

**Table S1 (former table 5).** Descriptive analyses of the 4 composite variables and their components separately for the 3 clusters

<i>*</i>	<i>cluster 1 vs. cluster 2 (p<sup>†</sup>; p<sup>‡</sup>)</i>	<i>cluster 1 vs. cluster 3 (†; ‡)</i>	<i>cluster 2 vs. cluster 3 (†; ‡)</i>	<i>P-adj. (1; 2; 3)</i>
<b>WOMAC-scores</b> K/L-II				P <sup>1</sup> =0.044
K/L-III	p <sup>†</sup> =0.023 p <sup>†</sup> =0.022	p <sup>†</sup> =0.0004 p <sup>†</sup> =0.0004	p <sup>†</sup> =0.022 p <sup>†</sup> =0.021	P <sup>2</sup> =0.001 P <sup>3</sup> =0.042
<b>WOMAC-A</b>				P <sup>1</sup> =0.027
K/L-II	p <sup>†</sup> =0.017	p <sup>†</sup> =0.0002 p <sup>†</sup> =0.0001	p <sup>†</sup> =0.016	P <sup>2</sup> =0.003
K/L-III	p <sup>†</sup> =0.016		p <sup>†</sup> =0.015	P <sup>3</sup> =0.025
<b>WOMAC-C –values</b>				P <sup>1</sup> =0.029
K/L-II	p <sup>†</sup> =0.019	p <sup>†</sup> =0.0003 p <sup>†</sup> =0.0002	p <sup>†</sup> =0.019	P <sup>2</sup> =0.004
K/L-III	p <sup>†</sup> =0.018		p <sup>†</sup> =0.018	P <sup>3</sup> =0.027
<b>Biomarkers scores</b>				P <sup>1</sup> =0.044
K/L-II	p <sup>†</sup> =0.023	p <sup>†</sup> =0.0004 p <sup>†</sup> =0.0003	p <sup>†</sup> =0.022	P <sup>2</sup> =0.001
K/L-III	p <sup>†</sup> =0.022		p <sup>†</sup> =0.021	P <sup>3</sup> =0.043
<b>25-OH-D –values</b>				P <sup>1</sup> =0.021
K/L-II	p <sup>†</sup> =0.007	p <sup>†</sup> =0.00002 p <sup>†</sup> =0.00001	p <sup>†</sup> =0.006	P <sup>2</sup> =0.002
K/L-III	p <sup>†</sup> =0.006		p <sup>†</sup> =0.005	P <sup>3</sup> =0.017
<b>s-CTX-I –values</b>				P <sup>1</sup> =0.027
K/L-II	p <sup>†</sup> =0.022	p <sup>†</sup> =0.003	p <sup>†</sup> =0.017	P <sup>2</sup> =0.005
K/L-III	p <sup>†</sup> =0.021	p <sup>†</sup> =0.002	p <sup>†</sup> =0.015	P <sup>3</sup> =0.025
<b>u-CTX-II –values</b>				P <sup>1</sup> =0.028
K/L-II	p <sup>†</sup> =0.024	p <sup>†</sup> =0.0004 p <sup>†</sup> =0.0003	p <sup>†</sup> =0.019	P <sup>2</sup> =0.007
K/L-III	p <sup>†</sup> =0.022		p <sup>†</sup> =0.017	P <sup>3</sup> =0.025
<b>BMD-scores</b>				P <sup>1</sup> =0.043
K/L-II	p <sup>†</sup> =0.023	p <sup>†</sup> =0.0004 p <sup>†</sup> =0.0004	p <sup>†</sup> =0.022	P <sup>2</sup> =0.008
K/L-III	p <sup>†</sup> =0.021		p <sup>†</sup> =0.021	P <sup>3</sup> =0.042
<b>TB-BMD</b>				P <sup>1</sup> =0.026
K/L-II	p <sup>†</sup> =0.019	p <sup>†</sup> =0.0002 p <sup>†</sup> =0.0001	p <sup>†</sup> =0.016	P <sup>2</sup> =0.003
K/L-III	p <sup>†</sup> =0.017		p <sup>†</sup> =0.015	P <sup>3</sup> =0.025
<b>LS-BMD</b>				P <sup>1</sup> =0.027
K/L-II	p <sup>†</sup> =0.016	p <sup>†</sup> =0.0002 p <sup>†</sup> =0.0001	p <sup>†</sup> =0.016	P <sup>2</sup> =0.002
K/L-III	p <sup>†</sup> =0.015		p <sup>†</sup> =0.015	P <sup>3</sup> =0.025
<b>PF-BMD</b>				P <sup>1</sup> =0.029
K/L-II	p <sup>†</sup> =0.021	p <sup>†</sup> =0.0004 p <sup>†</sup> =0.0003	p <sup>†</sup> =0.019	P <sup>2</sup> =0.004
K/L-III	p <sup>†</sup> =0.019		p <sup>†</sup> =0.018	P <sup>3</sup> =0.027
<b>mJSW</b>				P <sup>1</sup> =0.033
K/L-II	p <sup>†</sup> =0.017	p <sup>†</sup> =0.0003 p <sup>†</sup> =0.0004	p <sup>†</sup> =0.015	P <sup>2</sup> =0.005
K/L-III	p <sup>†</sup> =0.018		p <sup>†</sup> =0.016	P <sup>3</sup> =0.034

