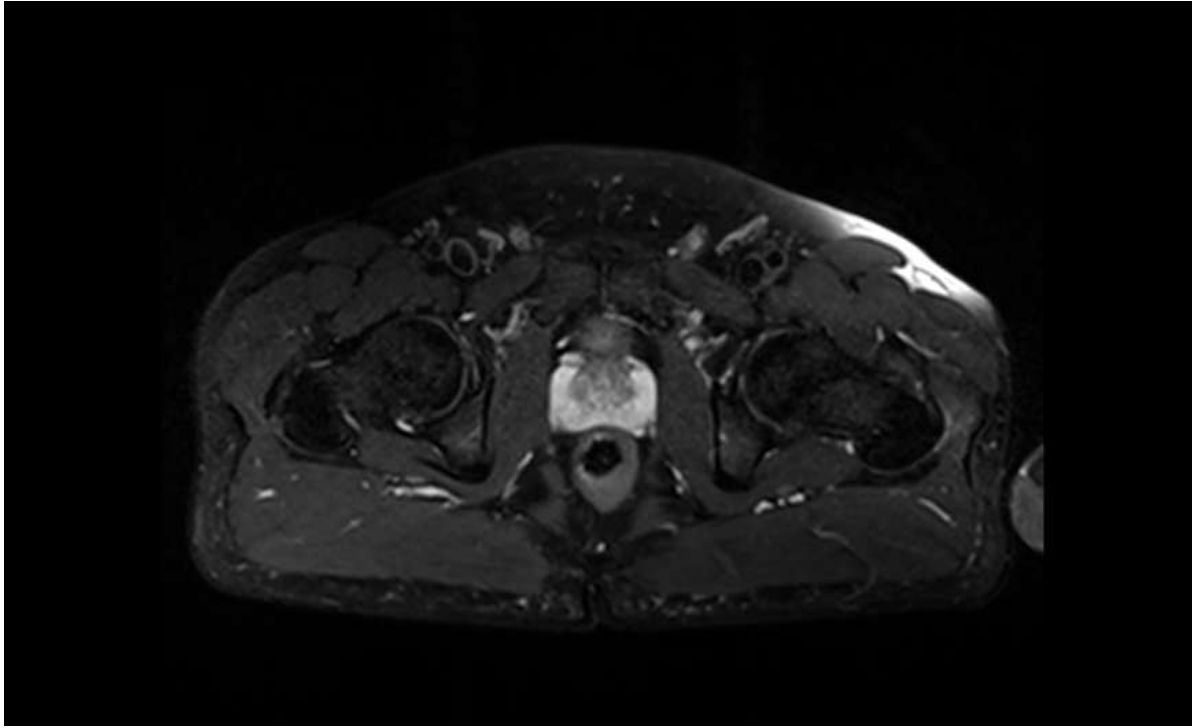
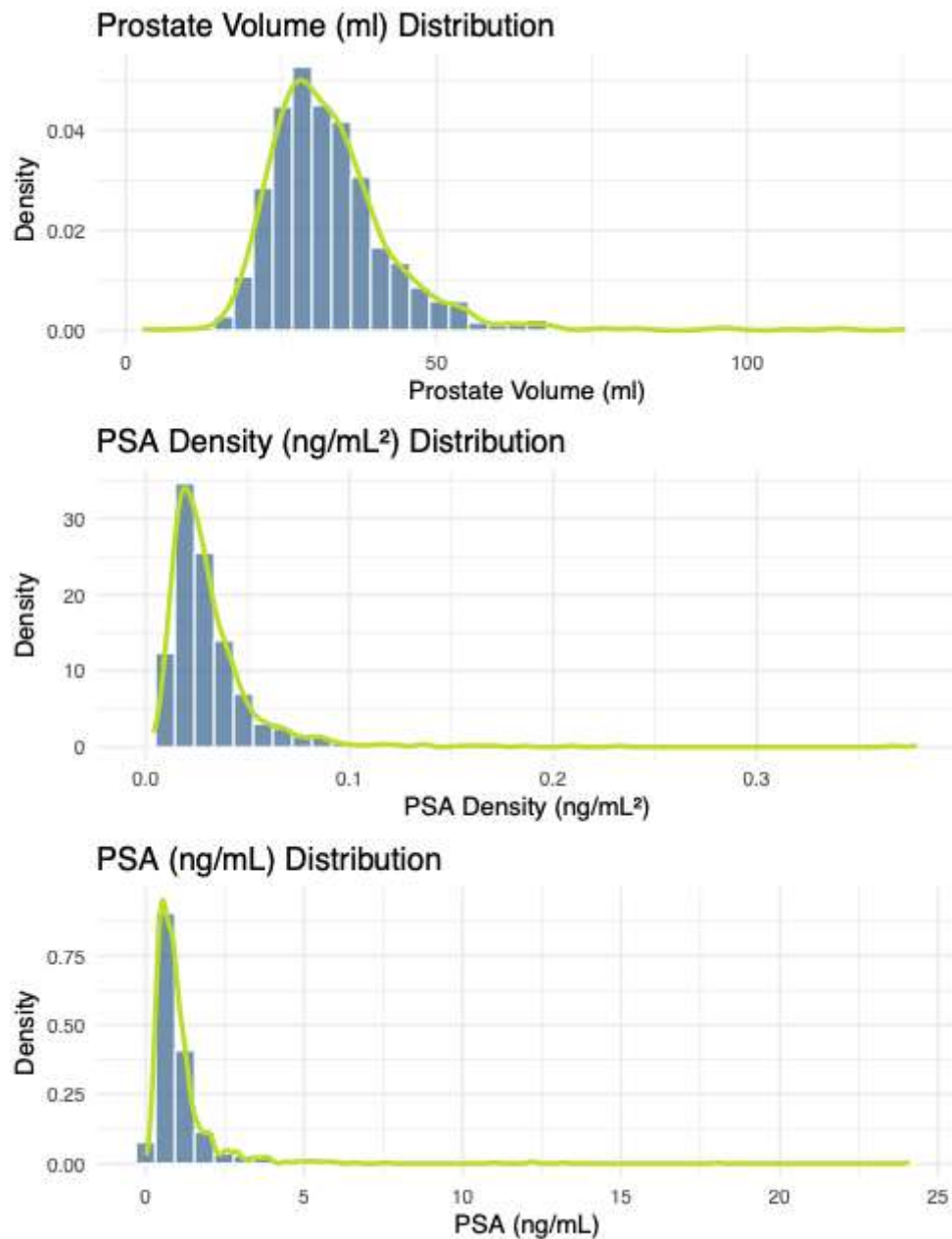


