Statistical study of backpain

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2 Exploring Raw data

2.1 Biomarker data

Table 1: Biomarker raw data

Biomarker	IL-8	VEGF-A	OPG	TGF-beta-1	IL-6	CXCL9	CXCL1	IL-18	CSF-1
126-0weeks	7.63	11.51	10.20	8.83	3.52	6.16	9.45	7.91	8.41
126-6weeks	7.12	11.59	10.41	8.87	3.89	6.12	9.06	7.92	8.39
127-0weeks	6.93	10.92	10.30	6.59	2.73	6.14	7.31	7.95	8.40
127-6weeks	7.16	11.58	10.39	8.61	2.60	6.35	8.61	7.94	8.51
127-12months	6.87	11.13	10.25	7.44	3.92	6.15	8.79	7.94	8.46

Table 2: NAs in Biomarker raw data

	Number.of.NA
Biomarker	4
IL-8	3
VEGF-A	4
OPG	4
TGF-beta-1	4
IL-6	4
CXCL9	4
CXCL1	4
IL-18	4
CSF-1	4

From the Biomarker data we observed the following:

Number of observations: 351

Number of columns (proteins tested): 10

4 rows contain NA values in the raw data. These rows are removed from the data, as the NAs can cause some errors in our calcuation.

The Biomaker column contains both patientID and the time the test was conducted. Therefore this needs to be extracted and registered in seperate columns.

2.2 Patient data

Table 3: covariates raw data

PatientID	Age	Sex (1=male, 2=female)	Smoker (1=yes, 2=no)	VAS-at-inclusion	Vas-12months
1	56	1	2	3.0	4.0
3	32	1	2	7.2	0.5
4	43	2	2	2.7	0.5
5	25	2	2	3.0	3.9
6	39	1	2	3.5	5.0

Table 4: NAs in covariates raw data

	Number.of.NA
PatientID	0
Age	0
Sex (1=male, 2=female)	0
Smoker (1=yes, 2=no)	0
VAS-at-inclusion	0
Vas-12months	2

2 patients data are incomplete. Therefore this is removed from future calculation to avoid error or misrepresentation.
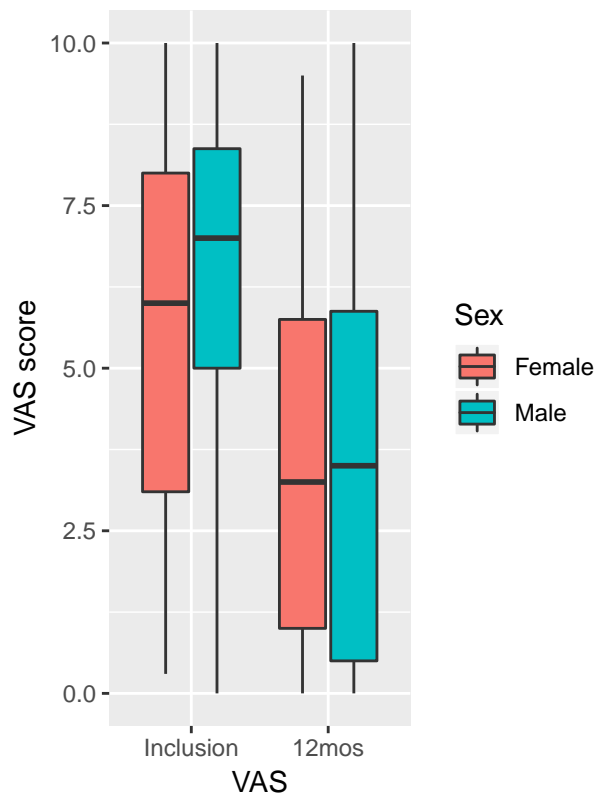
2.2.1 Patient data - simple analysis

