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# COMPLETE BRAWLER GUIDE

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by ♥ Nep



# CONTENTS

Introduction .....	6
Abbreviations .....	7
Tanking.....	8
Stats.....	9
Crit Factor .....	9
Power.....	10
Attack Speed .....	10
Cooldown Reduction .....	11
Crit Power .....	11
Endurance.....	11
% damage.....	12
% damage reduction.....	12
Skills .....	13
 Growing Fury (GF).....	13
 Haymaker (HM) .....	13
 Jackhammer (JH) .....	13
 Roundhouse Kick (RHK) .....	13
 Ground Pounder (GP) .....	14
 Counterpunch (CP) .....	14
 Piledriver (PD).....	14
 Flip Kick (FK) .....	14
 Counter.....	14

<b>Skill Damage Table .....</b>	<b>15</b>
<b>Skill Cooldown Table.....</b>	<b>16</b>
<b>Skill Crit Chance Table .....</b>	<b>16</b>
<b>Power vs Crit Factor .....</b>	<b>17</b>
<b>Haymaker Crit Glyph Graph.....</b>	<b>18</b>
<b>Gear.....</b>	<b>19</b>
<b>Weapon .....</b>	<b>19</b>
Crit Power vs % damage .....	20
<b>Armour .....</b>	<b>21</b>
<b>Gloves .....</b>	<b>22</b>
<b>Boots .....</b>	<b>23</b>
<b>Accesories .....</b>	<b>23</b>
Circlet .....	23
Brooch .....	23
Belt .....	23
Jewellery .....	24
Innerwear .....	24
<b>Dragons/Phoenixes .....</b>	<b>24</b>
<b>Etchings .....</b>	<b>25</b>
Energetic vs Pumped vs Keen.....	25
Relentless vs Grounded.....	25
<b>Crystals .....</b>	<b>26</b>
Carving vs Pounding .....	26
<b>Consumables.....</b>	<b>27</b>
<b>Nostrum.....</b>	<b>27</b>
<b>Bravery vs Canephora.....</b>	<b>27</b>
<b>Lamb Bulgogi .....</b>	<b>27</b>
<b>Noctenium.....</b>	<b>27</b>
<b>Root Beer .....</b>	<b>27</b>
<b>Glyphs .....</b>	<b>28</b>
<b>Optional Glyphs .....</b>	<b>29</b>
<b>Rage Generation .....</b>	<b>30</b>

<b>Brawler Animations .....</b>	<b>32</b>
Skill Queueing .....	33
Animation Cancelling .....	34
<b>Skill Priority .....</b>	<b>35</b>
Haymaker Bloodlust .....	36
Delaying Skills.....	38
Cancelling Skills.....	38
Haymaker Cancelling.....	38
Final Priority .....	40
Simple Rotation.....	41
<b>Non-Sandbag Bosses .....</b>	<b>42</b>
<b>Perfect Block .....</b>	<b>43</b>
Perfect Blocking with Counter .....	44
Delaying Skills to Perfect Block .....	46
Cancelling Skills to Perfect Block.....	47
<b>Effect of Ping .....</b>	<b>48</b>
Skill Delay .....	48
Desync.....	49
<b>Effect of FPS .....</b>	<b>50</b>
Screen Shake.....	50
<b>Brawler Tips/Tricks .....</b>	<b>51</b>
Frontcritting from Back.....	51
Sidecritting from Front.....	51
Bull Rush Usage.....	52
Movement.....	52
<b>Slaying Brawler .....</b>	<b>53</b>
<b>Dps Brawler .....</b>	<b>54</b>
<b>Parsing .....</b>	<b>55</b>
<b>Talents .....</b>	<b>56</b>
<b>Awakening.....</b>	<b>57</b>
Piledriver .....	57

Divine Wrath ..... 57

New: Resounding Uppercut..... 57

New: Flying Kick ..... 57

New: One-Inch Punch..... 58

New: Intense Fury ..... 58

New: Smouldering Rage..... 58

New: Haymaker: Accelerate..... 58

Conclusion..... 59

Credits ..... 60

# INTRODUCTION

The intention of this guide is to provide a comprehensive understanding of the Brawler class, as well as an insight into the underlying mechanics and mathematics of TERA. Due to the interests and scope of the author's knowledge, this guide will focus on PvE aspects.

Brawler is an offensive 'dps' tank that offers little utility to the party. Their unique playstyle is based around the skill Growing Fury. This grants a buff that gives all damaging skills a frontal block effect. Hence while other tanking classes will generally use a dedicated block skill to block attacks, Brawler is able to block by using any offensive skills.

When played by skilled players, Brawler had the highest dps of the tanking classes for almost two years. Currently Warrior tanks have the highest theoretical dps of tanking classes, but have a much higher skill floor and ceiling.

There are two factors that impact your dps. Your gear and your skill usage/rotation. The logical order of this guide is to first overview the various stats in TERA, then consider how Brawler skills interact with these stats, then use this to guide gearing choices and finally analyse skill usage with optimal gear. There are many factors that interact with each other in determining skill priority, so despite the best ordering of the sections there may be references to information that has not yet been covered. I encourage you to reread the guide once you finish as not everything may make sense on a first read through.

# ABBREVIATIONS

Throughout this guide a number of abbreviations are used ranging from commonly used theory-crafting terms to Brawler skill abbreviations. These are all listed below:

- dps – Damage Per Second
- fps – Frames Per Second
- PvE – Player Versus Environment
- Aggro – The boss focussing on (and hence facing) the player
- HP – Health Points
- BiS – Best in Slot (best available gear)
- CD – Cooldown
- CDR – Cooldown Reduction
- Brawler Skills
  - RHK – Roundhouse Kick
  - HM – Haymaker
  - PD – Piledriver
  - JH – Jackhammer
  - GP – Ground Pounder
  - FK – Flip Kick
  - CP – Counterpunch
  - GF – Growing Fury
  - DW – Divine Wrath
- kTera – Korean Tera server

# TANKING

You should never forget that you are primarily a **Tank**. As a tank, your priorities are:

1. Stay alive

2. Hold Aggro – Brawler skills have low base aggro generation; hence your aggro almost directly corresponds to your dps. If you struggle to hold aggro while playing Brawler you should use an aggro generation crystal, e.g. Fine Threatening Niveot until you feel confident in your dps. If you lose aggro, the skill Provoke will guarantee you aggro for several seconds – however this should not be relied on to hold aggro as it has a long cooldown.

3. Position the boss – As a tank you should try to position the boss in a way that makes it easier for the dps to maintain back-time. This comes with experience and depends on the boss. If the boss turns to attack a dps/healer, you should reposition to the new front of the boss to minimise turning. If the boss is in an inconvenient position for the party due to AoEs/wall/mechanics, use Provoke to guarantee aggro before repositioning to a better place.

4. Debuff the boss – The skill Jackhammer applies a debuff to the boss that stacks up to 8 times and grants 1% endurance reduction per stack. This debuff has a 20 second duration and is refreshed upon hitting the boss with Jackhammer. You should aim for 99-100% uptime on this, which is generally easy as Jackhammer is a core dps skill.

5. Enrage the boss – The skill Infuriate will enrage the boss, which is generally beneficial as party members will deal increased damage and take reduced damage. In the current patch, bosses enrage naturally after 10% of their health has been done and this lasts for 37 seconds (after which 10% more of the boss' HP will need to be dealt before it enrages again). Normally, Infuriate is used at the start of the fight and can be used again during fights if it comes off cooldown. Keep track of the boss' HP – it is a waste to use Infuriate if the boss is already enraged or will enrage naturally soon.

After you are comfortable with fulfilling your tanking priorities, Brawlers should focus on their dps as they have little utility to the party. In addition, in higher geared parties with skilled players you may run into difficulties holding aggro if your dps is inadequate.



# STATS

## CRIT FACTOR

Crit factor determines the chance to critically strike according to the following formula:

$$CC = n + G(A + n)(1 - n)$$

$$n = \frac{D \cdot I(B \cdot Cf_0 + Cf)}{10 \cdot CR} + F$$

$$\begin{aligned} \text{when } CC \leq 0, & \quad CC = 0 \\ \text{when } CC \text{ or } n \geq 1, & \quad CC = 1 \end{aligned}$$

$$F = \frac{3 \cdot L \cdot T}{400 \cdot I(2G + 1)}$$

*A = Additional Crit Chance*  
*B = Glyph Value of Base Crit Factor Glyph*  
*D = Direction Modifier*  
*F = Level Difference Modifier*  
*G = Glyph Value of Crit Chance Glyph*  
*I = Skill Innate Modifier*  
*L = Character Level - Mob Level*  
*T = Mob Type Modifier: if Elite = 2, else = 1*

*CC = Crit Chance*  
*CR = Crit Resist*  
*Cf<sub>0</sub> = Class Base Crit Factor*  
*Cf = Bonus Crit Factor*

See: <https://imgur.com/a/HYhzT> for more information

- A is the sum of all additional crit chance. Default A = 0.
- B is the Glyph Value of Glyphs that increase Crit Factor. Default B = 1.
- D is the direction modifier that depends on which side of the boss you attack.  
Default Front D = 1, Side D = 1.2, Back D = 1.6. Some mobs have special D; e.g. on Vergos D = 1 for all directions.
- G is the Glyph Value of Glyphs that increase Crit Chance. Default G = 1.

- I is the Innate Crit Factor multiplier which is skill specific. Default I = 1.
- L is the difference between the character's level and the monster's level.
- T is a Mob Type modifier. If the mob is Elite (e.g. BAMs and dungeon bosses), then T = 2. Otherwise T = 1.
- Crit Resist is 210 in RK/TR, 200 on Vergos, and 180 on IoD

Brawler has a base crit factor of 50.

## POWER

Each point of power increases damage dealt by one percentage point. Hence the increase in dps from  $x$  power depends on the current total power as shown in the formula and so is subject to diminishing returns:

$$DPS\ increase = \frac{100 + x + Power}{100 + Power}$$

Brawler has a base power of 60.

## ATTACK SPEED

Brawler has a base attack speed of 90. All of the % attack speed from gear affects base attack speed and scales additively with flat attack speed. The effect of attack speed on animations is calculated by the formula:

$$Animation\ Speed = \frac{90 + Bonus\ Attack\ Speed}{100}$$

## COOLDOWN REDUCTION

Cooldown reduction in Tera scales either additively or multiplicatively depending on its source. The formula for cooldown is:

$$\text{Cooldown} = \text{Base Cooldown} * (1 - \text{Static CDR}) * (1 - \text{Dynamic CDR})$$

Static CDR includes CDR from gear and glyphs. Dynamic CDR includes CDR from buffs (e.g. Growing Fury) and consumables (e.g. Nostrum). Cooldown reduction scales with increasing returns, especially when the source is additive.