Reference Values for PSA, PSA Density, and MRI Prostate Volume in Healthy German Men
ELECTRONIC SUPPLEMENTARY MATERIALS



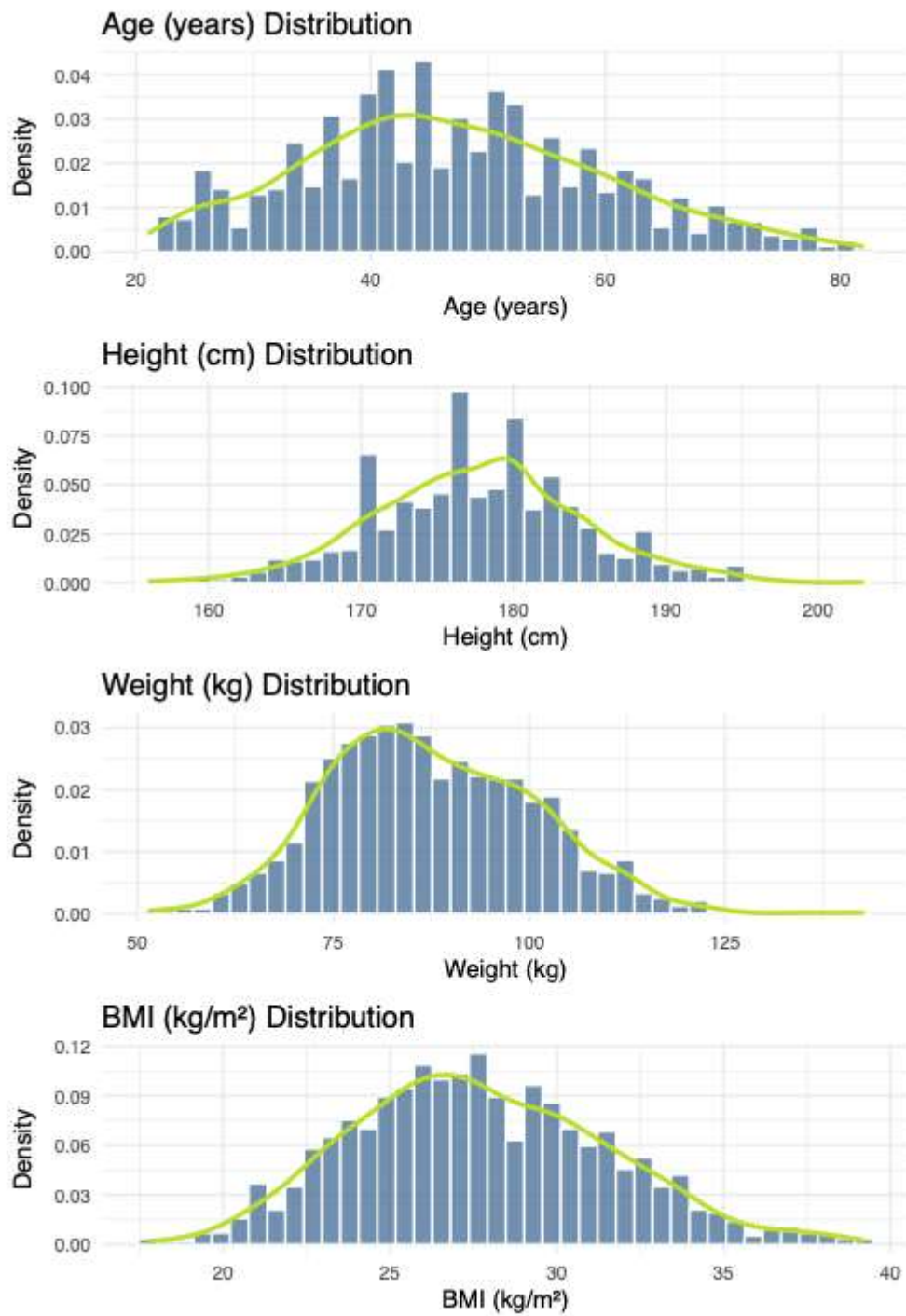
Supplementary Figure 1. Representative axial pelvic MRI slice used for volumetric analysis.