Number of smokers in each Age group

Different sex in each age group
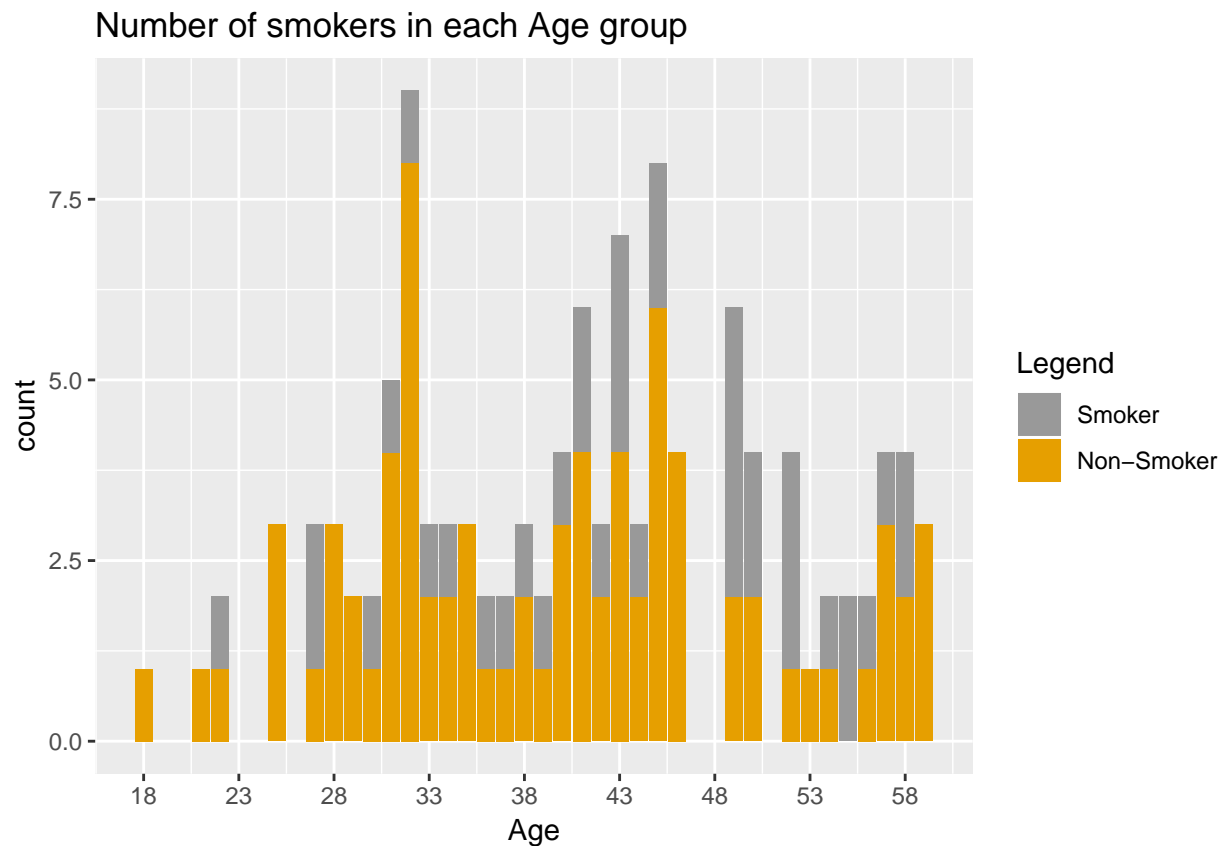
