

Re: Punching

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- *From:* "cnctut" <cnctutwiler@xxxxxxxxxxxxxx>
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Mark Ferguson wrote:

> RichD wrote:

>> This question came up on a martial arts list.

>>

>> You want to perform the standard right hand punch (with left foot
>> forward), as powerfully as possible.

>

> First consider what you mean by "power". You posted to
> sci.physics, so let's get dimensionally analytical.

>

> $P=M/LT^3$, which can be broken down into mass accelerating over a
> time period.

>

> A punch is basically applying your fist moving at some velocity
> to some part of an opponent's anatomy which will absorb the kinetic
> energy by deforming, thus decelerating your fist. Generally you want
> to maximize contact velocity and minimize dwell time, no?

>

> You pose two scenarios with one major difference; the relative
> velocity between you and your opponent. In the second, you have to
> deal with the attacker's momentum; after a successful strike you
> don't want him knocking you down. So you have some options; you can
> plan on ducking aside and letting him go past you, you can redirect
> him so he goes past you, or you can stop him WRT you. ISTM that what
> you do with your feet depends on your choice.

>

> To stop him cold, you want to put your fist in front of his
> center of mass (in Aikido it's called the One Point, located about
> three fingers above the navel and two inches "inward") and brace
> yourself firmly enough to absorb all his momentum which seems to
> imply not lifting your rear foot at all. Then you have to deal with
> a body folded over your fist. ;>)

>

>> We consider two different

>> stances: right foot flat (pushing off the heel), or rising onto the
>> ball of the right foot.

>>

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>> Now imagine two scenarios:
>> a) You are attacking the opponent. The consensus is that rising is
>> superior, because it brings the calf muscles into play. Also, the
>> posture offers greater leverage (and reach).
>
> If I'm going to punch someone, I like to use Bruce Lee's Jeet
> Kune Do style; left foot flat, right foot semi-on-the-ball. OK,
> mainly because to opponent, it looks counterintuitive. But being
> lazy, I don't like to punch. If Uncle Al's solution isn't available
> I fall back on Aikido and wait for him hand me something to hurt him
> with.
>
>> b) Opponent is running toward you, probably to attempt a football
>> type tackle. Now some argue that heel down is preferable, because you
>> get a sturdier base (in the asian styles, they call this 'drawing
>> power from the earth'), and you really want to impale him, rather
>> than strike in the usual sense.
>>
>> Now I argue that (b) should have the same solution as (a), using a
>> relativity argument. I.e. Force is force, momentum is momentum,
>> and the only that matters is relative motion; if (a) is stronger, it
>> should be stronger whether the opponent is standing still or in motion.
>>
>> Thoughts? Is this debate amenable to physics analysis, or only
>> empirically?
>
> The fact that we aren't rigid bodies does complicate things a
> tad, but much of physics is about masses in motion.
>
> Mark L. Fergerson

Mark—I agree with your assesment—if someone were running at RichD I might suggest a safe kick to the target area you discribe. Side kick comes to mind—stops agressors momentum—brings the next target, his face, down to the perfect level for a KO front punch—assuming you don't kick him to low and have his stomach wrap around your foot. ;-))

Tut

• **References:**

◆ **Punching**

◇ From: RichD

◆ **Re: Punching**

◇ From: Mark Fergerson

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