## CRIT POWER

Crit power is the amount your damage is multiplied by when you crit. The base crit power is 2.0, and the main source is from weapon crystals and nostrum. With nostrum, Wrathful and Focused dyads, total crit power is 6.96 when enraged and 5.08 when un-enraged. Dragon and Phoenix mounts have a passive that gives a 10% chance on a critical hit to grant a buff that increases crit power by 1.0 or 2.0 (depending on mount rarity) for 6 seconds, with a 60 second cooldown.

$$\text{Crit Damage} = \text{Damage} * \text{Crit Power} * 0.9$$

Bosses and BAMs have 10% crit damage reduction, hence the 0.9 multiplier.

## ENDURANCE

Each point of endurance increases effective health by one percentage point. Hence the effective health modifier gained from  $x$  additional endurance can be calculated as:

$$\text{Tankiness} = \frac{100 + x + \text{Endurance}}{100 + \text{Endurance}}$$

Endurance scales with diminishing returns.

## % DAMAGE

% damage lines scale additively. Hence  $x$  additional % damage increases dps with the following formula with diminishing returns:

$$DPS\ increase = \frac{100 + x + \text{sum of \% damage lines}}{100 + \text{sum of \% damage lines}}$$

## % DAMAGE REDUCTION

% damage reduction lines are additive. Hence, they scale with increasing returns the closer you get to 100% damage reduction.

$$Damage\ Taken = 100\% - \text{sum of \% damage reduction lines}$$

It is possible to reach 100% damage reduction, but not on Brawler as this requires the Aman racial passive.

## SKILLS



### GROWING FURY (GF)

Growing Fury is the skill that defines Brawler. On use it gives a buff that gives all offensive skills (and Bull Rush) a frontal block as well as increasing crit factor by 50, power by 45 and cooldown reduction by 30%, however it decreases attack speed by 10. The buff lasts until the rage bar is depleted, which takes 12 seconds at a rate of 250 rage decay per second. Maintaining the buff is generally easy as long as you are constantly using skills and have all of the rage generation skills glyphed. Losing the GF buff by dying or running out of rage isn't the end of the world as it has no cooldown, nevertheless you should try to keep your uptime as high as possible and it takes time to generate full rage to use GF again.



### HAYMAKER (HM)

Haymaker is one of Brawler's two core dps skills. Its base damage isn't the highest, however it has an innate 5x crit factor modifier that gives it a high crit chance. In addition, haymaker has the bloodlust effect where damage is increased the lower the boss' HP, up to 78% additional damage.



### JACKHAMMER (JH)

Jackhammer is the second core dps skill with a low cooldown and high base damage. Jackhammer does not scale with attack speed.



### ROUNDHOUSE KICK (RHK)

Roundhouse Kick has low damage, but it can be glyphed to give a buff on hit that grants +15% damage for 3 seconds. Careful use of this skill can result in a significant dps increase through high buff uptime. Also, RHK is a high priority ability and can be used to animation cancel along with Ground Pounder and Counterpunch, which is discussed in a later section.



## GROUND POUNDER (GP)

Ground Pounder is a skill with a high base damage, but a long animation (the first two hits are an animation lock). Hence, its dps is not spectacular. Ground Pounder has an innate bonus A value of 0.04 (from front only).



## COUNTERPUNCH (CP)

Counterpunch is a skill that can only be used within 6 seconds of blocking an attack, and has a very high chance to crit.



## PILEDRIVER (PD)

Piledriver is a skill with low dps and is mainly a filler ability. It has an innate bonus A value of 0.04 (from front only). Piledriver does not scale with attack speed unless used directly after Roundhouse Kick while the Grounding Roundhouse Kick glyph is active. As this glyph is unnecessary during growing fury, in practice Piledriver does not scale with attack speed.



## FLIP KICK (FK)

Flip Kick has low base damage and no innate crit. It is the lowest priority filler for Brawler.



## COUNTER

Counter is Brawler's manual block skill. It has no cooldown and does negligible damage. It can be glyphed to give a 30% chance on Perfect Block of granting a 50% damage buff for 6 seconds. This will be discussed in its own section.

## SKILL DAMAGE TABLE

The base damages on tooltips in game show an arbitrary damage that each skill hit is scaled from. This is accurate for single-hit skills, but not for multi-hit skills. The base damages in the table below are the sum of the damages of all skill-hits for each skill. Note that the numbers shown here are rounded for readability, and that any calculations use unrounded numbers. As such, there may be small discrepancies due to rounding errors.

Scaled damage is relative to the base damage of Roundhouse Kick, which is used as a standard throughout this guide. Note that throughout this guide Haymaker bloodlust where relevant is considered independently (unless explicitly stated otherwise). The importance of Haymaker bloodlust will be considered in its own section.

Skill	Base Damage	Scaled Damage	Glyph	Bloodlust	Glyphed Damage
Roundhouse Kick	2037	1.00			1.00
Haymaker	3647	1.79	25%	Up to 1.78x	2.24
Piledriver	4596	2.26	25%		2.82
Jackhammer	5184	2.54	25%		3.18
Ground Pounder	6730	3.30	30%		4.30
Flip Kick	2674	1.31			1.31
Counterpunch	3460	1.70	20%		2.21
Counter	667	0.33			0.33

Since release, Brawler has been nerfed by 7.5% and 10% damage in PvE (according to patch notes). However, the real damage penalty against bosses is actually 15%. Hence, when comparing to other classes it must be taken into consideration that Brawler deals 85% damage. This is not necessary to consider when comparing different Brawler skills as all skills are affected by the same percentage.

## SKILL COOLDOWN TABLE

Skill	Base Cooldown	CD Glyph	Reset Glyph	CD	CD delay	Total CD
Roundhouse Kick	12	25%		4.08	0.27	4.35
Haymaker	13		20%	4.65	1.30	5.95
Piledriver	9			4.30	0.16	4.46
Jackhammer	6			2.86	0.415	3.275
Ground Pounder	35	20%		12.86	0.525	13.385
Flip Kick	15			7.16	0.64	7.80
Counterpunch	15	25%		5.10	0.27	5.37

The Haymaker reset glyph can be considered as a multiplicative 25% cooldown reduction on the base cooldown for theorycrafting purposes. This is because after the cooldown delay there is an 80% chance of the normal cooldown and 20% chance of no cooldown forming a geometric sequence (as there can be multiple resets) with a sum of 25%. The CD delay shown is for +10 attack speed.

## SKILL CRIT CHANCE TABLE

Skill	A	B	G	I
Roundhouse Kick				
Haymaker			3	5
Piledriver	+0.04			
Jackhammer			2	
Ground Pounder	+0.04		3	
Flip Kick				
Counterpunch				10

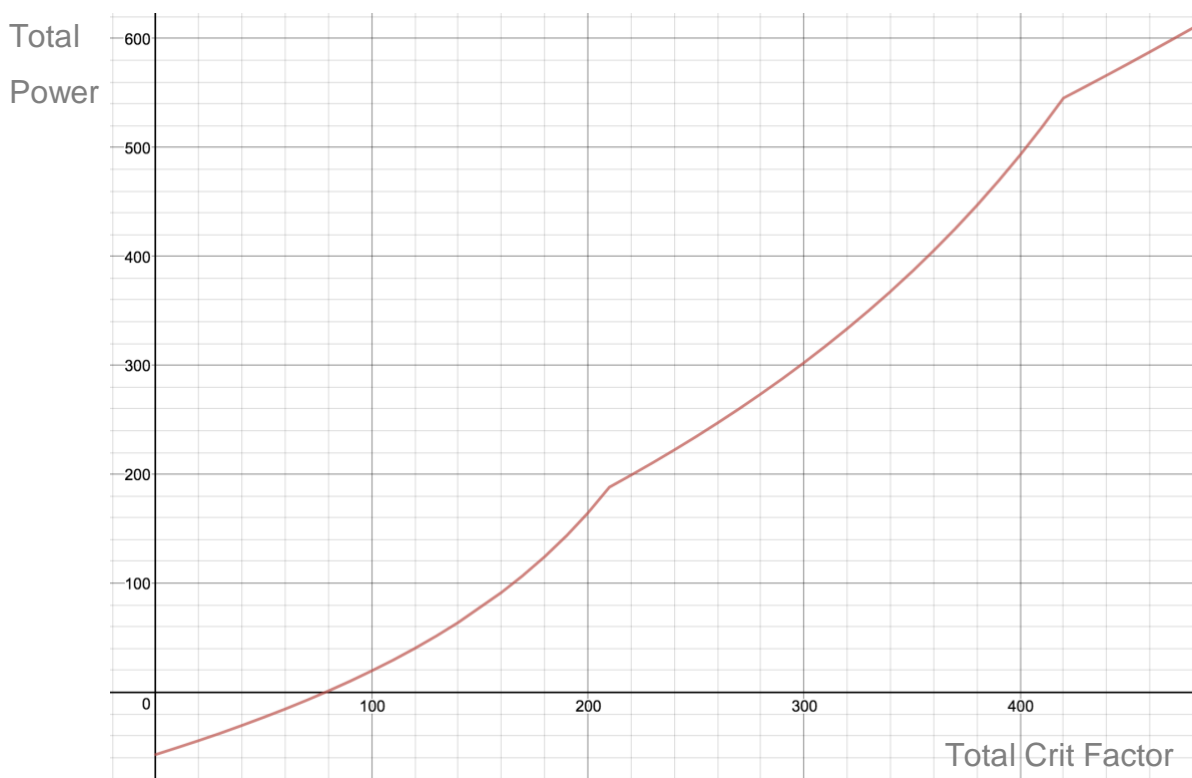
The table shows the skill-specific values of crit formula variables that can be substituted into the formula when calculating the crit chance of a specific skill. Note that the bonus A values of Piledriver and Ground Pounder only apply from the front.



## POWER VS CRIT FACTOR

In order to make gearing decision based on optimal crit factor and power, it is necessary to work out the relative increase in damage from adding crit factor/power to any amount of crit factor/power. This is achieved by the following steps:

- The damage increase of a skill from having any amount of crit factor relative to 0 crit factor is calculated
- This is then summed up for all skills. However, as each skill makes up a different proportion of total dps depending on crit factor, a weighted average is taken based off the total cooldown and scaled damages of each skill.
- The damage increase of a skill by adding crit factor at any crit factor can then be found by differentiating the weighted average.
- By equating this to the damage increase of a skill by adding power at any power, the graph below can be plotted.