The MRI was acquired using a 1.5-Tesla scanner with an axial fat-saturated 2D proton-density turbo spin-echo sequence (TR= 3,230 ms; TE= 34 ms; slice thickness= 3 mm; acquisition time≈ 2 minutes 34 seconds).

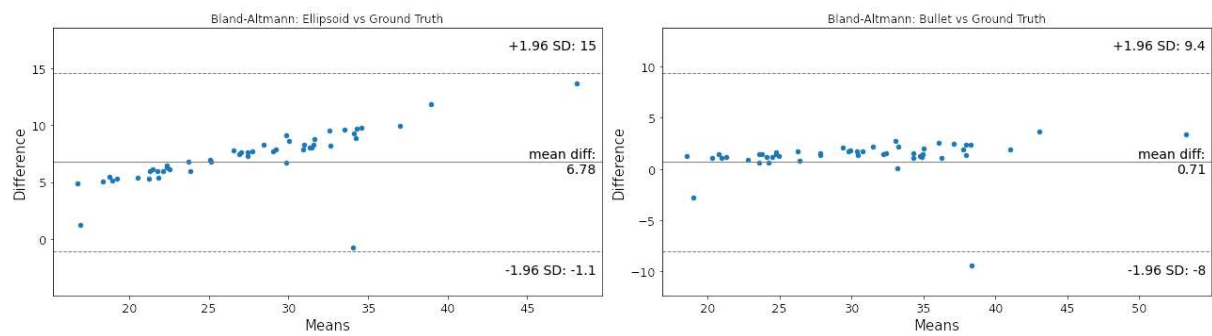


Supplementary Figure 2. Density plots of PV, PSAD, and PSA

Density plots reveal the distribution patterns of prostate volume, prostate-specific antigen (PSA) density, and PSA in healthy men, showing which values are most common and how they vary across the population



Supplementary Figure 3. Density plots of age, height, weight, and body-mass-index.



Supplementary Figure 4. Bland-Altman Analysis of Prostate Volume Measurement Methods.

Bland-Altman plots comparing ellipsoid, bullet, and mesh reference methods for prostate volume (n=50).

Patient Values

Age (years)

55

BMI (kg/m²)

27

Height (cm)

175

PSA (ng/mL)

2.5

Prostate Volume (mL)

27

Reference Ranges

Parameter	Based On	Patient Value	Median (50th)	95th Percentile	Status
PSA	Age (55 years)	2.50	1.00	2.72	Normal
PSA	BMI (27.0 kg/m ²)	2.50	0.96	2.82	Normal
PSA	Height (175.0 cm)	2.50	0.96	2.99	Normal
PSA	Age + BMI + Height (multivariable)	2.50	1.08	2.96	Normal
Prostate Volume	Age (55 years)	27.0	34.5	51.9	Normal
Prostate Volume	BMI (27.0 kg/m ²)	27.0	32.3	49.3	Normal
Prostate Volume	Height (175.0 cm)	27.0	31.9	51.1	Normal
Prostate Volume	Age + BMI + Height (multivariable)	27.0	34.6	50.5	Normal
PSA Density	Age (55 years)	0.093	0.029	0.071	Above 95th
PSA Density	BMI (27.0 kg/m ²)	0.093	0.029	0.072	Above 95th
PSA Density	Height (175.0 cm)	0.093	0.030	0.075	Above 95th
PSA Density	Age + BMI + Height (multivariable)	0.093	0.031	0.077	Above 95th

Supplementary Figure 5. Open-access calculator for convenient lookup of reference values.

The application allows entry of a variable number of patient parameters (e.g., age alone or in combination with height and body-mass-index) and compares the resulting estimates with the reference distributions in this population-based German cohort. If no patient-specific values are provided, only the median and 95th percentile reference values are displayed. The image shown represents a prototype of a 55-year-old man, 175 cm tall, with a body-mass-index of 27 kg/m², a PSA of 2.5 ng/mL, and a prostate volume of 27 mL. Note: the final appearance of the application may change during further development.

Tables

Due to their large size, the tables are provided as Excel files for ease of use. Table descriptions are given below.

Supplementary Table 1. GAMLSS model output for prostate volume percentiles stratified by age, body-mass-index, and height.

Supplementary Table 2. GAMLSS model output for prostate-specific antigen percentiles stratified by age, body-mass-index, and height.

Supplementary Table 3. GAMLSS model output for prostate-specific antigen density percentiles stratified by age, body-mass-index, and height.