

Re: Punching

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- *From:* "RichD" <r_delaney2001@xxxxxxxx>
 - *Date:* 16 Jun 2005 18:26:21 -0700
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Mark Ferguson wrote:

- >> 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.

Good idea.

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

uhhhhhh.....

- > 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

Yes

- > and minimize dwell time, no?

Except you can't control that.

It's determined by the viscoelasticities of the objects in collision.

- > 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.

'successful' implies I do not get knocked down.

If I try to hit an onrushing elephant, chalk it up to bad judgement.

- > 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.
- >

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- > To stop him cold, you want to put your fist in front of his
- > center of mass and brace yourself firmly enough to absorb
- > all his momentum which seems to imply not lifting your rear
- > foot at all.

That was the point of my question.

It's not at all so obvious as you seem to think; i.e. that not lifting is correct

- > Then you have to deal with a body folded over your fist. ;>)

Hopefully.

But why not deal with it with my rear heel up? That's the specific question.

- >> We consider two different stances: right foot flat (pushing off the heel),
- >> or rising onto the ball of the right foot.
- >>
- >> 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.

Why?

Pleeze do not invoke Bruce Lee as the Ultimate Master. sheesh, he was an ACTOR, not a boxer!

- >> 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.

Thanks for your response, but I'm afraid you shed negligible light.

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Rich

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