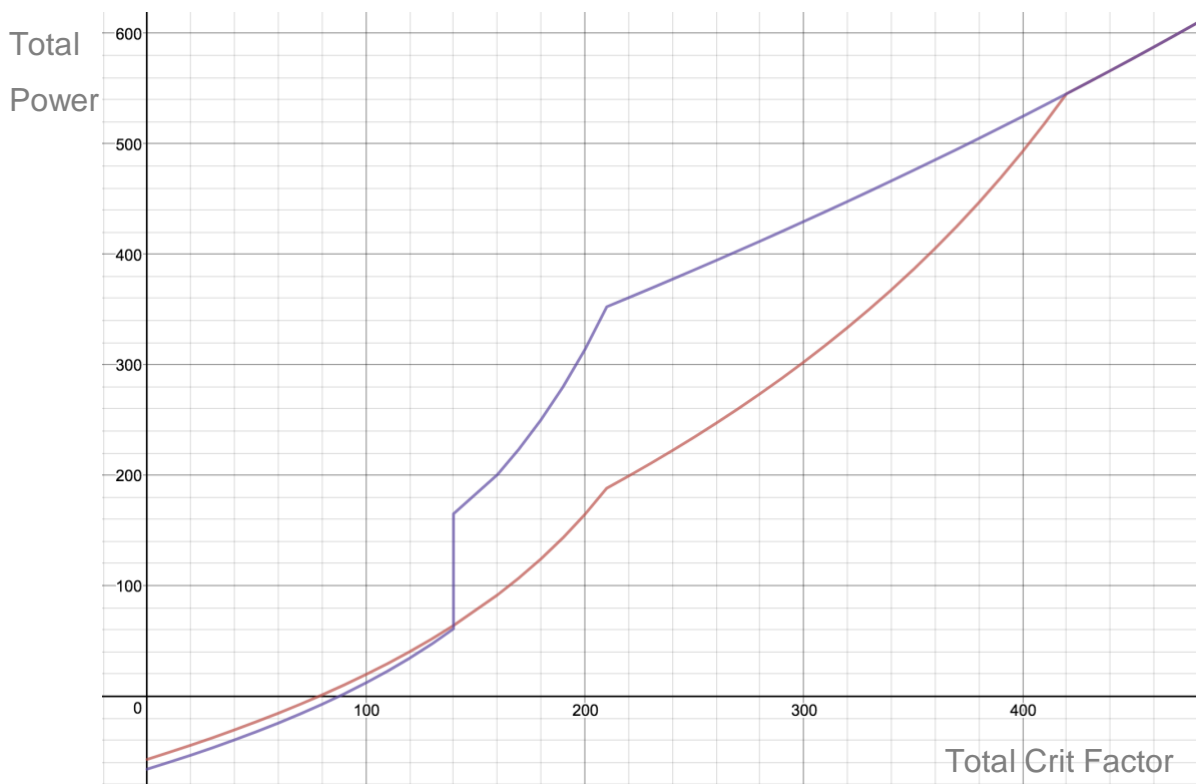


The graph shows the increase in damage from adding crit factor at any amount of crit factor, and the corresponding amount of power at which adding power would have the same damage increase. The axes are total crit factor (x) and total power (y).

Knowing the way skills interact with crit factor and power, it is possible to calculate what the optimal gearing choice for these two stats are. Crit factor is generally available in a 2:1 ratio to power. Hence, to optimise your gear aim to lie on the red line.

On the graph, the first change in gradient is from Counterpunch reaching its crit cap, and the second is Haymaker reaching crit cap.

## HAYMAKER CRIT GLYPH GRAPH



This graph shows the same power vs crit factor relationship, with the addition of the purple line which shows the scenario where Haymaker is glyphed for crit. The first sharp rise is Haymaker reaching its cap, and the second change in gradient is Counterpunch cap.

The exact Haymaker cap is 140.5 crit factor glyphed and 421.3 crit factor unglyphed. The exact Counterpunch cap is 210.3 crit factor.

## GEAR

For the purposes of this guide it is assumed that you have access to all BiS gear, hence any comparisons between different options will look at the relative dps gains from BiS scenarios.

## WEAPON

The BiS weapon is Stormcry. It has one top-line and four bottom-lines. The choices for top-line are:

- **Increases damage by 9.3% when attacking enraged monsters.**
  - Bosses normally have ~55% enrage uptime, and damage is increased ~50% during enrage due to focused weapon crystal and burns (brooch/root beer/contagion), so this line is worth ~5% dps
- **Decreases skill cooldowns by 7.2%.**
  - On a sandbag boss, this line is worth ~7% dps
- **Increases Attack Speed by 9%.**
  - Attack speed offers no dps gain when cooldowns are a limiting factor
- **Increases Crit Factor by 18.**
  - Depending on current crit factor, this will add 2-2.5% dps

You should use the enraged damage line in shorts fights with high enrage uptime (>50%). You should use the cooldown reduction line in long fights with low enrage uptime (<50%).

The choices for bottom line are:

- **Increases damage by 9.3% when attacking enraged monsters.**
  - ~5% dps gain
- **Increases damage by 6%.**
  - ~4% dps gain
- **Decreases skill cooldowns by 7.2%.**
  - On a sandbag boss, this line is worth ~7% dps
- **Increases damage by 8.6% to the target with the most aggro toward you.**
  - ~6% dps gain

- Replenishes 0.6% of total MP instantly when you use a skill.
  - No dps gain
- Increases Attack Speed by 4.5%.
  - Attack speed offers no dps gain when cooldowns are a limiting factor
- Increases Crit Factor by 14.
  - Depending on current crit factor, will add 1.5-2% dps
- Increase Crit Power by 0.3.
  - ~4.5% dps
- Increases damage by 6.9% when attacking from behind.
  - No dps gain for a tank
- Increases damage by 6.9% when attacking knocked-down targets.
  - No dps gain in PvE
- 0.5% chance to replenish MP when combat starts.
  - No dps gain

You should use enraged damage, highest aggro damage, cooldown reduction and crit power bottom-lines.

### Crit Power vs % damage

Crit power line is strong on Brawler due to the lower crit power from front relative to the back. While the value of 6% damage line is increased when the boss is not enraged (due to lack of enraged damage lines), the value of the 0.3 crit power is increased by a greater amount (due to lack of Focused weapon crystal effect).

## ARMOUR

The BiS weapon is Stormcry. It has one top-line that affects skills and four bottom lines that affect your tankiness. The choices for top-line are:

- Increases damage of Punch by 15%.
  - Negligible dps gain
- Decreases cooldown of Divine Wrath by 10%.
  - No dps gain
- Increases damage of Jackhammer by 12%.
  - ~3% dps gain
- Replenishes 30 MP when Jackhammer hits a target.
  - No dps gain
- Decreases cooldown of Roundhouse Kick by 15%.
  - ~3-3.5% dps gain
- Increases damage of Piledriver by 12%.
  - ~1.5% dps gain
- Increases damage of Ground Pounder by 10%.
  - ~1.5% dps gain
- Generates 2% Rage when Rampage hits a target.
  - No dps gain
- Doubles the chance to crit when using Meat Grinder.
  - No dps gain
- Reduces Rage cost of Invigorating Rage by 600.
  - No dps gain

The two viable options for top-line are Jackhammer damage and Roundhouse Kick cooldown reduction. Using the RHK CDR line requires a high priority of RHK usage within your rotation in order to utilise the lower cooldown. The RHK CDR line when used optimally is ~0.5% dps increase over the Jackhammer damage line as well as providing greater QoL. Using the RHK CDR line means that the glyph of opportunity on Piledriver to reset RHK CD is worthless, hence 3 glyph points are saved.

The choices for bottom line are:

- Decreases damage taken by 6%.
- Recovers 0.4% of total HP when skill hits target.
- Decreases damage taken while knocked down by 6.9%.
- Decreases damage taken from frontal attacks by 6.9%.
- Decreases damage from enraged monsters by 10%.
- Decreases damage by 8.7% from the monster with the most aggro toward you.
- Healing skills affecting you increase by 6%.
- Recovers 1.2% of total HP every 5 seconds.
- Raises max HP by 8%.
- Reflects 7.2% of damage to the attacker.
- 0.3% chance to recover HP when combat starts.

All damage taken lines stack additively. Hence it is beneficial to use every possible damage taken line as there is already 34% damage reduction from using Hardy Dyads. Therefore, you should take the enrage/aggro/frontal/flat damage taken reduction lines.

## GLOVES

The options for gloves are:

- Increases Power by 5.
- Increases your healing skills by 6%.
- Increases Crit Factor by 9.
- Recovers 0.2% of total HP when skill hits target.
- Replenishes 1% of total MP every 5 seconds.
- Increases Attack Speed by 2.25%.
- Increases Endurance by 4.

Power, crit factor and attack speed lines should be used as these are the only options that increase dps.

## BOOTS

The options for boots are:

- Increases Endurance by 4.
- Increases resistance to knockdown and stagger from boss attacks by 35%.
- Increases Movement Speed by 6%.
- Recovers 0.6% of total HP every 5 seconds.
- Increases Balance Factor by 10.
- Replenishes 2% of total MP every 5 seconds.
- Decreases duration of slowing effects by 0.76.

Of these options, endurance is the only ones that increases tankiness and so is mandatory. Movement speed is also useful and mandatory. The third line is personal preference – HP regen should not be taken if you want to slay. Personally, I would recommend mana regen in PvE, as resistance to knockdown/stagger and slow reduction are both rarely useful in PvE

## ACCESORIES

### Circlet

This can be rolled for 8 crit factor or 4 power as required.

### Brooch

Marrow Brooch is the BiS brooch which is obtainable from phase 4 of Harrowhold. If you are unable to obtain it, the next best is a Quatrefoil Brooch. If that is also unattainable, it is better to use an Empowered Brooch rather than a Quickcarve Brooch. The optimal rolls on brooch are 6 crit factor and 3 power.

### Belt

The BiS belt is Stormcry and should be rolled for 6 crit factor and 3 power.

## Jewellery

As power earrings have a slightly more efficient power : crit factor ratio than the other jewellery pieces, it is optimal to use two power earrings. The rest (necklace and rings) can either be crit or power as necessary. The optimal rolls on earrings are 4% HP and 4 endurance, necklace is 4 power, rings are 4 power and either 4 crit factor or 2 power as required.

## Innerwear

BiS innerwear is 24 crit factor or 12 power.

Note when optimising crit factor and power for different party compositions (solo priest/mystic or duo heal) that the following all have a 2:1 crit factor to power ratio and are relatively cheap to have multiple versions of: vyrsks, circlet.

## DRAGONS/PHOENIXES

There are two passive skills available from dragon/phoenix mounts that have a 10% chance on hitting a critical hit to grant a buff of 1.0 (common) or 2.0 (superior) crit power for 6s (60s cooldown). The 2.0 buff overwrites the 1.0 buff if already active, and the 1.0 buff cannot activate while the 2.0 buff is active. To min-max, a common and superior dragon/phoenix mount are both required.



## ETCHINGS

### Energetic vs Pumped vs Keen

Energetic etches are more efficient on Brawler than other classes as they already have a high amount of CDR from GF. The CDR allows utilisation of the attack speed by reducing cooldown lock (having all skills on cooldown at the same time). However, Brawlers scale poorly with attack speed as Jackhammer and Piledriver do not scale with attack speed. The value of each energetic is 2.35% and 2.27% respectively.

A BiS Brawler reaches ~430 total power when fully buffed in GF. Hence 12 power from each pumped etch grants ~2.26% and ~2.21% dps respectively.