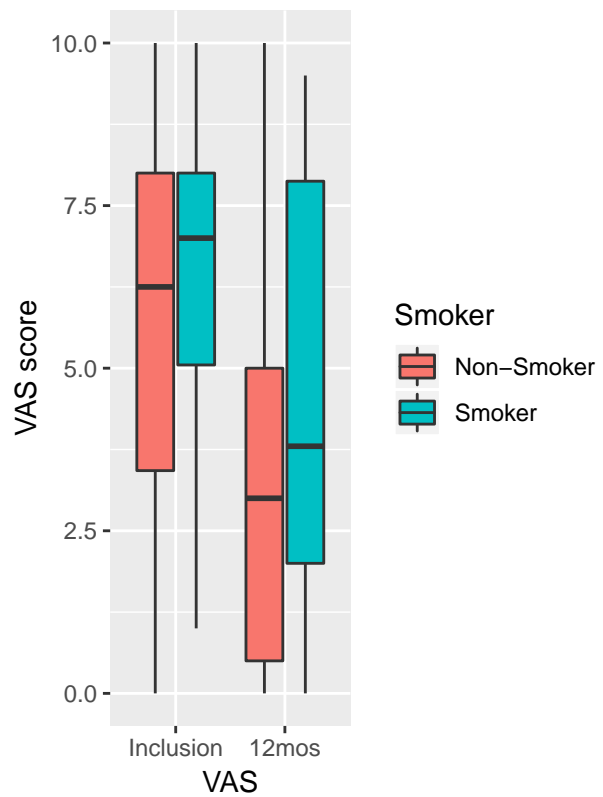Comparing VAS at inclusion and at 12 months
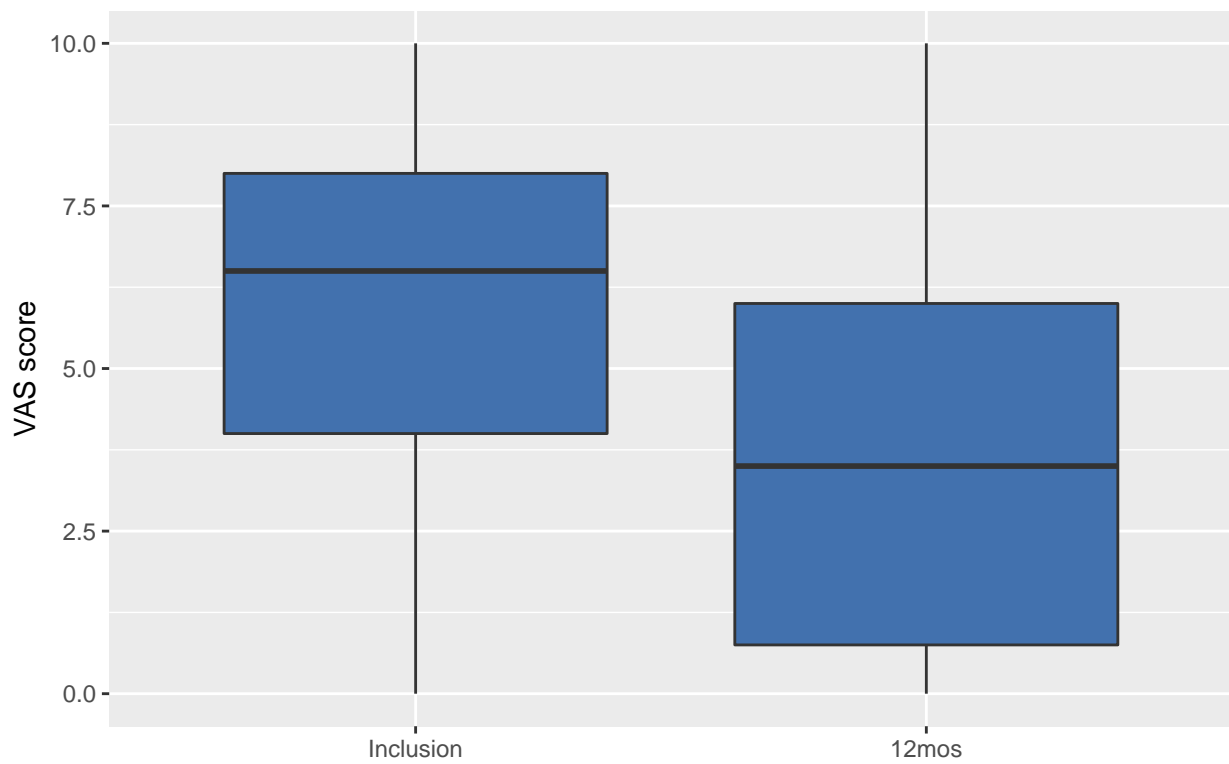
Comparing VAS on sex

