Isospin: $[I_i, I_j] = i \sum \epsilon_{ijk} I_k$,

Isospin is dimensionless: no $\hbar$ in $[I_i, I_j]$.
Apart from the lack of $\hbar$, the algebra of isospin is the same as that of angular momentum.
The proton p and the neutron n form a doublet
$\begin{pmatrix} p \\ n \end{pmatrix}$ with $|p\rangle = |\tfrac{1}{2}, \tfrac{1}{2}\rangle$ and $|n\rangle = |\tfrac{1}{2}, -\tfrac{1}{2}\rangle$.
The π mesons form a triplet
$|\pi^+\rangle = |1,1\rangle$ $\quad |\pi^0\rangle = |1,0\rangle$ $\quad |\pi^-\rangle = |1,-1\rangle$.
The Λ hyperon is a singlet $|\Lambda\rangle = |0,0\rangle$.
The 1232 MeV resonance in $\pi^+ p$ scattering (Fermi, 1951) is a quartet
$|\Delta^{++}\rangle = |\tfrac{3}{2} \tfrac{3}{2}\rangle$ $\quad |\Delta^+\rangle = |\tfrac{3}{2} \tfrac{1}{2}\rangle$
$|\Delta^0\rangle = |\tfrac{3}{2}, -\tfrac{1}{2}\rangle$ $\quad |\Delta^-\rangle = |\tfrac{3}{2}, -\tfrac{3}{2}\rangle$.
The up and down quarks form a doublet
$|u\rangle = |\tfrac{1}{2}, \tfrac{1}{2}\rangle$ $\quad |d\rangle = |\tfrac{1}{2}, -\tfrac{1}{2}\rangle$.
Dynamics: The np states form a triplet
$|11\rangle = |pp\rangle$ $\quad |10\rangle = \frac{1}{\sqrt{2}}(|pn\rangle + |np\rangle)$
$|1 -1\rangle = |nn\rangle$
and one singlet $|00\rangle = \frac{1}{\sqrt{2}}(|pn\rangle - |np\rangle)$.
This last is the deuteron d, which is a stable bound state. The n-p interaction is something like

$$V = (\vec{I}_1 + \vec{I}_2)^2$$

Thus $\langle 1m|V|1m\rangle = 2$ while $\langle 00|V|00\rangle = 0$.

Consider $p + p \to d + \pi^+$

$p + n \to d + \pi^0$

$|pp\rangle = |1\,1\rangle \qquad |d\rangle = |0;0\rangle \qquad |\pi^+\rangle = |1,1\rangle$

Now

$$|pn\rangle = |\tfrac{1}{2}\rangle|-\tfrac{1}{2}\rangle = \frac{1}{2}\Big(|\tfrac{1}{2}\rangle|\tfrac{1}{2}\rangle + |\tfrac{1}{2}\rangle|-\tfrac{1}{2}\rangle - \big(|\tfrac{1}{2}\rangle|\tfrac{1}{2}\rangle - |\tfrac{1}{2}\rangle|-\tfrac{1}{2}\rangle\big)\Big)$$

$$= \frac{1}{\sqrt{2}}\left(|1\,0\rangle - |0\,0\rangle\right).$$

So since $[S, \vec{I}] = 0$

$$\langle d, \pi^+ | S | pp\rangle = \langle 1\,1 | S | 1\,1\rangle \quad \text{while}$$

$$\langle d, \pi^0 | S | pn\rangle = \langle 1\,0 | S \frac{1}{\sqrt{2}}(|1\,0\rangle - |0\,0\rangle)$$

$$= \frac{1}{\sqrt{2}} \langle 1\,0 | S | 1\,0\rangle.$$

So we expect the ratio of cross-sections to be

$$\frac{\sigma(pp \to d\,\pi^+)}{\sigma(pn \to d\,\pi^0)} = 2 \quad \text{as observed.}$$