Pumped etches offer a better exchange ratio of power compared to other gearing options, 12 : 22 is better than the 1:2 offered by accessory crystals, necklace, circlet and inners. Hence Pumped etches are always better than Keen etches.

Hence, Brawlers should always use Energetic weapon and glove etchings.

### Relentless vs Grounded

Block value is a flat amount (~80k in Stormcry) which scales with endurance but not bonus HP. As Brawlers have a low base endurance of 30, their defence scales well with Grounded etchings. The 20 endurance from two Grounded IV etches in BiS gear will increase effective health by ~11%. Grounded etches are preferred for bosses that deal a lot of damage with basic attacks e.g. VSH, RK.

The 12400 HP from two Relentless IV etches in BiS gear will also increase effective health by ~11%. Relentless etches are good in situations where there is a lot of flat damage from mechanics. Recently there has been a trend for dungeons to have mechanics that deal % HP damage, making Relentless etching have a negative effect as more healing is required.

Hence, Brawlers should use Grounded armour and boot etches.

For accessory etchings either Keen or Pumped can be used as necessary.

## CRYSTALS

For weapon crystals, Focused and Wrathful are mandatory as they increase crit power by a large amount resulting in a large dps gain (~25% and ~40% respectively).

### Carving vs Pounding

Pounding crystals give ~6% dps. The diminishing nature of carving scaling means that its value is much lower than it would seem. Although most Brawler skills benefit from carving due to carving scaling with crit glyphs, its value is greatly diminished as both Counterpunch and Haymaker have ~100% crit chance. At ~300 crit factor, Carving is worth ~4% dps. Hence Brawlers should use two Pounding weapon crystals.

With weapon dyads, Poised secondary effects are very powerful due to the additive nature of damage reduction, especially on bosses with high enrage uptime e.g. Vergos Phase 4. Relentless weapon crystals provide flat HP and are a reasonable alternative.

For armour crystals, it is mandatory to use four Hardy crystals due to how damage reduction is additive. If the boss has 100% enrage uptime e.g. Vergos Phase 4, one of the Hardy crystals may be replaced with a Poised. For armour dyad secondary effects, Brutal is the only one that increases damage, however this is rarely utilised as few bosses can be knocked down.

For accessory crystals, Keen vyrsks (6 crit factor) or Power vyrsks (3 power) should be used.

# CONSUMABLES

## NOSTRUM

Mandatory. Large amount of crit power, power, cooldown reduction and mana regeneration.

## BRAVERY VS CANEPHORA

In general, it is better to use Canephora rather than Bravery on Brawler as the attack speed from Bravery does not increase dps due to cooldown lock. If a Strong Canephora is available, it should be used.

## LAMB BULGOGI

Grants 20 crit factor and 3 attack speed. If this is not affordable, Floretta Soup (10 crit factor) can be used.

## NOCTENIUM

Noctenium Infusions increase damage by 4-9%. Noctenium Elixir (blue noctenium) is more expensive to use, but increases damage by 4-20%.

Due to a bug with the way Noctenium Infusion data is handled (your inventory is refreshed every time one is used by a skill), it is not recommended to use Noctenium Infusions unless you have a good internet connection (e.g. fibre). As Noctenium Elixirs grant a buff and are not actively consumed in the same way they are not affected by this bug.

## ROOT BEER

Increases attack speed by 20 for 10 seconds. This is useful in burns, especially at the start of the fight when none of your abilities are on cooldown.

## GLYPHS

The table below shows all of the main glyphs (assuming all highest tier glyphs are unlocked), and the dps gains from each glyph relative to the points invested. The dps gain from use of Ardent (rage generation) glyphs is difficult to quantify, and is discussed in the section Rage Generation.

Skill	Glyph	Points	Effect	Dps gain	Dps gain/point
Roundhouse Kick	Energetic	3	25% CDR	3%	1%
	Powerlinked	2	15% damage 3s	8%	4%
Haymaker	Persistent	4	20% reset	6%	1.5%
	Empowered	4	25% damage	6%	1.5%
	Carving	4	Triple crit	5%	1.25%
Piledriver	Opportunistic	3	60% RHK reset	2%	0.66%
	Ardent	1	Increased rage	-	-
	Empowered	3	25% damage	3%	1%
Jackhammer	Empowered	3	25% damage	6%	2%
	Carving	3	Double crit	9%	3%
	Ardent	2	Increased rage	-	-
Ground Pounder	Energetic	4	20% CDR	3%	0.75%
	Ardent	1	Increased rage	-	-
	Empowered	4	30% damage	3%	0.75%
	Carving	4	Triple crit	7%	1.75%
Counterpunch	Energetic	3	25% CDR	3%	1%*
	Empowered	3	30% damage	3%	1%*
Counter	Powerlinked	3	30% of 50% damage 6s	0-10%	0-3.33%**
Growing Fury	Pumped	4	25 power	5%	1.25%

\*Assuming Counterpunch is always available






\*\* Depending on perfect block availability

Based on this information, these glyphs are mandatory:



 Ground Pounder	 <b>(4) Energetic Ground Pounder</b>	[Lv28] - Decrease cooldown by 20%.
	 <b>(4) Empowered Ground Pounder</b>	[Lv58] - Increases skill damage by 30%.
	 <b>(4) Carving Ground Pounder</b>	[Lv65] - Triples the chance to crit.
 Haymaker	 <b>(4) Persistent Haymaker</b>	[Lv32] - 20% chance to eliminate cooldown.
	 <b>(4) Empowered Haymaker</b>	[Lv58] - Increases skill damage by 25%.
	 <b>(4) Carving Haymaker</b>	[Lv65] - Triples the chance to crit.
 Roundhouse Kick	 <b>(3) Energetic Roundhouse Kick</b>	[Lv58] - Decrease cooldown by 25%.
	 <b>(2) Powerlinked Roundhouse Kick</b>	[Lv65] - Increases all skill damage by 15% for 3 seconds after a successful hit.
 Piledriver	 <b>(3) Empowered Piledriver</b>	[Lv58] - Increases skill damage by 25%.
 Jackhammer	 <b>(3) Empowered Jackhammer</b>	[Lv58] - Increases skill damage by 25%.
	 <b>(3) Carving Jackhammer</b>	[Lv58] - Doubles the chance to crit.
	 <b>(2) Ardent Jackhammer</b>	[Lv58] - Generates an additional 1% Rage per successful hit.
 Growing Fury	 <b>(4) Pumped Growing Fury</b>	[Lv36] - Increases power by 25 during the duration of effect.

The remaining glyph points are quite flexible depending on situation.

These glyphs are recommended on bosses that attack frequently:

 Counter	 <b>(3) Powerlinked Counter</b>	[Lv24] - Increases all skill damage by 50% for 6 seconds after Perfect Defense.
 Counterpunch	 <b>(3) Energetic Counterpunch</b>	[Lv58] - Decrease cooldown by 25%.
	 <b>(3) Empowered Counterpunch</b>	[Lv58] - Increase skill damage by 30%.

These glyphs are recommended if you have difficulty maintaining GF or the boss attacks infrequently:

 Ground Pounder	 <b>(1) Ardent Ground Pounder</b>	[Lv58] - Generates an additional 3% Rage per successful hit.
 Piledriver	 <b>(1) Ardent Piledriver</b>	[Lv58] - Generates an additional 2% Rage per successful hit.

## OPTIONAL GLYPHS

- Opportunistic Piledriver can be used with Jackhammer damage chestline.
  - This glyph has a ~0% dps increase when Roundhouse Kick cooldown chest line is used.

- Energetic Bull Rush is recommended for fights that require a lot of mobility e.g. Vergos Phase 3 or Manaya.
- Threatening Growing Fury can be used if you are still having difficulty holding aggro even with a Threatening weapon crystal.
- Energetic Quick Dash can be used if you are struggling with iframe availability or are not yet comfortable with content.

## RAGE GENERATION

The table below shows the amount of rage generated by each skill, with and without ardent glyphs if present. Note that the queued animation time is used in this table.

Skill	Rage	Cast time	Rage/s
Roundhouse Kick	100	0.33	303
Haymaker	450	1.19	378
Piledriver	200	1.2	167
Piledriver (Ardent)	440	1.2	367
Jackhammer	280	1.17	239
Jackhammer (Ardent)	520	1.17	444
Ground Pounder	300	1.70	176
Ground Pounder (Ardent)	570	1.70	335
Flip Kick	150	0.70	214
Counterpunch	negligible	0.89	0

During Growing Fury, rage is lost at 250/s. Almost all skills provide more than 250/s, hence it should be simple to maintain Growing Fury as long as you are actively hitting the boss with skills. While most bosses have mechanics which temporarily require you to iframe/stop attacking, it takes 12s for the full 3000 rage to deplete which is longer than any of these mechanics. Even then it is possible to maintain rage by hitting any available targets e.g. mobs/pylons etc.

Perfect blocks grant 200 rage, hence it is much easier to maintain Growing Fury on bosses that attack more frequently.

Some abilities also have long ranges, which allows continued skill usage even when it is not possible to stand directly next to the boss (e.g. Lakan entering soul world). Ground Pounder has a huge range of >10m and Jackhammer has a range of ~8m (however it does move you forwards 2-3 metres).

The ardent glyph on Jackhammer is mandatory for maintaining Growing Fury. However, the ardent glyph on Ground Pounder is generally unnecessary due to GP's long cooldown. If you are comfortable with perfect blocking and constantly using skills the ardent glyph on Piledriver can also be removed.

The ardent glyphs increase rage per hit, hence if you are hitting multiple targets the rage increase is much greater than stated above.

# BRAWLER ANIMATIONS



Brawler skill animations are composed of three phases: Windup, Attack and Backswing.

- The windup is the initial animation before the skill hits, and if the skill is cancelled at this point it will not go on cooldown, but it is still possible to perfect block with it.
- The attack is the animation where the skill first hits the boss till it last hits the boss. For single-hit skills this is very short/instant.
- The backswing is composed of three sections: ping-lock backswing, skill-lock backswing and move-lock backswing.
  - During the skill-lock backswing it is possible to use animation cancels to end the skill animation, however it is not possible to cast non-animation cancels and/or move.
  - During the move-lock backswing, the skill animation can be cancelled by using any ability, however it is not possible to move.
  - Ping-lock backswing occurs between skill-lock and move-lock backswing, and is effectively an extension of skill-lock backswing equal to your ping.  
Throughout this guide it is assumed that ping is 0ms. The effect of ping is discussed in its own section.

The table below shows the durations of each of these phases of Brawler animations.

Skill	Anim Lock	Windup	Attack	Skill-lock	Move-lock	Scales with AS
Roundhouse Kick	0.20	0.27	0.27	0.45	0.86	Y
Haymaker	0.50	1.30	1.30	1.60	2.85	Y
Piledriver	0.50	0.16	0.90	1.20	1.95	N
Jackhammer	0.20	0.42	1.17	0.75	1.54	N
Ground Pounder	1.00	0.53	2.10	2.30	3.23	Y
Flip Kick	0.50	0.64	0.64	0.95	2.05	Y
Counterpunch	0.50	0.27	0.97	1.20	1.85	Y
Counter	0.30	0.55	0.55	1.00	1.20	N



The number shown is the time (in seconds) during the entire animation each phase ends.  
The times shown are for +10 attack speed.

