**Stat of base flat :**

$$[Base + (Mastery * Ratio)]$$

**Basic stat in % :**

$$[Base\% + (Mastery * Ratio)]$$

---

*Example with previous skills:*

*With 100 Elemental Mastery:*

*Tiwangi's Z increases damage dealt by 20% (+20% Elemental Mastery)*
*20% + (100*0.2) = 20% + 20 =* ***40%.***

*Tiwangi's R increases resistances by 50 (+20% Elemental Mastery):*
*50 + (100*0.2) = 50 + 20 =* ***70***

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# D. Calculation of damage and healing

## 1. General

To calculate the damage inflicted and taken, the following procedure is used:

- The damage done before reduction is calculated (how much damage/cure the Skill should do, modified with Mastery and raw damage/cure increases/reductions and %)
- We calculate the damage done (how much damage the skill actually does, modified by the damage increases/reductions and by the resistances)

In the formulas below, Mastery corresponds to Physical or Elemental Mastery increasing the damage/healing of the skill. The formulas are the same for Physical Mastery or Elemental Mastery.
Likewise for Resistances, the damage reduction due to the resistance only applies to damage that matches the Resistance (Physical Damage -> Physical Resistance, Elemental Damage -> Elemental Resistance).

## 2. Calculation of the damage/healing inflicted before reduction

### *a. Direct Damage/Heal*

| |
|---|
| Base = *Basic damage of the SKILL* |
| Ratio = *Skill ratio* |
| Raw damage = *Sum of Raw damage bonus/malus* |
| Damage% = *Sum of damage bonus/malus in %.* |
| Raw Healing = *Sum of Raw Healing Bonus/Malus* |
| Healing% = *Sum of healing bonus/malus in %.* |

The damage is calculated with the statistics of the unit at the time the SKILL is launched (ex: trap, dot, etc).

**Direct damage:**

$$[Base + (Mastery * Ratio) + Raw\ Damage] * (1 + Damage\%)$$

**Direct care:**

$$[Base + (Mastery * Ratio) + Raw\ Healing] * (1 + Healing\%)$$

### b. *Damage/Heal over time*

Damage is calculated using the unit's stats at the time the DOT is placed. If the unit gains any damage or Mastery bonuses after the DOT is placed, the damage of the DOT does not change.

**Damage over time (damage per tick):**

$$\left[Base + (Mastery\ *\ Ratio) + \frac{Raw\ Damage}{Dot\ duration}\right] * (1 + Damage\%)$$

**Healing over time (heal per tick):**

$$\left[Base + (Mastery\ *\ Ratio) + \frac{Raw\ Healing}{Dot\ duration}\right] * (1 + Healing\%)$$

---

*Example:*

*A Dot deals 20 damage (+20% Physical Mastery) per turn for 5 turns, the unit has 50 Physical Mastery, 50 Raw damage and 50% damage.*

*The dot inflicts each tick:*
*= ([20 + (20/100 * 50) + (50/5)] * (1 + 50%)*
*= (20 + 10 + 10) * 1.5*
*= 40 * 1.5*
*= 60*

---

## 3. Formula for calculating the damage/healing taken

### a. *Direct Damage/Healing*

| |
|---|
| Source damage = *Damage before reduction* |
| Raw damage reduction = *Sum of Raw damage reduction/increase* |
| Damage Reduction% = *Sum of damage reduction/increase in %.* |
| Healing Reduction Raw = *Sum of Healing Reduction/Increase Raw* |

Healing Reduction% = *Sum of healing reductions/increases experienced in %.*

Damage Multiplier = *Damage Multiplier (reduction or increase) due to Resistances (the formula is explained in the next part)*

**Damage suffered:**

$$(Source\ damage - Raw\ damage\ reduction) * (1 - Damage\ reduction\%) * Damage\ multiplier$$

**Healing undergone:**

$$(Source\ healing - Raw\ healing\ reduction) * (1 - Healing\ reduction\%)$$

---

*Example:*

*Iwobi attacks Krug and deals 110 damage before reduction. Krug has a 10 Raw damage reduction, a -50% damage buff, and 25 Resistance (With 25 Resistance, Resistance multiplier = 80%)*

*Krug will suffer:*
*= (110-10)*(1-50%)*(80%)*
*= 100*0.5*0.8*
*= 40*

---

b. *Damage/Heal over time*

**Damage taken over time (damage per tick):**

$$\left(Source\ damage - \frac{Raw\ damage\ reduction}{Dot\ duration}\right) * (1 - Damage\ reduction\%) * Damage\ multiplier$$

**Healing over time (healing per tick):**

$$\left(Source\ healing - \frac{Raw\ healing\ reduction}{Dot\ duration}\right) * (1 - Healing\ reduction\%)$$

---

*Example:*

*Iwobi inflicts a dowry on Krug that deals 20 damage per round before reduction for 5 rounds.*

*Krug has a 10 Raw damage reduction, a -50% damage buff, and 25 Resistance (With 25 Resistance, Resistance Multiplier = 80%).*

*Each tick will do Krug:*
*= [20 - (10/5)] * (1 - 50%) * 80%*

*= (20 - 2) * 0.5 * 0.8*
*= 18 * 0.5 * 0.8*
*= 7.2 (rounded to 7) damage*

---

## 4. Damage multiplier formula according to resistances

This formula calculates the damage multiplier to be applied to the damage taken to take into account the unit's Resistances.