WOMAC score: WOMAC-A + WOMAC-C; Biomarker scores: levels of s-CTX-I + levels of u-CTX-II; BMD score: LS-BMD + PF-BMD + TB-BMD; \*: indicates the use of the Kruskal-Wallis test; †: indicates the p-values of comparisons in the K/L-II grade; ‡: indicates the p-values of comparisons in the K/L-III grade; p adj.: adjusted p-values using the Holm-Bonferroni post hoc correction to limit the bias associated with multiple statistical tests; P<sup>1</sup>: indicates p-values of the comparisons between cluster-1 and cluster-2; P<sup>2</sup>: indicates the p-values of the comparisons between cluster-1 and cluster-3; P<sup>3</sup>: indicates p-values of the comparisons between cluster-2 and cluster-3.

**Table S2 (former table 8).** Descriptive analyses of the four composite variables and their components separately for the M36 clusters

*	cluster 1 vs. cluster 2 <sup>‡</sup> (p <sup>†</sup> ; p <sup>‡</sup> )	cluster 1 vs. cluster 3 (†; ‡)	cluster 2* vs. cluster 3 (†; ‡)	P-adj. (†; ‡; ‡)
<b>WOMAC-scores</b>				P <sup>1</sup> =0.044
K/L-II	p <sup>†</sup> =0.023	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.023	P <sup>2</sup> =0.001
K/L-III	p <sup>†</sup> =0.022	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.022	P <sup>3</sup> =0.044
<b>WOMAC-A –values</b>				P <sup>1</sup> =0.033
K/L-II	p <sup>†</sup> =0.022	p <sup>†</sup> =0.0002	p <sup>†</sup> =0.017	P <sup>2</sup> =0.003
K/L-III	p <sup>†</sup> =0.021	p <sup>†</sup> =0.0001	p <sup>†</sup> =0.016	P <sup>3</sup> =0.033
<b>WOMAC-C –values</b>				P <sup>1</sup> =0.033
K/L-II	p <sup>†</sup> =0.019	p <sup>†</sup> =0.0003	p <sup>†</sup> =0.019	P <sup>2</sup> =0.004
K/L-III	p <sup>†</sup> =0.018	p <sup>†</sup> =0.0002	p <sup>†</sup> =0.018	P <sup>3</sup> =0.033
<b>Biomarkers scores</b>				P <sup>1</sup> =0.044
K/L-II	p <sup>†</sup> =0.024	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.023	P <sup>2</sup> =0.001
K/L-III	p <sup>†</sup> =0.022	p <sup>†</sup> =0.0003	p <sup>†</sup> =0.022	P <sup>3</sup> =0.043
<b>s-CTX-I –values</b>				P <sup>1</sup> =0.032
K/L-II	p <sup>†</sup> =0.022	p <sup>†</sup> =0.003	p <sup>†</sup> =0.023	P <sup>2</sup> =0.005
K/L-III	p <sup>†</sup> =0.021	p <sup>†</sup> =0.002	p <sup>†</sup> =0.021	P <sup>3</sup> =0.031
<b>u-CTX-II –values</b>				P <sup>1</sup> =0.028
K/L-II	p <sup>†</sup> =0.023	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.024	P <sup>2</sup> =0.007
K/L-III	p <sup>†</sup> =0.022	p <sup>†</sup> =0.0003	p <sup>†</sup> =0.022	P <sup>3</sup> =0.029
<b>BMD-scores</b>				P <sup>1</sup> =0.043
K/L-II	p <sup>†</sup> =0.023	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.024	P <sup>2</sup> =0.008
K/L-III	p <sup>†</sup> =0.021	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.022	P <sup>3</sup> =0.042
<b>TB-BMD</b>				P <sup>1</sup> =0.026
K/L-II	p <sup>†</sup> =0.019	p <sup>†</sup> =0.0002	p <sup>†</sup> =0.019	P <sup>2</sup> =0.003
K/L-III	p <sup>†</sup> =0.017	p <sup>†</sup> =0.0001	p <sup>†</sup> =0.017	P <sup>3</sup> =0.025
<b>LS-BMD</b>				P <sup>1</sup> =0.027
K/L-II	p <sup>†</sup> =0.016	p <sup>†</sup> =0.0002	p <sup>†</sup> =0.016	P <sup>2</sup> =0.002
K/L-III	p <sup>†</sup> =0.015	p <sup>†</sup> =0.0001	p <sup>†</sup> =0.015	P <sup>3</sup> =0.026
<b>PF-BMD</b>				P <sup>1</sup> =0.029
K/L-II	p <sup>†</sup> =0.021	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.021	P <sup>2</sup> =0.004
K/L-III	p <sup>†</sup> =0.019	p <sup>†</sup> =0.0003	p <sup>†</sup> =0.019	P <sup>3</sup> =0.027
<b>mJSN</b>				P <sup>1</sup> =0.043
K/L-II	p <sup>†</sup> =0.017	p <sup>†</sup> =0.0003	p <sup>†</sup> =0.017	P <sup>2</sup> =0.005
K/L-III	p <sup>†</sup> =0.018	p <sup>†</sup> =0.0004	p <sup>†</sup> =0.018	P <sup>3</sup> =0.044