Animation lock is the period of time from when a skill is first cast that it cannot be cancelled by any skill regardless of animation priority. It is independent of the animation phases.

A fully geared/buffed Brawler has +35 attack speed. With this attack speed, the animation times (in seconds) are:

Skill	Windup	Attack	Skill-lock	Move-lock
Roundhouse Kick	0.20	0.20	0.33	0.64
Haymaker	0.96	0.96	1.19	2.11
Piledriver	0.16	0.90	1.20	1.95
Jackhammer	0.42	1.17	0.75	1.54
Ground Pounder	0.39	1.56	1.70	2.39
Flip Kick	0.47	0.47	0.70	1.52
Counterpunch	0.20	0.72	0.89	1.37

## SKILL QUEUEING

Unlike most classes, Brawler skills feature innate skill queueing. If another skill (that isn't a high animation priority skill) is pressed during the cast animation of a skill, it will be queued and automatically cast at the start of the move-lock phase of the backswing. Note that skill queueing is client-sided.

## ANIMATION CANCELLING

Brawler skills have an innate animation priority. This allows higher animation priority skills to cancel the animations of other skills. This is useful as it allows time to be saved in the skill-lock backswing animations of skills. The animation priority tiers are as follows:

- No priority
  - Movement (W, A, S, D)
- Low priority:
  - Haymaker
  - Flip Kick
  - Piledriver
  - Jackhammer
  - Punch
- High priority:
  - Counter
  - Ground Pounder
  - Roundhouse Kick
  - Counterpunch
  - Quick Dash
  - Bull Rush

High animation priority skills can cancel all skills at any point, even during the windup. Medium animation priority skills can cancel the skill-lock backswing, while low animation priority skills can cancel move-lock backswing. Skills with no animation priority cannot be used until the full animation of the previous skill has ended.

Note that skills cannot be cancelled during animation lock, regardless of animation priority.








Note that Jackhammer's skill-lock ends **before** the attack animation ends. Hence any skill can be used to cancel the last two hits of Jackhammer. However, you should never normally cancel Jackhammer before the 8<sup>th</sup> hit as this is a big dps loss.








## SKILL PRIORITY

When considering skill priority, it is necessary to consider three factors: skill damage, total cooldown, and cast time. Total cooldown is the sum of cooldown delay (delay between skill beginning to cast and going on cooldown) and the skill's cooldown as calculated by the formula. Skill damage takes into account crit chance and all skill-specific damage modifiers. Cast time used is the queued cast time.

This table considers which skill in any pair would have priority depending on the order of the two skills.

		First Skill							
Second Skill		RHK	HM	PD	JH	GP	FK	CP	
	Roundhouse Kick		1.38	0.92	1.58	0.72	0.21	1.12	
	Haymaker	0.84		2.75	4.75	2.17	0.64	3.35	
	Piledriver	0.81	3.99		4.57	2.09	0.62	3.22	
	Jackhammer	0.69	3.38	2.24		1.77	0.52	2.73	
	Ground Pounder	1.06	5.22	3.46	5.98		0.81	4.22	
	Flip Kick	0.62	3.07	2.04	3.52	1.61		2.48	
	Counterpunch	0.81	3.99	2.65	4.57	2.09	0.62		

Hence the skill priority is  >  >  >  >  >  > . However, this does not take into account Roundhouse Kick's damage buff, which places it above Counterpunch.

This results in a priority of  >  >  >  >  >  >  at 100% boss HP.

## HAYMAKER BLOODLUST

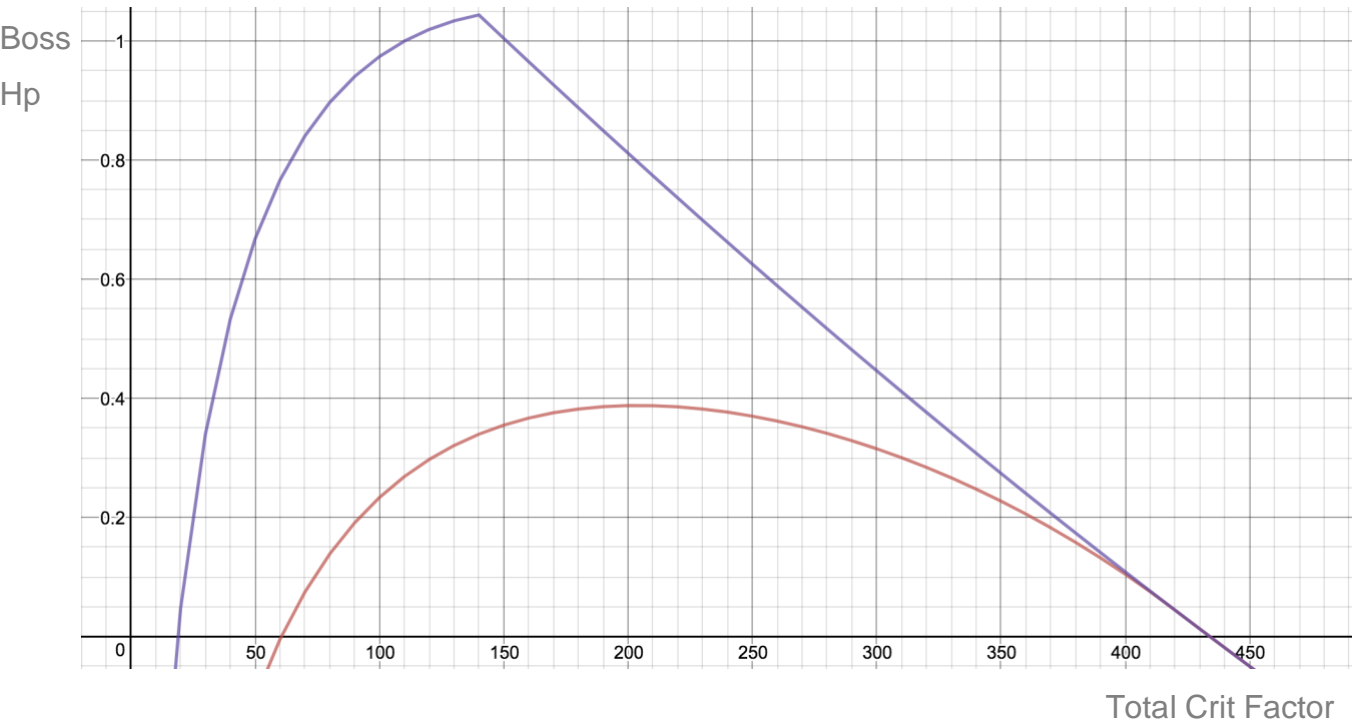
Haymaker and Jackhammer are the two highest priority skills by a significant margin.

However, the damage dealt by Haymaker changes drastically over the course of a fight due to bloodlust (increased damage the lower the boss HP). The table below shows the damage increase on Haymaker depending on the boss HP.

Boss HP/%		
Lower Bound	Upper Bound	Damage Increase/%
0	4	78
5	9	74
10	14	70
15	19	66
20	24	62
25	29	58
30	34	54
35	39	50
40	44	46
45	49	42
50	54	36
55	59	32
60	64	28
65	69	24
70	74	20
75	79	16
80	84	12
85	89	8
90	94	4
95	100	0

In addition to bloodlust, the priority of Jackhammer against Haymaker depends on the total crit factor. The graph shows the crit factor (x) at which Jackhammer and Haymaker have the same priority depending on boss HP (y). Above the line Jackhammer has a higher priority

than Haymaker, while below the line Haymaker has a higher priority than Jackhammer. The red line represents unglyphed Haymaker and the purple line represents glyphed Haymaker.



A BiS Brawler will have 270-300 crit factor, so the breakpoint is ~50% boss HP.

## DELAYING SKILLS

If a higher priority skill has a short time remaining on its cooldown, it may be worth waiting for the skill to be available rather than immediately casting a lower priority skill. This depends on the remaining cooldown and the cast time of the skills available.

While there are many intervals where a fractional delay is optimal, it is unrealistic to be able to calculate or remember the correct delay intervals for every possible scenario. In practice, this is also unrealistic as delays between skills results in loss of frontal block and leaves opportunities for the boss to hit you.

The main scenarios where delaying is optimal are with Ground Pounder and Flip Kick:

If Jackhammer or Haymaker have less than 1 second remaining on cooldown, Ground Pounder should be delayed unless there are no other skills available.

If any skill has less than 0.5s remaining on cooldown, Flip Kick should be delayed.

## CANCELLING SKILLS

Is it worth cancelling a skill with a higher animation priority skill in order to use a higher rotation priority skill sooner? The short answer is no. Especially make sure **never** to accidentally cancel the last few hits of Jackhammer by button mashing as this is a large damage loss. Haymaker is special as it has a chance to reset, and so is considered separately.

## HAYMAKER CANCELLING

From the skill information tables, Haymaker has a base 1.3 second cooldown delay (0.96 seconds at +35 attack speed). The Persistent Haymaker glyph (20% chance to reset) procs on cast, and not when the skill goes on cooldown. Hence there is a large window after cast during which Haymaker can be cancelled by a high animation priority skill without going on cooldown. If the combat log is kept open, it is possible to react instantly to a Haymaker reset opportunity allowing cancelling if Haymaker does not reset. However, this is not completely instant due to animation lock.