Comparing VAS on smokers

3 Cleaning/Manipulating Data

PatientID	WeeksObs	IL-8	VEGF-A	OPG	TGF-beta-1	IL-6	CXCL9	CXCL1	IL-18	CSF-1
126	0	7.63	11.51	10.20	8.83	3.52	6.16	9.45	7.91	8.41
126	6	7.12	11.59	10.41	8.87	3.89	6.12	9.06	7.92	8.39
127	0	6.93	10.92	10.30	6.59	2.73	6.14	7.31	7.95	8.40
127	6	7.16	11.58	10.39	8.61	2.60	6.35	8.61	7.94	8.51
127	52	6.87	11.13	10.25	7.44	3.92	6.15	8.79	7.94	8.46
128	0	8.62	12.51	10.56	8.51	3.71	7.34	9.90	8.72	8.72

Protein levels in blood samples at 0,6 and 52 weeks
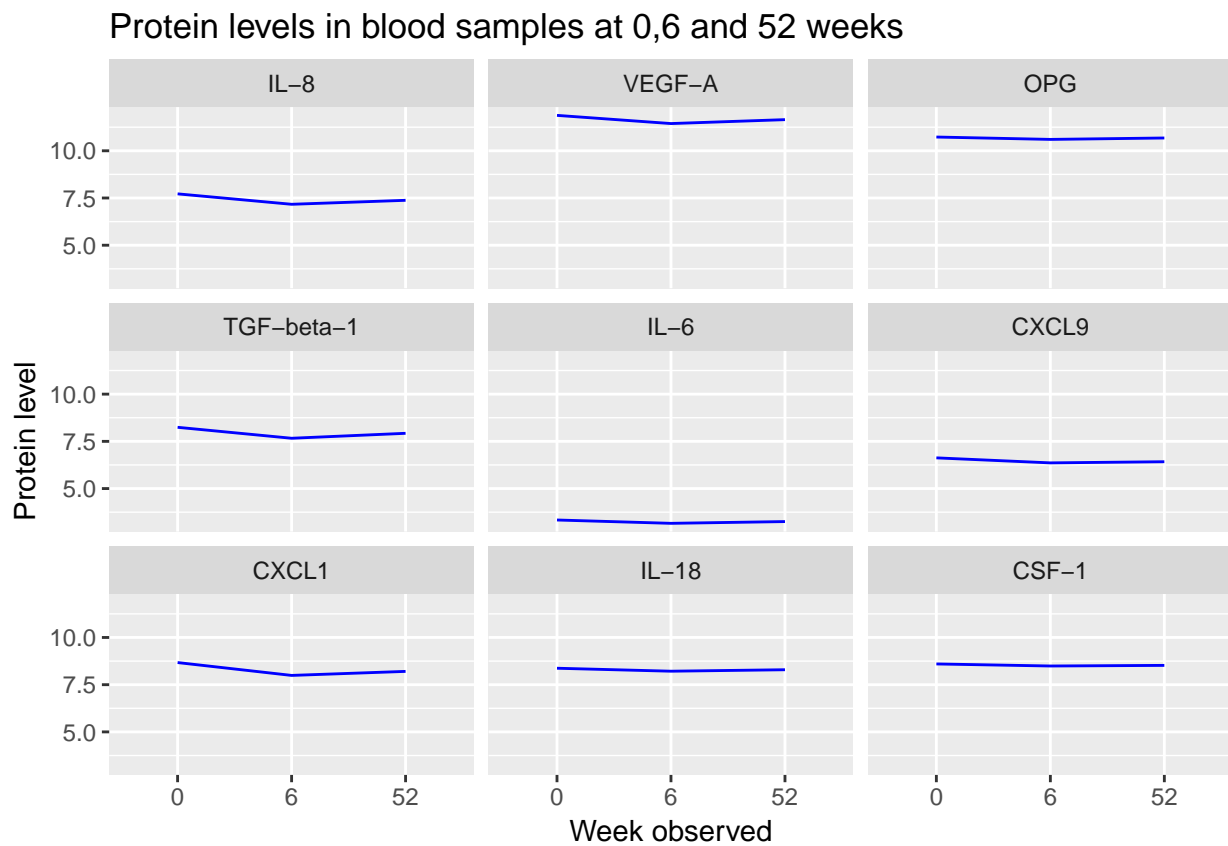
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## Saving 6.5 x 4.5 in image
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Scaled protein levels in blood samples at 0,6 and 52 weeks
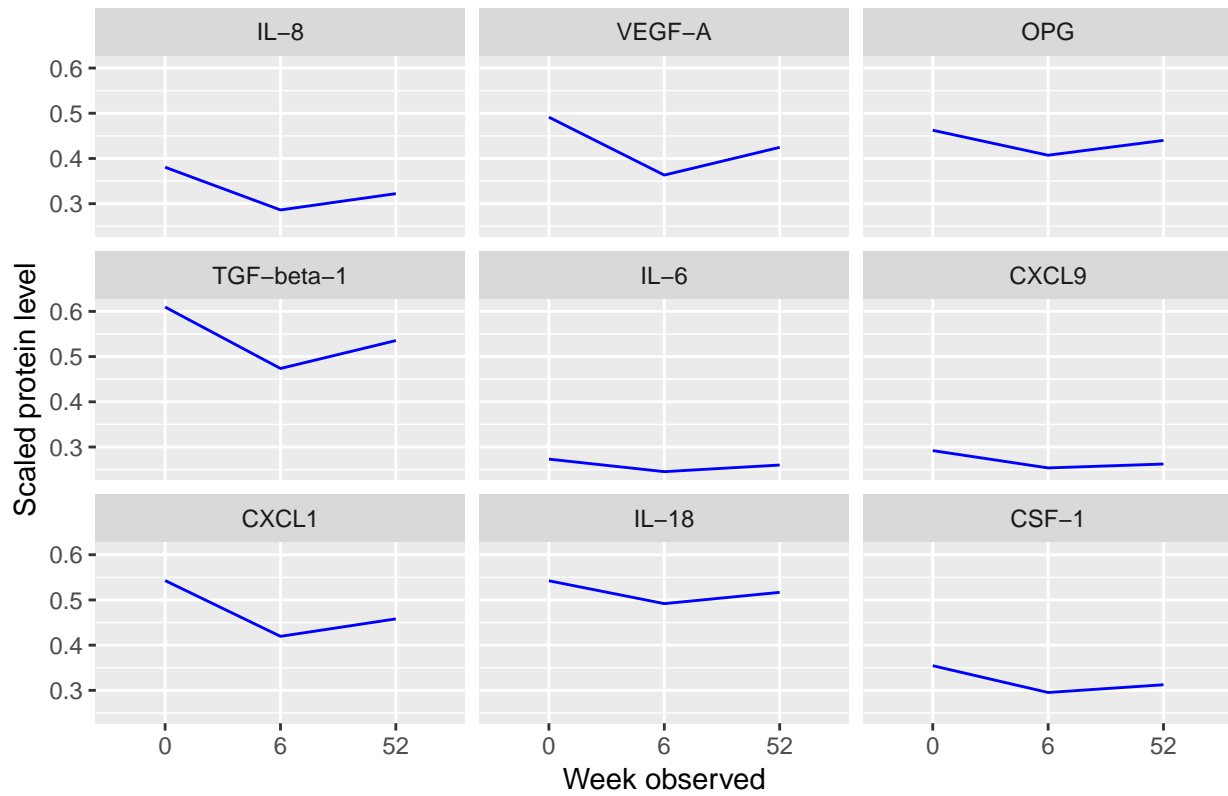
```
## Saving 6.5 x 4.5 in image
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Find reference for scaling