Some skills or items can ignore some or all of the target's Resistances (in Raw or %). Ignore Resistance cannot lower the Resistance below 0.

| |
|---|
| Resistance = *Resistance of the unit* |
| Effective Resistance = *Resistance taken into account for damage calculation after Ignore Resistance Raw and % (only used if Resistance >= 0)* |
| Ignore Resistance Raw = *Ignore Armor in Raw* |
| Ignore Resistance% = *Ignore Armor in %.* |

**Calculation of the Effective Resistance (for Resistance) :**

The Effective Resistance is the Resistance taken into account in the calculation of the damage multiplier after taking into account the Ignore ResistanceRaw and the Ignore Resistance%. The Effective Resistance is always >= 0.

$$Effective\ resistance\ =\ (Resistance\ -\ Ignore\ Resistance\ Raw) * (1 - Ignore\ Resistance\%)$$

---

*Example:*

*Krug has 25 of physical resistance.*

*He suffers an attack that ignores 50 Resistances.*

*Its Effective Resistance is : (25 - 50) = -25, but since Effective Resistance is always >= 0, its Effective Resistance is 0.*

---

**Damage multiplier (for Resistance >= 0) :**

$$\frac{100}{100 + Effective\ Resistance}$$

---

*Example:*
*Krug has 25 physical resistance.*
*The damage multiplier is :*

*= 100/(100+25)*
*= 0.8*
*= 80%*

*Krug will take 80% of the damage he receives (20% damage reduction)*

---

If a unit has a Resistance below 0, it takes more damage. Ignore Resistance is ignored for Resistance < 0

**Damage multiplier (for Resistance < 0):**

$$2 - \frac{100}{100 - Resistance}$$

---

*Example:*
*Krug has -25 physical resistance.*

*The damage multiplier is :*
*= 2-100/(100-(-25))*
*= 1,2*
*= 120%*

*Krug will take 120% of the damage he receives (20% increase in damage taken)*

---

## 5. Complete example

Iwobi (forward):

- 40 Physical Mastery
- Buff of +20 raw damage
- Buff of +50% damage

- His A deals 100 (+50% of Physical Mastery) and puts out a Bleed dealing 20 damage (+25% of Physical Mastery) per round for 4 rounds.

Krogz (target):

- 25 Physical resistances
- Buff " Reduces damage done by 10 ".
- Buff "Reduces damage by 30%".

Iwobi launch his A on Krug.

We start by calculating the direct and dot damage at the source:

**Direct damage from Iwobi =**

$$= [Base + (Mastery * Ratio) + Raw\ Damage] * (1 + Damage\%)$$

$$= [100 + (40 * 50\%) + 20] * (1 + 50\%)$$
$$= [100 + 20 + 20] * 1.5$$
$$= 140 * 1.5$$
$$= 210\ direct\ damage$$

**Iwobi's damage over time (per tick) =**

$$= \left[Base + (Mastery\ *\ Ratio) + \frac{Raw\ damage}{Dot\ duration}\right] * (1 + Damage\%)$$
$$= \left[20 + (40\ *\ 25\%) + \frac{20}{4}\right] * (1 + 50\%)$$
$$= (20 + 10 + 5) * 1.5$$
$$= 35 * 1.5$$
$$= 52.5\ (rounded\ to\ 53)\ damage\ per\ tick$$

Iwobi deals 210 direct damage and 53 damage per tick for 4 rounds.
We then calculate the damage reductions of Krogz.

## Multiplier damage due to Physical Resistance =

$$= \frac{100}{100 + Resistance} \quad because\ Resistance > 0$$
$$= \frac{100}{100 + 25}$$
$$= \frac{100}{125}$$
$$= 0.8$$

## Direct damage taken by Krogz =

$$= (Source\ damage - Damage\ reduction\ Raw) * (1 - Damage\ reduction\%) * Damage\ multiplier$$
$$= (210 - 10) * (1 - 30\%) * 0.8$$
$$= 200 * 0.7 * 0.8$$
$$= 112\ direct\ damage$$

## Damage taken over time (per tick) by Krogz =

$$= \left(Source\ damage - \frac{Raw\ damage\ reduction}{Dot\ duration}\right) * (1 - Damage\ reduction\%) * Damage\ multiplier$$
$$= \left(53 - \frac{10}{4}\right) * (1 - 30\%) * 0.8$$
$$= (53 - 2.5) * 0.7 * 0.8$$
$$= 50.5 * 0.7 * 0.8$$
$$= 28.28\ (rounded\ to\ 28)\ damage\ per\ tick$$

Finally, as a result of Iwobi's attack, Krogz will take 112 direct damage and 28 damage per round for 4 rounds.