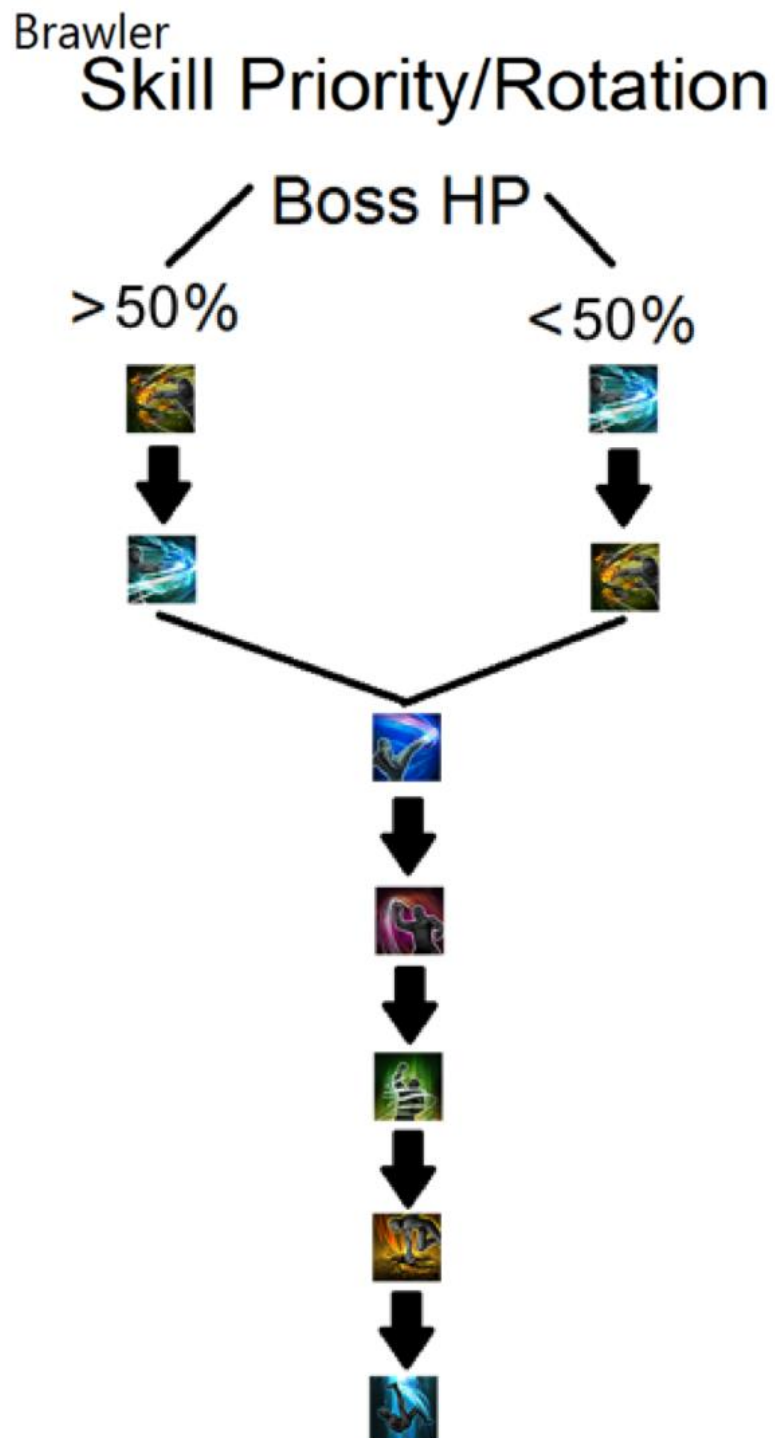
As this delays Haymaker hitting, the only skills that can normally be used to cancel Haymaker for a damage gain are Roundhouse Kick and Counterpunch. This should only be done if there is no perfect block opportunity for the Haymaker. The only other scenario where there is a damage increase is if there is a perfect block opportunity after the perfect block window for Haymaker but before it hits. At this point, it is viable to cancel it with Counter to attempt to proc the glyph. Efficient use of Haymaker cancelling can be up to a 5% dps increase when used in the correct situations (e.g. LK second boss piano attack.).

To summarise:

- If Haymaker resets **do not cancel**
- If Haymaker perfect block opportunity **do not cancel**
- If Haymaker does not reset and no immediate perfect block opportunity
  - Immediately cancel with Roundhouse Kick if available
  - Immediately cancel with Counterpunch if available
  - If perfect block opportunity after perfect block window, cancel with Counter

## FINAL PRIORITY

Considering all the factors results in the skill priority shown below. The order of Jackhammer and Haymaker depends on boss HP, the breakpoint for which is ~50% in BiS gear.
















## SIMPLE ROTATION

While the skill priority above is optimal to achieve the maximal possible dps, it can be quite difficult to flawlessly maintain the skill priority throughout a fight, especially reacting to resets, animation cancelling and adjusting skill priority during the fight (due to Haymaker Bloodlust and variable Counterpunch availability). It is possible to gear in a way that allows a simple rotation that is very easy to maintain and uses the main skills off cooldown. Due to the loss of efficiency it is only 90-95% of optimal dps, however it is recommended for new Brawlers and/or in new dungeons to allow focus on other aspects of gameplay, such as survival and tanking, without having to worry about skill priority.

The core requirement of the simple rotation is the use of **RHK cooldown reduction** chest line. This reduces RHK cooldown to sync with Jackhammer cooldown. The rotation is:

1.  >  >  >
  - If Haymaker resets, repeat 1.
  - If Counterpunch is available use 2.
  - Otherwise use 3.

2.  >  >  >  > 1

3.  >  >  >  > 1

Ground Pounder is saved for perfect blocking or to keep dealing damage if you are away from the boss thanks to its large range.

## NON-SANDBAG BOSSES

The majority of the calculations in this guide are based around a sandbag boss – a boss that does not move, turn, attack or disrupt skill usage in any way. Real bosses are not sandbags, and as such it is unrealistic to have a 100% damage uptime on a boss due to having to iframe attacks, reposition and do mechanics. Bosses that attack also offer block opportunities, which are important for maximising damage through reflects and counter perfect block glyph procs as covered in the next few sections.

Cooldown reduction loses some value on non-sandbag bosses due to unavoidable delays on using skills due to boss attacks/mechanics. However, this is minor as all skills are proportionally affected by this.

Perfect blocks are a damage increase depending on how active the boss is. Nightmare RK-9 (EM) attacks on average once every 3 seconds resulting in a 10-15% damage increase. On hyperactive bosses, e.g. LKH second boss, perfect blocks can be more than 20% damage increase.

Perfect blocks also grant 200 rage. So, while damage uptime is lower on non-sandbags, if you are perfect blocking it is much easier to maintain Growing Fury on a non-sandbag.

## PERFECT BLOCK

When a Brawler blocks an attack within 0.5 seconds of beginning to block with a skill or Counter, it is counted as a perfect block (indicated by the gold perfect block icon as opposed to the normal blue block icon). Perfect blocking results in a gain of 200 rage, as well as reflecting a portion of the skill used to block's damage to the boss. This reflected damage is guaranteed to crit and is 40% of the arbitrary skill damage (shown in tooltips). As the arbitrary damage is a poor representation for multi-hit skills, the reflected damage relative to the total scaled base damage is shown in the table below:

Skill	Base Damage	Reflect Relative Damage	Scaled Reflect Base Damage
Roundhouse Kick	1.00	0.40	0.40
Haymaker	2.24	0.40	0.90
Piledriver	2.82	0.20	0.56
Jackhammer	3.18	0.17	0.53
Ground Pounder	4.30	0.24	1.03
Flip Kick	1.31	0.40	0.52
Counterpunch	2.21	0.25	0.55
Counter	0.33	0.40	0.13

Note that perfect block reflect damage does scale with skill damage glyphs and bloodlust where applicable.

Hence, when there is an opportunity to perfect block, it is preferable to use Haymaker or Ground Pounder to maximise the reflected damage. Ground Pounder reflect has a higher base damage than Haymaker, however the Haymaker reflect is larger below 80% boss HP due to bloodlust. Despite this it is still preferable use Haymaker rather than Ground Pounder at any boss HP, as delaying Haymaker by Ground Pounder cast duration is a greater damage loss than the gain from the reflect, even if it is a multi-reflect. If neither of these skills are available, it is not recommended to disrupt skill priority in order to get perfect blocks.

## PERFECT BLOCKING WITH COUNTER

Counter has a glyph 'Powerlinked Counter'. This gives a 30% chance to gain a buff of 50% damage for 6 seconds when perfect blocking with Counter. Counter has a cast time of ~0.8s (much slower than the blocks of other tanking classes), and has a low base damage. Hence, it's dps value is mainly in the glyph proc. In order to maximise dps, it is recommended to insert perfect blocking with counter into your skill priority. Only do this once you are comfortable with reading the boss' attack patterns, as the timing is crucial to get perfect blocks (non-perfect blocks with counter are a massive dps loss). Never try to proc the glyph while it is still active as that is also a massive dps loss.

The value of a Perfect Block with Counter is:

$$\text{Value} = 30\% \text{ proc chance} \cdot 50\% \text{ damage} = 15\% \text{ damage for 6 seconds}$$

While this may seem good compared to Roundhouse Kick which has a damage buff of 15% for 3 seconds, remember that this is at the cost of a perfect block reflect from a damaging skill, and that Roundhouse Kick has a shorter animation and does more damage than Counter.

Counter perfect block is only a dps increase over perfect blocking with Flip Kick, Roundhouse Kick or Piledriver for single-hit boss attacks. For multi-hit attacks, it is always better to use an offensive skill as additional glyph procs are wasted.

Skill	Anim Priority	Anim Lock	Skill-lock	Move-lock	Scales with AS
Counter	High	0.3	1	1.2	N
Punch + Counter	Low	0.0 + 0.3	0.50	1.0	Y

Note that in Growing Fury, Counter begins blocking from when it is pressed and so can Perfect Block instantly. If an animation cancel is available, it can be used to cancel Counter instantly after a Perfect Block (after animation lock), greatly increasing Counter's value.

Note that Punch + Counter (Punch has no animation lock and can be instantly chained into Counter) can also be used to perfect block an attack to proc this glyph. As Punch is a low

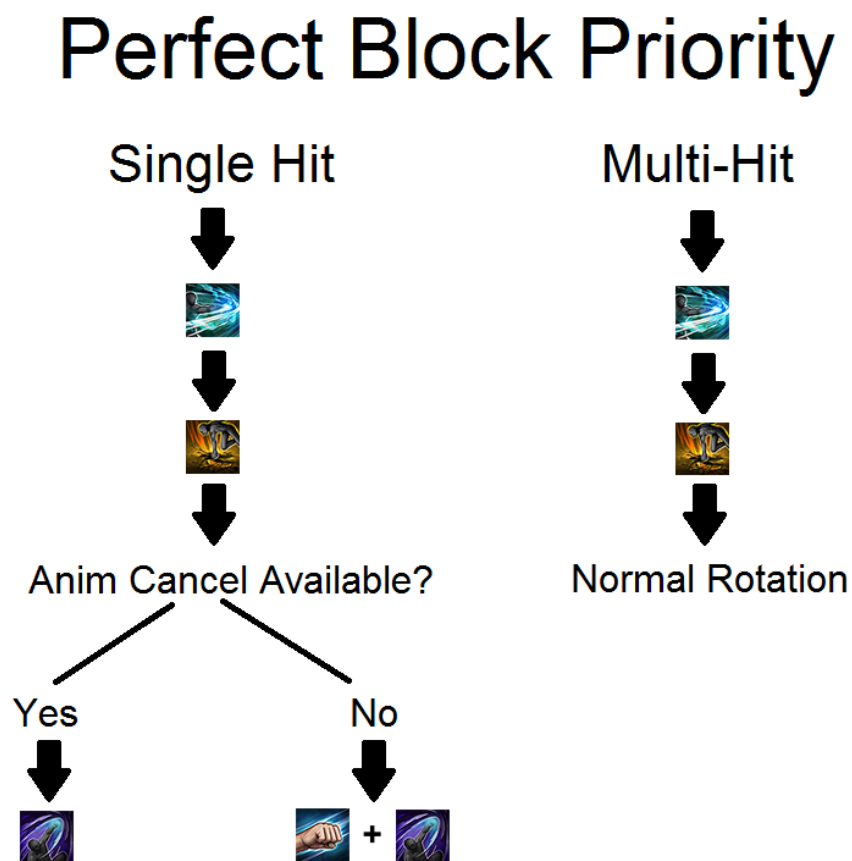
animation priority skill, 0-0.3s is lost using this rather than just Counter, depending on the previous skill. However, the skill-lock of Punch + Counter is much shorter, so it is better to use this if an animation cancel is not available.

