Physical Evade was validated & further researched in 2021. The results below are still accurate in concept, but a much deeper look was conducted.

View here:
https://docs.google.com/document/d/1yd7ifFnMqEng9b1j17ouzWEpm951utcAttH0Q_sTjwg

SMRPG Physical Evasion

Refer to:
https://docs.google.com/spreadsheets/d/1T04VwbEZ31aF7ImhGRHveoczEEXuiwBxpNuPT_D7Ifc/edit?usp=sharing

Procedure

Using a Lua script, physical evasion was tested among multiple enemies with various changes to characters, equipment, & stats. Each script run performed 1,000 trial cases for data mining (some exceptions, below). The script performed the following:

1. Enter a battle, press A to select an enemy to attack
2. Advance 2 frames *
3. Save state
4. Press A to confirm attack to enemy
5. Check enemy HP 100 frames later *
    a. If HP was different, Hit Counter + 1
    b. If HP was the same, Miss Counter + 1
6. Add results to local variables
7. Load state ***

* Battle RNG consistently yielded the same results every 2 frames. I.e., if you confirmed a connecting attack on frame 190, then confirmed a miss on frame 191, you will confirm a miss on frame 192. Therefore, the script skips every other frame to avoid duplicated outcomes (makes the script more efficient).

** 100 frames was long enough in all cases for the enemy's HP to change if an attack landed. This equalizes animation length among different character & weapon combinations.

*** When load state occurs, it effectively re-runs the same script 2 frames later. So the script increments test cases every 2 frames.

Results

General:
Enemy evasions hit rates (miss):

- Hammer Bro - 99.10% (0.90%)
- Czar Dragon - 95.80% (4.20%)
- Margherita - 98.65% (1.35%)
- Axem Red - 98.85% (1.15%)
- Croco 2 - 94.9% (5.10%)
- Magikoopa - 99.9% (0.10%)

The following variables did **not** change evasion outcomes:

- Attacker attack power (tested 0 ATK power)
- Attacker level

- Attacker equipment
- Attacker character (consistent among characters)

The following variables **changed** evasion outcomes:

- Defender unique enemy

Test cases were primarily done with 1,000 tests per assumption base. Czar Dragon is the exception, which I tested much more heavily. Refer to the spreadsheet at the top for specific testing.

In closing, I did not find out any information about the evasion formula. Given that I found no variances in Czar Dragon's evasion by altering various variables listed above, these results posit that physical evasion is tied specifically to enemy type and nothing else. These results are purely data-mining efforts.

Resources:
http://pastebin.com/F3pTgf7L - The Lua script I made to use this. If you want to replicate my results, go into a battle, press A to confirm attack (where next A action will attack an enemy), then run the script. You **have** to input the enemy's HP value from the appropriate RAM value (byteread and bytevalue variables). In most cases is 0x7EFC11, but not all cases. The script checks changes in HP for hit/miss.

https://sites.google.com/site/supermariorpgspeedruns/ - Savestates

If you wanna see what the script looks like:
https://www.youtube.com/watch?v=ewi-OppBHkE

Ask me any questions

. . .

- cleartonic