WOMAC-score: WOMAC-A + WOMAC-C; Biomarker score: levels of s-CTX-I + levels of u-CTX-II; BMD-score: LS-BMD + PF-BMD + TB-BMD; \*: indicates that the Kruskal–Wallis test was applied; †: indicates p-values of the comparisons in the K/L-II grade; ‡: indicates p-values of the comparisons in the K/L-III grade; P-adj.: adjusted p-values using the Holm-Bonferroni post hoc correction to limit the bias associated with multiple statistical tests); P<sup>1</sup>: p-values of the comparisons between cluster 1 and cluster 2<sup>‡</sup>; P<sup>2</sup>: p-values of the comparisons between cluster 1 and cluster 3; P<sup>3</sup>: p-values of the comparisons between cluster 2\* and cluster 3.

**Table S3.** Descriptive analyses and comparisons of analgesia with Diclofenac sodium 2x75mg/24h vs. Tramadol hydrochloride 2x100mg/24h

*	p-values <sup>†</sup> Cluster 1	p-values <sup>†</sup> Cluster 2 <sup>#</sup>	p-values <sup>†</sup> Cluster 2*	p-values <sup>†</sup> Cluster 3	P-adj. (1; 2; 3; 4; 5)
WOMAC-scores	p <sup>†</sup> = 0.079	p <sup>†</sup> = 0.059	p <sup>†</sup> = 0.021	p <sup>†</sup> = 0.0001	P <sup>1</sup> = 0.045 P <sup>2</sup> = 0.023 P <sup>3</sup> = 0.001 P <sup>4</sup> = 0.026 P <sup>5</sup> = 0.042

WOMAC score: WOMAC-A + WOMAC-C; \*: indicates that the Kruskal–Wallis test was applied; †: indicates p - values of the comparisons Diclofenac sodium 2x75mg/24h vs. Tramadol hydrochloride 2x100mg/24h; P-adj.: adjusted p-values using the Holm-Bonferroni post hoc correction to limit the bias associated with multiple statistical tests); P<sup>1</sup>: p-values of the comparisons of p<sup>†</sup>, between cluster 1 and cluster 2<sup>#</sup>; P<sup>2</sup>: p-values of the comparisons of p<sup>†</sup>, between cluster 1 and cluster 2\*; P<sup>3</sup>: p-values of the comparisons of p<sup>†</sup>, between cluster 1 and 3; P<sup>4</sup>: p-values of the comparisons of p<sup>†</sup>, between cluster 2<sup>#</sup> and 2\*; P<sup>5</sup>: p-values of the comparisons of p<sup>†</sup>, between cluster 2\* and 3.