Hence, Counter perfect block should only be used in the following scenario:

- Buff not already active
- Single hit boss attack
- HM, GP on cooldown
  - If animation cancel available use Counter
  - If no animation cancel available, use Punch + Counter

In fights where the boss attacks frequently this can be a dps increase of up to 10%

The perfect block priority is summarised below.



## DELAYING SKILLS TO PERFECT BLOCK

If you become familiar with a boss' attack patterns, it is possible to predict perfect block opportunities well in advance. If there is a perfect block opportunity soon, is it worth delaying using skills with big reflects (Haymaker or Ground Pounder) in order to get those reflects? This depends on the time until the block opportunity, the number of opportunities (single/multi-hit attack) and which skills are available.

If there is a block opportunity immediately within the next 0.5 seconds (the length of the perfect block window), the skill priority is as previously mentioned. If the opportunity is further away, the damage lost from delaying using a skill must be compared with the damage gained from the increased reflect damage. Only two scenarios (Haymaker and Ground Pounder) need to be considered as the reflect damages of all other skills are roughly equal.

If both Haymaker and Ground Pounder are available, it is only worth delaying Haymaker for up to 0.6 seconds for a single-hit reflect, otherwise Ground Pounder should be used to perfect block instead. For a multi-hit reflect the 0.6 seconds is multiplied by the number of reflect opportunities (e.g. 1.8 seconds for a triple reflect). Delaying Haymaker any further is a damage loss.

If Haymaker is available but Ground Pounder is not, it is worth delaying up to 1.1 seconds per perfect block opportunity if there are other skills available to use meanwhile. If Haymaker is the only skill off cooldown it should not be delayed.

If Ground Pounder is available but Haymaker is not, it is worth delaying up to 2.4 seconds per perfect block opportunity if there are other skills available to use meanwhile. If Ground Pounder is the only skill off cooldown it should not be delayed.

## CANCELLING SKILLS TO PERFECT BLOCK

Perfect blocks only occur in the first 0.5 seconds after a skill is cast, hence if an attack hits after this period a perfect block opportunity is wasted. Is it worth cancelling skills early to perfect block with another ability? If the previous skill is Jackhammer, any skill can be used to cancel it. With any other skill, a high animation priority skill must be used to cancel it. The only high animation priority skills worth perfect blocking with are Ground Pounder and Counter.

To calculate whether it is worth cancelling, the damage lost from cancelling the skill early is compared with the damage gained from perfect blocking.

For the Jackhammer scenario, it is possible to cancel the last few hits of Jackhammer to perfect block with any other ability. Only do this if the perfect block opportunity would have been after the perfect block window of Jackhammer as cancelling Jackhammer hits in any other scenario is a huge damage loss.

For other skills, it is almost always better to finish the skill animation and deal damage rather than cancel it with Ground Pounder or Counter. The only exception to this is Flip Kick.

Hence you should only cancel a skill to perfect block if the opportunity is within the last two hits of Jackhammer or if the skill cancelled is Flip Kick.

A special scenario where cancelling Haymaker with Counter if there is a perfect block opportunity after the perfect block window of Haymaker is a damage increase, and is discussed in the section on Haymaker cancelling

# EFFECT OF PING

## SKILL DELAY

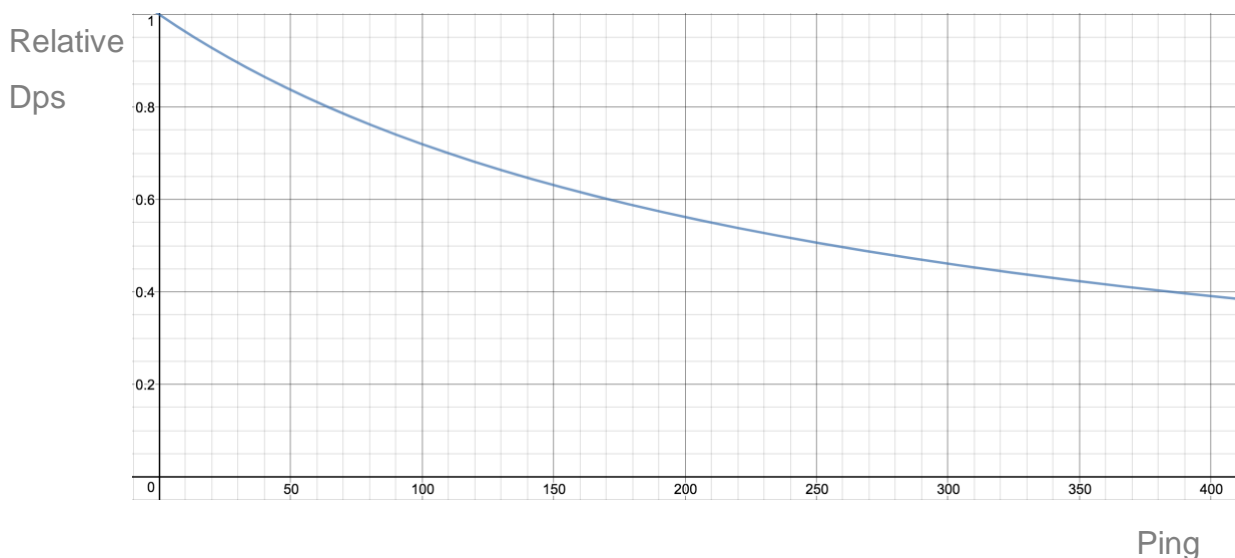
Tera is an action combat MMO, and as such your ping to the game servers has a large effect on your dps. Ping is measured in milliseconds (ms). There is a delay equal to ping before the cooldown packet reaches the client from the server, increasing all cooldowns by a value equal to ping.

Brawler has skill queueing for all skills where if a skill is used during the animation of another skill, it will be cast next. However, there is still a delay equal to ping, known as ping-lock backswing, before the next skill begins to cast. The use of animation cancelling can negate part of the ping delay, as a high animation priority skill can be pressed earlier (ping delay) in order to cancel the previous skill at the desired time. This occurs approximately half the time when casting a skill. Hence the average ping delay on skill cast is 0.5x ping.

Brawlers use approximately 1.3 skills per second. Combined, there is a total delay of 1.5x ping between each skill, and a delay of 1.95x ping every second. While this slightly overestimates the effect of ping as fewer filler skills would be used in a high ping rotation, it is still relatively accurate. This can be modelled by the equation:

$$Dps\ dealt\ at\ ping = \frac{1}{1 + (1.95 * ping)}$$

This is shown in the graph below of fraction of dps dealt (y) against ping (x):





For example, at ~200 ping a Brawler would be expected to do ~55% of a 0 ping Brawler's dps.

## DESYNC

Desync occurs when there is a mismatch between the client's and server's information on player location due to ping when using any skill that moves the player. Hence desync is worse the higher your ping. The main skills that desync are Haymaker and Bull Rush.

Bull Rush often desyncs due to the large travel distance. It can rubber-band, teleporting the player back to the server's perceived location, leading to death if used as a mobility skill during boss mechanics.

Above 100 ping, Haymaker will often noticeably move your character's hitbox through the boss. This commonly results in the boss turning to face your perceived location, reducing back-time for dps and forcing them to reposition. The desync can also cause boss attacks to hit 'through' the frontal block effect of GF, or cause you to get hit by attacks 'behind' the boss.

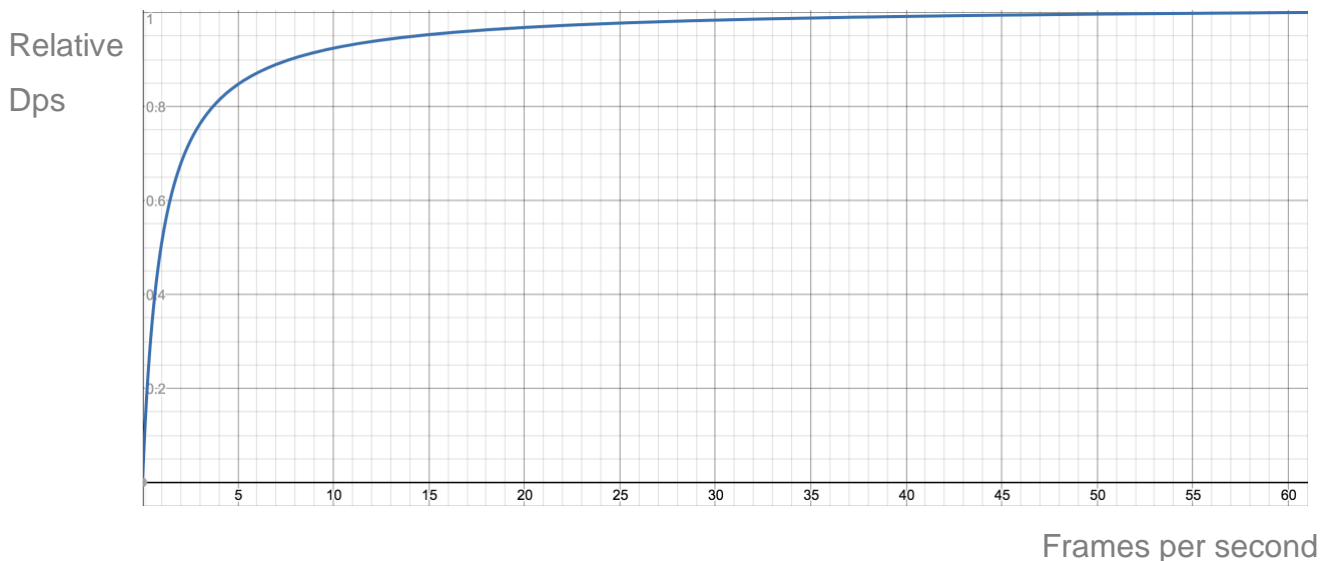
Above 150 ping, Piledriver and Roundhouse Kick will experience the same desyncs as 100 ping Haymaker. Also Haymaker will occasionally teleport you all the way through the boss.

It is possible to play around desync by avoiding using skills that are prone to desync during attacks that are likely to kill you if you desync, however this will result in a large dps loss and difficulty in maintaining GF.

## EFFECT OF FPS

Tera has a one frame input delay. Hence the input delay scales inversely with fps:

$$\text{Input Delay} = \frac{1}{\text{fps}}$$



The graph shows how dps (y) scales with fps (x):

Skill queueing is affected by both ping and fps, while animation cancelling is only affected by fps not ping. Overall, Brawler is moderately affected by both ping and fps.

