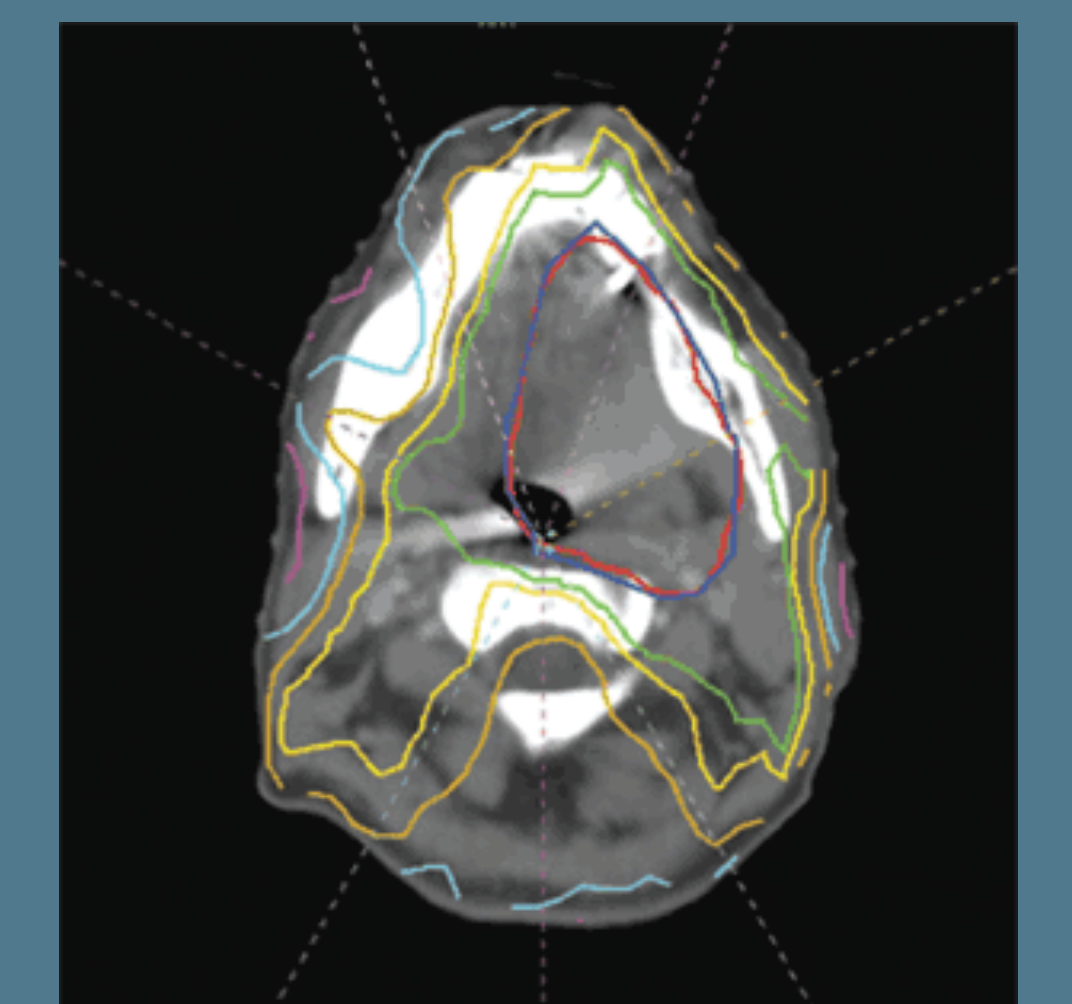
Before this technology, radiation therapy had side-effects such as: rectal pain and bleeding, incontinence, skin discoloration in up to 40 percent of patients and sexual dysfunction in 50 percent. While some healthy tissue is still radiated today, healthy tissue is far less exposed, dramatically lowering side-effects. [2]



Modern radiation treatment plans are very precise, with the use of CT scans a treatment map is created. Head or leg molds are also created depending on the treatment location. This insures exact positioning for every treatment. With these tools, radiation side-effects have significantly dropped due to loss of radiation to healthy tissues. [2] “In 2016, there were an estimated 10.5 million 5-year cancer survivors, of whom 3.05 million received radiation therapy. The number of radiation-treated survivors is projected to reach 3.38 million by 2020 and 4.17 million by 2030.” [3]

## Conclusion

Radiation therapy plays a vital role in the destruction of cancer. Technological advances have made this treatment option highly effective. Intensity-Modulated radiation therapy is a breaking point in treating cancer.



## References

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- Bryant AK, Banegas MP, Martinez ME, Mell LK, Murphy JD. *Trends in Radiation Therapy Among Cancer Survivors in the United States, 2000-2030*. AACR. 2017. OF2. [3]