

# ISOKINETIC NORMATIVE DATA

Gravity Correction: Yes      Windowing: Yes

## KNEE EXTENSION/FLEXION – 90 degrees per second

Agonist/Antagonist Ratio = Normally Weaker/Normally Stronger

*Peak Torque to Body Weight %*

**AWAY**

**Extension**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	116%	96%	91%	90%	82%	71%
male low	79%	78%	67%	57%	56%	55%
female high	88%	88%	79%	71%	66%	56%
female low	69%	64%	61%	53%	42%	43%

*Peak Torque to Body Weight %*

**TOWARD**

**Flexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	62%	47%	46%	59%	47%	38%
male low	35%	32%	32%	28%	29%	24%
female high	48%	42%	39%	38%	33%	31%
female low	38%	29%	25%	25%	20%	21%

**Agonist/Antagonist Ratio: Flexion/Extension Ratio**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	53%	49%	50%	65%	57%	54%
male low	44%	41%	47%	50%	52%	44%
average	48%	45%	49%	57%	54%	49%
female high	55%	47%	49%	54%	50%	55%
female low	55%	45%	42%	47%	47%	49%
average	55%	46%	45%	50%	48%	52%

## ANKLE PLANTAR/DORSIFLEXION – 60 degrees per second

*Peak Torque to Body Weight %*

**AWAY**

**Plantarflexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	69%	57%	55%	57%	53%	46%
male low	47%	39%	37%	41%	34%	25%
female high	90%	61%	48%	68%	61%	45%
female low	47%	48%	45%	41%	36%	31%

*Peak Torque to Body Weight %*

**TOWARD**

**Dorsiflexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	19%	16%	18%	17%	15%	13%
male low	13%	15%	14%	15%	14%	12%
female high	14%	15%	13%	14%	12%	11%
female low	11%	11%	9%	9%	7%	8%

**Agonist/Antagonist: Dorsiflexion/Plantarflexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	27%	27%	33%	30%	28%	29%
male low	28%	29%	29%	28%	31%	39%
average	27%	28%	31%	29%	30%	34%
female high	15%	20%	20%	21%	20%	24%
female low	24%	23%	21%	22%	19%	25%
average	20%	21%	20%	21%	20%	24%

**SHOULDER ABDUCTION/ADDUCTION – 60 degrees per second**

**AWAY**

*Peak Torque to Body Weight %*

**Abduction**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	31%	32%	30%	30%	28%	25%
male low	20%	23%	22%	21%	19%	17%

female high	39%	27%	25%	33%	27%	27%
female low	26%	22%	22%	23%	19%	18%

**TOWARD**

*Peak Torque to Body Weight %*

**Adduction**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	41%	44%	46%	40%	42%	35%
male low	29%	40%	36%	37%	35%	33%

female high	34%	31%	31%	28%	26%	26%
female low	18%	22%	20%	19%	18%	20%

**Agonist/Antagonist Ratio: Abduction/Adduction**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	76%	71%	66%	76%	67%	72%
male low	71%	75%	82%	71%	71%	66%
average	74%	73%	74%	73%	69%	69%

female high	113%	112%	109%	115%	104%	104%
female low	144%	102%	109%	120%	107%	94%
average	128%	107%	109%	118%	106%	99%

**ELBOW FLEXION/EXTENSION – 60 degrees per second**

**TOWARD**

*Peak Torque to Body Weight %*

**Flexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	30%	27%	27%	28%	25%	19%
male low	17%	18%	17%	18%	16%	14%

female high	28%	19%	19%	23%	21%	20%
female low	18%	18%	16%	16%	14%	14%

**Agonist/Antagonist Ratio: Extension/Flexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	124%	106%	118%	109%	110%	120%
male low	11%	78%	48%	55%	64%	79%
average	67%	92%	83%	82%	87%	99%

female high	78%	95%	95%	92%	89%	93%
female low	56%	44%	32%	35%	66%	78%
average	67%	70%	63%	64%	78%	86%

**AWAY**

*Peak Torque to Body Weight %*

**Extension**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	37%	28%	32%	30%	28%	23%
male low	2%	18%	11%	13%	13%	14%

female high	22%	24%	25%	22%	19%	18%
female low	10%	8%	5%	6%	9%	11%

**WRIST EXTENSION/FLEXION – 90 degrees per second**

*Peak Torque to Body Weight %*

**TOWARD**

**Flexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	12%	11%	12%	12%	12%	9%
male low	7%	9%	7%	7%	7%	6%

female high	13%	9%	9%	11%	10%	12%
female low	7%	8%	8%	7%	7%	9%

*Peak Torque to Body Weight %*

**AWAY**

**Extension**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	6%	5%	7%	7%	5%	5%
male low	4%	5%	6%	4%	5%	4%

female high	5%	5%	5%	4%	4%	4%
female low	3%	3%	3%	3%	2%	3%

**Agonist/Antagonist Ratio: Extension/Flexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	54%	48%	53%	60%	46%	55%
male low	50%	43%	56%	44%	56%	50%
average	52%	46%	54%	52%	51%	53%

female high	39%	39%	39%	37%	42%	37%
female low	41%	34%	34%	44%	30%	37%
average	40%	36%	36%	41%	36%	37%

**HIP FLEXION/EXTENSION – 60 degrees per second**

*Peak Torque to Body Weight %*

**TOWARD**

**Flexion**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	88%	65%	69%	71%	63%	50%
male low	52%	51%	45%	50%	46%	38%

female high	82%	67%	60%	75%	66%	63%
female low	66%	64%	54%	53%	53%	53%

*Peak Torque to Body Weight %*

**AWAY**

**Extension**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	116%	97%	89%	92%	91%	66%
male low	63%	88%	77%	84%	67%	55%

female high	109%	98%	84%	76%	76%	69%
female low	63%	59%	53%	52%	58%	41%

**Agonist/Antagonist Ratio: Flexion/Extension Ratio**

Gender : Age	<30	30-39	40-49	50-59	60-69	>70
male high	76%	67%	77%	77%	69%	76%
male low	83%	74%	79%	77%	88%	87%
average	79%	70%	78%	77%	79%	82%

female high	75%	87%	95%	99%	86%	92%
female low	106%	109%	100%	103%	91%	130%
average	90%	98%	98%	101%	88%	111%

Reference:

Harbo T, Brincks J, Andersen H (2012) Maximal isokinetic and isometric muscle strength of major muscle groups related to age, body mass, height and sex in 178 healthy subjects. *Eur J Appl Physiol* 112:267-275