## SCREEN SHAKE

Some Brawler skills, most notably Haymaker and Ground Pounder, have skill animations that include shaking the screen. This can be disabled in the options menu.

Unless you have a high-end pc that allows you to have constant high fps, it is recommended to disable screen shake. Fps drops due to screen shake will result in input delay, which will impair your ability to precisely animation cancel skills. This is especially important with Haymaker as accidentally cancelling the skill before it hits is a large dps loss due to the long windup. Also, if screen shake is too high it can impair your ability to notice boss attacks or mechanics resulting in reduced performance.

## BRAWLER TIPS/TRICKS

### FRONTCRITTING FROM BACK

In Tera, whether an attack hits the front/back/side of a boss is determined by the position of the character relative to the boss and the direction it is facing, as defined by the table below where  $x$  and  $y$  are the coordinates of the character relative to the boss and  $w$  is the relative direction the character faces in int32 (Brawlers face the camera direction when casting skills).

$A = w \bullet \pi / (2^{15})$	<b>Behind</b>		
$B = \arctan(y/x)$	Back Hit	Side Hit	Front Hit
<b>Left</b>	$(B - \pi/4) < A < \pi/4$	$\pi/4 < A < (B + \pi/4)$	else
<b>Right</b>	$-\pi/4 < A < (B + \pi/4)$	$(B - \pi/4) < A < -\pi/4$	else
	<b>Front</b>		
<b>Left</b>	-	$(B + 3\pi/4) < A < 3\pi/4$	else
<b>Right</b>	-	$(B - 3\pi/4) < A < -3\pi/4$	else

This effectively means that it is possible to front hit the boss from behind. This is easily achieved by turning the camera sideways, as if hitting from the side or front of the boss (while ensuring the attack still hits the boss). The attack will then front hit, benefitting from the crit power from the Wrathful crystal. Back hitting should be avoided as this is a damage loss due to lower crit power.

### SIDECRITTING FROM FRONT

Similar to above, it is also possible to side hit from front to gain the bonus crit chance from the side direction modifier. This is achieved by turning the camera sideways, as if hitting the boss from the side. This is not normally useful as attacking with this angle prevents the frontal block effect of skills from protecting you, however this is useful during mechanics such as shields where the boss does not attack you. Sidehitting from the front benefits from the increased crit chance of side hits while still having the same crit power as frontcritting.

## BULL RUSH USAGE

Bull Rush grants 50% damage reduction for its duration. It also grants frontal block while in Growing Fury. Hence, it can be used to facetank some boss attacks (only recommended for geared and experienced players).

It can also be used on the first boss of RKH to avoid being blown back by the wind mechanic.

If a controller is plugged in, it allows control of bull rush direction with arrow keys rather than camera direction which can be useful when dodging attacks/mechanics as it allows you to move towards safety instantly without having to turn the camera and also allows you to maintain vision of the boss while moving away.

## MOVEMENT

Most Brawler skills have some movement built into them, so you should never need to manually walk. The longest travelling skill is Bull Rush, which is useful for avoiding many mechanics/AoE attacks. To manoeuvre around a boss, Piledriver, Roundhouse Kick and Punches can be used depending on distance required. It is recommended not to use Quick Dash for repositioning as it is Brawler's only true iframe.

## SLAYING BRAWLER

Slaying is the term used to refer to staying under 50% HP to utilise Slaying, Furious and Resolute crystals. The Slaying crystal in particular is the main dps gain (~25% dps), as one of the Pounding weapon crystals (~6% dps) can be replaced by this. The other Pounding crystal can be replaced by a Furious weapon crystal which gives slightly more % damage.

The use of Resolute armour crystals also increases your tankiness while slaying, however their use is risky as if at any time your health is greater than 50% you effectively have no armour crystal.

Overall, slaying increases dps by ~24%, however it is difficult to setup and maintain slaying as it requires not taking damage from boss attacks (may have minimum gear requirement to not bleed through block) or boss mechanics (e.g. DoT debuffs), and not being healed above 50% as all of the benefits are lost. Coordinate with your healer before trying to slay.

## DPS BRAWLER

Brawler can be played as a dps class, if gearing changes are made. However, this is not recommended unless in a party with an experienced tank (preferably using a Threatening weapon crystal) as dps Brawler generates far more aggro than any dedicated dps class resulting in potential aggro swaps.

The gear changes required to dps with Brawler are: use of Bitter and Savage to replace Pounding and Wrathful, % behind damage and % damage on weapon to replace %highest aggro damage and 0.3 crit power, % HP on chest to replace % highest aggro.

Compared to dedicated dps classes, Brawler provides mid-tier dps. The frontal block effect of Growing Fury allows dps Brawlers to carry on using skills through boss attacks/mechanics that most other classes would have to avoid. Note that the frontal block effect of Growing Fury only applies to yourself, however skills with innate frontal block such as Counterpunch and Ground Pounder protect nearby party members. In addition, they can support the party by using Infuriate to enrage the boss for higher enrage uptime.

Compared to a tank Brawler, there are generally fewer block opportunities from behind, hence there is a dps loss due to fewer perfect blocks and reduced availability of Counterpunch. However, this is more than balanced out by the higher crit power and crit chance for backcritting. Dps brawler should do ~25% more dps than tank Brawlers.

## PARSING

The word parsing in Tera is used to mean running a dungeon to try to get a high dps. Throughout this guide, all the calculations have been to min-max the highest average dps. While this is good for average runs, parsing involves repeating the same fights multiple times and only taking the best result and as such is a function of variance within a fight. Brawler does not normally have much variance as it has no real 'burn/burst', high crit chance ~100% on Haymaker, Counterpunch and perfect blocks, and high hit numbers for Jackhammer and Piledriver. A normal approach to parsing for most classes is to use more power than normal and run several times until you achieve high crit chances. However, this is not as effective on Brawler due to their small variance (it is still good to run some extra power, but do not go below Counterpunch crit cap).

To increase the variance in a fight, Brawlers have two tools; Counter perfect block glyph procs and Haymaker cancelling. While the actual perfect block priorities do not change, it is essential to make sure that no perfect block opportunities are wasted and that Counter is timed correctly to perfect block when necessary. It is also essential to Haymaker cancel whenever possible to increase the number of possible Haymaker resets. This will maximise your variance and if the fight is repeated enough times you will eventually have runs where you get luckier than average and have a high Counter perfect block glyph uptime and many Haymaker resets resulting in a high dps

## TALENTS

Talents are a system only active in kTera that modify existing skills with special effects. The most important one for Brawler is the talent for Haymaker that reduces the remaining cooldown by 3 seconds on a critical hit. As Haymaker has a high crit chance, this effectively reduces its cooldown under 3 seconds with a cooldown reduction build making it the highest priority skill by far. There are several other talents that increase damage and reduce cooldowns on other skills but they are not as impactful. Talents overall are a 25-30% damage increase for Brawler. As talents are not active in NA/EU, Brawler is relatively much weaker than in kTera.

Talents are actually within the NA/EU client fully translated but are not activated.



## AWAKENING

Awakenings are the next major change to affect Brawler and have just been released on kTera. Awakening includes several changes to existing skills, as well as the introduction of several new skills (skill names and changes may differ in final release) and 5 extra glyph points. The changes are listed below:

### PILEDRIIVER

Gains double crit chance glyph (G=2). This glyph greatly improves Piledriver damage, actually raising it above Haymaker in the skill priority at high boss HP. The attack speed scaling of Piledriver is also fixed, greatly increasing its priority. Overall, this is a 5% dps increase.

### DIVINE WRATH

Rage cost removed (can be used during Growing Fury). This skill has a high base damage and is guaranteed to crit. However, it has a very long cast time during which you are animation locked. Using this skill during burns would result in a 2% dps increase.

### NEW: RESOUNDING UPPERCUT

A skill with a high base damage and guaranteed crit. It consists of 8 punches followed by an uppercut. It has a very long cast time, but each hit reduces skill cooldowns by 1 second and grants a short duration power and attack speed buff that stacks up to 5 times. Other skills can be used in between punches. Using this skill during burns would result in a 2% dps increase.

### NEW: FLYING KICK

This skill is a filler skill with lower base damage than Roundhouse Kick and a 15 second base cooldown. Its use is to lower Resounding Uppercut's cooldown by 10s on hit, and as a mobility skill as it travels ~10m when chained. This skill is an animation cancel similar to Roundhouse Kick.

## NEW: ONE-INCH PUNCH

Skill almost identical to haymaker with a mirrored animation, 1.5x base damage, 25 second base cooldown and negligible travel distance. It has the same high innate crit and bloodlust effect as Haymaker. Due to the lack of travel distance, this skill often fails to contact the boss and misses. Assuming this always hits, adding this skill to the skill priority results in a 5% dps increase.

## NEW: INTENSE FURY

Increases damage to monsters by 5% when above 75% rage. As this is usually possible to achieve barring long boss mechanics, this results in a 5% dps increase.

## NEW: SMOULDERING RAGE

Perfect blocks generate stacks that are consumed on the next Haymaker or One-Inch Punch to increase damage by 1% per stack. Starts at 5 stacks, with 1 stack gained per further perfect block. Assuming it is possible to perfect block before every HM and OP (unlikely), this results in a 1.5% dps increase at most.

## NEW: HAYMAKER: ACCELERATE

For 2 seconds, increases the attack speed of One-Inch Punch by 20%. Assuming this buff is up for every OP, this saves 0.2s every 14s. If the 1.4% of the rotation time is filled by lower priority skills, this results in a 1% dps gain.

Overall, Brawler awakening is likely to increase dps by 15-20%. Exact skill priority will depend on the finalised changes.

Note that with the addition of Resounding Uppercut and One-Inch Punch, both of which are effectively guaranteed to crit, Brawlers in kTera have swapped to a full power build. This will never be optimal in NA/EU due to the lack of talents, hence it is estimated kTera Brawlers will do ~30-40% more damage than NA/EU Brawlers even after all regions receive awakening.

## CONCLUSION

Brawler is a class with a low skill floor (being able to maintain Growing Fury), but a skill ceiling that is much higher than it seems. I personally enjoy Brawler as it is very fluid due to animation cancelling and reactive on non-sandbag bosses to take advantage of perfect block opportunities. It is very different to the other two tanking classes which rely on a manual block to protect them from the boss while trying to squeeze a standard rotation in between boss attacks.

I hope this guide has been enlightening in terms of both the depth of Tera theorycrafting and learning the intricacies of every skill available to Brawler.

About me – I'm PurpleHeartNep, a Brawler main on Tempest Reach since the release of Dreadspire 3. I occasionally play Gunner (my previous main) too. I'm a casual elitist; I'd rather chill and enjoy my runs but I can't resist the urge to min-max my gear and gameplay! I've been involved in the theorycrafting community, helping to make the new crit formula and spread the good news of maths. Irl, I'm a (bubble) tea-drinker that spends too much time on my laptop.



## CREDITS

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Ketoth, Roukanken – Theorycrafting information

Loriri – Translations and kTera information

The rest of the theorycrafting community – Various information