



Appendix Z

Size Modifiers and Strength Scores for GURPS Fourth Edition

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According to basic physics, the mass of an object increases with the cube of its linear dimension. That is to say that if a human were hit with a growth ray and doubled in size (with all proportions remaining equal) then that human would suddenly be $8\times$ as heavy ($2 \times 2 \times 2 = 8$).

This is all well and good, but how strong should/would this individual be?

Well, according to the same principles of physics, the strength of an object increases with the area of its cross section (or, in simpler terms, with the square of its linear dimension). That is to say that our human above that doubled in size (again, assuming all proportions remained the same) would find themselves only $4\times$ as strong ($2 \times 2 = 4$).

This leads us to a basic rule of thumb for the baseline (i.e.: average) strength of a human-proportioned individual at the various size modifiers that looks like this:

SM	ST	Cost	SM	ST	Cost
-10	1	-90	0	10	0
-9	1	-90	+1	15	45
-8	1	-90	+2	25	120
-7	1	-90	+3	35	175
-6	1	-90	+4	50	240
-5	1	-90	+5	75	325
-4	2	-80	+6	100	360
-3	3	-70	+7	150	420
-2	5	-50	+8	250	480
-1	7	-30	+9	350	680
0	10	0	+10	500	980

Cost is the point cost of the strength listed, with the size modifier reduction applied.

If you are making a Giant with SM +5 (about 45 feet tall), and you want this giant to be semi-realistic, then ST 75 will achieve an individual that is about in proportion to a typical human being. However, to be realistic, you would need to throw on some serious limitations based on the fact that this individual's strength-to-mass ratio is pretty poor.

This individual is about $55\times$ as strong as a typical person, but weighs about $420\times$ as much. Pound for pound, this is only about 13% as strong as a typical man.

Keep in mind that page 19 of the *Basic Set* indicates that such considerations should never be forced onto a character. Still, this giant is dealing an average of 28 points of damage with a punch! The strength-to-weight ratio may not be an issue.

There is another option, however.

A typical ST 10 individual, according to *GURPS*, weighs in at 150 pounds. ST 10 provides a Basic Lift of 20 pounds. This is about 13% of the weight of the individual. If we scale strength to the mass of the character, so that they have the same proportionate strength (pound for pound) of a human being (the way most fantasy giants seem to work) then the chart looks more like this:

SM	ST	Cost	SM	ST	Cost
-10	1	-90	0	10	0
-9	1	-90	+1	18	72
-8	1	-90	+2	39	232
-7	1	-90	+3	65	385
-6	1	-90	+4	111	606
-5	1	-90	+5	205	975
-4	1	-90	+6	316	1224
-3	2	-80	+7	580	1710
-2	3	-70	+8	1250	2480
-1	6	-40	+9	2070	4120
0	10	0	+10	3535	7050

Cost is the point cost of the strength listed, with the size modifier reduction applied.

If you are making a Giant with SM +5 (about 45 feet tall), and you want this giant to have the same strength (pound for pound) as a typical human being, then ST 205 or so will accomplish your goal. This is not realistic, but it is hard to argue realism when you are simulating a giant that lives at the top of a beanstalk . . . on a cloud.

This individual is about 420× as strong as a typical person, and weighs about 420× as much as a typical person. In addition, this giant is dealing an average of over 70 points of damage with a punch!

Figuring out what ST scores to hand out to a giant creature is sometimes rather difficult. You need to know what your goals are. Most of the time, the realistic method of calculating strength is preferable (just hand-wave that whole strength-to-mass thing and move on). However, if you want to have some seriously scary, put the fear of the supernatural into your players fun for a change: try the second option.

Just be ready to run!

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